

**Item****21 December 2021****Item Number:**

K2

File Number:

objective://id:fA146996/

Part:

PLANNING

Portfolio:

Planning & Development Services

Subject:

Resolution to designate Flood Hazard Area

Report Author:

Evan Fritz, Manager Strategic Planning

Authorised by:

Stephen Johnston, Chief Executive Officer

Link to Corporate Plan:

Our infrastructure and development - 2.3 Sustainable development - 2.3.1 Develop, implement and administer strategies and plans underpinned by the principles of sustainable development.

Background:

Since October 2015, Council has declared flood hazard areas under section 13 of the *Building Regulation 2006*, now section 8 of the *Building Regulation 2021*. Declaring flood hazard areas via resolution rather than through a planning scheme overlay allows Council to easily make changes to the flood hazard area and avoids Council having to undergo a lengthy planning scheme amendment process.

It was anticipated that future changes to the flood hazard area would be required on a semi-regular basis due to the completion of flood mitigation works, development works, capital works, and flood study/model updates.

This report is in response to the following:

- completion of the Baffle Creek Flood Study (Engeny Water Management – prepared for Gladstone Regional Council, 2018);
- review/validation of results from the Burrum, Cherwell, Isis, Gregory River Flood Study (GHD, 2015) for the Rushy Creek catchment, Redridge;
- completion of development works within the flood hazard area.

Baffle Creek Flood Study (Engeny, 2018)

The current flood hazard area resolution includes draft results from the Baffle Creek Flood Model prepared for Gladstone Regional Council in 2013/2014. These results were conservative but more accurate than the only other flood mapping available at the time, ie, the State Planning Policy (SPP) floodplain mapping.

The model was finalised in late 2018. Since receiving the data in mid-2020, Council officers have reviewed the results and recommend replacing the current flood extent with the final results for the 1% AEP event (with climate change). It is noted that this model is based on the new Australian Rainfall and Runoff guidelines ARR 2019.

The proposed change will result in –

- 13 properties being added to the flood hazard area – 7 of these are already affected by the flood hazard area (ie storm tide). These are all larger properties which have only a small area impacted by the flood hazard mapping.
- 53 properties being removed from the flood hazard area. These are typically smaller residential lots at Winfield/Rocky Point. It is noted, however that a small number of properties may still be partly affected by the Flood Hazard Area, notably storm tide mapping.

Rushy Creek Catchment, Redridge – Burrum, Cherwell, Isis, Gregory River Flood Study (GHD, 2015)

In 2015, Bundaberg Regional Council partnered with Fraser Coast Regional Council to commission a flood study for the Burrum, Cherwell, Isis and Gregory River catchments. Following consultation, the results for the 1% AEP event (with climate change) were adopted as of Council's Flood Hazard Area resolution of 16 May 2017, with the exception of the Rushy Creek catchment (in the vicinity of Melaleuca Court and Blue Gum Drive, Redridge).

The results for the Rushy Creek catchment were removed due to significant issues raised by property owners in this catchment during consultation undertaken in March 2017. Some of these concerns were considered valid given the larger grid size used in the model. Properties in the affected area were instead included in a 'flood investigation area' in Council's on-line Flood Report as an interim step, pending further detailed flood analysis by Council (and to ensure prospective property owners were made aware of this).

Since this time, Council officers have reviewed the 2015 model results and have undertaken more refined analysis, including further modelling and consideration of possible stormwater management options to reduce the flood extent in this area. These additional investigations have validated the results from the 2015 model and indicated that flood/drainage works were largely ineffective and/or not feasible.

As such, it is now proposed to update the flood hazard area to include the results for the 1% AEP event (with climate change) for the Rushy Creek catchment from the Burrum, Cherwell, Isis, Gregory River Flood Study (GHD, 2015).

The proposed change will result in 35 properties being added to the flood hazard area. These are larger rural and rural residential properties where only part of the property is affected and dwellings and other improvements are generally located outside the proposed flood hazard area. Based on aerial imagery there are approximately 5 properties with dwellings located within the proposed flood extent.

It is noted that this model is based on older Australian Rainfall and Runoff guidelines ARR 2016 and as such, new modelling for this area (eg, based on ARR 2019) is likely to produce slightly different results, which may prompt further changes to the flood hazard area for this catchment in the future.

Development works within the flood hazard area

A number of developments have resulted in changes to the flood hazard area. These works have included the construction of new roads, drainage infrastructure and/or earthworks resulting in various changes to ground elevations. Flood models received during the development process have been reviewed and provide the basis for the “as constructed” flood hazard area. The developments include:

- (a) Greenview Drive, Bargara (Tame, ref 521.2018.89.1)
- (b) June Place (off Bragg Street), Bundaberg East (MTR Development Pty Ltd, ref 321.206.46365.1)
- (c) Bonna Road, Branyan (ref 321.2017.31.1)
- (d) Fairymead Road and Tantitha Road, Gooburrum (Tantitha Rise, ref 321.2014.40478.1)
- (e) Kirbys Road, Kalkie (ref 521.2021.165.1)

Updated Flood Hazard Area

The proposed changes to the flood hazard area are shown at Attachment 1. The new Flood Hazard Area maps (which include the changes shown in Attachment 1) are included at Attachment 2. Council’s ‘Hazard Evaluation Report – Flood’ has been amended to incorporate these changes and will be made available on Council’s website prior to the new Flood Hazard Area resolution taking effect on 1 March 2022. Council’s interactive mapping and Flood Planning Control Property Reports will also be updated accordingly.

Associated Person/Organization:

Department of State Development, Infrastructure, Local Government and Planning

Consultation:

Consultation with developers has been undertaken as part of the development assessment process. Discussions have been held with individual developers/landowners that have requested a review of the flood hazard area, including where development works have been completed.

In terms of Rushy Creek, Redridge, the community was consulted in March 2017 on proposed changes to the flood hazard area for the Burrum, Cherwell, Isis and Gregory River catchment/s. Apart from general enquiries regarding the flood investigation area, no further (or more recent) consultation has been undertaken with the community or affected landowners as part of the proposed changes.

Consistent with the requirements set out in the Minister’s Guidelines and Rules for a minor planning scheme amendment to include new or amended flood hazard area mapping, a notice will be sent to all landowners impacted by the changes/new flood hazard area following adoption of the new resolution.

As part of this notice, for any properties in the Rushy Creek catchment where an existing dwelling is located within (or in close proximity to) the flood hazard area, Council will arrange to survey the habitable floor level of the dwelling so that this information can be included in Council’s flood mapping and associated property reports. This information may help where it can show that the floor level of the existing dwelling is above the defined flood level.

It is proposed that this letter would be sent to affected landowners, and that the above-mentioned floor levels would be surveyed as soon as possible in 2022.

Chief Legal Officer's Comments:

The flood hazard area resolution will support Council's planning scheme in ensuring development in flood hazard areas is appropriately managed. The *Planning Act 2016* identifies circumstances where a landowner may be entitled to compensation for a reduced value of interest in land arising from a change to Council's Planning Scheme. However, the Planning Act sets out some limitations on compensation where changes respond to risks associated with natural processes such as flooding.

Policy Implications:

The adoption of a Flood Hazard Area under section 8 of the *Building Regulation 2021* and its reference in the planning scheme to trigger assessment of particular development in flood hazard areas against the Flood Hazard Overlay Code will replace the current flood hazard area resolution 1/2019 adopted on 17 December 2019.

Financial and Resource Implications:

There appears to be no financial or resource implications. Council does not currently charge a fee for any development application required to be submitted for assessment as a result of the flood hazard area.

Risk Management Implications:

There appears to be no risk management implications.

Human Rights:

There appears to be no human rights implications.

Indigenous Land Use Agreement (ILUA) Implications:

There appears to be no ILUA implications.

Attachments:

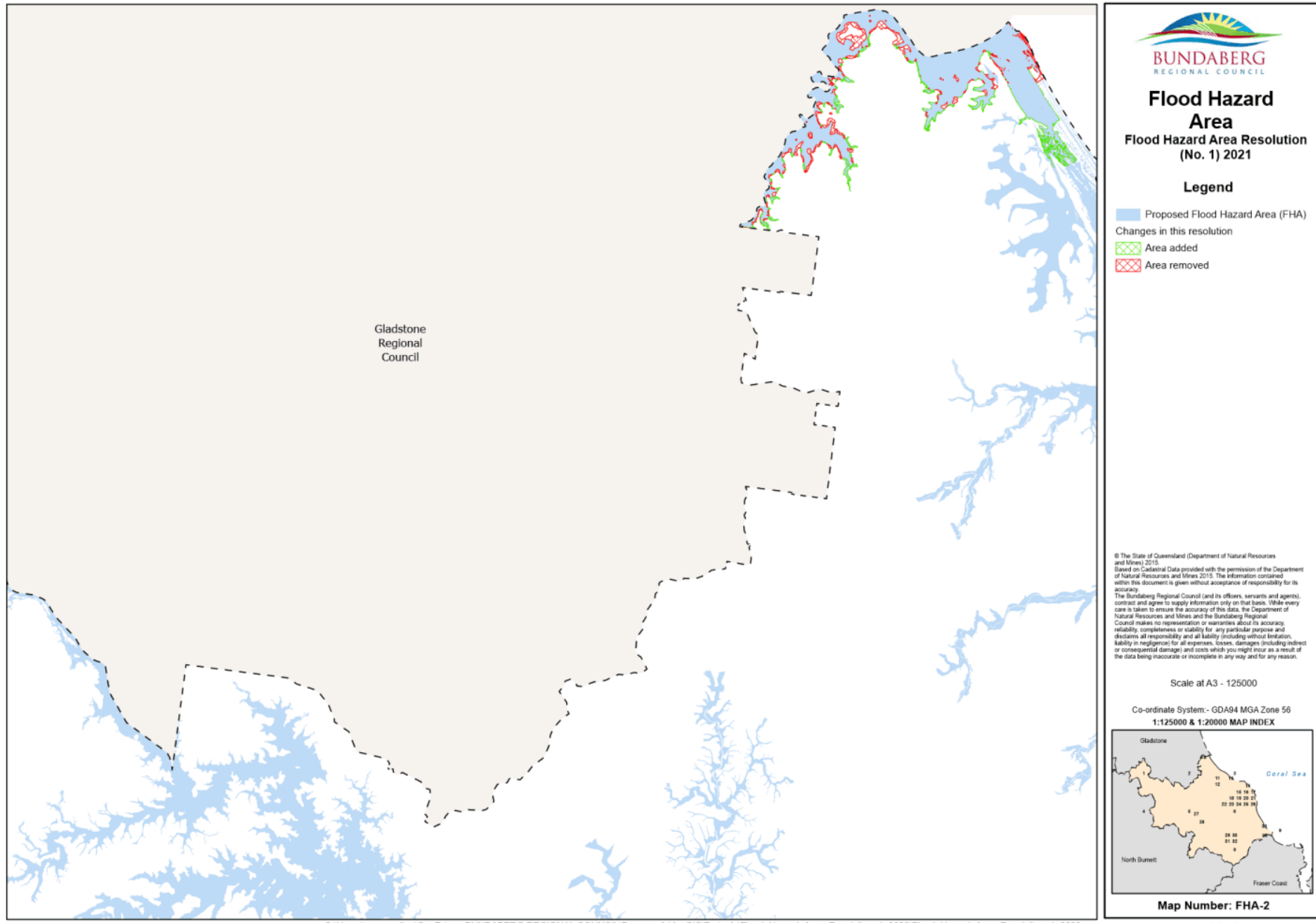
- ↓1 Proposed changes to the Flood Hazard Area
- ↓2 Flood Hazard Area Maps - Flood Hazard Area Resolution (No 1) 2021

Recommendation:

That effective from 1 March 2022:-

- (a) Council declares under section 8 of the *Building Regulation 2021* –**
 - (i) flood hazard areas for the Bundaberg Region as identified in the Flood Hazard Area Maps contained in the Hazard Evaluation Report – Flood (December 2021, Revision 7.0);**
 - (ii) the defined flood level and maximum flow velocity of water (where available) are the flood levels and velocities for the adopted defined flood events derived from the flood modelling for each catchment of the flood hazard area.**

- (b) this resolution replaces flood hazard areas previously declared by Council, including Council's resolution of 17 December 2019 (Ordinary Meeting Item K1, Resolution 2449).**



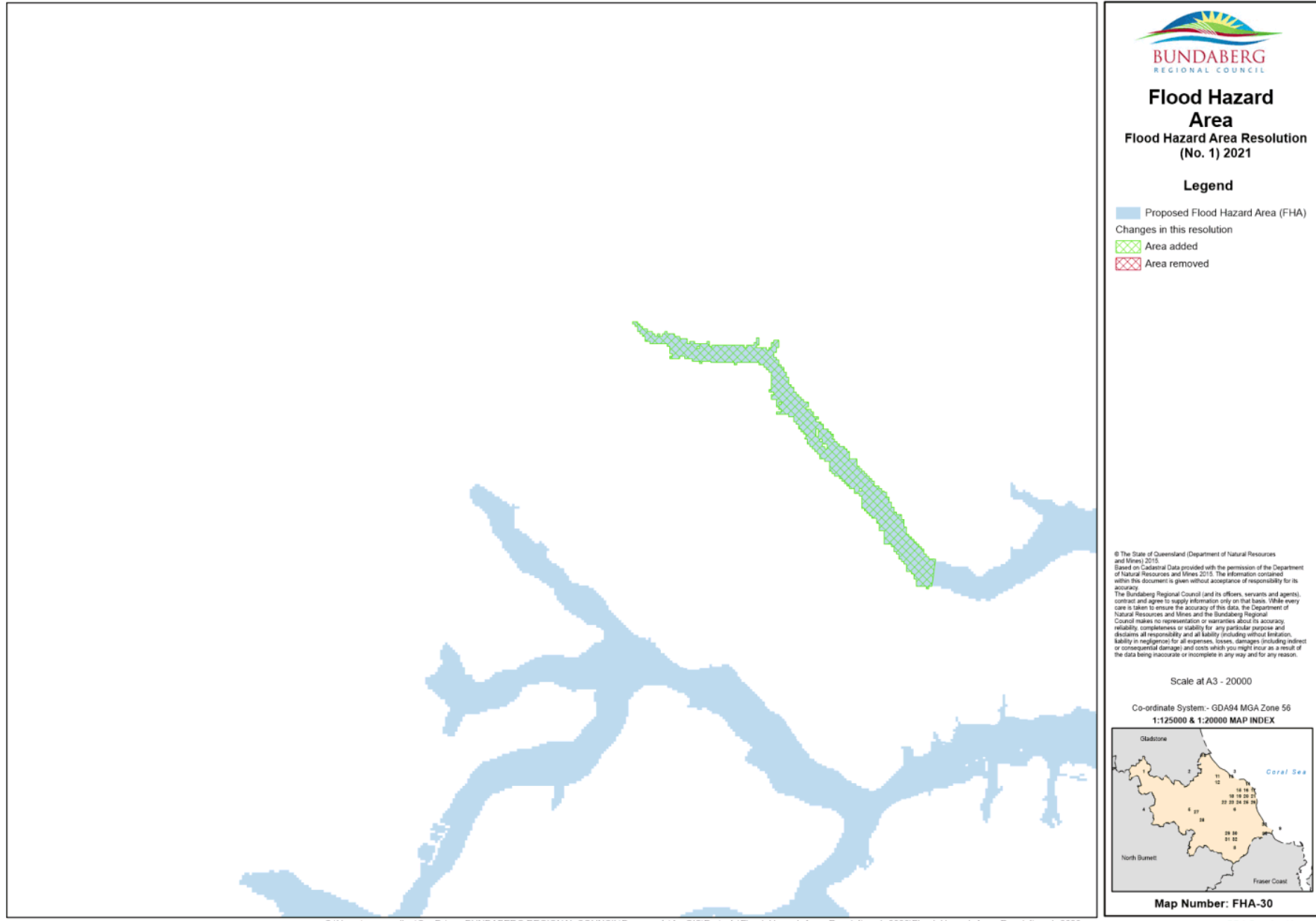
C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142432



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142440



C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No.

Proposed Change Details:

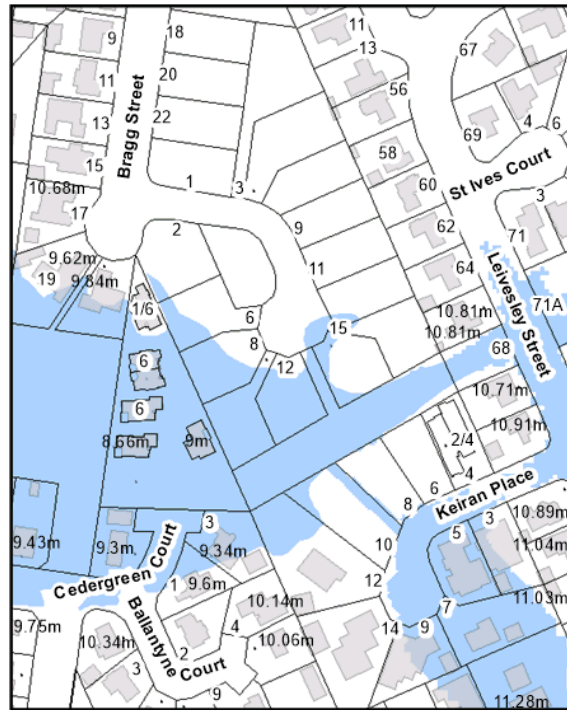
Reason for Change: Operational works has change flooding in the area (12 Bragg St Development)

Council Reference: 523.2017.11.1

Description:

Fill and drainage works associated with 12 Bragg St, Bundaberg East (MTR Development Pty Ltd 321.2016.46365.1 and operational works 523.2017.11.1) has changed the river and localised flood characteristics in the vicinity of the development.

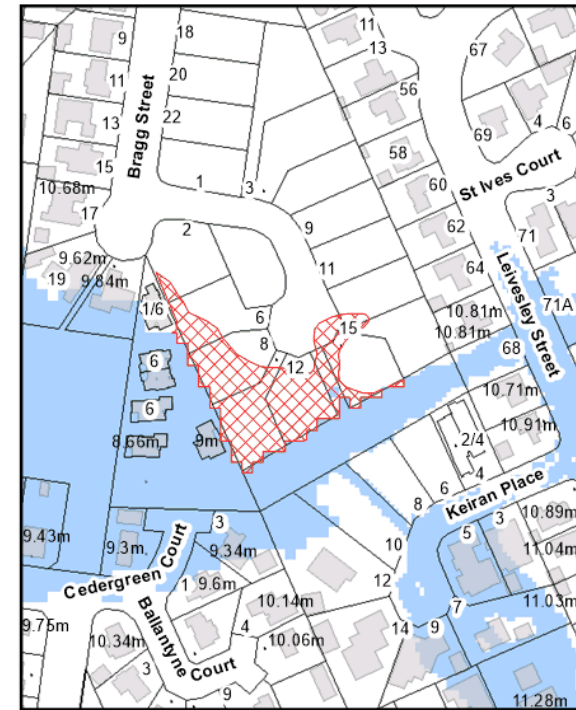
Current Flood Hazard Area



Aerial Photography (2020)



Proposed Flood Hazard Area



Legend

- Area Added
- Area Removed
- Building Footprint (Floor Level)
- Flood Hazard Area

N

0 210

Meters
1:2,901
Co-ordinate System: GDA94 MGA Zone 56



Proposed Change Details:

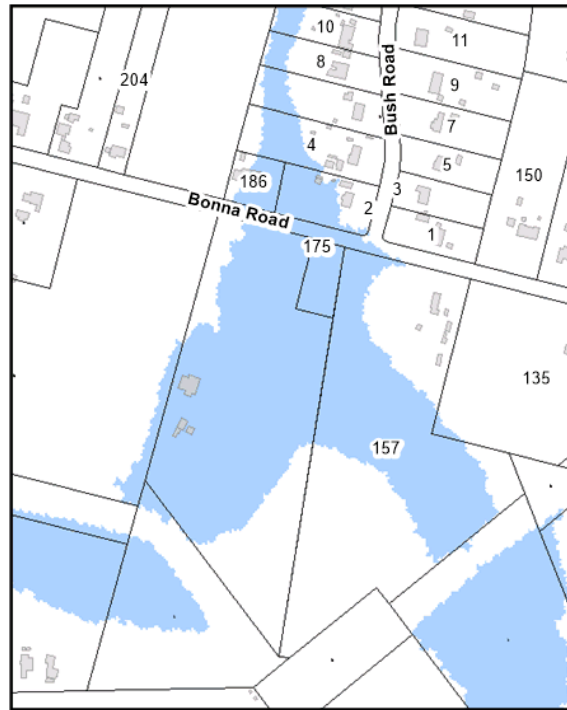
Reason for Change: Operational works has change flooding in the area (185 Bonna Road Development)

Council Reference: 523.2019.96.1

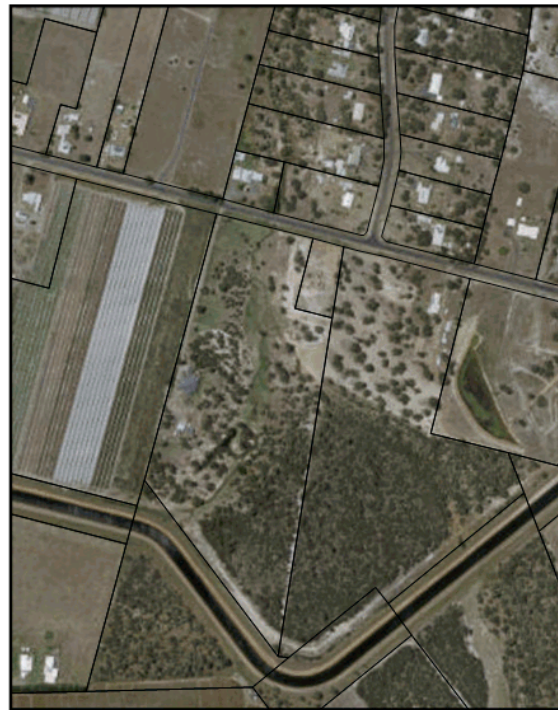
Description:

Fill and drainage works associated with 185 Bonna Road Rd, Branyan (521.2017.31.1 and operational works 523.2019.96.1) has changed the localised flood characteristics in the vicinity of the development.

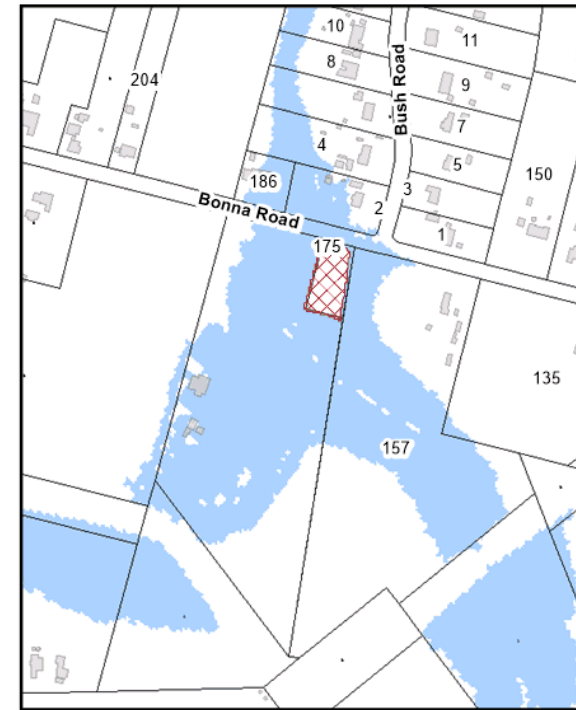
Current Flood Hazard Area







Aerial Photography (2020)

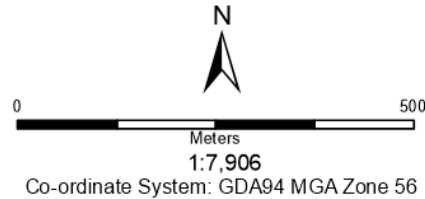


Proposed Flood Hazard Area



Legend

-  Area Added
-  Area Removed
-  Building Footprint (Floor Level)
-  Flood Hazard Area



Proposed Change Details:

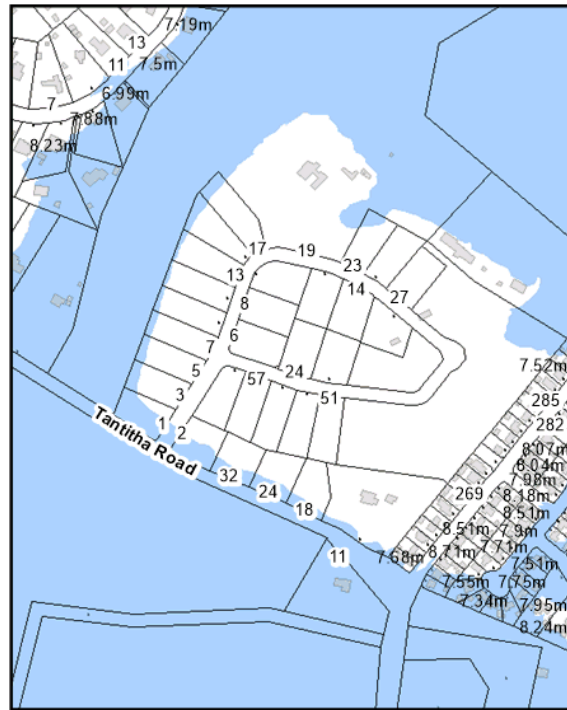
Reason for Change: Operational works has change flooding in the area (Tantitha Rise Development)

Council Reference: 523.2018.43.1

Description:

Fill and drainage works associated with 293A Fairymead Rd (Tantitha Rise 321.2014.40478.1 and operational works 523.2018.43.1) has changed the river and localised flood characteristics in the vicinity of the development.

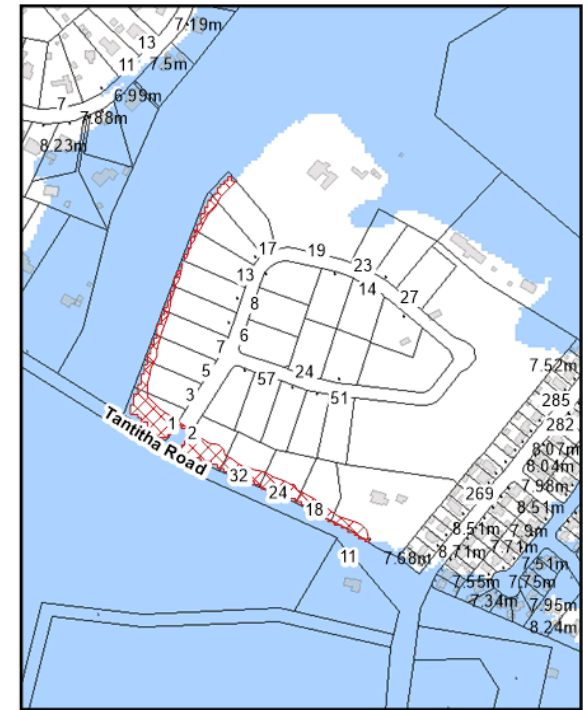
Current Flood Hazard Area



Aerial Photography (2020)



Proposed Flood Hazard Area



Legend

- Area Added
- Area Removed
- Building Footprint (Floor Level)
- Flood Hazard Area

N

0 500

Meters
1:9,366

Co-ordinate System: GDA94 MGA Zone 56



Proposed Change Details:

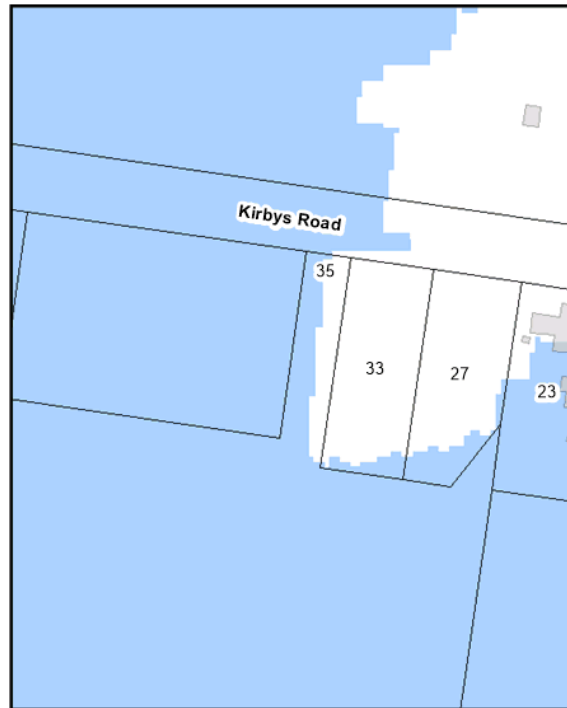
Reason for Change: Operational works has change flooding in the area (Kirbys Road Development)

Council Reference: 323.2015.43354.1

Description:

Fill and drainage works associated with Kirbys Rd, Kalkie (521.2021.165.1 and operational works 323.2015.43354.1) has changed the localised flood characteristics in the vicinity of the development.

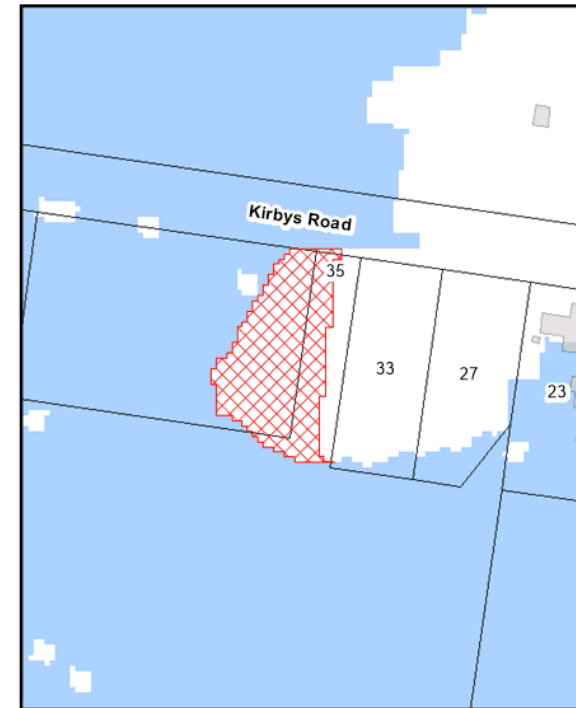
Current Flood Hazard Area




Aerial Photography (2020)

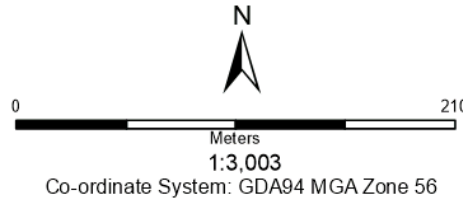


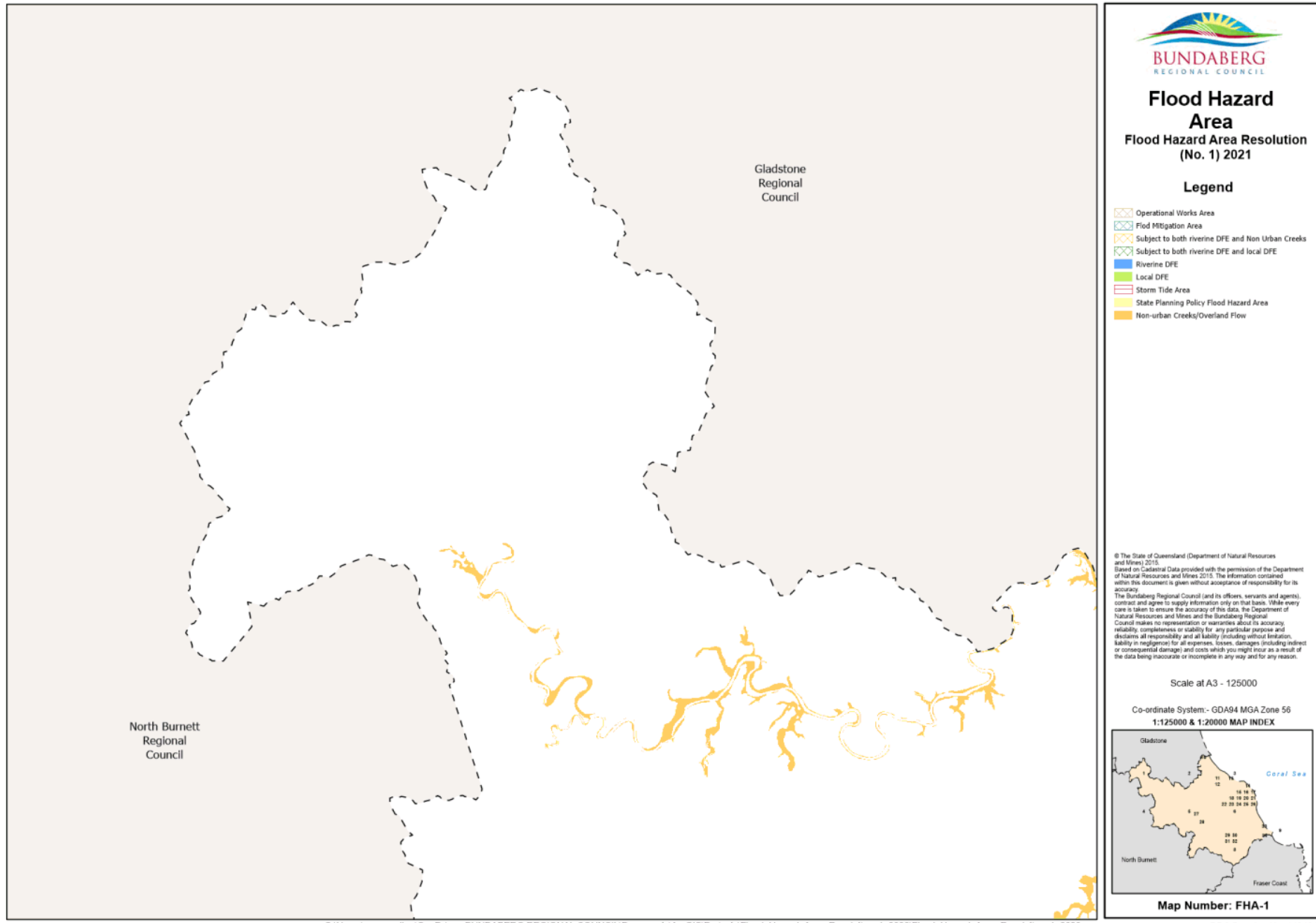
Proposed Flood Hazard Area



Legend

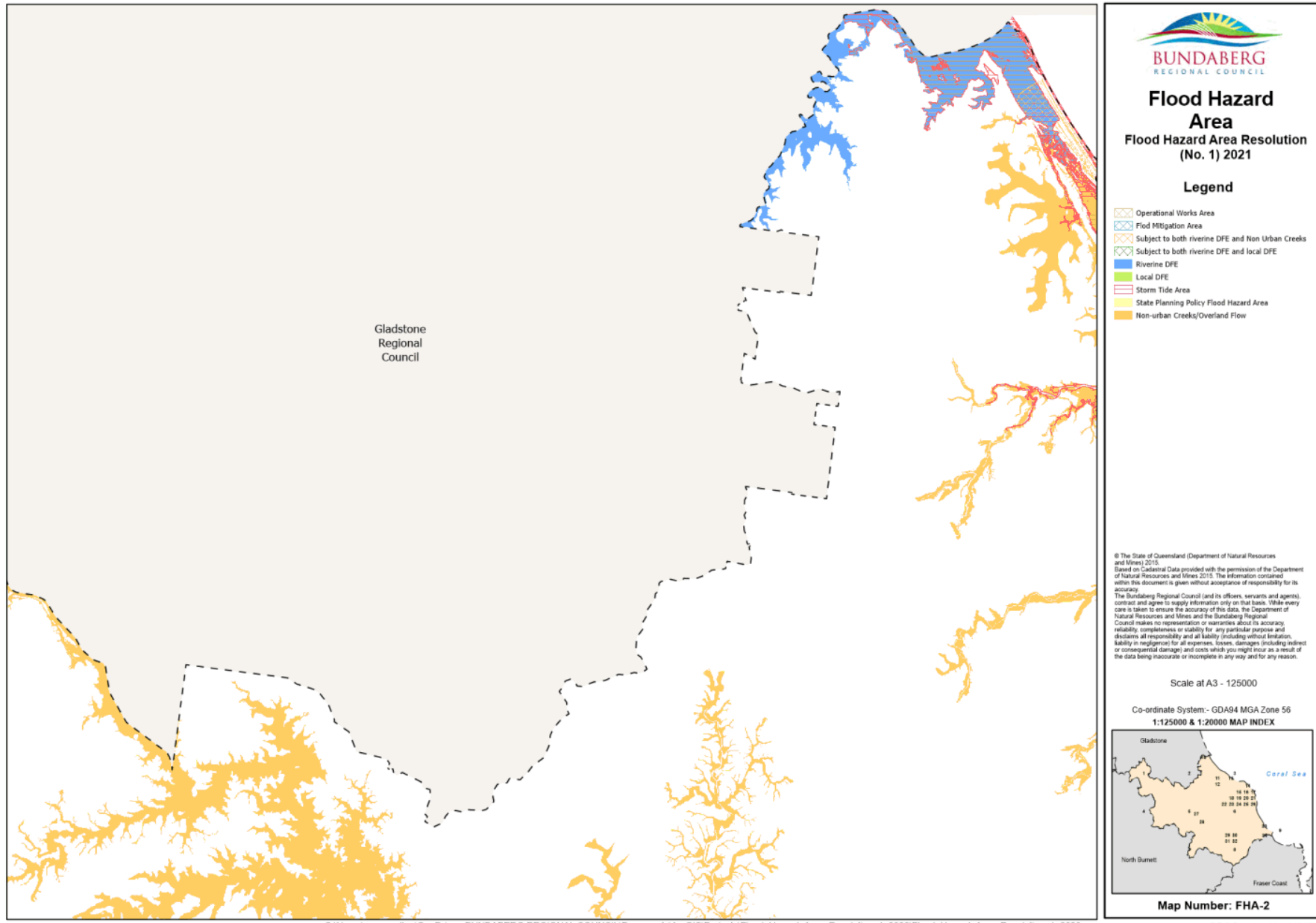
-  Area Added
-  Area Removed
-  Building Footprint (Floor Level)
-  Flood Hazard Area





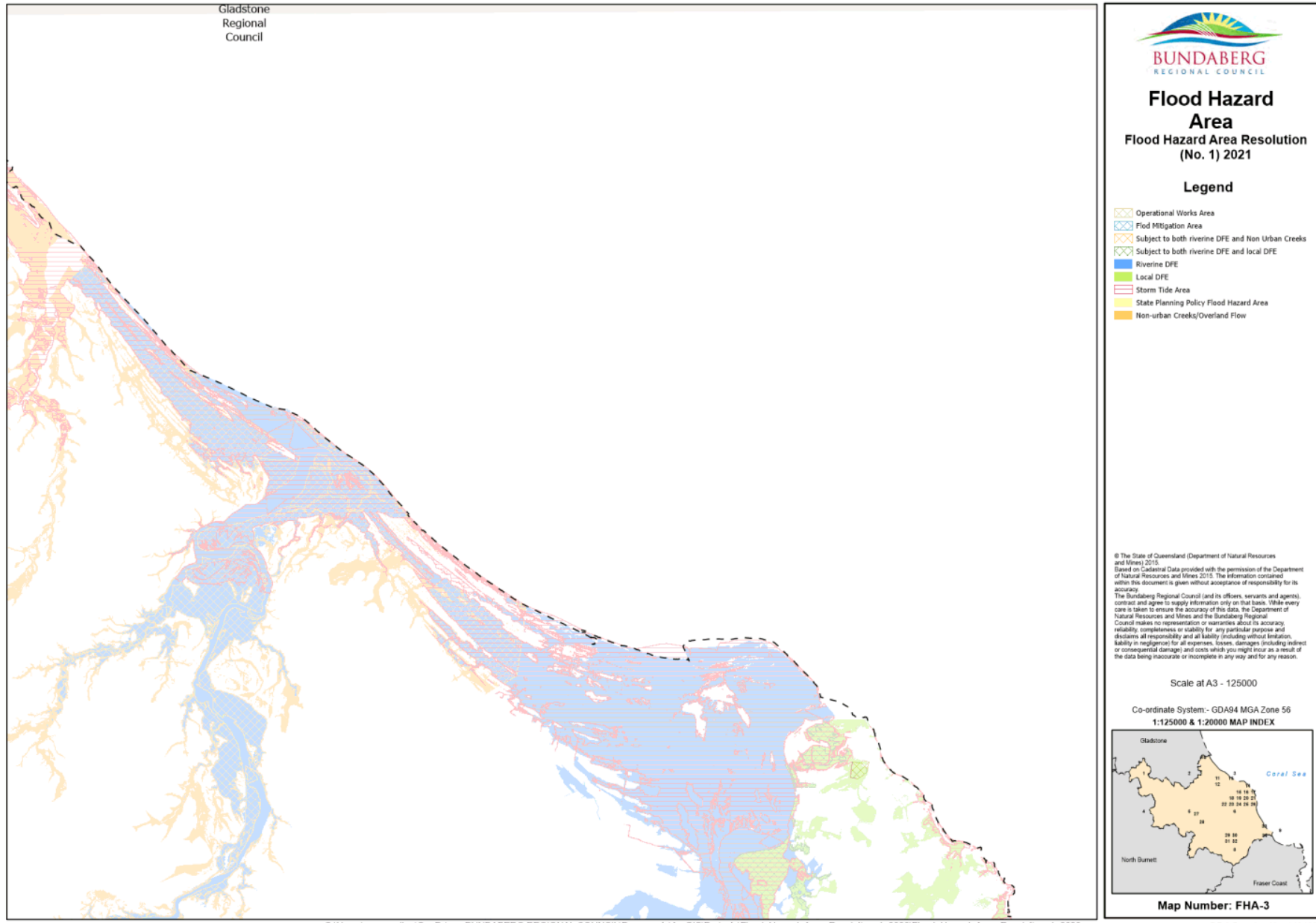
C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142431



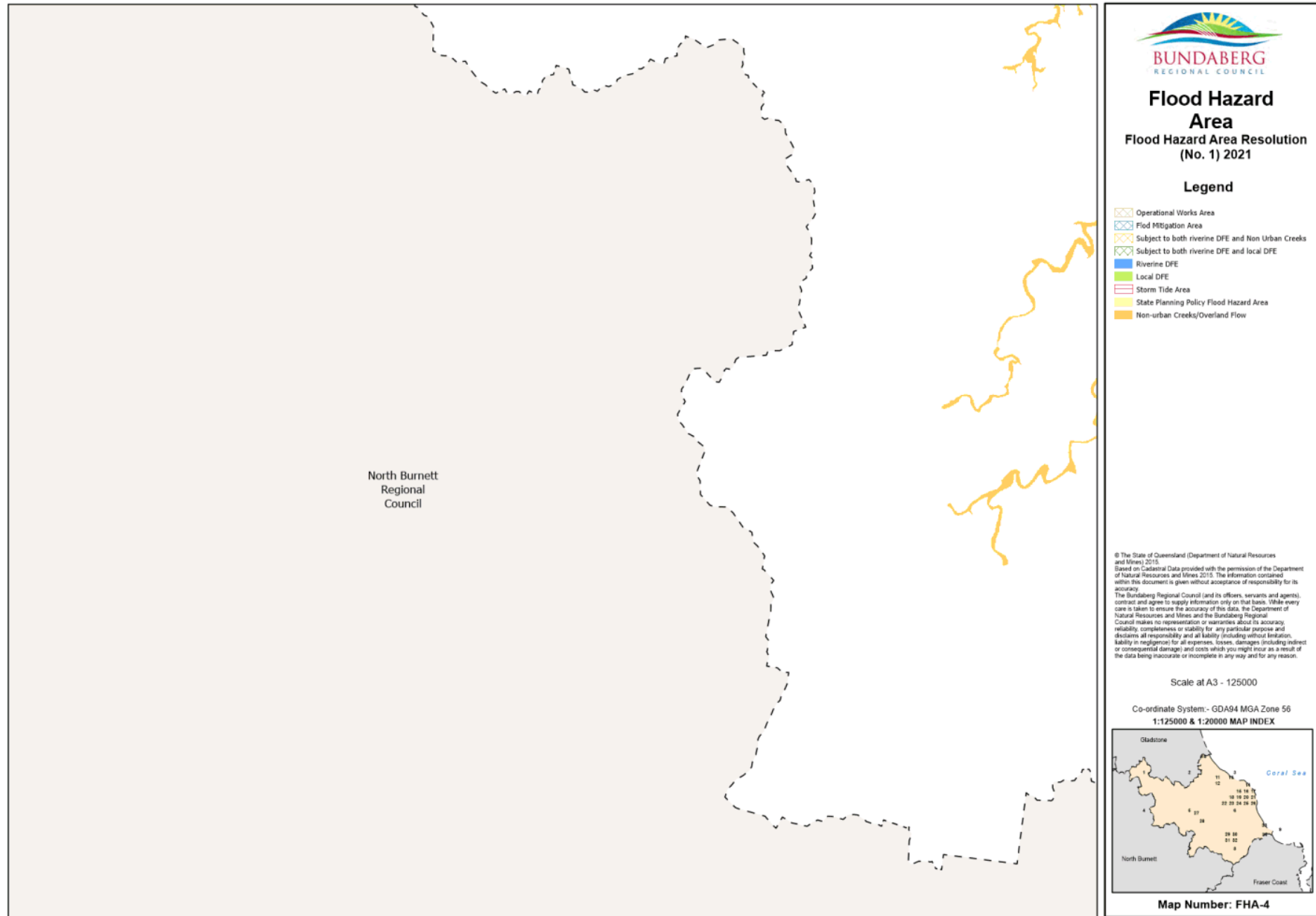
C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142432



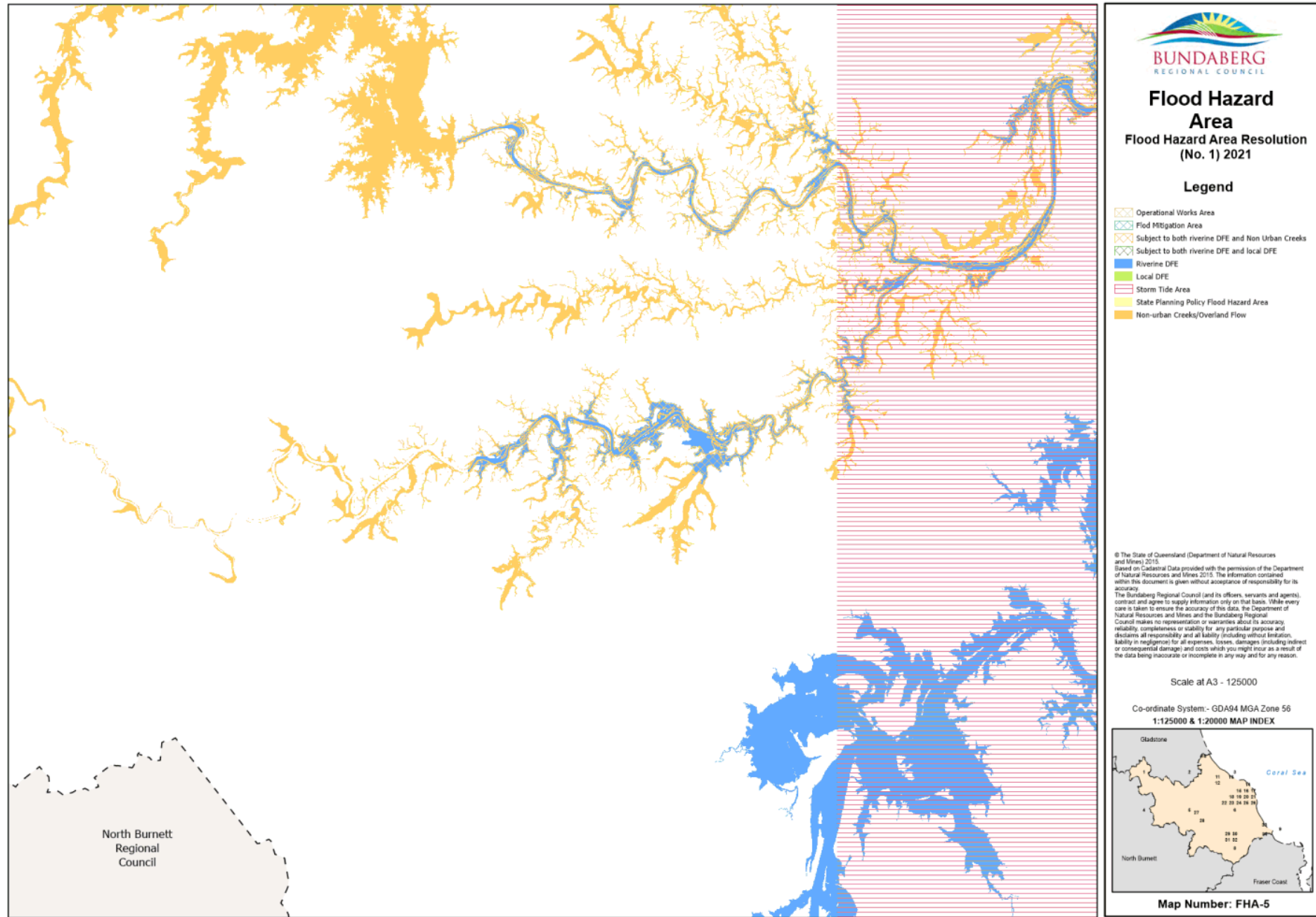
C:\Users\laron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

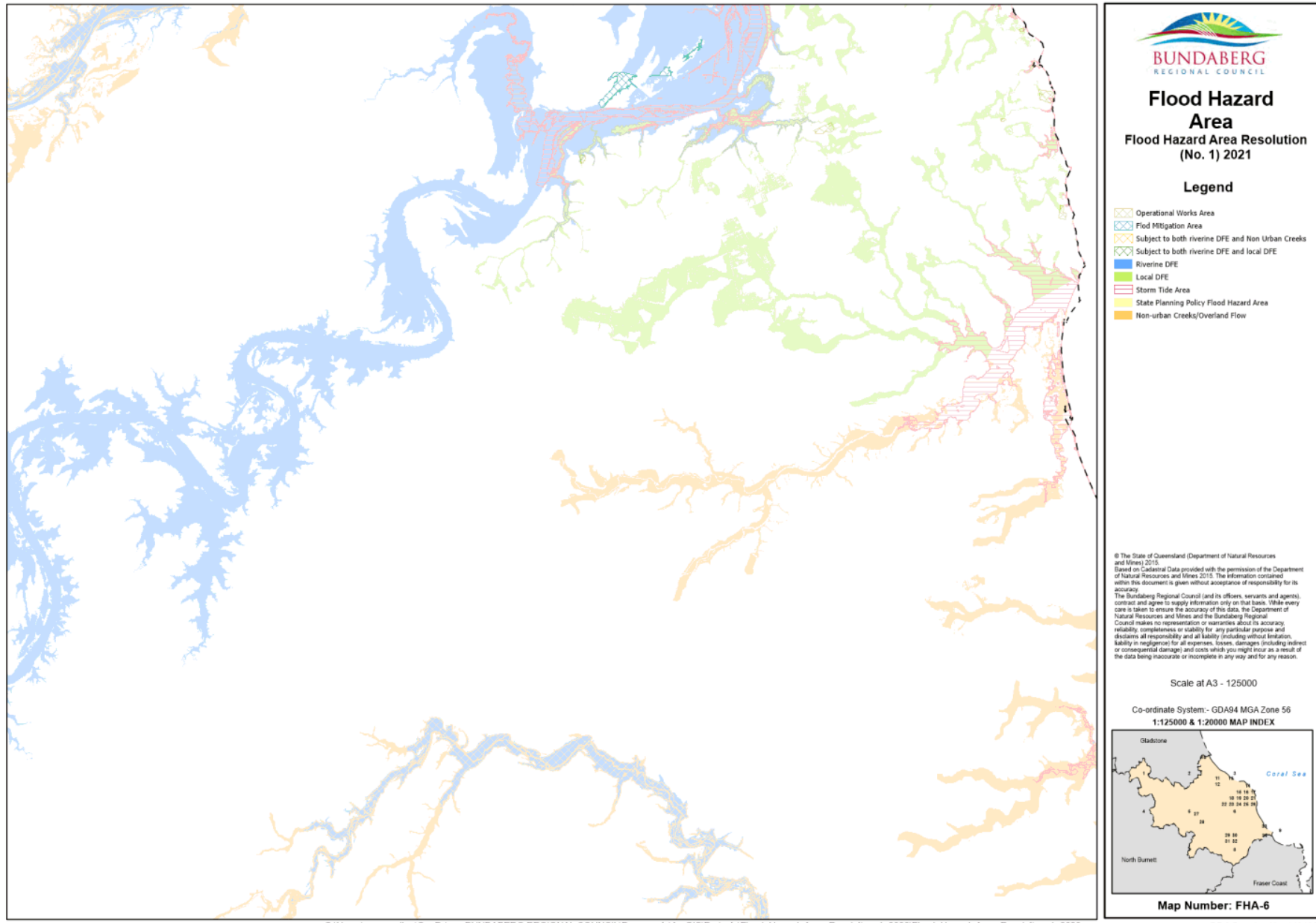
BRC Drawing No. 142433



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

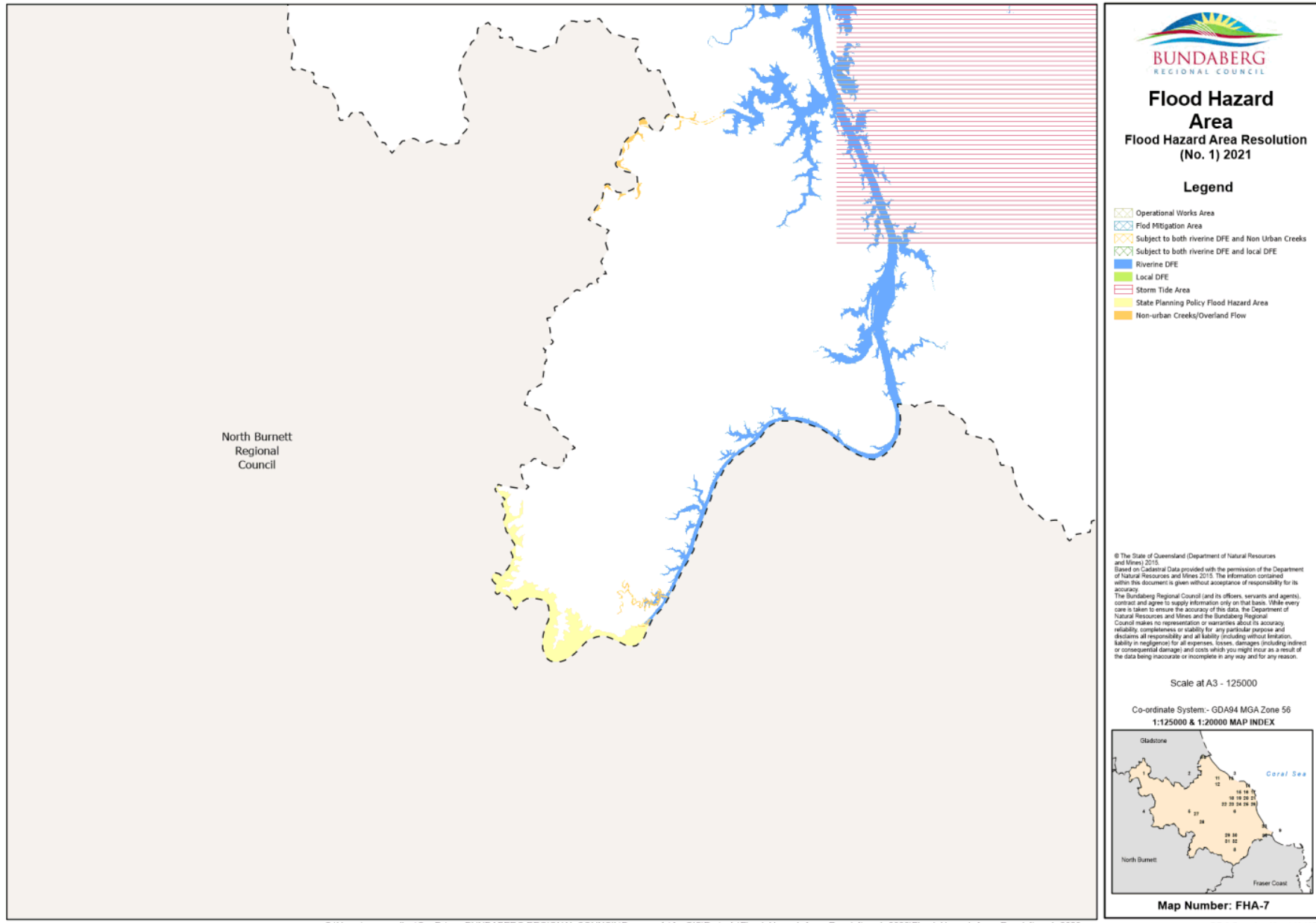
BRC Drawing No. 142434

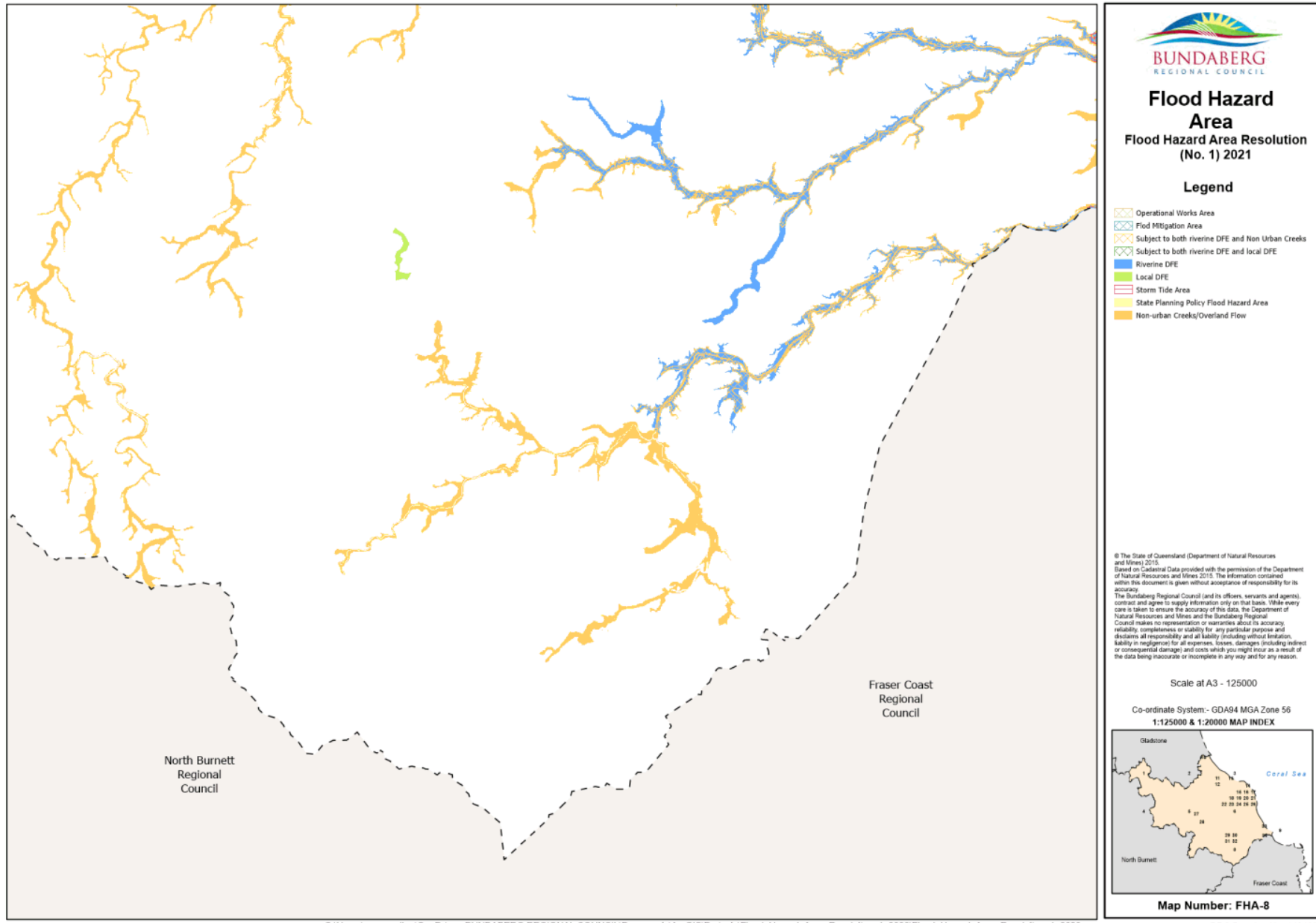




C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

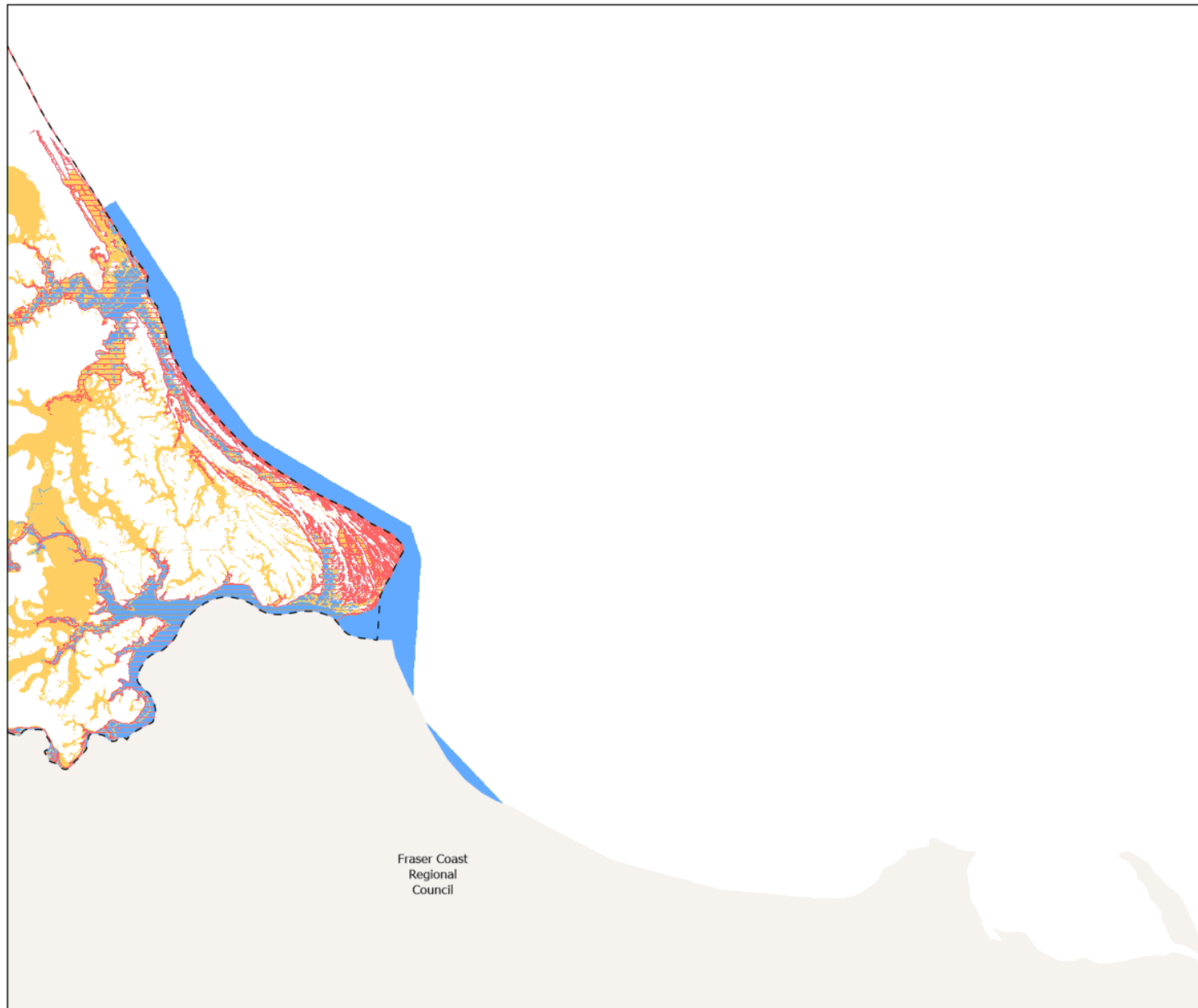
BRC Drawing No. 142436





C:\Users\laron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142438



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

Flood Hazard Area

Flood Hazard Area Resolution (No. 1) 2021

Legend

- Operational Works Area
- Flood Mitigation Area
- Subject to both riverine DFE and Non Urban Creeks
- Subject to both riverine DFE and local DFE
- Riverine DFE
- Local DFE
- Storm Tide Area
- State Planning Policy Flood Hazard Area
- Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 125000

Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX

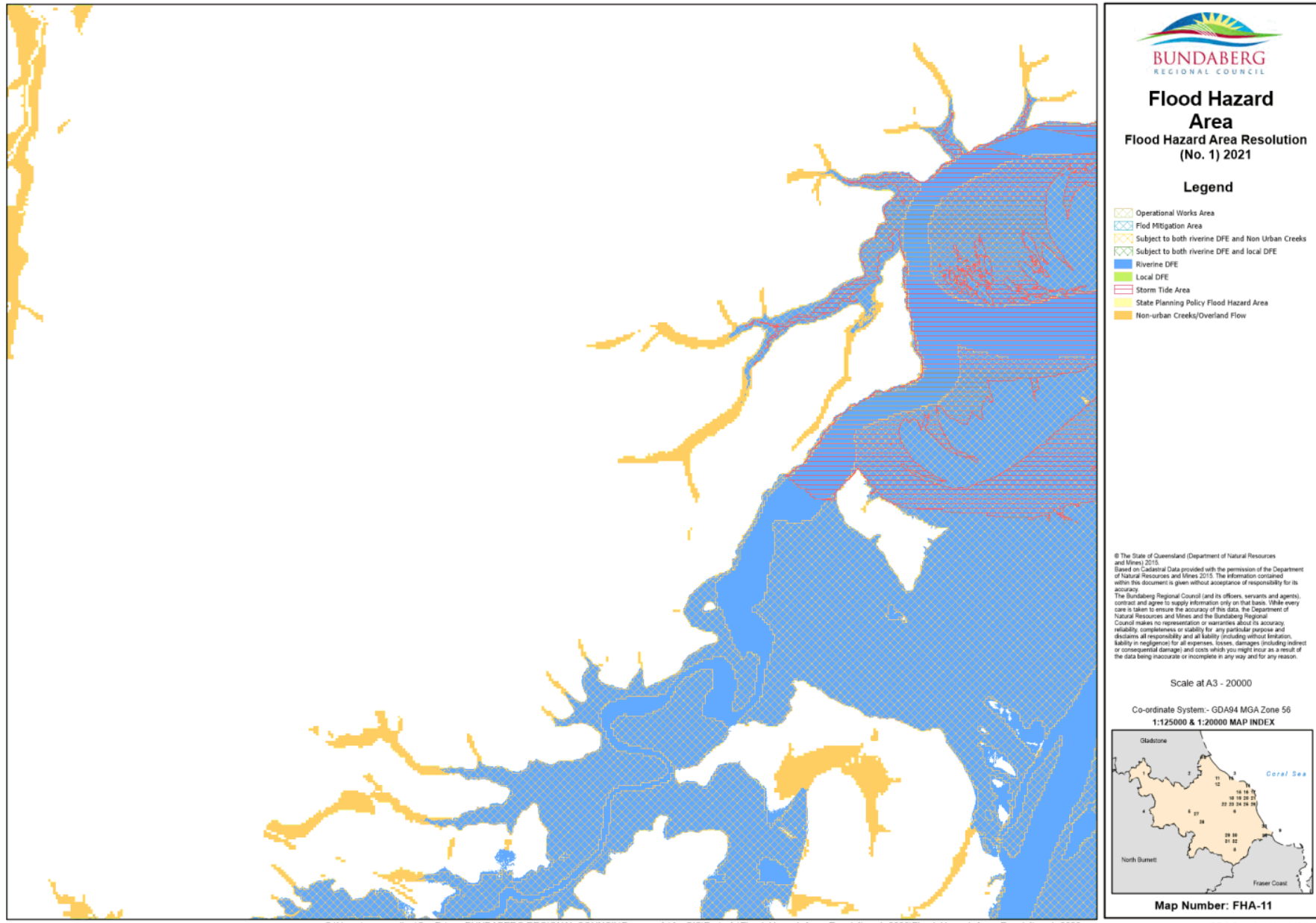
Map Number: FHA-9

BRC Drawing No. 142439



C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

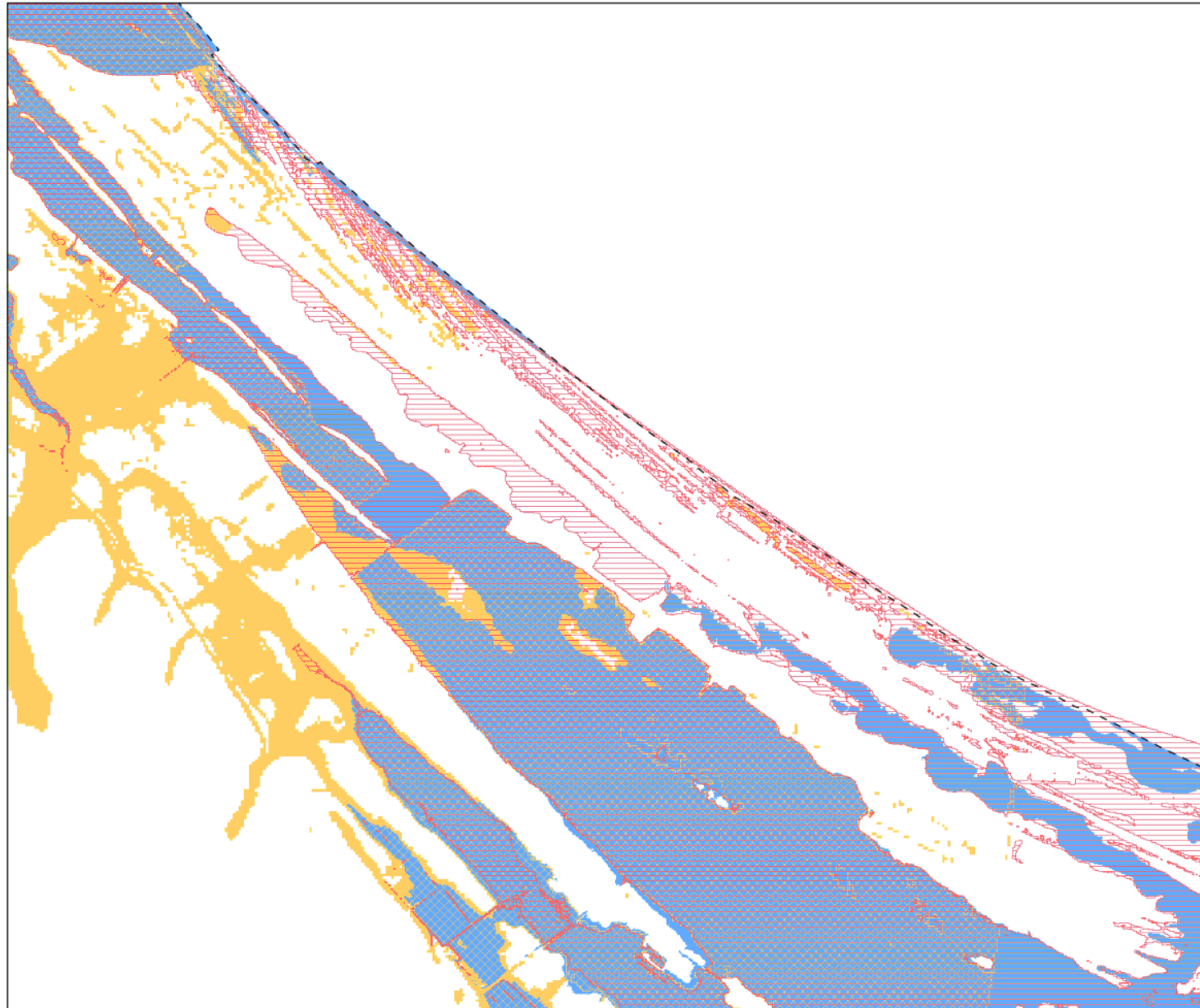
BRC Drawing No. 142440




C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx










BRC Drawing No. 142441






Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

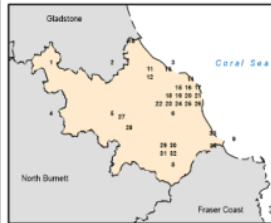
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

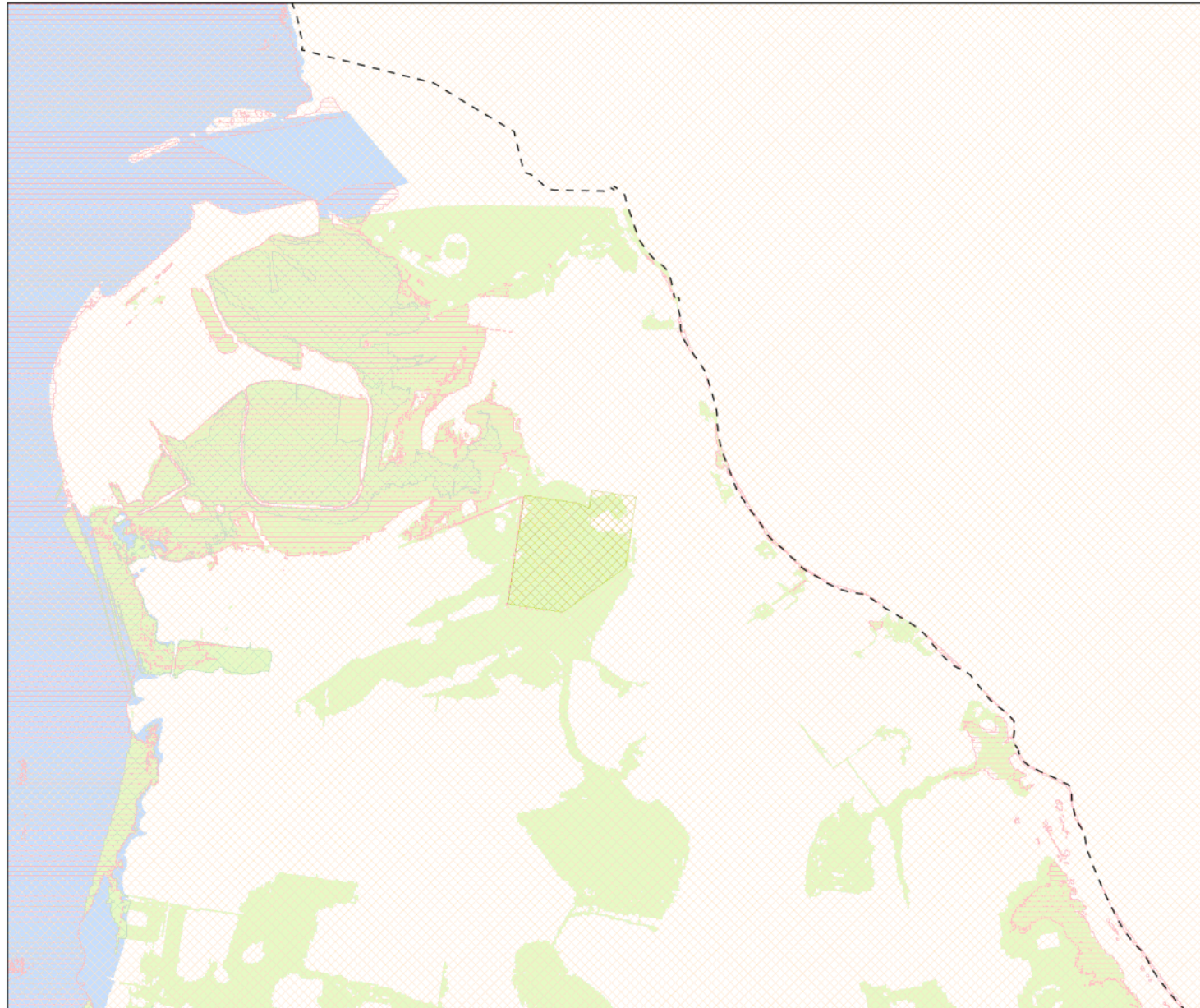
Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX




Map Number: FHA-13









C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142443




Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

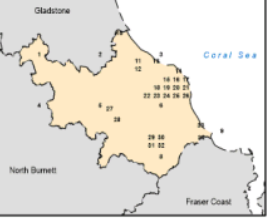
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

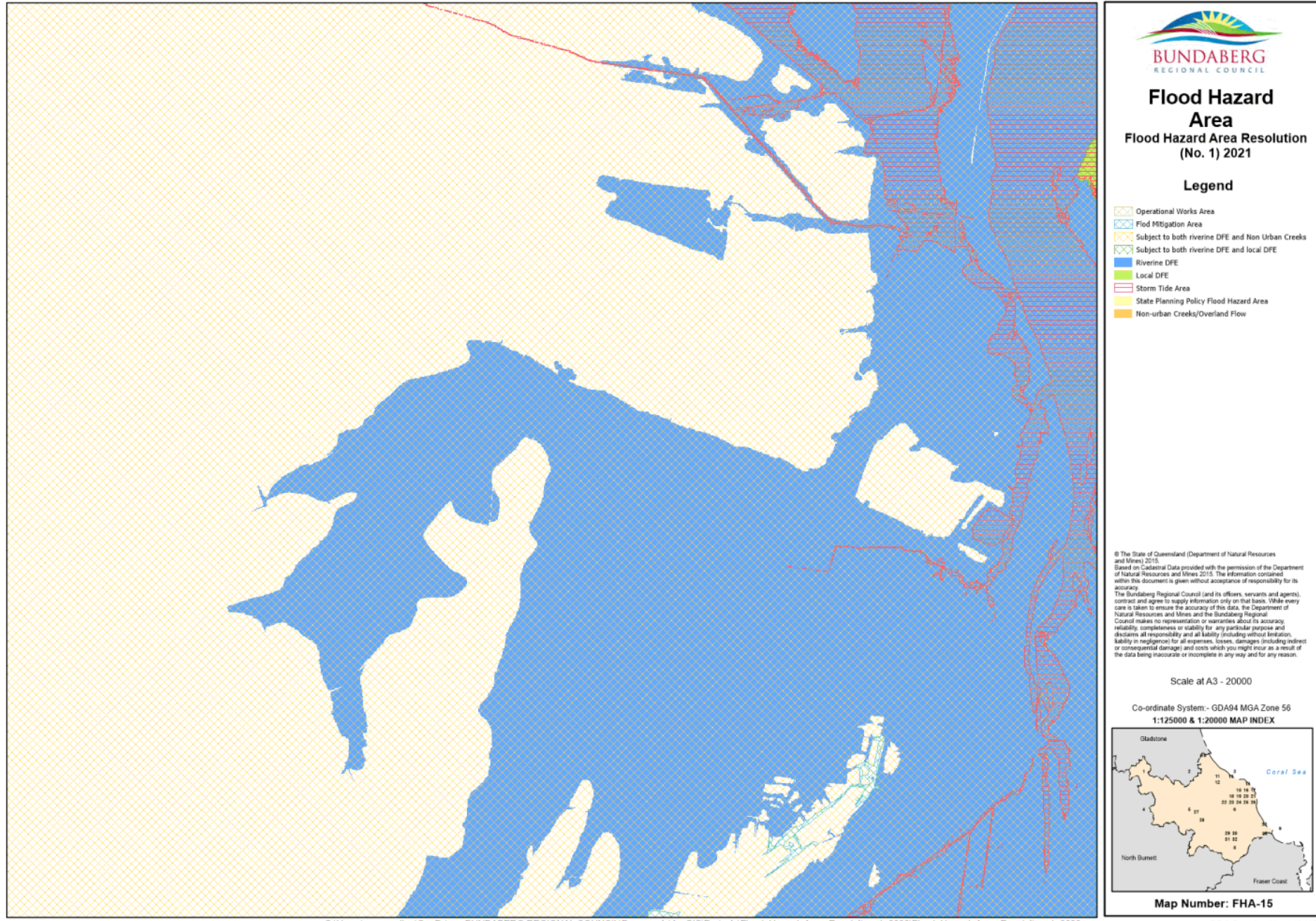
Co-ordinate System - GDA94 MGA Zone 56
 1:125000 & 1:20000 MAP INDEX



Map Number: FHA-14

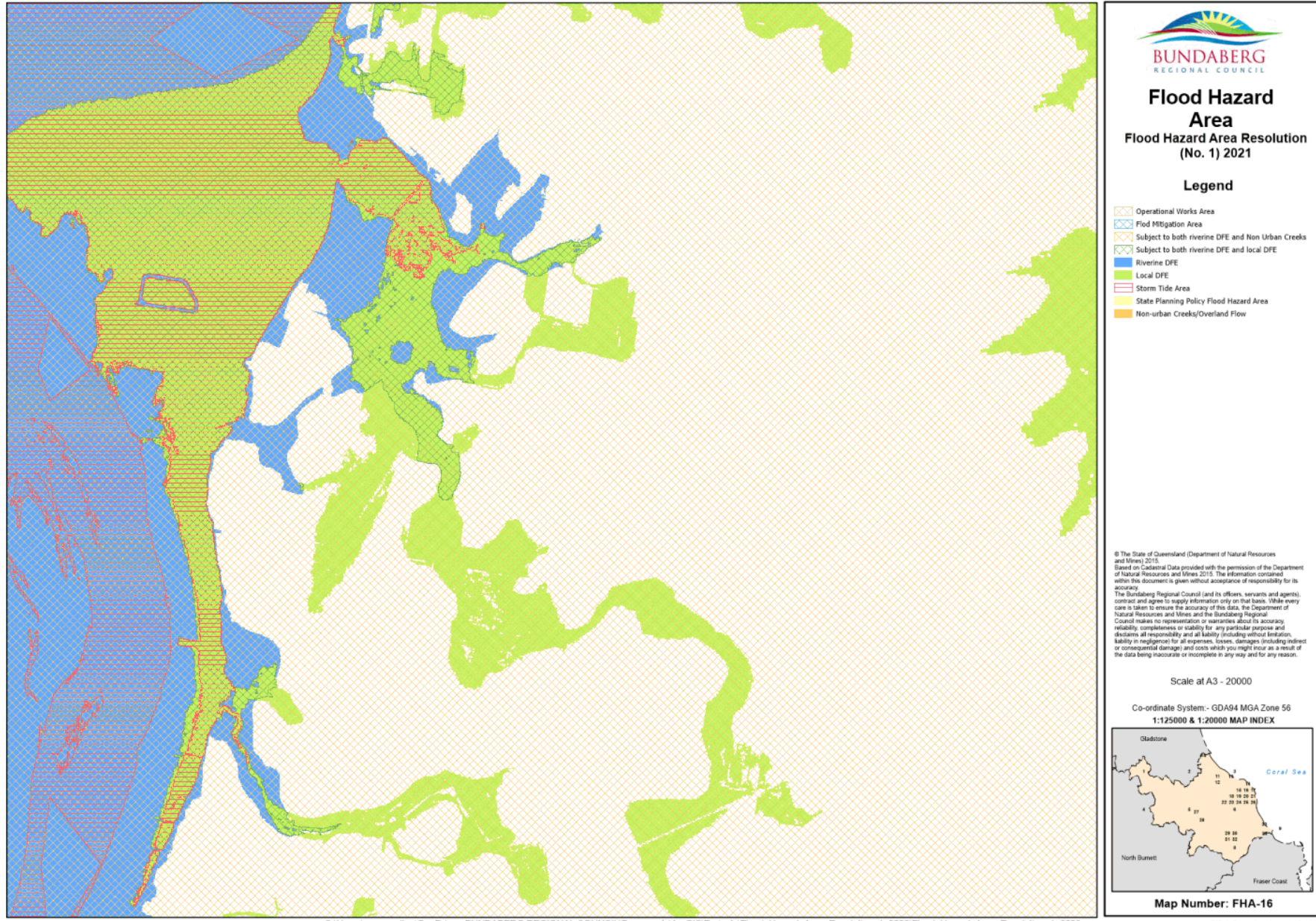
C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142444



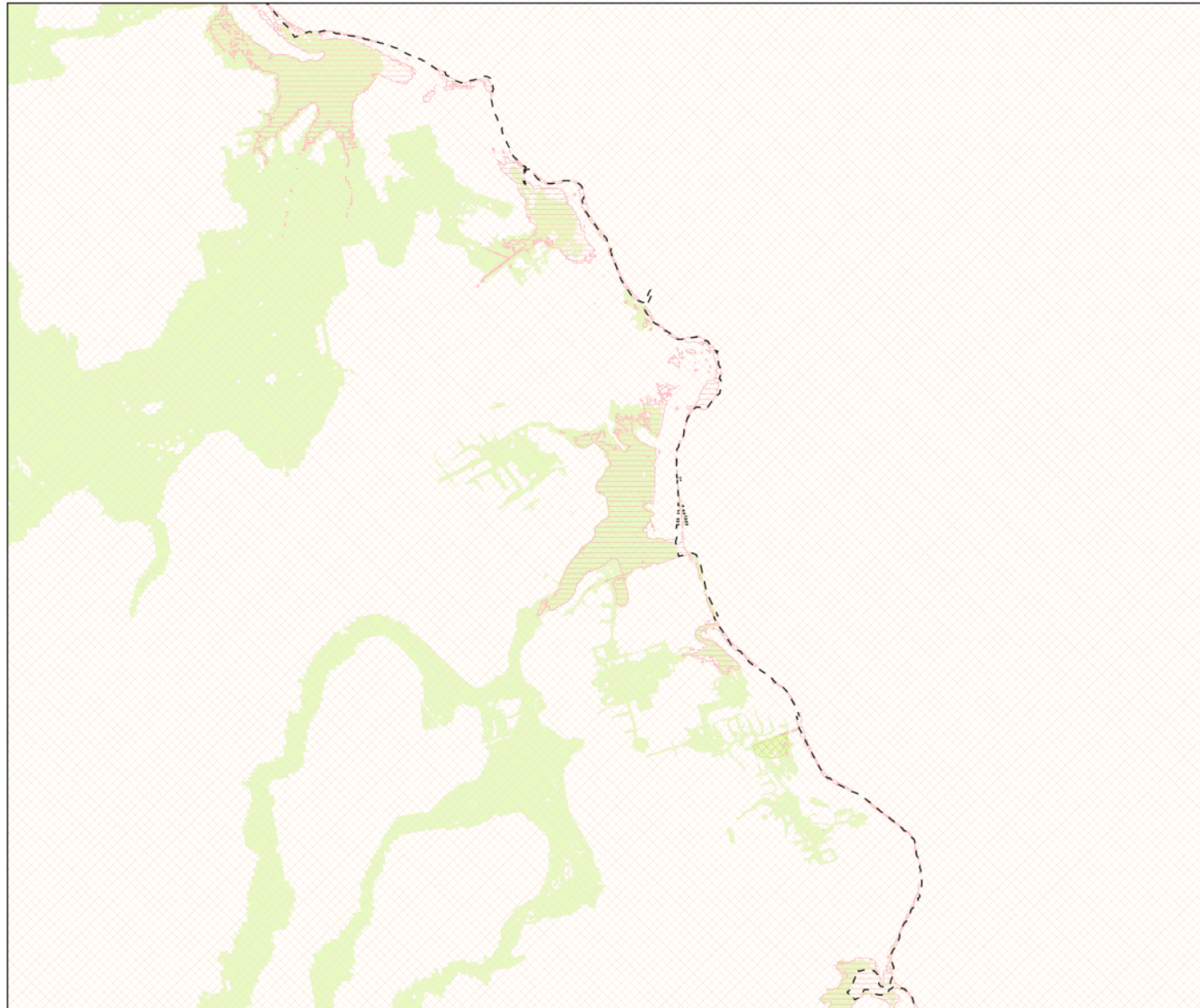
C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx


BRC Drawing No. 142445












C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142446




Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

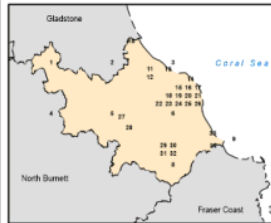
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

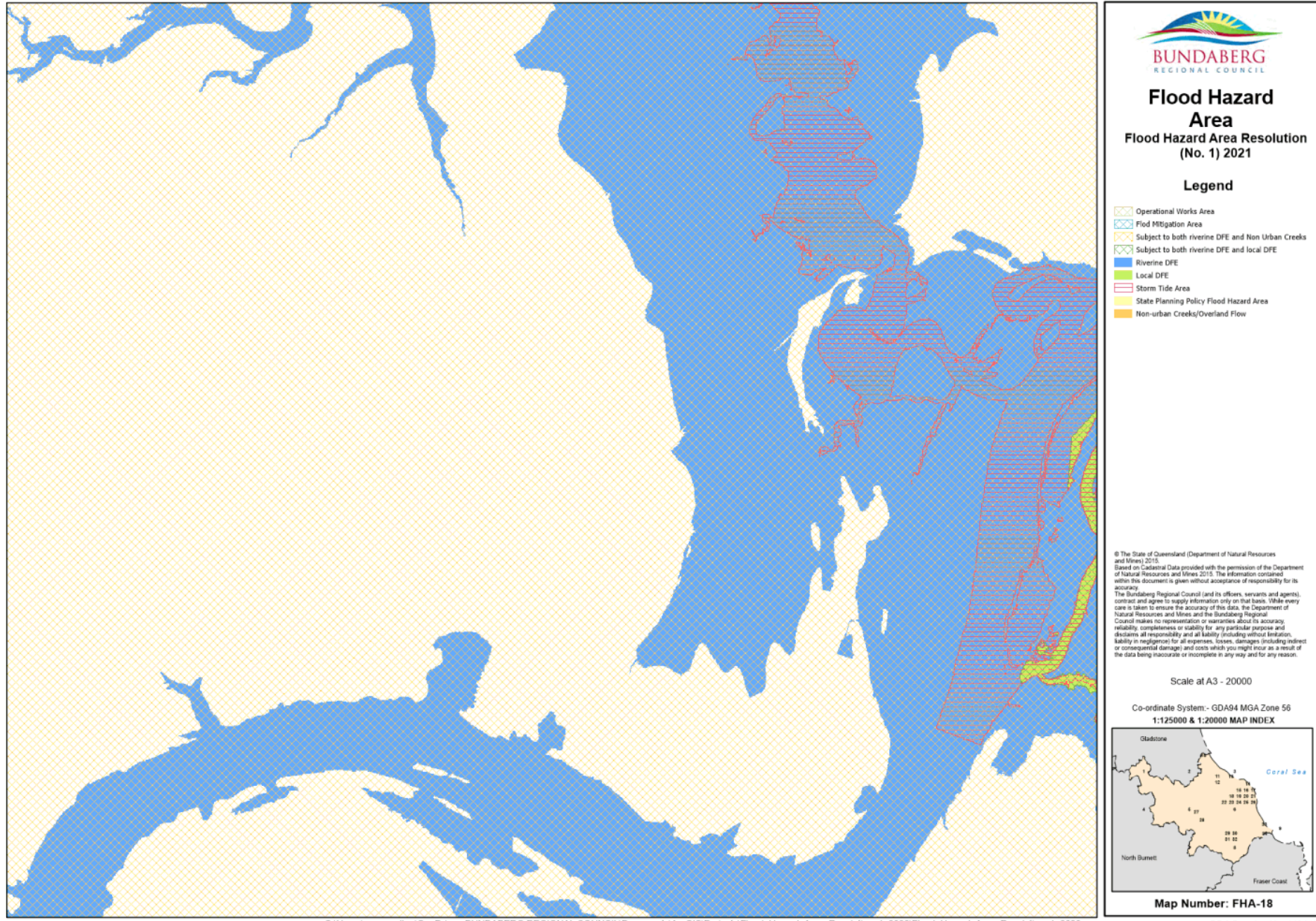
Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX



Map Number: FHA-17

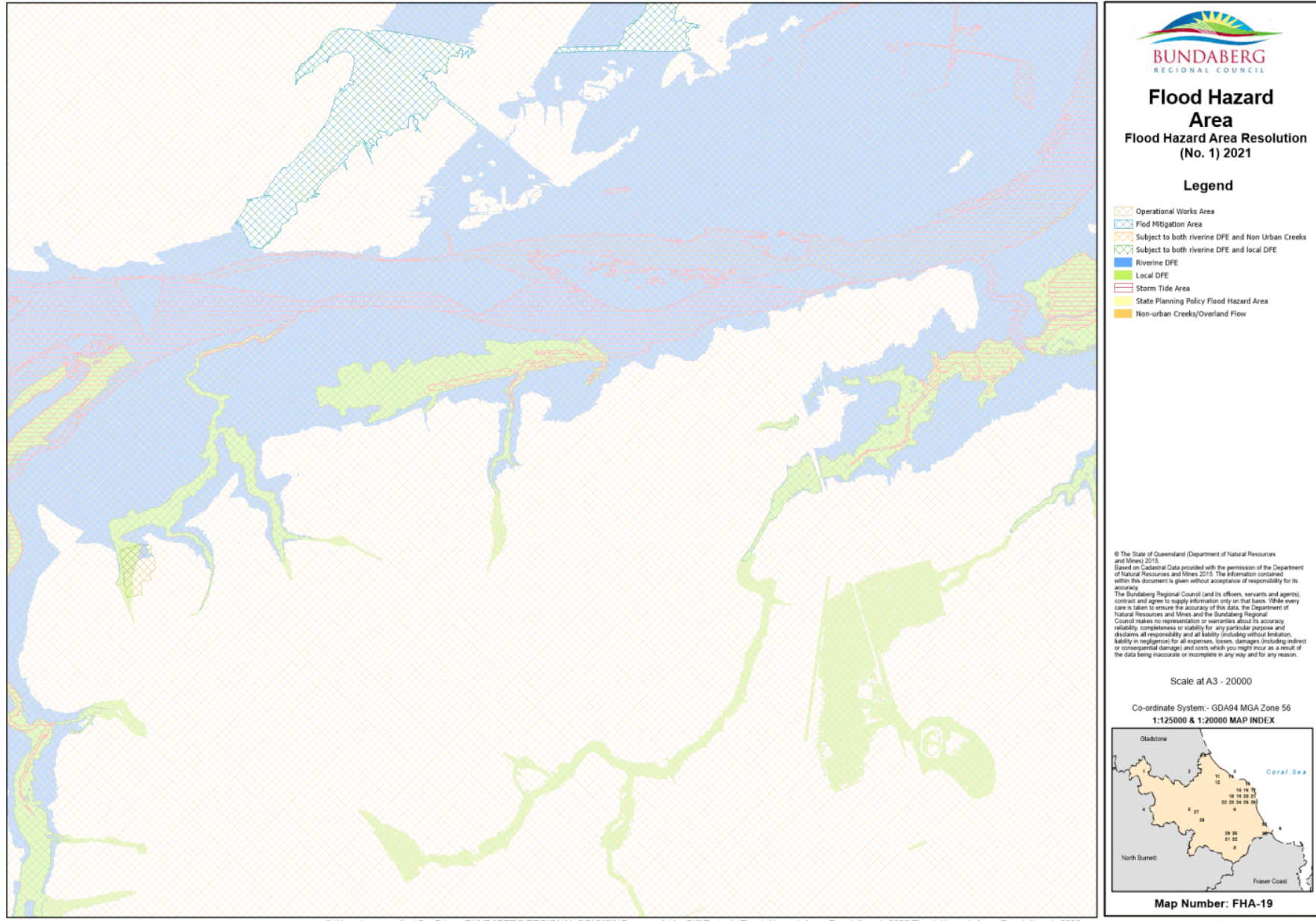
C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142447



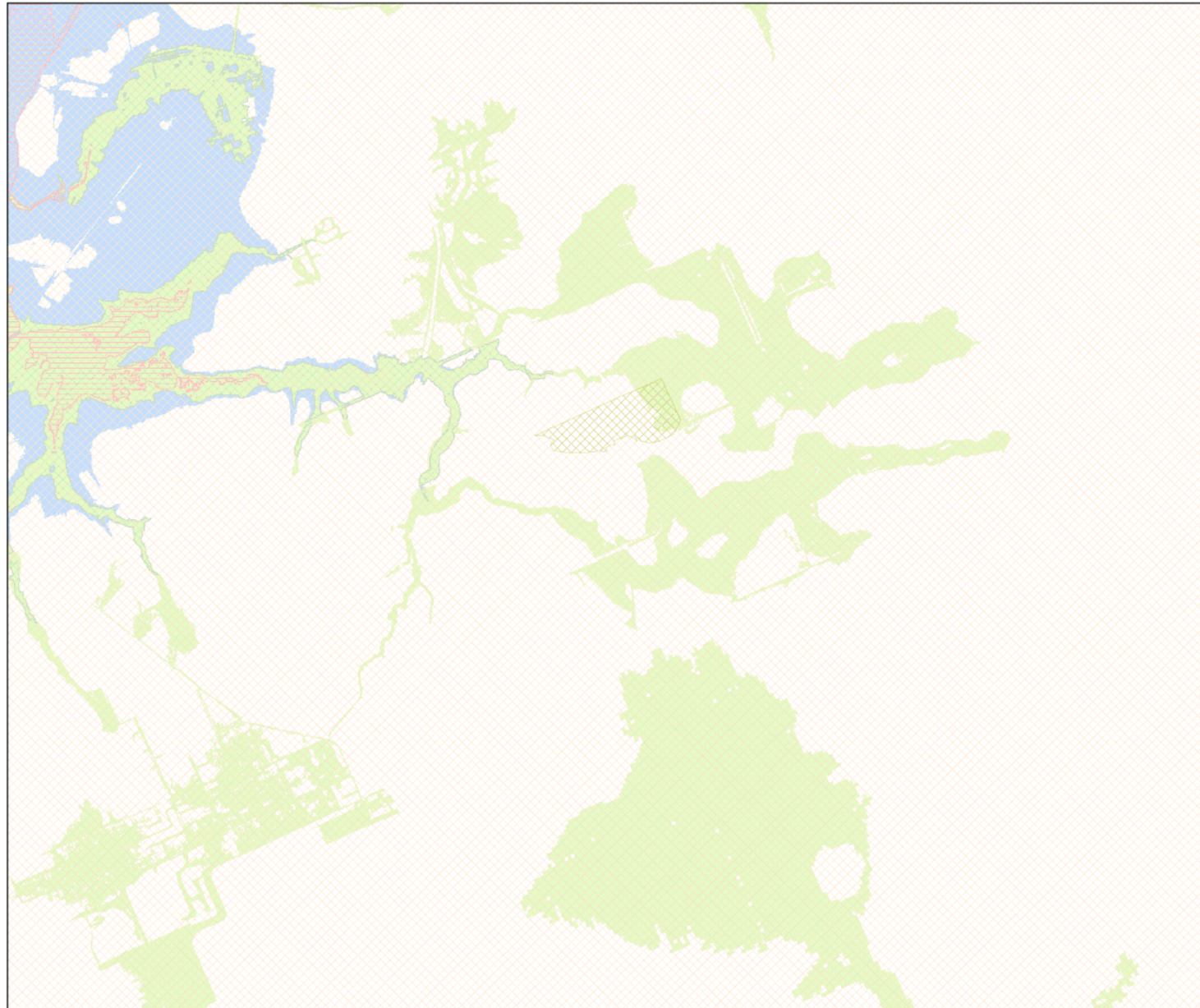
C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx


BRC Drawing No. 142448



C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx










BRC Drawing No. 142449




BUNDABERG
 REGIONAL COUNCIL

Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021


Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

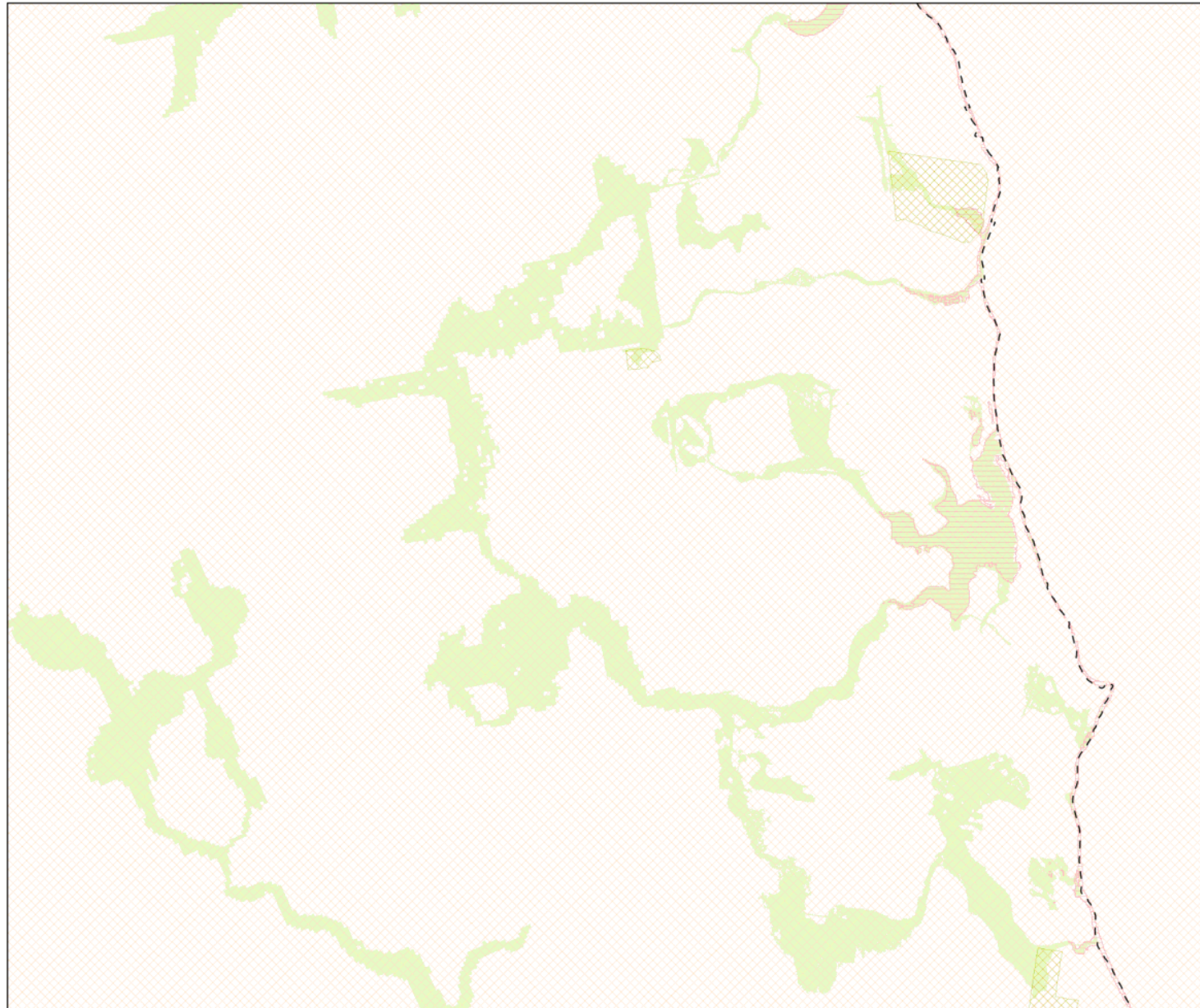
Scale at A3 - 20000


Co-ordinate System- GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX












Map Number: FHA-20

C:\Users\iaron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx BRC Drawing No. 142450




Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021


Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000


Co-ordinate System- GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX



Map Number: FHA-21

C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx










BRC Drawing No. 142451

Flood Hazard Area

Flood Hazard Area Resolution (No. 1) 2021

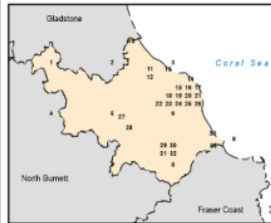
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

Co-ordinate System - GDA94 MGA Zone 56
 1:125000 & 1:20000 MAP INDEX




Map Number: FHA-22










C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142452




Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

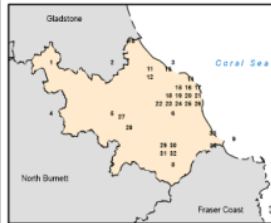
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX



Map Number: FHA-23

C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142453




Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX



Map Number: FHA-24

C:\Users\iaron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142454



Flood Hazard Area Resolution (No. 1) 2021

Legend

- Operational Works Area
- Flood Mitigation Area
- Subject to both riverine DFE and Non Urban Creeks
- Subject to both riverine DFE and local DFE
- Riverine DFE
- Local DFE
- Storm Tide Area
- State Planning Policy Flood Hazard Area
- Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

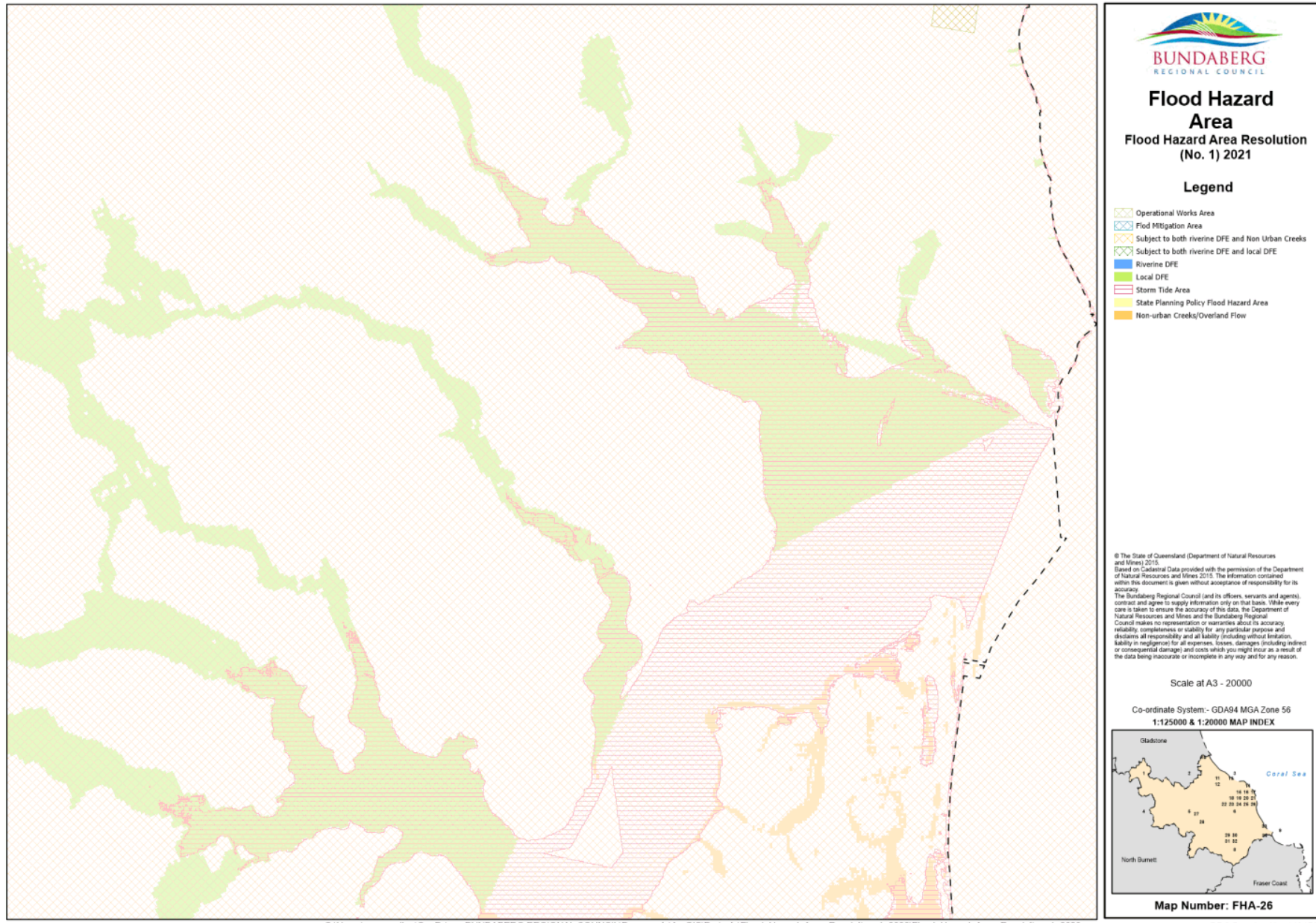
Scale at A3 - 20000

Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX

Map Number: FHA-25

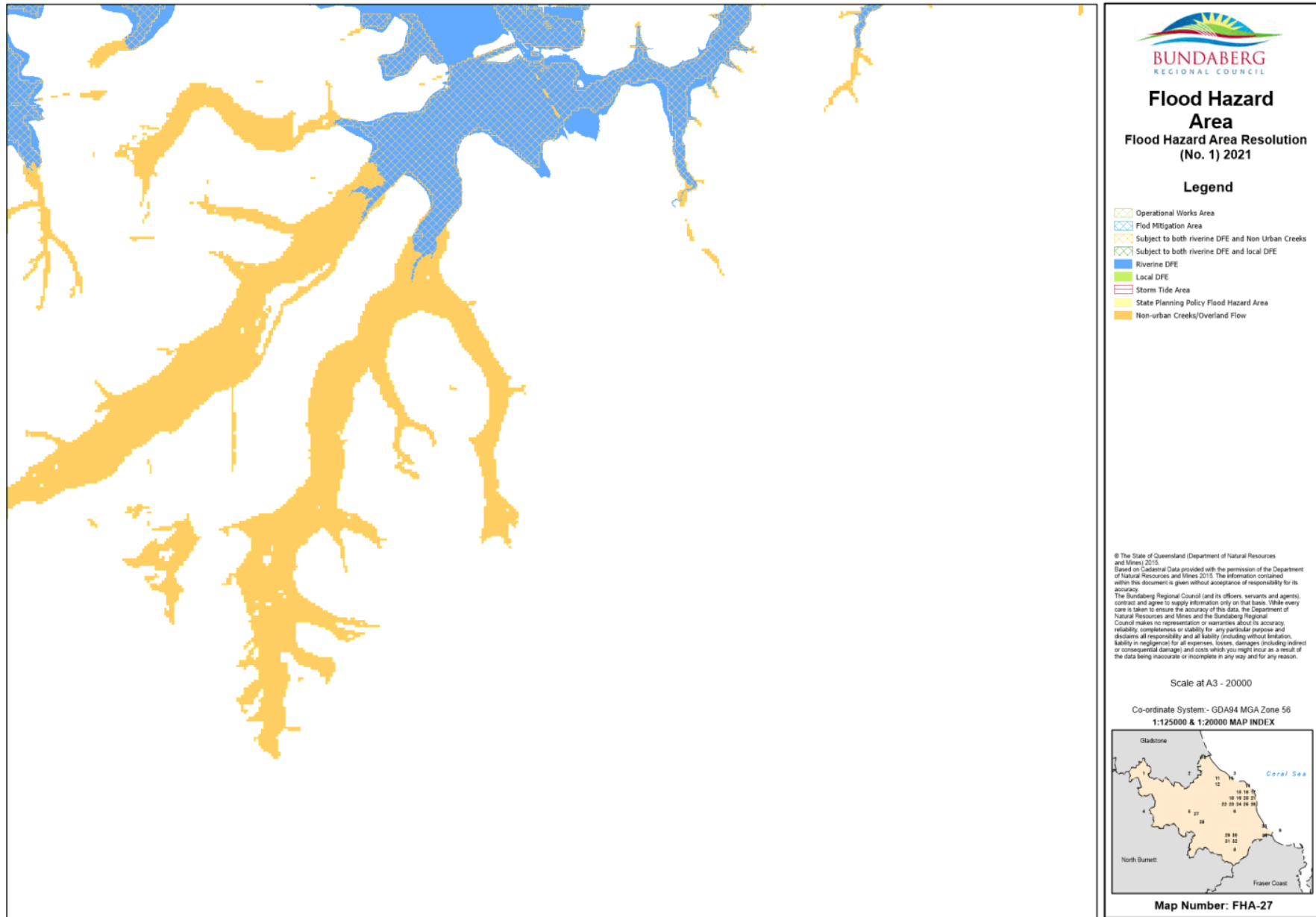
C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142455



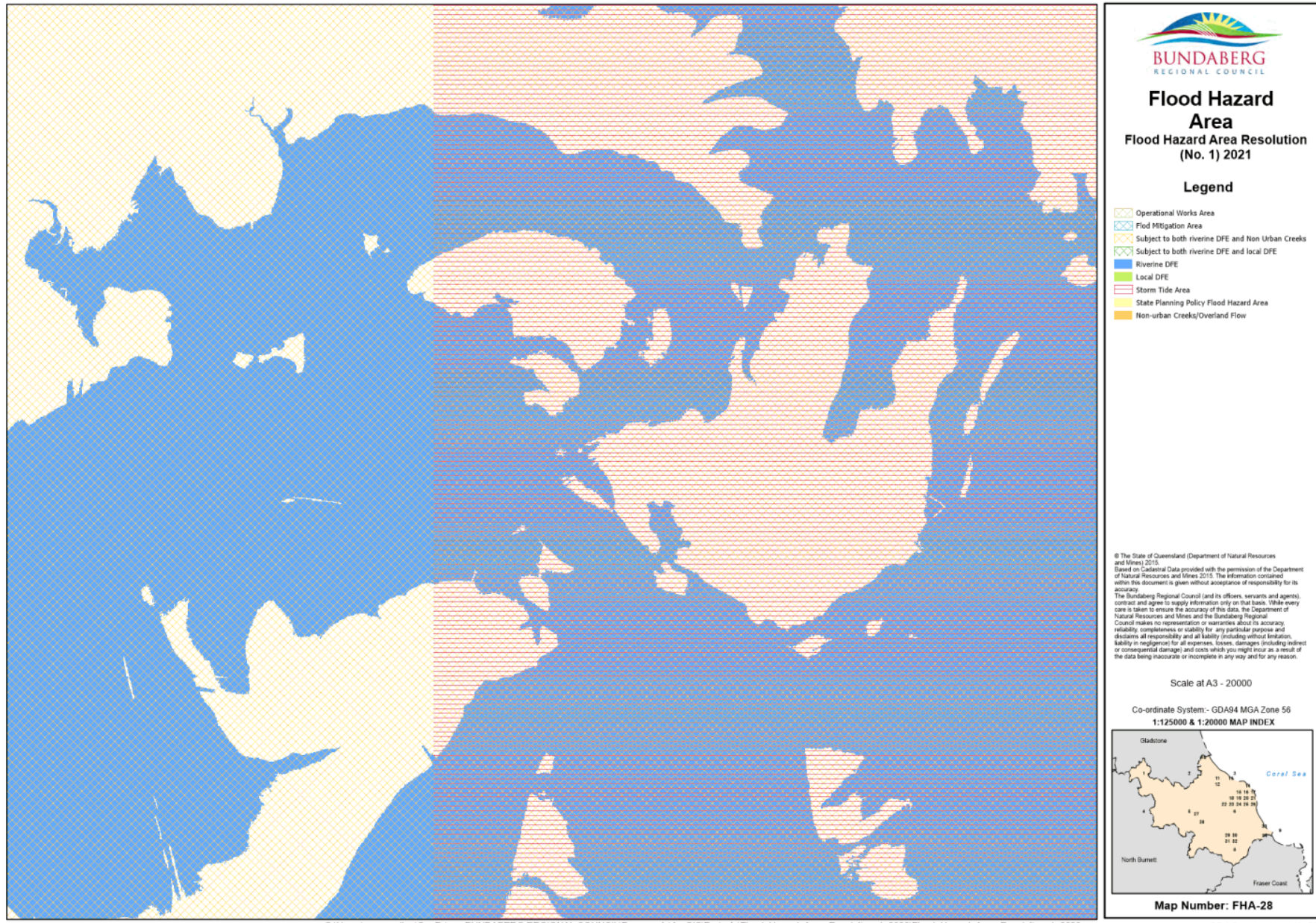
C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142456



C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx


BRC Drawing No. 142457



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx










BRC Drawing No. 142458




BUNDABERG
 REGIONAL COUNCIL

Flood Hazard Area
Flood Hazard Area Resolution (No. 1) 2021

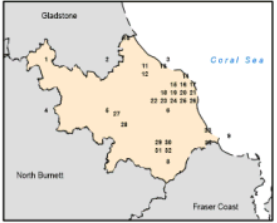
Legend

-  Operational Works Area
-  Flood Mitigation Area
-  Subject to both riverine DFE and Non Urban Creeks
-  Subject to both riverine DFE and local DFE
-  Riverine DFE
-  Local DFE
-  Storm Tide Area
-  State Planning Policy Flood Hazard Area
-  Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadestral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

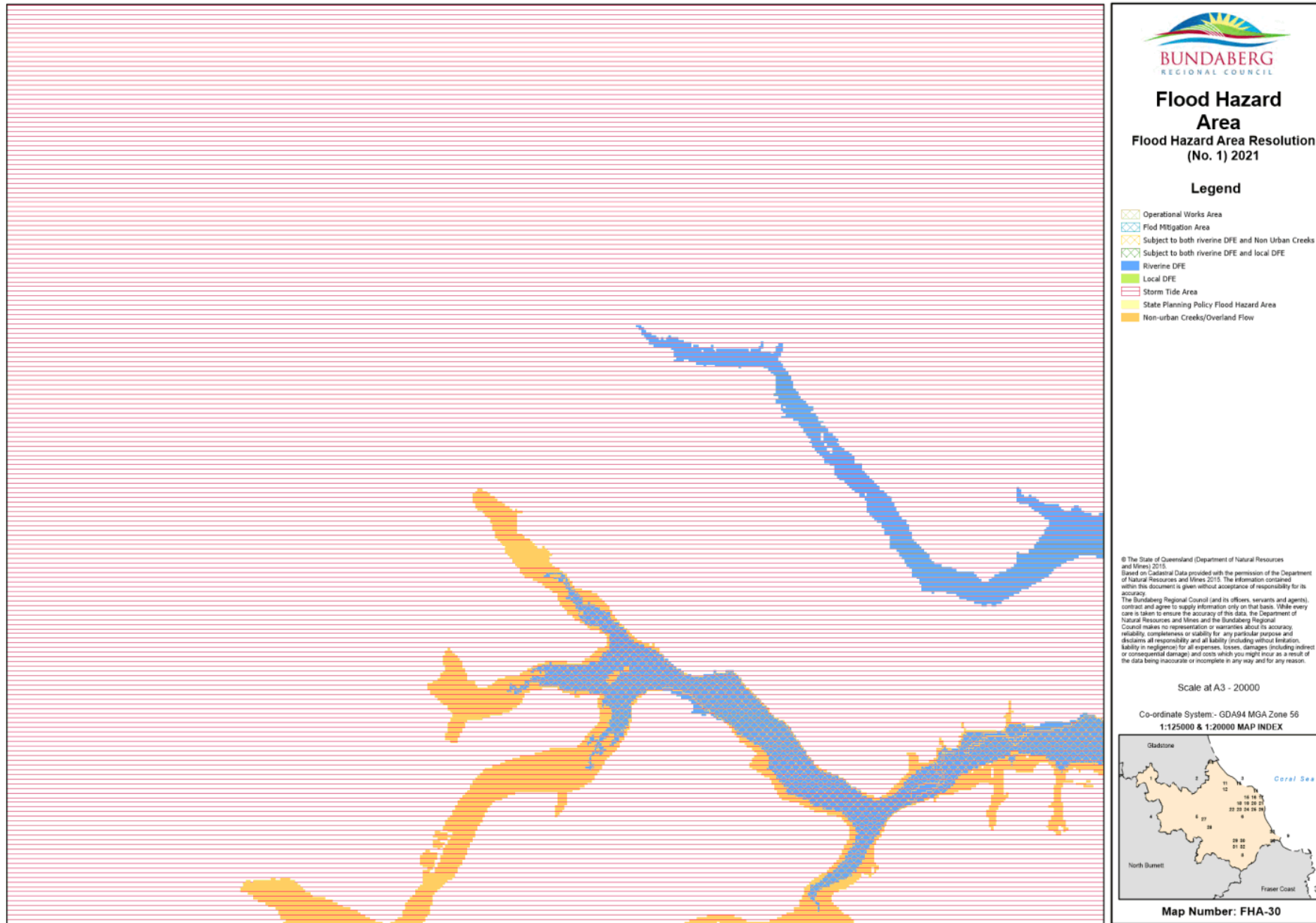
Co-ordinate System - GDA94 MGA Zone 56
1:125000 & 1:20000 MAP INDEX



Map Number: FHA-29

C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142459



Flood Hazard Area
Flood Hazard Area Resolution
(No. 1) 2021

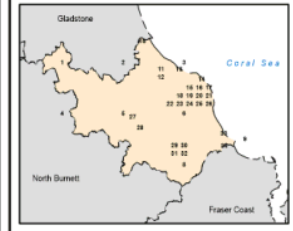
Legend

- Operational Works Area
- Flood Mitigation Area
- Subject to both riverine DFE and Non Urban Creeks
- Subject to both riverine DFE and local DFE
- Riverine DFE
- Local DFE
- Storm Tide Area
- State Planning Policy Flood Hazard Area
- Non-urban Creeks/Overland Flow

© The State of Queensland (Department of Natural Resources and Mines) 2015.
 Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2015. The information contained within this document is given without acceptance of responsibility for its accuracy.
 The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis. While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Scale at A3 - 20000

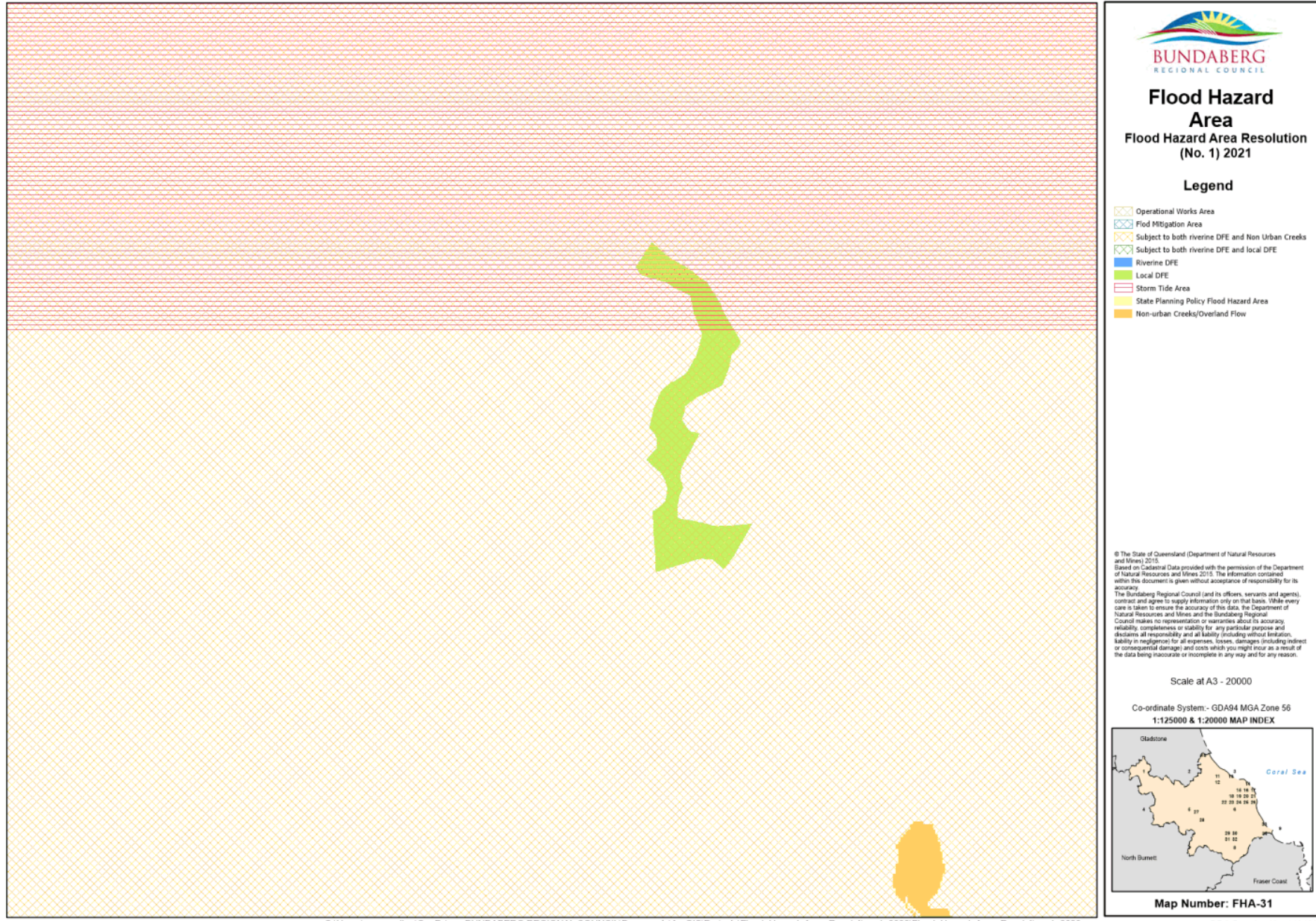
Co-ordinate System - GDA94 MGA Zone 56
 1:125000 & 1:20000 MAP INDEX



Map Number: FHA-30

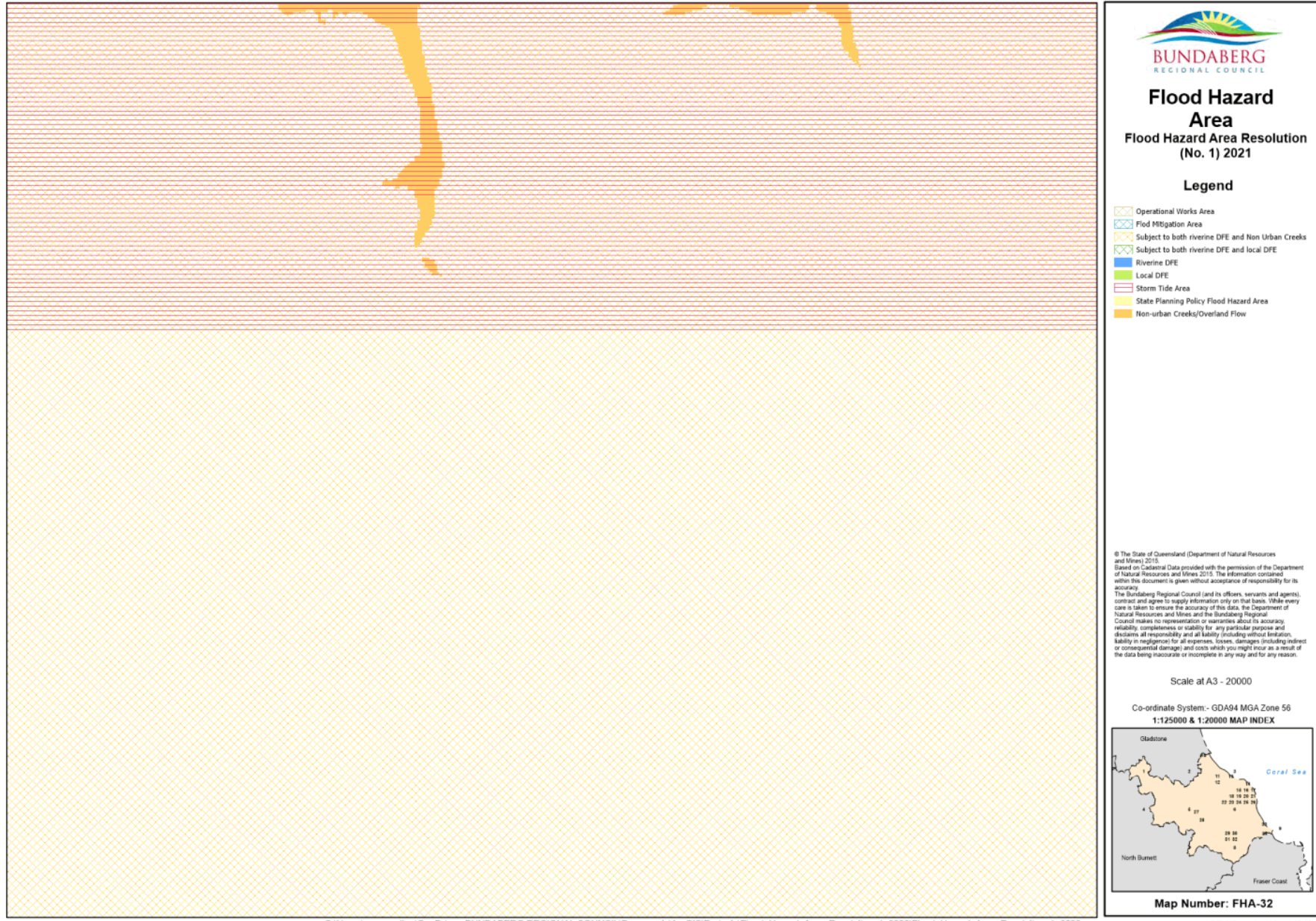
C:\Users\larron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No.



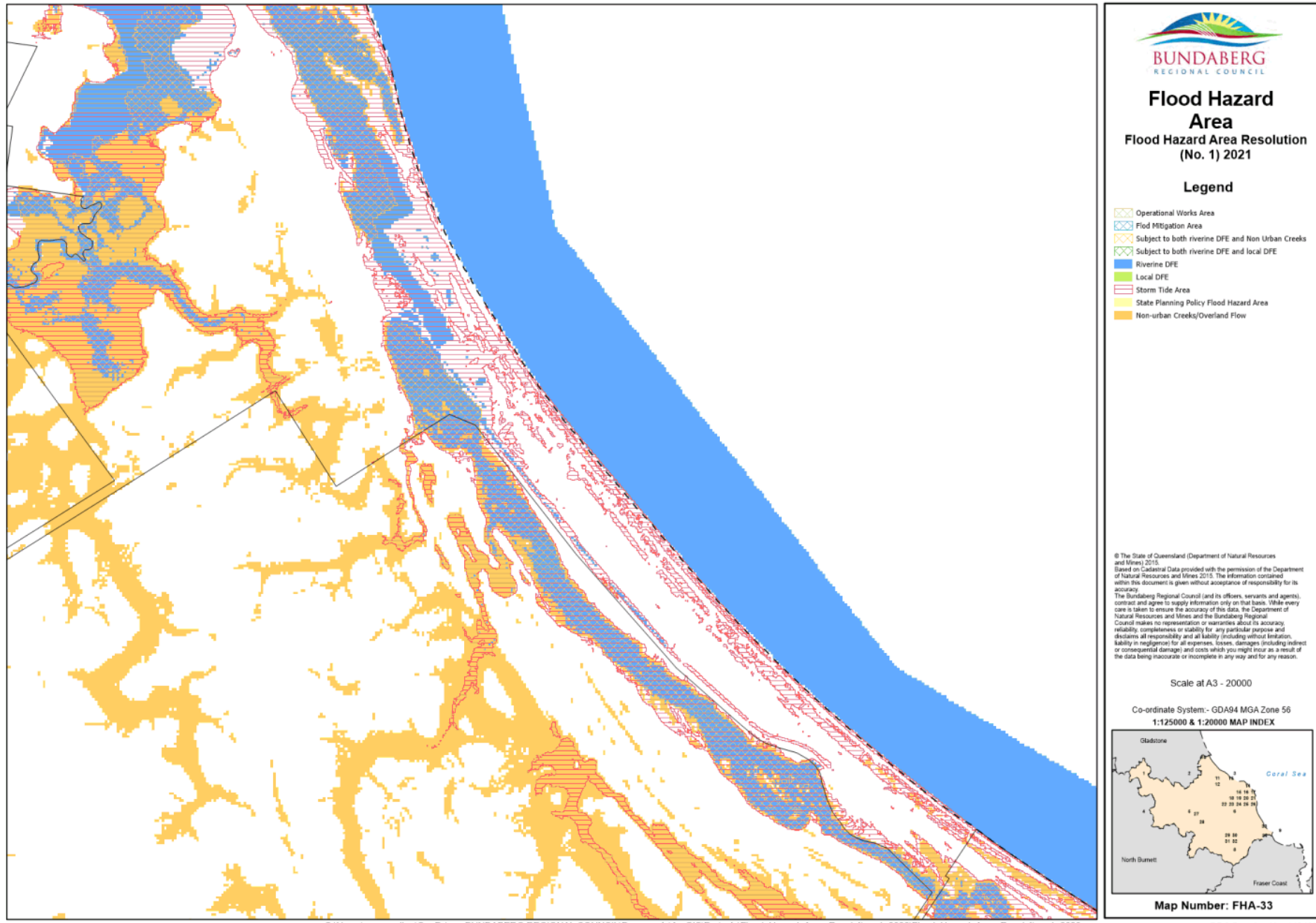
C:\Users\iaron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142460



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142461



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142462



C:\Users\iarron.walker\OneDrive - BUNDABERG REGIONAL COUNCIL\Documents\ArcGIS\Projects\Flood_Hazard_Area_Resolution_1_2020\Flood_Hazard_Area_Resolution_1_2020.aprx

BRC Drawing No. 142463



Item

21 December 2021

Item Number:	File Number:	Part:
L1	525.2021.23.1	DEVELOPMENT ASSESSMENT

Portfolio:

Planning & Development Services

Subject:

Material Change of Use for Service Station & Food and Drink Outlet & Reconfiguration of a Lot (3 Lots into 2 Lots and 2 Access Easements) - 28696 Bruce Highway, Childers

Report Author:

Scott Irwin, Planning Officer

Authorised by:

Michael Ellery, Group Manager Development

Link to Corporate Plan:

Our infrastructure and development - 2.3 Sustainable development - 2.3.2 Provide an efficient, effective and transparent development assessment service consistent with community and statutory expectations.

Summary:

APPLICATION NO	525.2021.23.1
PROPOSAL	MCU for Service Station and Food and Drink Outlet and ROL (3 Lots into 2 Lots and 2 access easements)
APPLICANT	KPG Nominees (No 32) Pty Ltd
OWNER	Sunstate Caravan Parks Pty Ltd
PROPERTY DESCRIPTION	Lot 1, 2 and 3 on RP14425
ADDRESS	28696 Bruce Highway and Bruce Highway, Childers
PLANNING SCHEME	Bundaberg Regional Council Planning Scheme 2015
ZONING	Specialised Centre Zone
OVERLAYS	Cane Railway, Electricity infrastructure and State Controlled Road buffers
LEVEL OF ASSESSMENT	Code
SITE AREA	6,556 m2
CURRENT USE	Caravan Park
PROPERLY MADE DATE	12 October 2021
STATUS	The 35 business day decision period ends on 18 November 2021
REFERRAL AGENCIES	Department of State Development, Infrastructure, Local Government & Planning
NO OF SUBMITTERS	Not applicable
PREVIOUS APPROVALS	Nil

SITE INSPECTION CONDUCTED	8 November 2021
LEVEL OF DELEGATION	Moderate

1. INTRODUCTION

1.1. Proposal

The applicant seeks a Development Permit for Material Change of Use for a Service Station and Food and Drink Outlet and Reconfiguring a Lot being 3 lots into 2 new lots and 2 access easements.

The proposal involves the amalgamation of 3 lots into 2 new lots being proposed Lots 1 and 2. Proposed Lot 1 will comprise 4,220 m² and include a Service Station comprising the following:

- 4 general bowsers – 8 general vehicle refuelling bays under a 475 m² forecourt with a 5.2 metre minimum clearance;
- 2 Truck bowsers – 4 truck refuelling bays under a 130 m² forecourt with a 5.4 m minimum clearance; and
- 235.5 m² Service Station convenience shop and food outlet with a 6 car queue drive through. The proposal indicates the site will be occupied by a United 24 (Service Station) with a Quick stop outlet (convenience shop) and Pie Face (shop with drive through).
- 10 Car parking spaces are provided around the Service Station facility.

Proposed Lot 2 is a triangular shape lot comprising 2,364m² with a 180m² Food and Drink Outlet incorporating a drive through. The drive through permits 11 car spaces from the pick-up point and 4 of those spaces are from the ordering point without interfering with internal car parking arrangements. Additionally, 15 car parking spaces are provided around the Food and Drink outlet with 4 of the spaces being provided for staff that are accessed via the drive through. Two (2) car and trailer parking spaces are also provided for the development within proposed Lot 2 at the eastern extent of the site near the site access.

The development is accessed centrally with left and right turns permitted into the site. The exit is located at the eastern end of the site where a left turn will only be permitted. The access easements are located on proposed Lot 1 and include a 172 m² area at the access into the property and the exit from Lot 2 along the northern and eastern boundaries of proposed Lot 2 to the exit point comprising 1,046 m².

1.2. Site Description

The development site comprises three (3) lots being Lots 1, 2 and 3 on RP14425, having a combined area of 6,556 m². All three (3) lots are located within the Specialised centre zone and are not adjoined by any other Specialised centre zoned properties. The property to the east is zoned industry, property to the north is zoned Community facilities (Cane Railway), properties across the Bruce Highway are zoned Low Density Residential and Rural Residential.

The properties combined form a triangular shape with a frontage of approximately 216 metres to the Bruce Highway. The property has been known as the Childers Central Caravan Park and Backpackers. The site was historically utilised as a small scale

service station resulting in the land being identified on the Environmental management register.

2. ASSESSMENT PROVISIONS

2.1. Assessment Benchmarks

The following are the benchmarks applying for this development:

Benchmarks applying for the development	Benchmark reference
Zone Code: Specialised Centre Zone	Bundaberg Regional Council Planning Scheme 2015
Overlay Code <ul style="list-style-type: none"> Infrastructure overlay code 	Bundaberg Regional Council Planning Scheme 2015
Use Code <ul style="list-style-type: none"> Service station code Business uses code 	Bundaberg Regional Council Planning Scheme 2015
Other Development Code <ul style="list-style-type: none"> Landscaping code Nuisance code Reconfiguring a lot code Transport and parking code Works, services and infrastructure code 	Bundaberg Regional Council Planning Scheme 2015
Planning Scheme Policies <ul style="list-style-type: none"> Planning scheme policy for development works Planning scheme policy for waste management Interim Development Assessment Requirements 	Bundaberg Regional Council Planning Scheme 2015
	State Planning Policy

3. ISSUES RELEVANT TO THE APPLICATION

The following significant issues have been identified in the assessment of the application:

Specialised centre zone code

The specialised centre zone code seeks to provide for large floor plate retail business activities and other activities which because of their size, requirement for high levels of accessibility to private motor vehicle traffic, or other characteristics, are best located outside of identified activity centres and adjacent to major road transport corridors. More specifically, the zone code outlines development in the zone does not provide for higher order and other retail facilities better suited to establishing within an activity centre.

The proposed development involves a Service Station with drive through convenience food and drink outlet as well as standalone Food and Drink Outlet incorporating a drive

through. As the proposed development is highly reliant on the use of vehicles and seeks to attract such users through the design and is located on the Bruce Highway, it is considered the proposal readily complies with the intent of the code and more broadly is compatible with surrounding land uses.

Business uses code

The Business uses code is solely triggered as part of the Food and Drink Outlet and seeks to ensure the development is established in a manner consistent with the Bundaberg Region Activity Centre Network and is of a high quality design which reflects good centre design principles and appropriately responds to local character, environment and amenity considerations.

The development complies with all the acceptable outcomes of the code excluding AO5.1 and AO5.2 that requires development to present a minimum of 65% of the building frontage to a public street or other public space to present with clear or relatively clear windows and glazed doors. The applicable performance outcome PO5 requires the business use is in a building which is designed to create vibrant and active streets and public spaces. The subject development is located well outside (over 800m) of the core business and retail centre of Childers and is surrounded by a mix of zonings including industrial, community, rural residential and low density residential. In this regard, PO5 is not considered overly relevant to the outcomes of the immediate surrounding area as it is not intended for general retail with active street frontages. The proposed uses are accessed via a shared access and generally front internally towards each other and the shared access. As such, the proposal is considered to comply with the broader outcomes of the code.

Service Station Code

The Service Station Code seeks to ensure service stations are development in appropriate locations and in a manner which meets the needs of users, provides safe access and protects the environment and amenity of surrounding premises.

The acceptable outcomes seek for a 7.5 metre frontage setback and 2 metres of landscaping around the boundaries of the site. The southern front corner of the car refuelling forecourt is located 3.8 metres from the frontage boundary at the closest point due to the angle of the boundary. The forecourt encroaches the prescribed 7.5 metre setback for a distance of 10.5 metres and an area of approximately 21 m². Additionally, the site only includes a 1 metre landscaping strip along the frontage of the Service Station and the rear boundary that adjoins the Cane railway line. Despite the minor non-compliances with acceptable outcomes the proposal is considered to comply with the applicable performance outcomes as the development incorporates landscaping that softens the development, contributes to providing an attractive appearance and provides adequate separation from adjoining land uses.

Further, the development will provide a significant improvement on the streetscape within the surrounding area as the existing surrounding commercial built form on the Industrial and Specialised Centre zone includes industrial sheds with lesser setbacks and a Service Station located at 28677 Bruce Highway has a fuel forecourt with an 11 metre length at a nil setback to the road frontage. Additionally, no formalised landscaping strips exist along the frontages of other existing commercial uses that front the Bruce Highway in the immediate surrounding area.

Reconfiguring a Lot Code

The purpose of the Reconfiguring a Lot Code primarily seeks to ensure new lots are configured in a manner which:

- Is appropriate for their intended use;
- Is responsive to local character and site constraints;
- Provides appropriate access (including access for services); and
- Supports high quality urban design outcomes;

The proposed layout is considered to achieve the purpose of the code for the following reasons:

- The proposal reduces the number of lots from 3 to 2;
- The proposal will result in a single access and exit point for the 2 new lots with the use of access easements;
- The proposal will create lots that are usable for the proposed uses that are consistent with the intent of the zone.

Transport and Parking Code

The applicant has proposed a reciprocal access easement over vehicle manoeuvrings contained within proposed Lot 1 to allow lawful access and egress for Lot 2. A condition will be added to provide the access easement burdening lot 1 to the benefit of lot 2. Additionally, the onsite vehicle manoeuvring and car parking complies with the prescribed minimum car parking requirements contained within the code.

The proposal was also referred to SARA for evaluation of matters associated with the development due to the site adjoining a State Controlled Road (Bruce Highway). The SARA response supports the proposed development design and generally just conditions the development as proposed.

As such, the development is considered to comply with the purpose of the code through ensuring transport infrastructure is provided in a manner which meets the needs of the development whilst maintaining a safe and efficient road network.

Stormwater

The site discharges to the Isis Central Sugar Mill Company Limited land to the north of the development. The applicant has proposed a mixture of overland and piped drainage system with a 7kL detention tank to mitigate the stormwater runoff generated by the creation of additional impervious area. The proposed tank includes the installation of Spel filters to filter the TSS, TP & TN's. The refuelling area will be treated for hydrocarbon contaminants by the installation of a SPEL Puraceptor P040.

The stormwater quality and quantity components will be maintained by the applicant as they are on private property. It is noted that no indication of discharge agreement has been indicated and the applicant has proposed works on the property adjoining to the north. A condition will be added for this to be addressed.

Infrastructure Overlay Code

The proposal triggers assessment against the infrastructure overlay codes as it adjoins a State controlled road and Cane railway corridor. The only applicable assessment criteria relates to ensuring the development maintains and, where practicable, enhances the safety, efficiency and effectiveness of the corridor. The proposal is not expected to impact on the function or efficiency of Cane railway infrastructure as the

development is not a sensitive land use and does not have any direct connection or association with the rail use. Despite this, fencing along the adjoining boundary will be conditioned to restrict access and reduce amenity impacts.

The proposal was referred to the State in relation to State controlled road matters. The car parking and access arrangements were altered numerous times over a period of 5 months before the State provided agreement to the design through their Concurrence Agency response. The final design provides access for both directions of traffic with the turning lanes, while exiting is limited to left out (southbound) only.

4. REFERRALS

4.1 Internal Referrals

Advice was received from the following internal departments:

Internal department	Referral Comments Received
Development Assessment - Engineering	23 November 2021
Water and Wastewater	27 April 2021
Health and Regulatory Services	15 April 2021
Engineering – Program Management	23 April 2021

Any significant issues raised in the referrals have been included in section 3 of this report.

4.2 Referral Agency

Referral Agency responses were received from the following State agencies:

Agency	Concurrence/ Advice	Date Received	Conditions Yes/No
Department of State Development, Infrastructure, Local Government & Planning	Concurrence	12 October 2021	Yes

Any significant issues raised have been included in section 3 of this report.

5. PUBLIC NOTIFICATION

Not Applicable.

6. DRAFT CONDITIONS

Draft conditions were issued to the Applicant on 24 November 2021.

The Applicant submitted representations to Council on 29 November 2021 relating seeking clarification regarding approved plans, infrastructure charges and a date on the Concurrence Agency response. No issues were submitted in relation to actual draft conditions.

7. REASONS FOR DECISION

The reasons for this decision are:

- The development is for a Material Change of Use for a Service Station and Food and Drink Outlet and Reconfiguring a Lot being code assessable within the Specialised Centre zone.
- The proposed development can be provided with an appropriate level of infrastructure
- The proposed development is considered to comply, or can be conditioned to comply with the relevant assessment benchmarks.

Communication Strategy:

Communications Team consulted. A Communication Strategy is:

- Not required
 Required

Attachments:

- [↓1](#) Locality Plan
[↓2](#) Site Plan
[↓3](#) Proposal Plans
[↓4](#) Referral Agency Response

Recommendation:

That the Development Application 525.2021.23.1 detailed below be decided as follows:

1. Location details

Street address: 28696 Bruce Highway, Childers
Real property description: Lots 1, 2 and 3 on RP14425
Local government area: Bundaberg Regional Council

2. Details of the proposed development

Development Permit for Material Change of Use for Service Station & Food and Drink Outlet & Reconfiguring a Lot (3 Lots into 2 Lots and 2 access easements).

3. Decision

Decision details: Approved in full with conditions. These conditions are set out in Schedule 1 and are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

The following approvals are given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval		<input type="checkbox"/>	<input type="checkbox"/>

4. Approved plans and specifications

Copies of the following plans, specifications and/or drawings are enclosed.

Drawing/report title	Prepared by	Date	Reference no	Version/issue
Aspect of development: Material Change of Use				
Title Sheet	Verve Building Design Co	25.03.2021	DA00	P5
Building Elevations & Perspectives	Verve Building Design Co	25.03.2021	DA02	P6
Building Elevations & Perspectives	Verve Building Design Co	25.03.2021	DA03	P7
Proposed Site Plan	Verve Building Design Co	17.11.2021	DA01	P11
Building Floor Plan	Verve Building Design Co	03.03.2021	DA06	P3
Aspect of development: Reconfiguring a Lot				
Proposed Reconfiguration of Lot 1-3 on RP14425 (Bruce Highway, Childers)	Land Partners Surveyors and Planners	19/03/2021	BRLS7690-000-18-4	4

5. Conditions

This approval is subject to the conditions in Schedule 1. These conditions are clearly identified to indicate whether the assessment manager or concurrence agency imposed them.

6. Further development permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- All Building Work
- All Plumbing and Drainage Work
- All Operational Work

7. Properly made submissions

Not applicable — No part of the application required public notification.

8. Referral agencies for the application

The referral agencies for this application are:

For an application involving	Name of referral agency	Advice agency or concurrence agency	Address
<p>State-controlled road Schedule 10, Part 9, Division 4, Subdivision 2, Table 1, Item 1 and Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1</p>	<p>Department of State Development, Infrastructure, Local Government & Planning</p>	<p>Concurrence Agency</p>	<p>State Assessment & Referral Agency (SARA) E: wbbregionalservices@dmip.qld.gov.au P: PO Box 979 Bundaberg Qld 4670</p>

9. Currency period for the approval

This development approval will lapse at the end of the period set out in section 85 of *Planning Act 2016*.

10. Agreements under Section 49(4)(b) or 66(2)(b) or (c) of the Planning Act 2016

There are no agreements about these matters.

11. Conditions about infrastructure

The following conditions about infrastructure have been imposed under Chapter 4 of the *Planning Act 2016*:

Condition/s	Provision under which the condition was imposed
20-31	Section 145 – Non-trunk Infrastructure
N/A	Section 128 – Trunk Infrastructure

12. Rights of appeal

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in Chapter 6, Part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see Chapter 6, Part 2 of the *Planning Act 2016*).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see Schedule 1 of the *Planning Act 2016*.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in Section 229 of the *Planning Act 2016*.

Schedule 2 is an extract from the *Planning Act 2016* that sets down the applicant's appeal rights and the appeal rights of a submitter.

SCHEDULE 1 CONDITIONS AND ADVICES IMPOSED BY THE ASSESSMENT MANAGER

PART 1A – CONDITIONS IMPOSED BY THE ASSESSMENT MANAGER

NO	CONDITION	TIMING
GENERAL		
1.	Comply with all conditions of this development approval and maintain compliance whilst the use continues.	At all times unless otherwise stated
2.	Where there is any conflict between the conditions of this Development approval and details shown on the Approved plans, the conditions prevail.	At all times
3.	The full cost of all work and any other requirements associated with this development must be met by the developer, unless specified in a particular condition or Infrastructure agreement.	At all times
4.	The survey plan for the subdivision (3 Lots into 2 Lots) and access easements must be endorsed.	Prior to the commencement of the use
AMENITY		
HOURS OF OPERATION		
5.	Operating hours of the approved use are 24 hours a day 7 days per week.	At all times
6.	Deliveries, loading/unloading activities must only be undertaken between the hours of 7 am – 10 pm Monday to Sunday.	At all times
7.	Refuse collection must only be undertaken between the hours of 7 am to 6 pm weekdays.	At all times
LIGHTING		
8.	Design and install all external lighting in accordance with <i>AS4282 – Control of the obtrusive effects of outdoor lighting</i> so as not to cause nuisance to residents or obstruct or distract pedestrian or vehicular traffic.	Prior to the commencement of the use and then to be maintained
NOISE		
9.	Noise levels from the use must achieve the acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the Environment Protection (Noise) Policy 2008.	At all times
SCREENING OF PLANT AND SERVICES		

10.	Install and maintain suitable screening to all air conditioning, lift motor rooms, plant, service facilities, or similar equipment located on the rooftop or to an external face of the building. The screening structures must be constructed from materials that are consistent with materials used elsewhere on the building façade or as an architectural feature of and visually consistent with the profile of the building.	Prior to the commencement of the use and then to be maintained
LANDSCAPING		
11.	<p>Landscape the site in accordance with the approved plans. Landscaping must:</p> <ul style="list-style-type: none"> a. consist of permanent garden beds planted with trees and shrubs, with particular attention to the street frontage(s) of the site b. include species recognised for their tolerance for low water conditions c. be provided with a controlled underground or drip watering system. Any such system is to be fitted with an approved testable backflow prevention device <p>Note: <i>Council does not require the submission of an Operational works development application for landscaping that is nominated as Accepted development where the works comply with the nominated requirements for Accepted development.</i></p>	Prior to the commencement of the use and then to be maintained
FENCES		
12.	<p>Provide and maintain a solid screen fence along all side and rear boundaries of the development site.</p> <p>The fence is to have a minimum height of 1.8 m behind the front building line or 6 m from the front boundary (whichever is lesser) and a height of 1.2 m in front of this point.</p> <p>Where side boundary fencing is continuous, the height may be tapered from 1.2 m up to 1.8 m over a maximum distance of 2.5 m.</p> <p>The erection of a second boundary fence parallel to any existing fence is prohibited.</p>	Prior to the commencement of the use
WASTE MANAGEMENT		

13.	<p>Provide an impervious bin storage area (bin enclosure) for the storage of refuse bins in accordance with the following:</p> <ul style="list-style-type: none"> a. designed so as to prevent the release of contaminants into the environment b. sufficiently sized to accommodate all refuse bins required by the Assessment Manager for the scale of the development c. screened from the road frontage or other public space, and adjoin properties by landscaping or constructed screening d. a suitable hose cock (with backflow prevention) and hoses must be provided at the bin storage area, and wash down to be drained to the sewer and fitted with an approved stormwater diversion valve arrangement e. must be maintained in a clean and sanitary manner 	Prior to the commencement of the use and then to be maintained
14.	Maintain and operate an adequate waste disposal service, including the maintenance of refuse bins and associated storage areas so as not to cause an environmental nuisance.	At all times
15.	Ensure that any potential food / waste sources are covered and collected so that they are not accessible to wildlife.	At all times
BUILDING WORK ASSOCIATED WITH THE MCU		
16.	Demolish or relocate all existing buildings/structures on the site including the removal of all existing concrete slabs, foundations, and the disconnection of services. Where necessary work must be in accordance with a valid approval from the service provider or Building development approval.	Prior to the endorsement of the survey plan
OPERATIONAL WORK ASSOCIATED WITH THE MCU		
17.	<p>Ensure all assessable Operational work is carried out in accordance with a valid Operational work approval.</p> <p>Note: <i>Where Accepted development does not comply with a nominated requirement for accepted development, a Development application for Operational work must be submitted to Council.</i></p>	Prior to the commencement of work

18.	<p>Provide certification from a Registered Professional Engineer of Queensland (RPEQ) that any operational work that is Accepted development has been designed and constructed in accordance with the conditions of this Development approval and any other relevant approval issued by Council.</p> <p>Note: <i>Council does not require the submission of an Operational works development application for work that is nominated as Accepted development where the works comply with the nominated requirements for Accepted development and are certified by a RPEQ.</i></p>	Prior to the commencement of the use
CONSTRUCTION MANAGEMENT		
19.	<p>Unless otherwise approved in writing by the Assessment Manager, ensure no audible noise from work is made:</p> <p>a. on a business day or Saturday, before 6.30 am or after 6.30 pm</p> <p>b. on any other day, at any time.</p>	At all times during construction
STORMWATER		
20.	Design and implement a stormwater drainage system for lot 1, as per the Stormwater Management Report prepared by Kehoe Myers connecting to the lawful point of discharge located on the shared boundary with lot 284 on SP285167.	Prior to site work commencing and at all times during construction
21.	Design and implement a stormwater drainage system for lot 2, as per the Stormwater Management Report prepared by Kehoe Myers connecting to the lawful point of discharge located on the shared boundary with lot 284 on SP285167.	Prior to site work commencing and at all times during construction
22.	Submit a discharge agreement noting Lot 284 <i>SP285167</i> accepts ongoing stormwater discharge from proposed lot 1.	Prior to the commencement of construction
23.	Submit a discharge agreement noting Lot 284 <i>SP285167</i> accepts ongoing stormwater discharge from proposed lot 2.	Prior to the commencement of construction

WATER		
24.	<p>Provide a metered water service and internal infrastructure as required to each proposed lot, to satisfy the firefighting and water supply demands of the development.</p> <p>Note:</p> <p><i>Water infrastructure must be designed by an appropriately qualified hydraulic consultant to assess the suitability of the water supply system to cater for the proposed development, including firefighting requirements in accordance with AS2419 – Fire hydrant installation.</i></p>	Prior to the commencement of the use and then to be maintained
SEWERAGE		
25.	Provide a reticulated sewerage service to each proposed lot in accordance with the applicable Planning scheme codes and Planning scheme policy for development works.	Prior to the endorsement of the survey plan
26.	All sewerage infrastructure must be clear of all proposed and existing buildings.	At all times
ROADWORKS, ACCESS, AND CAR PARKING		
27.	Remove all disused or redundant vehicular crossings, kerb drainage outlets, and footpath crossovers and reinstate kerb and channel, and footpaths as required.	Prior to the commencement of the use
28.	<p>Design and construct off-street car parking, access, and manoeuvring areas for lot 1 in accordance with the Approved plans, applicable Planning scheme codes, and the Planning scheme policy for development work.</p> <p>Car parking, access, and manoeuvring areas must:</p> <ol style="list-style-type: none"> a. provide a minimum of 10 parking spaces b. be designed and constructed in accordance with AS2890 Parking facilities – off-street car parking c. provide parking spaces for people with a disability in accordance with the Building Code of Australia and AS2890.6 Off-street parking for people with disabilities d. provide on-site loading, unloading, and manoeuvring for all necessary service vehicles, including: <ul style="list-style-type: none"> • Medium Rigid Vehicle 	Prior to the commencement of use and then to be maintained

	<ul style="list-style-type: none"> • Refuse collection vehicle <p>e. allow all design vehicles to enter and exit the site in a forward gear</p> <p>f. be constructed and sealed with asphaltic concrete or concrete.</p> <p>g. be signed and delineated in accordance with the Queensland manual of uniform traffic control devices</p> <p>h. allow for the provision of fill and/or boundary retaining walls and the containment and management of site stormwater drainage</p> <p>i. be drained to a legal point of discharge</p> <p>j. be available free of charge to staff and customers during operating hours</p> <p>k. Provide shade trees in car parking areas at a minimum ratio of one (1) tree for every six (6) parking spaces.</p>	
<p>29.</p>	<p>Design and construct off-street car parking, access, and manoeuvring areas for lot 2 in accordance with the Approved plans, applicable Planning scheme codes, and the Planning scheme policy for development work.</p> <p>Car parking, access, and manoeuvring areas must:</p> <p>a. provide a minimum of 15 parking spaces</p> <p>b. provide a minimum of 2 vehicles with trailer parking spaces</p> <p>c. be designed and constructed in accordance with AS2890 Parking facilities – off-street car parking</p> <p>d. provide parking spaces for people with a disability in accordance with the Building Code of Australia and AS2890.6 Off-street parking for people with disabilities</p> <p>e. provide on-site loading, unloading, and manoeuvring for all necessary service vehicles, including:</p> <ul style="list-style-type: none"> • Medium Rigid Vehicle • Refuse collection vehicle <p>f. allow all design vehicles to enter and exit the site in a forward gear</p> <p>g. be constructed and sealed with asphaltic concrete or concrete.</p>	<p>Prior to the commencement of use and then to be maintained</p>

	<ul style="list-style-type: none"> h. be signed and delineated in accordance with the Queensland manual of uniform traffic control devices i. allow for the provision of fill and/or boundary retaining walls and the containment and management of site stormwater drainage j. be drained to a legal point of discharge k. be available free of charge to staff and customers during operating hours l. Provide shade trees in car parking areas at a minimum ratio of one (1) tree for every six (6) parking spaces. 	
30.	Repair any damaged kerb and channel, footpath, or road (including removal of concrete slurry from footpath, roads, kerb and channel, and stormwater gullies and drainlines) and reinstate existing traffic signs and pavement markings that have been removed or damaged during any works carried out in association with the approved development.	Prior to the commencement of the use
31.	Provide six (6) secure bicycle parking spaces for customers of the Service Station on Lot 1 and four (4) secure bicycle parking spaces for customers of the Food and Drink Outlet on Lot 2. Customer bicycle parking must be located in a visible area close to the entrance of each building.	Prior to the commencement of the use and then to be maintained
ELECTRICITY AND TELECOMMUNICATIONS		
32.	Provide for telecommunications to each proposed lot in accordance with the Planning scheme policy for development works.	Prior to the endorsement of the survey plan
33.	Provide for electrical reticulation to each proposed lot in accordance with the Planning scheme policy for development works.	Prior to the endorsement of the survey plan
EASEMENTS		
34.	<p>Lodge to the State (Titles office) for registration the following easement(s):</p> <ul style="list-style-type: none"> a. access easements as shown on Drawing 19115-DA01, Rev P11 burdening Lot 1 to the benefit of Lot 2. 	Prior to the endorsement of the survey plan

	b. minimum 3m wide sewerage easement in gross over all existing and proposed reticulated sewerage traversing the site	
35.	Submit draft easement documentation to the Assessment Manager for endorsement.	Prior to the endorsement of the survey plan

PART 1B – ADVICE NOTES

NO.	ADVICE	TIMING
CONCURRENCE AGENCY PRE-RESPONSE FOR ASSOCIATED BUILDING WORK		
1.	This decision notice can also be taken as Council’s Concurrence agency pre-response for the removal/demolition of existing structures located on the land plans against Council’s Amenity and aesthetics, and building work involving removal or rebuilding policy (November 2017) and for security matters under Schedule 9, Division 2, Tables 1 and 7 of the <i>Planning regulation 2017</i> .	For the life of the approval
AMENITY		
2.	Ensure the development does not cause environmental nuisance or environmental harm as per the <i>Environmental Protection Act 1994</i> .	At all times
3.	Storage of flammable and /or combustible liquids must comply with the minor storage provisions of AS1940 – the storage and handling of flammable and combustible liquids.	At all times
ENVIRONMENTAL HARM		
4.	The <i>Environmental Protection Act 1994</i> states that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm. Environmental harm includes environmental nuisance. In this regard persons and entities, involved in the civil, earthworks, construction, and operational phases of this development, are to adhere to their ‘general environmental duty’ to minimise the risk of causing environmental harm. Environmental harm is defined by the Act as any adverse effect, or potential adverse effect whether temporary or permanent and of	At all times

	<p>whatever magnitude, duration or frequency on an environmental value and includes environmental nuisance. Therefore, no person should cause any interference with the environment or amenity of the area by reason of the emission of noise, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, wastewater, waste products, grit, sediment, oil, or otherwise, or cause hazards likely in the opinion of the administering authority to cause undue disturbance or annoyance to persons or affect property no connected with the use.</p>	
<p>FOOD ACT</p>		
5.	<p>All operators of the approved use will be required to comply with the <i>Food Act 2006</i> and Council’s minimum requirements for food premises. All necessary approvals should be obtained from the Environment, regulatory, and public health section of Council.</p> <p>Note: <i>For further information about these requirements please contact Council’s Environmental health services section on 1300 883 699.</i></p>	<p>Prior to the commencement of the use and then to be maintained</p>
<p>ABORIGINAL CULTURAL HERITAGE</p>		
6.	<p>All development should proceed in accordance with the Duty of care guidelines under the <i>Aboriginal Cultural Heritage Act 2003</i>. Penalties may apply where duty of care under that act has been breached.</p>	<p>At all times</p>
<p>WATER AND SEWERAGE</p>		
7.	<p>In order for agreed Council work to be performed on existing live water and sewer infrastructure:</p> <ol style="list-style-type: none"> a. ensure a detailed design proposal is submitted to the Assessment Manager, marked ‘For construction’ b. complete a Notice to Service Provider application at https://www.bundaberg.qld.gov.au/water-sewer-connections c. pay the applicable lodgment fee d. if necessary, a quote will be prepared by Council’s Water Service section once the detailed design proposal is approved e. follow instructions provided with the quotation and pay the quoted fee 	<p>At all times</p>

	<p>Note: <i>The Notice to Service Provider application can cater for both water and sewer connection requirements in the one application. The applicable lodgment fee will be adjusted at the time of lodgment according to the features requested.</i></p>	
8.	<p>Connection to water or sewer infrastructure is subject to further approvals. For further information about these requirements, please contact Council's Water Services section on 1300 883 699.</p> <p>No plumbing and drainage works are to commence prior to the issuing of the Plumbing and Drainage Approval by the Council.</p>	<p>Prior to commencement of the use</p>
<p>SIGNAGE</p>		
9.	<p>All signage must comply with the applicable acceptable outcomes contained in the Planning Scheme unless a valid operational works approval is obtained.</p>	<p>At all times</p>
<p>RATES AND CHARGES</p>		
10.	<p>In accordance with the <i>Planning Act 2016</i>, all rates, charges, or any expenses being a charge over the subject land under any Act must be paid prior to the Plan of Subdivision being endorsed by the Assessment Manager.</p>	<p>Prior to the endorsement of the survey plan</p>

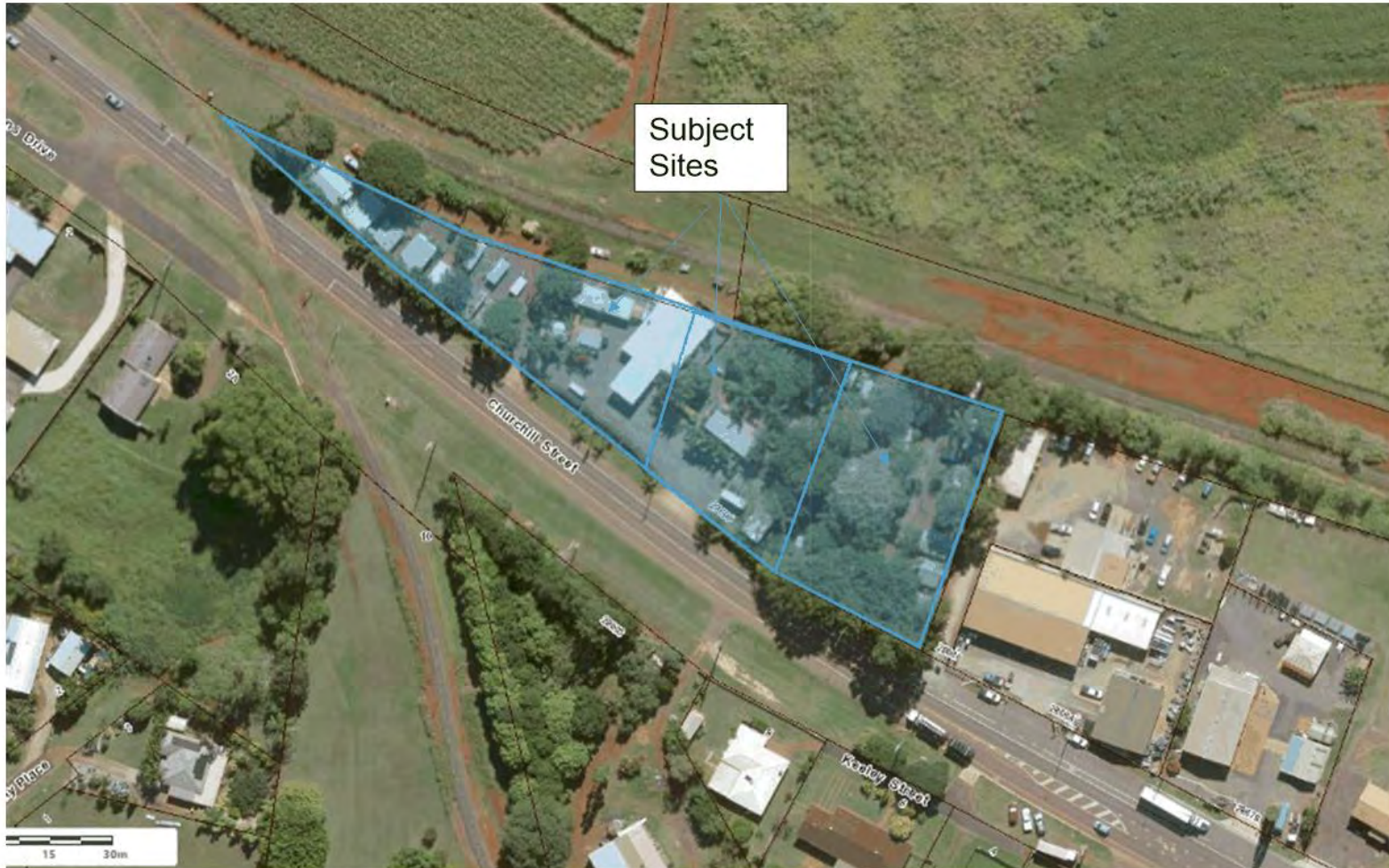
PART 2—CONCURRENCE AGENCY CONDITIONS

Department of State Development, Infrastructure, Local Government & Planning, by letter dated 12 October 2021 (copy letter attached for information).

Locality Plan



Site Plan



PRELIMINARY
THIS DRAWING IS NOT
FOR CONSTRUCTION

ARCHITECTURAL DRAWINGS DEVELOPMENT APPLICATION

PROPOSED MIXED USE DEVELOPMENT
28696 BRUCE HIGHWAY, CHILDERS, QLD.



ARCHITECTURAL DRAWINGS.	
DRG No.	DRAWING TITLE
DA00	TITLE SHEET
DA01	PROPOSED SITE PLAN
DA02	BUILDING ELEVATIONS & PERSPECTIVES
DA03	BUILDING ELEVATIONS & PERSPECTIVES
DA04	SIGNAGE PLAN & DETAILS
DA05	SIGNAGE DETAILS
DA06	BUILDING FLOOR PLAN

VERVE SCHEDULES DISCLAIMER:
1. ALL SCHEDULES SHOULD BE CHECKED WITH THE REMAINDER OF THE DRAWING SET.
2. SCHEDULED RATES AND AREAS ARE INTENDED FOR ASSISTANCE ONLY. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF QUANTITIES.
3. ANY DISCREPANCIES IN SCHEDULES SHOULD BE IDENTIFIED TO THE AUTHOR NOTED.
4. ALL AREAS ARE GROSS AREAS, UNLESS NOTED OTHERWISE.

CONSULTING ENGINEER



- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

©2018 copyright all rights reserved.
This drawing is the intellectual property of Verve Architects Pty Ltd and should not be used or reproduced without permission.
Do not make this drawing.
CHECK ALL DIMENSIONS ON THE JOB.
Construction of Verve

Revision and approvals			
Rev	Date	By	Description
P1	20/01/2020	JS	PRELIMINARY ISSUE FOR INFORMATION
P2	26/03/2020	JP	PRELIMINARY ISSUE FOR REVIEW
P3	02/04/2020	JS	PRELIMINARY ISSUE FOR REVIEW
P4	03/03/2021	JS	PRELIMINARY ISSUE FOR REVIEW
P5	21/03/2021	JS	PRELIMINARY ISSUE FOR REVIEW

Project Description	
PROPOSED MIXED USE DEVELOPMENT	
28696 BRUCE HIGHWAY, CHILDERS QLD	
Scale: 0/01	Site:
Drawn: JS	Approved By: GM

Drawing Title	
TITLE SHEET	
Job Number - Drawing Number	Revision
19115 DA00	P5

THIS DRAWING PACKAGE IS FOR **D.A. PURPOSES ONLY**, AND IS **NOT** TO BE USED FOR TENDER PURPOSES. **ALL** DESIGN COMPONENTS ARE SHOWN INDICATIVE ONLY AND SUBJECT TO FINAL DESIGN DURING DETAILED DESIGN, BY THE RESPECTIVE CONSULTANT. ANY PRICING BASED UPON THE DETAILS SHOWN IN THESE DRAWINGS ARE COMPLETELY AT THE **RESPONSIBILITY OF THE TENDERER**. VERVE BUILDING DESIGN CO. SHALL NOT BE HELD RESPONSIBLE FOR ANY REQUIRED CHANGES OR UPDATES TO THE DESIGN, POST D.A., THAT ARE PRICE IMPACTED.

LANDSCAPING IS SHOWN FOR "ARTIST IMPRESSION" PURPOSES ONLY. REFERENCE SHOULD BE MADE TO THE LANDSCAPE DRAWINGS PREPARED BY THE RELEVANT CONSULTANT.

ALL EXTERNAL MATERIALS & FINISHES SHOWN INDICATIVE ONLY AND SUBJECT TO FINAL TENANT STANDARDS

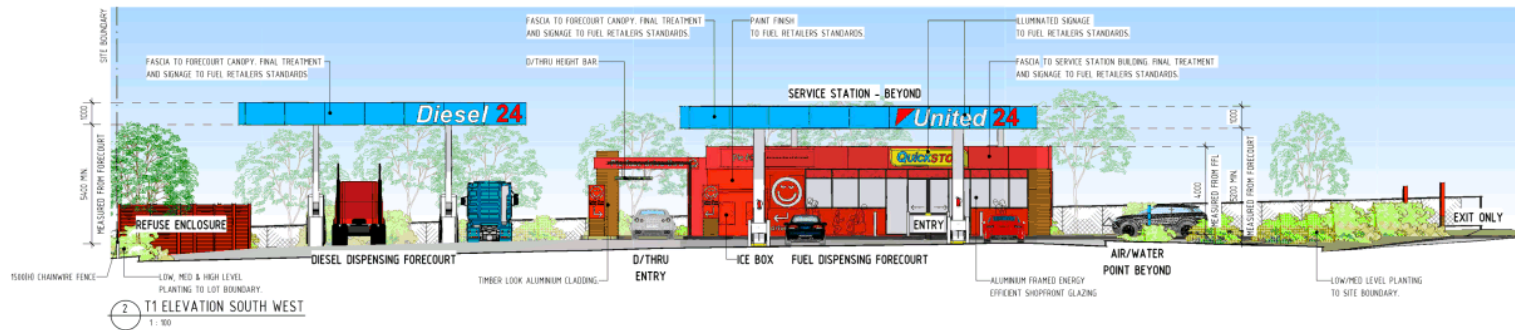
ALL DIMENSIONS MEASURED FROM FINISHED GROUND FLOOR LEVEL UNLESS NOTED OTHERWISE

ALL SIGNAGE INCLUDING LOCATIONS AND HEIGHTS ARE SUBJECT TO A SEPARATE SIGNAGE APPLICATION AND APPROVAL BY LOCAL AUTHORITY

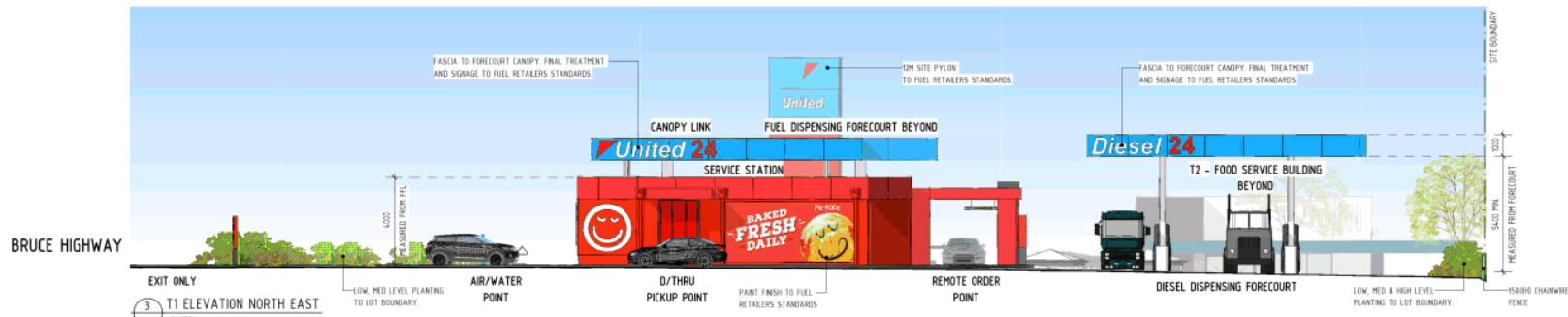
PRELIMINARY
THIS DRAWING IS NOT FOR CONSTRUCTION



1 PERSPECTIVE 1



2 T1 ELEVATION SOUTH WEST 1:100



3 T1 ELEVATION NORTH EAST 1:100

VERVE SCHEDULES DISCLAIMER:
1. ALL SCHEDULES SHOULD BE CHECKED WITH THE REMAINDER OF THE DRAWING SET.
2. SCHEDULED RATES AND AREAS ARE INTENDED FOR ASSISTANCE ONLY, NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF QUANTITIES.
3. ANY DISCREPANCIES IN SCHEDULES SHOULD BE IDENTIFIED TO THE AUTHOR NOTED.
4. ALL AREAS ARE GROSS AREAS, UNLESS NOTED OTHERWISE.

CONSULTING ENGINEER



- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

©2018 copyright all rights reserved
This drawing is the intellectual property of VERVE BUILDING DESIGN CO. and shall not be used or reproduced without the written consent of VERVE BUILDING DESIGN CO.

Rev	Date	By	Description	Appr.
P1	26.03.2023	JS	PRELIMINARY ISSUE FOR INFORMATION	JS
P2	06.05.2023	JP	PRELIMINARY ISSUE FOR REVIEW	JS
P3	02.06.2023	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P4	03.03.2024	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P5	05.03.2024	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P6	25.03.2024	JS	PRELIMINARY ISSUE FOR REVIEW	JS

Revision and approvals		Project Description	
Rev	Date	PROPOSED MIXED USE DEVELOPMENT	
Rev	Date	28696 BRUCE HIGHWAY, CHILDERS QLD	
Rev	Date	Drawn by	Checked by
		JS	JS

Drawing Title		Revision	
BUILDING ELEVATIONS & PERSPECTIVES		Job Number -	Drawn Number
		19115	DA02
		Sheet	P6

THIS DRAWING PACKAGE IS FOR **D.A. PURPOSES ONLY**, AND IS **NOT** TO BE USED FOR TENDER PURPOSES. ALL DESIGN COMPONENTS ARE SHOWN INDICATIVE ONLY AND SUBJECT TO FINAL DESIGN DURING DETAILED DESIGN BY THE RESPECTIVE CONSULTANT. ANY PRICING BASED UPON THE DETAILS SHOWN IN THESE DRAWINGS ARE COMPLETELY AT THE **RESPONSIBILITY OF THE TENDERER**. VERVE BUILDING DESIGN CO. SHALL NOT BE HELD RESPONSIBLE FOR ANY REQUIRED CHANGES OR UPDATES TO THE DESIGN, POST D.A., THAT ARE PRICE IMPACTED.

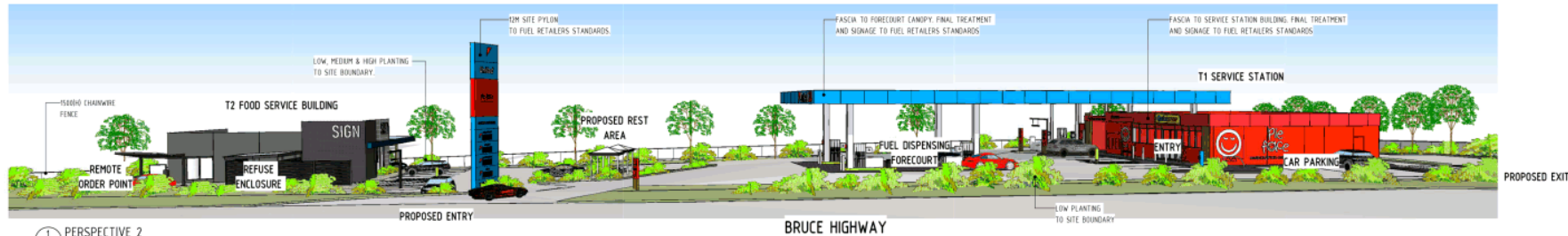
LANDSCAPING IS SHOWN FOR "ARTIST IMPRESSION" PURPOSES ONLY. REFERENCE SHOULD BE MADE TO THE LANDSCAPE DRAWINGS PREPARED BY THE RELEVANT CONSULTANT.

ALL EXTERNAL MATERIALS & FINISHES SHOWN INDICATIVE ONLY AND SUBJECT TO FINAL TENANT STANDARDS

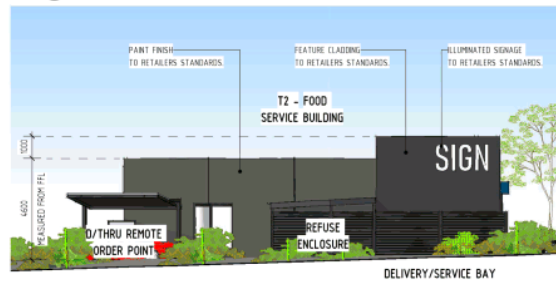
ALL DIMENSIONS MEASURED FROM FINISHED GROUND FLOOR LEVEL UNLESS NOTED OTHERWISE

ALL SIGNAGE INCLUDING LOCATIONS AND HEIGHTS ARE SUBJECT TO A SEPARATE SIGNAGE APPLICATION AND APPROVAL BY LOCAL AUTHORITY

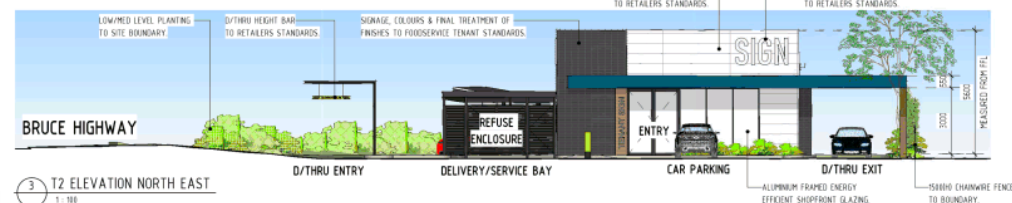
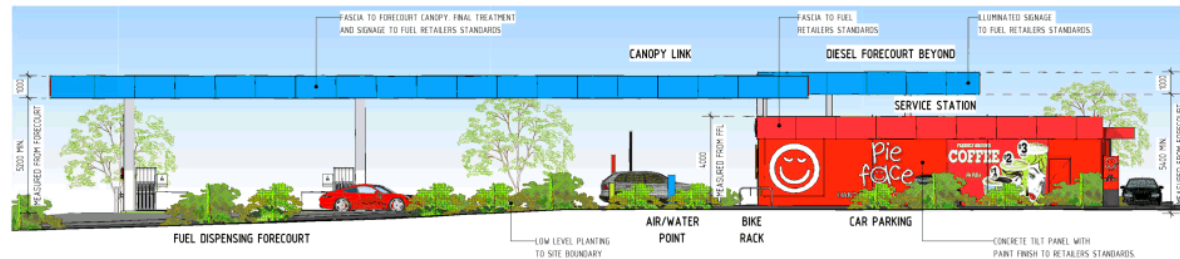
PRELIMINARY
THIS DRAWING IS NOT FOR CONSTRUCTION



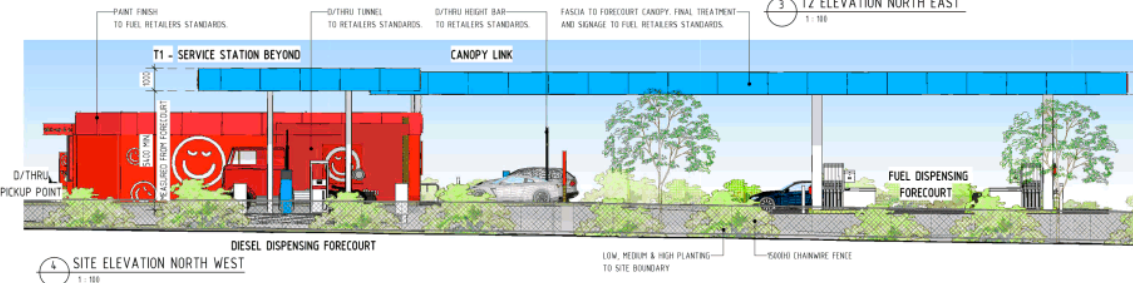
1 PERSPECTIVE 2



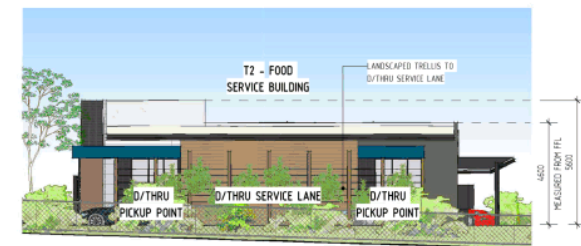
2 SITE ELEVATION SOUTH EAST
1:100



3 T2 ELEVATION NORTH EAST
1:100



4 SITE ELEVATION NORTH WEST
1:100



VERVE SCHEDULES DISCLAIMER:
1. ALL SCHEDULES SHOULD BE CHECKED WITH THE REMAINDER OF THE DRAWING SET.
2. SCHEDULED RATES AND AREAS ARE INTENDED FOR ASSISTANCE ONLY. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OF QUANTITIES.
3. ANY DISCREPANCIES IN SCHEDULES SHOULD BE IDENTIFIED TO THE AUTHOR NOTED.
4. ALL AREAS ARE GRASS AREAS, UNLESS NOTED OTHERWISE.

CONSULTING ENGINEER



- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

©2024 copyright all rights reserved
This drawing is the intellectual property of Verve Building Design Co. and shall not be copied or reproduced without the written consent of Verve Building Design Co.
Do not scale the drawing
CHECK ALL DIMENSIONS ON THE DRAWING
COMPLETION DATE: 2024

Revision and approvals			Description	
Rev	Date	By	Description	Appr
P1	26.03.2024	JS	PRELIMINARY ISSUE FOR INFORMATION	JS
P2	06.05.2024	JP	PRELIMINARY ISSUE FOR REVIEW	JS
P3	02.06.2024	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P4	03.09.2024	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P5	03.03.2025	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P6	03.03.2025	JS	PRELIMINARY ISSUE FOR REVIEW	JS
P7	25.03.2025	JS	PRELIMINARY ISSUE FOR REVIEW	JS

Project Description
PROPOSED MIXED USE DEVELOPMENT
28696 BRUCE HIGHWAY, CHILDERS QLD
Scale: **As Indicated**
Date: **JUL - 2020**
Approved by: **GN**

Drawing Title
BUILDING ELEVATIONS & PERSPECTIVES
Job Number - Drawing Number
19115 DA03
Revision
P7



PRELIMINARY

BUILDING AREAS - GFA

- SHOP/SALES - 110.0m²
- FUEL/FOOD CONSOLE - 67.4m²
- OFFICE - 4.7m²
- DRY STORAGE - 14.3m²
- STAFF AMENITIES/ AIR LOCK - 5.3m²
- D/THRU PAY/PICKUP - 2.5m²
- PWD & AMBULANT WC - 11.0m²
- COLDROOM/FREEZER - 20.3m²
- TOTAL BUILDING GFA - 235.5m²**

NOTE: INTERNAL BUILDING LAYOUT SHOWN INDICATIVE ONLY AND SUBJECT TO CHANGE ONCE FUEL RETAILER IS CONFIRMED.

Consulting Engineer

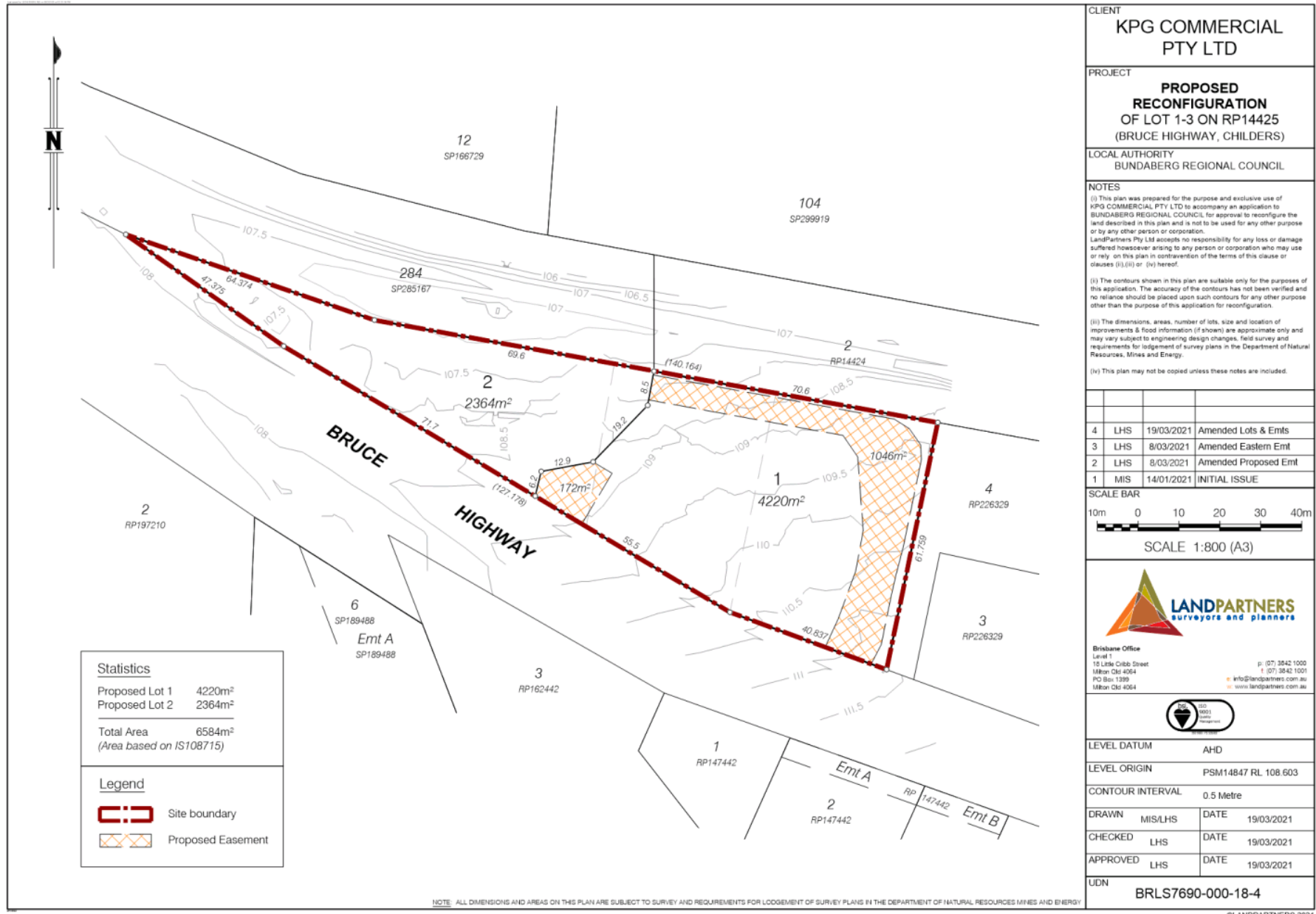


- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

© 1997 copyright, all rights reserved. This drawing is the ©, copyright & property of VERVE BUILDING DESIGN and must not be used or duplicated without authorisation. Do not scale this drawing. Check all dimensions on site prior commencement of works.

Rev	Date	Description
P1	05/01/2025	PRELIMINARY ISSUE FOR REVIEW
P2	06/01/2025	PRELIMINARY ISSUE FOR REVIEW
P3	10/01/2025	PRELIMINARY ISSUE FOR REVIEW

Project Description		Drawing Title	
PROPOSED MIXED USE DEVELOPMENT 28696 BRUCE HIGHWAY, CHILDERS QLD		BUILDING FLOOR PLAN	
Scale	Sheet	Drawing Number	Revision
1:500 @ A1 / 1:1000 @ A2	Sheet	19115-DA06	P3



Statistics	
Proposed Lot 1	4220m ²
Proposed Lot 2	2364m ²
Total Area	6584m²
<i>(Area based on IS108715)</i>	

Legend	
	Site boundary
	Proposed Easement

NOTE: ALL DIMENSIONS AND AREAS ON THIS PLAN ARE SUBJECT TO SURVEY AND REQUIREMENTS FOR LOGEMENT OF SURVEY PLANS IN THE DEPARTMENT OF NATURAL RESOURCES MINES AND ENERGY

CLIENT KPG COMMERCIAL PTY LTD			
PROJECT PROPOSED RECONFIGURATION OF LOT 1-3 ON RP14425 (BRUCE HIGHWAY, CHILDERS)			
LOCAL AUTHORITY BUNDABERG REGIONAL COUNCIL			
NOTES (i) This plan was prepared for the purpose and exclusive use of KPG COMMERCIAL PTY LTD to accompany an application to BUNDABERG REGIONAL COUNCIL for approval to reconfigure the land described in this plan and is not to be used for any other purpose or by any other person or corporation. LandPartners Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this plan in contravention of the terms of this clause or clauses (ii),(iii) or (iv) hereof. (ii) The contours shown in this plan are suitable only for the purposes of this application. The accuracy of the contours has not been verified and no reliance should be placed upon such contours for any other purpose other than the purpose of this application for reconfiguration. (iii) The dimensions, areas, number of lots, size and location of improvements & food information (if shown) are approximate only and may vary subject to engineering design changes, field survey and requirements for lodgement of survey plans in the Department of Natural Resources, Mines and Energy. (iv) This plan may not be copied unless these notes are included.			
4	LHS	19/03/2021	Amended Lots & Emits
3	LHS	8/03/2021	Amended Eastern Emt
2	LHS	8/03/2021	Amended Proposed Emt
1	MIS	14/01/2021	INITIAL ISSUE
SCALE BAR			
10m 0 10 20 30 40m			
SCALE 1:800 (A3)			
 Brisbane Office Level 1 18 Little Cribb Street Milton Qld 4064 P: (07) 3842 1000 F: (07) 3842 1001 info@landpartners.com.au www.landpartners.com.au			
LEVEL DATUM		AHD	
LEVEL ORIGIN		PSM14847 RL 108.603	
CONTOUR INTERVAL		0.5 Metre	
DRAWN	MIS/LHS	DATE	19/03/2021
CHECKED	LHS	DATE	19/03/2021
APPROVED	LHS	DATE	19/03/2021
UDN		BRLS7690-000-18-4	
©LANDPARTNERS 2021			



Our reference: 2104-22124 SRA
Your reference: 525.2021.23.1
Applicant reference: 1620008

12 October 2021

The Chief Executive Officer
Bundaberg Regional Council
PO Box 3130
BUNDABERG QLD 4670

development@bundaberg.qld.gov.au

Attention: Mr Scott Irwin

Dear Mr Irwin

SARA Response – Bruce Highway and 28696 Bruce Highway, CHILDERS (Lots 1, 2 & 3 on RP14425)

(Given under Section 56 of the *Planning Act 2016*)

The development application described below was confirmed as being properly referred to the State Assessment and Referral Agency (SARA) on 27 April 2021.

Response

Outcome:	Referral Agency Response under Section 56(1)(b) of the <i>Planning Act 2016</i> (with conditions)
Date of response:	12 October 2021
Conditions:	The approval is subject to the conditions in Attachment 1
Advice:	Advice to the applicant is in Attachment 2
Reasons:	The reasons for the referral agency response are in Attachment 3

Development Details

Description:	Development Permit for Material Change of Use – Service Station and Food and Drink Outlet Development Permit for Reconfiguring a Lot – 3 Lots into 2 Lots and access easements
--------------	---

Page 1 of 9

Wide Bay Burnett regional office
Level 1, 7 Takalvan Street, Bundaberg
PO Box 979, Bundaberg QLD 4670

2104-22124 SRA

SARA role: Referral agency

SARA triggers: Schedule 10, Part 9, Division 4, Subdivision 2, Table 1, Item 1–
Reconfiguring a lot near a State transport corridor (Planning Regulation 2017)

Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1–
Material change of use of premises near a State transport corridor
(Planning Regulation 2017)

SARA reference: 2104-22124 SRA

Assessment Manager: Bundaberg Regional Council

Street address: Bruce Highway and 28696 Bruce Highway, CHILDERS

Real property description: Lots 1, 2 and 3 on RP14425

Applicant name: KPG Nominees (No. 32) Pty Ltd

Applicant contact details: C/- Place Design Group
PO Box 1027
SOUTHPORT BC QLD 4215
madison.r@placedesigngroup.com

State-controlled road access permit: This referral included an application for a road access location, under Section 62(A) of the *Transport Infrastructure Act 1994*.

Below are the details of this decision:

- Approved – with conditions
- TMR21-032770
- Date: 11 October 2021

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (section 30 of the Development Assessment Rules).

Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

2104-22124 SRA

For further information please contact Peter Mulcahy, Principal Planning Officer, on (07) 4331 5605 or via email WBBSARA@dSDLGP.qld.gov.au who will be pleased to assist.

Yours sincerely



Luke Lankowski

Manager, Planning – Wide Bay Burnett

enc Attachment 1 – Referral agency conditions
 Attachment 2 – Advice to the applicant
 Attachment 3 – Reasons for referral agency response
 Attachment 4 – Representations about a referral agency response
 Attachment 5 – Approved plans and specifications

cc KPG Nominees (No. 32) Pty Ltd
 C/- Place Design Group
 madison.r@placedesigngroup.com

Department of Transport and Main Roads
Wide.Bay.Burnett.IDAS@tmr.qld.gov.au

2104-22124 SRA

Attachment 1—Referral agency conditions

(Under Section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the plans and specifications referenced below are found at **Attachment 5**)

No.	Conditions	Condition timing
Development Permit for Reconfiguring a Lot – 3 Lots into 2 Lots and Access Easements		
Schedule 10, Part 9, Division 4, Subdivision 2, Table 1, Item 1 of the Planning Regulation 2017—The Chief Executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	The development must be carried out generally in accordance with the following plan: <ul style="list-style-type: none"> i) <i>Proposed Reconfiguration of Lot 1-3 on RP14425</i>, prepared by LandPartners, reference: BRLS7690-000-18-4, dated 19 March 2021 inclusive of easements to facilitate access. 	Prior to submitting the Plan of Survey to the local government for approval.
2.	(a) The applicant must register reciprocal access easements on the titles of proposed Lots 1 and 2 as shown on drawing titled <i>Proposed Site Plan</i> prepared by Verve dated 16 August 2021, reference 19115-DA01 (Revision P10) as amended in red by the SARA on 12 October 2021. (b) The applicant must provide to the District Director (Wide Bay Burnett) Department of Transport and Main Roads, Locked Bag 486, Bundaberg QLD or by e-mail to Wide.Bay.Burnett.IDAS@tmr.qld.gov.au a copy of Registration Confirmation Statement/s and easement registration dealing number/s as evidence of the registration of the easement/s referred to in part (a) of this condition.	(a) At the time of Survey Plan registration. (b) Within 20 business days of registration of the easements.
Development Permit for Material Change of Use – Service Station and Food and Drink Outlet		
Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 of the Planning Regulation 2017—The Chief Executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
3.	The Commercial Crossovers, Auxiliary left turn treatment, cycle lane and No Entry signage must be provided generally in accordance with the following plan: <ul style="list-style-type: none"> - <i>Proposed Site Plan</i> prepared by Verve dated 16 August 2021, reference 19115-DA01 (Revision P10) as amended in red by SARA on 12 October 2021 	Prior to the commencement of use and to be maintained at all times.
4.	(a) The stormwater management of the proposed development must be undertaken generally in accordance with the <i>Stormwater Management Plan</i> prepared by Kehoe Meyers Consulting Engineers dated 24 March 2021, Project No. S20210106, Revision 5. (b) Provide certification from a Registered Professional Engineer of Queensland (RPEQ) that the development has been constructed in accordance with part (a) of this condition.	(a) At all times. (b) Prior to the commencement of use.

2104-22124 SRA

5.	The permitted road access locations are to be located in accordance with the drawing titled <i>Proposed Site Plan</i> prepared by Verve dated 16 August 2021, reference 19115-DA01 (Revision P10) as amended in red by SARA on 12 October 2021.	Prior to the commencement of use.
6.	<p>Road access works must be provided at Permitted Road Access Location 1 comprising:</p> <ul style="list-style-type: none"> a) A 75 metre Auxiliary left turn treatment (AUL) and cycle lane treatment must be provided in accordance with <i>All Movements Site Access Arrangement</i>, prepared by TTM, Drawing No. 20BRT0073-14 (Revision A) Sheet 2 of 3, dated 18 August 2021. Lane widths are to lip of kerb and channel, as per Austroads Guide to Road Design Part 4A section 6.5.1 as accepted in the Department of Transport and Main Roads' Road Planning and Design Manual 2nd edition, Part 4A. b) A painted centre median in accordance with <i>All Movements Site Access Arrangement</i>, prepared by TTM, Drawing No. 20BRT0073-14 (Revision A) Sheet 1 of 3, dated 18 August 2021 as amended in red by SARA on 12 October 2021. c) Provide a crossover of sufficient width to cater to the largest design vehicle, which is identified as a 26 metre B-Double. d) Erection of 'No Entry' signage (R2-4) on both sides of Permitted road access location 1 facing north in accordance with the Department of Transport and Main Roads' Manual of Uniform Traffic Control Devices (MUTCD). e) The road access works must be constructed in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual 2nd Edition, standard drawings and specification. 	Prior to the commencement of use.
7.	<p>Road access works must be provided at Permitted Road Access Location 2 comprising:</p> <ul style="list-style-type: none"> a) An access of sufficient width to cater to the largest design vehicle, which is identified as a 26 metre B-Double. b) Erection of 'No Entry' signage (R2-4) on both sides of Permitted road access location 2 facing south in accordance with the Department of Transport and Main roads' Manual of Uniform Traffic Control Devices (MUTCD). c) The road access works must be constructed in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual 2nd edition, standard drawings and specification. d) Relocate the electricity pole – solar iv. Identified on <i>Proposed Site Plan</i> prepared by Verve dated 16 August 2021, reference 19115-DA01 (Revision P10) as amended in red by SARA on 12 October 2021 clear of the vehicle access. e) Relocate the heavy vehicle counter located at the proposed exit location to a new location clear of the access. f) Removal all redundant road access works and reinstate new kerb and channel and verge, in accordance with Bundaberg Regional Council requirements. 	Prior to the commencement of use.

2104-22124 SRA

Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> its regulation or the State Development Assessment Provisions (SDAP) v2.6. If a word remains undefined it has its ordinary meaning.
Access arrangements to/from the state-controlled road	
2.	<p>In accordance with Section 67(2) of the <i>Transport Infrastructure Act 1994</i> (TIA) there is no guarantee of the continuation of road access arrangements, as this depends on future traffic safety and efficiency circumstances.</p> <p>In addition to the statements above right turns into and out from the site are available under the decision about access given by the Department of Transport and Main Roads under Section 62 of the TIA (Permitted Road Access Location). Road users are permitted to travel within and turn across the painted median.</p> <p>The Department of Transport and Main Roads will monitor operation of the access. Under Section 67(2) of the TIA the Department of Transport and Main Roads reserves the right to restrict or change access arrangements in the future to address any emerging road safety issues including limitations on right turns into and/or out from the site.</p>
Advertising devices	
3.	<p>Advertising devices to be placed on the subject site which will be visible from the from the state-controlled roads should be in accordance with the Department of Transport and Main Roads Roadside Advertising Manual 2nd Edition.</p> <p>Where advertising devices are not in accordance with the Department of Transport and Main Roads Roadside Advertising Manual 2nd Edition, and are considered to be a hazard or distraction to drivers, the Department of Transport and Main Roads may exercise powers under the <i>Transport Infrastructure Act 1994</i> to have the signage modified or removed. Any such action required will be at the expense of the landowner or occupier.</p>
Further development permits required (road works approval)	
4.	<p>Under Section 33 of the <i>Transport Infrastructure Act 1994</i>, written approval is required from the Department of Transport and Main Roads to carry out road works on a state-controlled road.</p> <p>Please contact the Department of Transport and Main Roads on (07) 4154 0200 or e-mail Wide.Bay.Burnett.IDAS@tmr.qld.gov.au to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs for the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ).</p> <p>The road works approval process takes time – please contact the Department of Transport and Main Roads as soon as possible to ensure that gaining approval does not delay construction (DTMR Reference: TMR21-32770).</p>

2104-22124 SRA

Attachment 3—Reasons for referral agency response

(Given under Section 56(7) of the *Planning Act 2016*)

The reasons for the SARA decision are:

The proposed development complies with the assessment benchmarks and purpose statement within State Code 1: Development in a state-controlled road environment of the State Development Assessment Provisions, as the proposed development is:

- not considered to result in safety and efficiency impacts on the state-controlled road network
- not considered to result in a worsening of the operating performance of state-controlled roads
- not considered to compromise the state's ability to maintain and operate state-controlled roads
- not considered to result in adverse stormwater impacts on the state-controlled road

Conditions have been applied to ensure compliance with State Code 1 including where applicable.

Material used in the assessment of the application:

- The development application material
- *Planning Act 2016*.
- Planning Regulation 2017.
- The *State Development Assessment Provisions* (Version 2.6).
- The Development Assessment Rules (DA Rules).
- SARA DA Mapping system.
- *Human Rights Act 2019*.

2104-22124 SRA

Attachment 4—Representations about a referral agency response

2104-22124 SRA

Attachment 5—Approved plans and specifications

Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules¹ regarding **representations about a referral agency response**

Part 6: Changes to the application and referral agency responses

28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
- (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
 - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
 - (c) the applicant has given written agreement to the change to the referral agency response.²
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
- (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and
 - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

¹ Pursuant to Section 68 of the *Planning Act 2016*

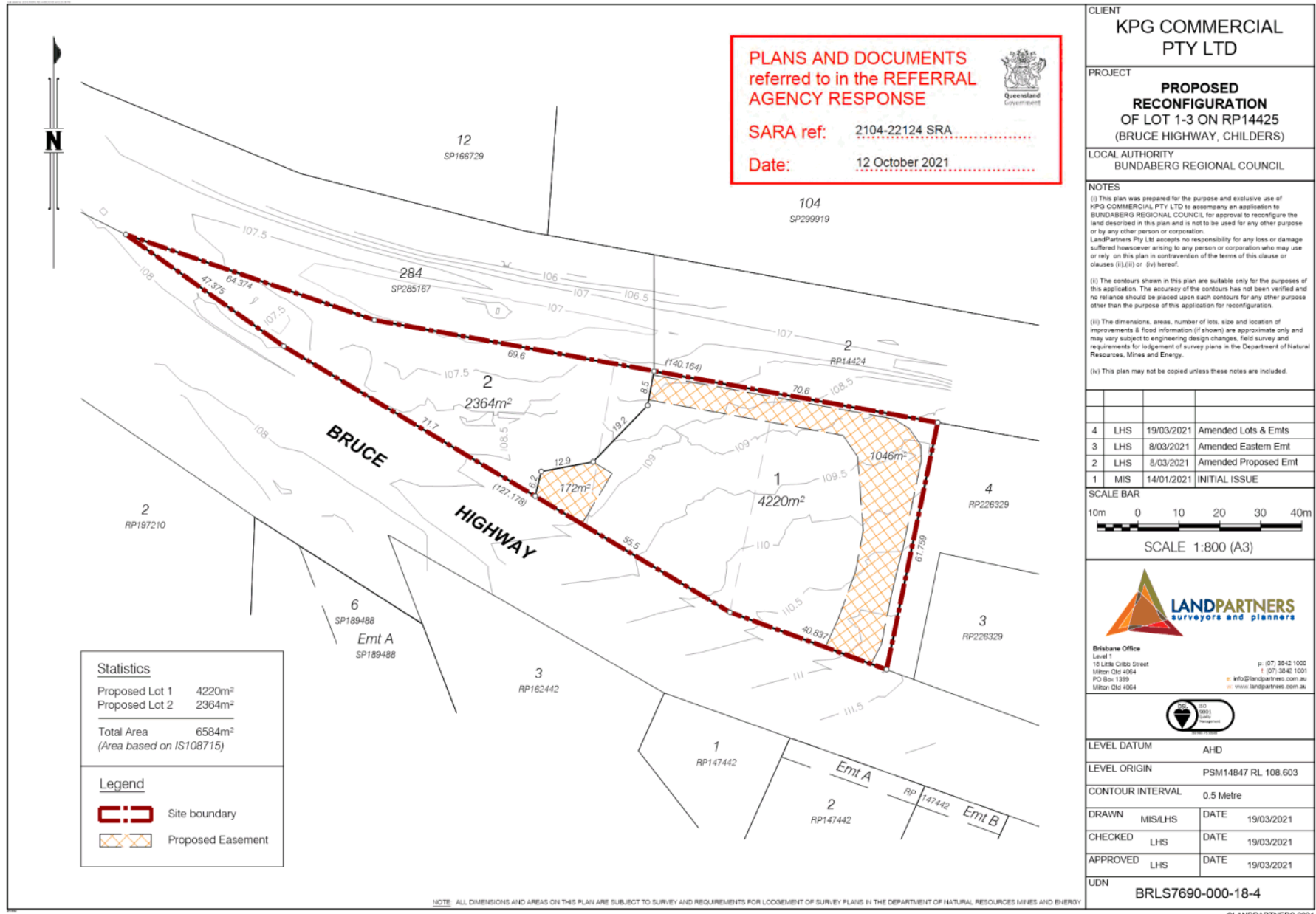
² In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

Part 7: Miscellaneous

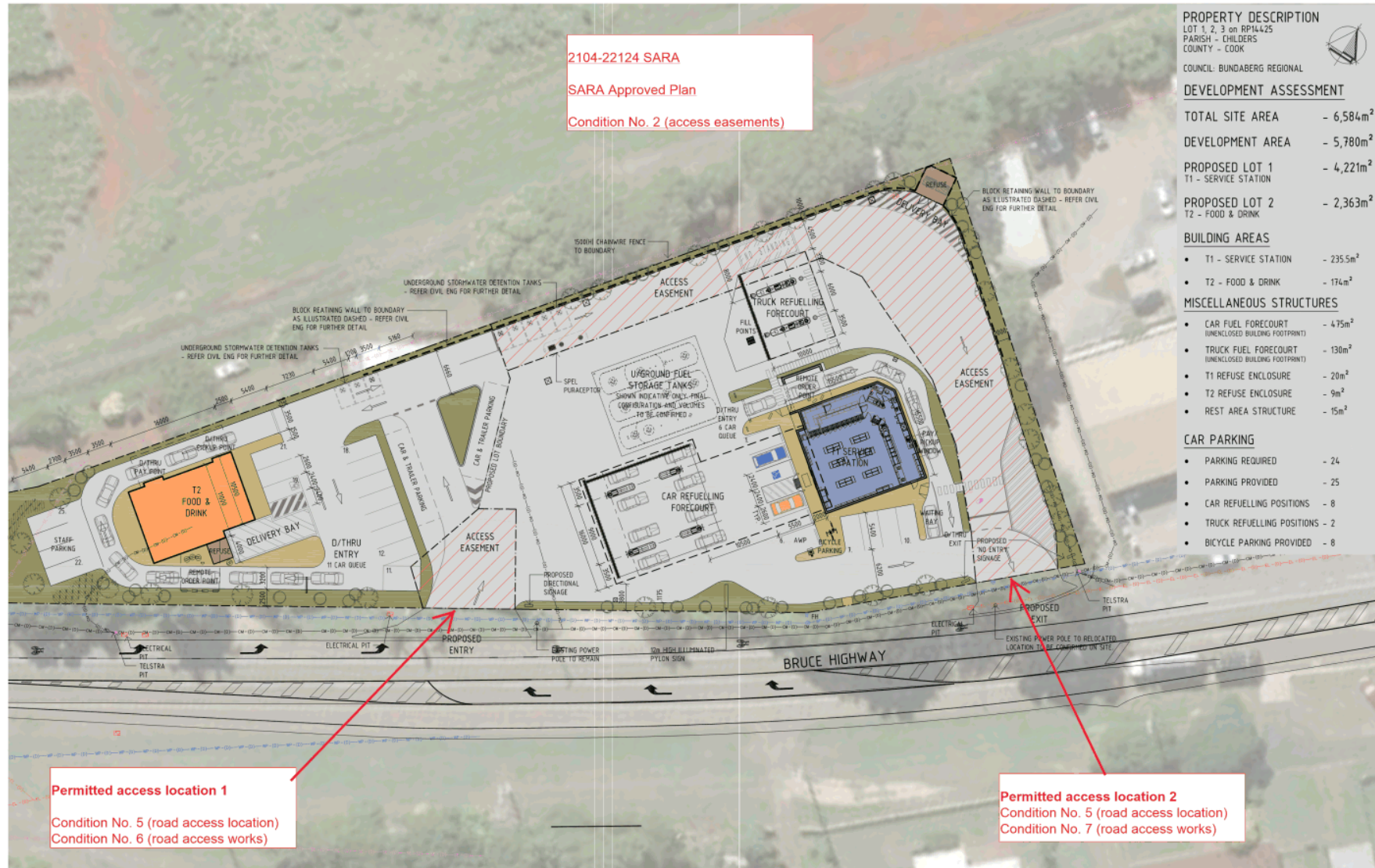
30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.³

³ An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.



PRELIMINARY



2104-22124 SARA
 SARA Approved Plan
 Condition No. 2 (access easements)

PROPERTY DESCRIPTION
 LOT 1, 2, 3 on RP14425
 PARISH - CHILDERS
 COUNTY - COOK
 COUNCIL - BUNDABERG REGIONAL

DEVELOPMENT ASSESSMENT

TOTAL SITE AREA	- 6,584m ²
DEVELOPMENT AREA	- 5,780m ²
PROPOSED LOT 1 T1 - SERVICE STATION	- 4,221m ²
PROPOSED LOT 2 T2 - FOOD & DRINK	- 2,363m ²

BUILDING AREAS

- T1 - SERVICE STATION - 235.5m²
- T2 - FOOD & DRINK - 174m²

MISCELLANEOUS STRUCTURES

- CAR FUEL FORECOURT (UNENCLOSED BUILDING FOOTPRINT) - 4.75m²
- TRUCK FUEL FORECOURT (UNENCLOSED BUILDING FOOTPRINT) - 130m²
- T1 REFUSE ENCLOSURE - 20m²
- T2 REFUSE ENCLOSURE - 9m²
- REST AREA STRUCTURE - 15m²

CAR PARKING

- PARKING REQUIRED - 24
- PARKING PROVIDED - 25
- CAR REFUELLING POSITIONS - 8
- TRUCK REFUELLING POSITIONS - 2
- BICYCLE PARKING PROVIDED - 8

Permitted access location 1
 Condition No. 5 (road access location)
 Condition No. 6 (road access works)

Permitted access location 2
 Condition No. 5 (road access location)
 Condition No. 7 (road access works)

Consulting Engineer



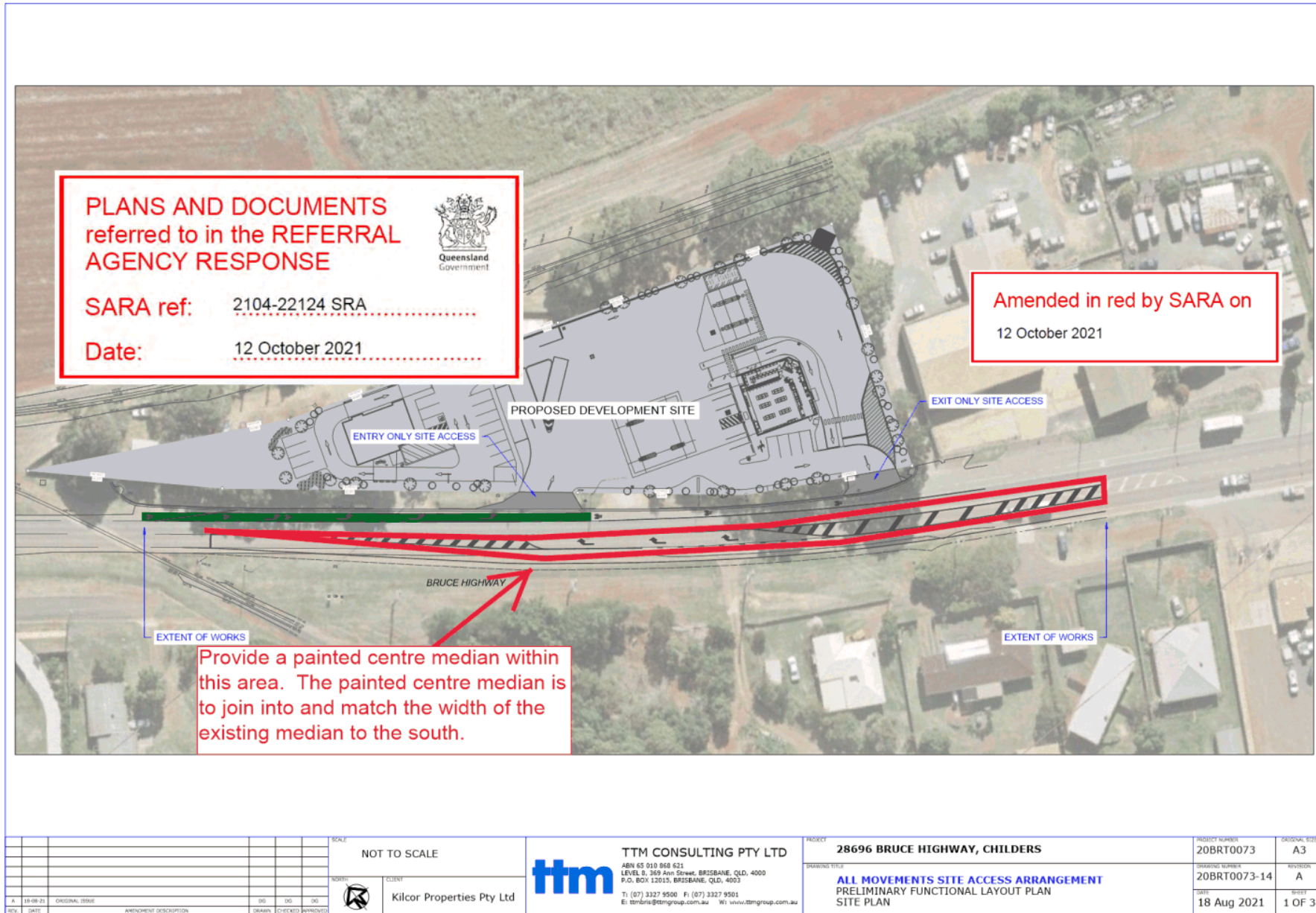
- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

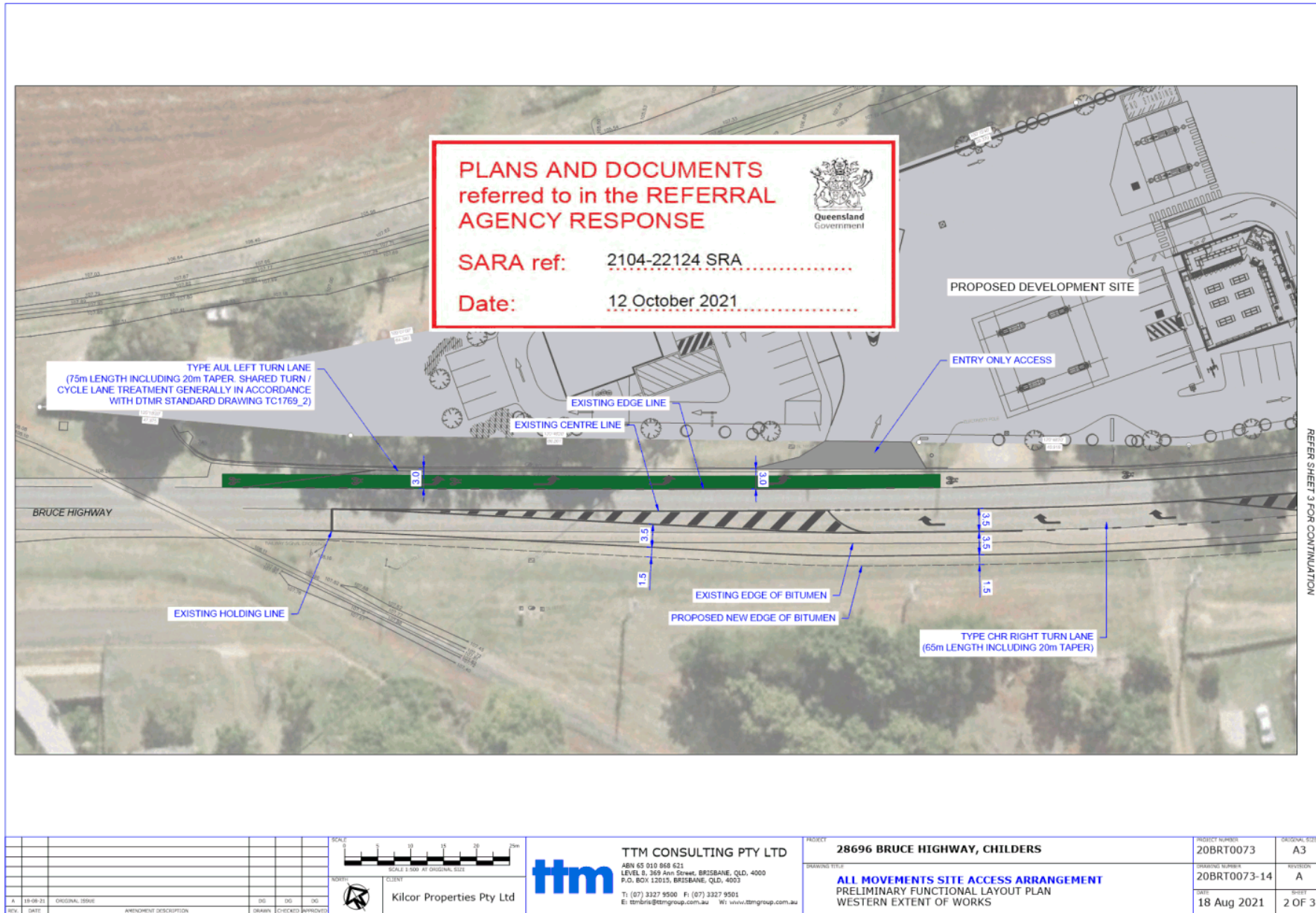
© 1997 copyright, all rights reserved.
 This drawing is the ©, copyright & property of VERVE BUILDING DESIGN
 and must not be used or replicated without authorisation.
 Do not scale this drawing.
 Check all dimensions on site prior commencement of works.

Rev	Date	Description
1	14.08.2011	PRELIMINARY ISSUE

Project Description	PROPOSED MIXED USE DEVELOPMENT 28696 BRUCE HIGHWAY, CHILDERS QLD
Date	12/01/15
Scale	A1 / 1:500 (BAS)
Drawn	David

Drawing Title	PROPOSED SITE PLAN
Drawing Number	19115-DA01
Revision	P10





Our ref TMR21-032770
 Your ref
 Enquiries Andrea McPherson



Department of
Transport and Main Roads

11 October 2021

Amended Decision Notice – Permitted Road Access Location (s62(1) *Transport Infrastructure Act 1994*)

This is not an authorisation to commence work on a state-controlled road¹

Development application reference number 525.2021.23.1, lodged with Bundaberg Regional Council involves constructing or changing a vehicular access between Lot 1RP14425, 2RP14425, 3RP14425, the land the subject of the application, and the Bruce Highway (a state-controlled road). This decision supersedes any other s62 decision issued for this use.

In accordance with section 62A(2) of the *Transport Infrastructure Act 1994* (TIA), this development application is also taken to be an application for a decision under section 62(1) of TIA.

Applicant Details

Name and address Kpg Nominees (No. 32) Pty Ltd
 PO Box 1027
 SOUTHPORT BC QLD 4215

Application Details

Address of Property 28696 Bruce Highway, CHILDERS QLD 4660
 Real Property Description 1RP14425, 2RP14425, 3RP14425
 Aspect/s of Development Material Change of Use for Service Station and Food and Drink Outlet, 3 Lots into 2 Lots and access easements

Decision (given under section 67 of TIA)

It has been decided to approve the application, subject to the following conditions:

No.	Conditions of Approval	Condition Timing
1	The permitted road access locations are to be in accordance with drawing titled Proposed Site Plan prepared by Verve dated 16.08.2021 reference 19115-DA01 (rev. P10) as amended in red by the Department of Transport and Main Roads on the 8 September 2021.	Prior to the commencement of use.
2	Use of permitted road access locations is permitted for the following movements: a) Permitted road access location 1 – left and right turn in	At all times

¹ Please refer to the further approvals required under the heading 'Further approvals'

Program Delivery and Operations
 Southern Queensland Region
 23 Quay Street Bundaberg QLD 4670
 Locked Bag 486 Bundaberg DC QLD 4670

Telephone +61 7 (07) 4154 0208
 Website www.tmr.qld.gov.au
 Email WBB.IDAS@tmr.qld.gov.au
 ABN: 39 407 690 291

No.	Conditions of Approval	Condition Timing
	<p>movements only; and</p> <p>b) Permitted road access location 2 – left and right turn out movements only.</p>	
3	<p>a) Road access works must be provided at Permitted road access location 1 comprising:</p> <ul style="list-style-type: none"> i. A 75 metre Auxiliary left turn treatment (AUL) and cycle lane treatment must be provided in accordance with the All movements site access arrangement, prepared by TTM, drawing no. 20BRT0073-14 (rev.A) sheet 2 of 3, dated 18 August 2021. Lane widths are to lip of kerb and channel, as per Austroads Guide to Road Design Part 4A section 6.5.1 as accepted in the Department of Transport and Main Roads' Road Planning and Design Manual 2nd edition, Part 4A. ii. A painted centre median in accordance with the All movements site access arrangement prepared by TTM, drawing no. 20BRT0073-14 (rev.A), sheet 1 of 3 as amended in red by the Department of Transport and Main Roads on the 8 September 2021. iii. Provide a crossover of sufficient width to cater to the largest design vehicle, which is identified as a 26 metre B-Double. iv. Erection of 'No Entry' signage (R2-4) on both sides of Permitted road access location 1 facing north in accordance with the Department of Transport and Main Roads' Manual of Uniform Traffic Control Devices (MUTCD). v. The road access works must be constructed in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual 2nd edition, standard drawings and specification. <p>b) Road access works must be provided at Permitted road access location 2 comprising:</p> <ul style="list-style-type: none"> i. An access of sufficient width to cater to the largest design vehicle, which is identified as a 26 metre B-Double. ii. Erection of 'No Entry' signage (R2-4) on both sides of Permitted road access location 2 facing south in accordance with the Department of Transport and Main roads' Manual of Uniform Traffic Control Devices (MUTCD). iii. The road access works must be constructed in accordance with the Department of Transport and 	Prior to commencement of use

No.	Conditions of Approval	Condition Timing
	<p>Main Roads' Road Planning and Design Manual 2nd edition, standard drawings and specification.</p> <p>iv. Relocate the electricity pole – solar identified on the Proposed Site Plan prepared by Verve dated 16.08.2021 reference 19115-DA01 (rev. P10) as amended by the Department of Transport and Main Roads on the 8 September 2021 to a suitable new location.</p> <p>v. Relocate the heavy vehicle counter located at the proposed exit location to a suitable new location.</p> <p>c) Remove all redundant road access works and reinstate new kerb and channel and verge, in accordance with Bundaberg Regional Council requirements.</p>	
4	The road access works located between the sealed road shoulder and the property boundary must be maintained at no cost to the Department of Transport and Main Roads.	At all times.
5	<p>a) The applicant must register reciprocal access easements on the titles of proposed lots 1 and 2 as shown on drawing titled Proposed Site Plan prepared by Verve dated 16.08.2021 reference 19115-DA01 (rev. P10) as amended in red by the Department of Transport and Main Roads on the 8 September 2021.</p> <p>b) The applicant must provide to the District Director (Wide Bay Burnett) Department of Transport and Main Roads, Locked Bag 486, Bundaberg Qld or by email to WBB.IDAS@tmr.qld.gov.au a copy of Registration Confirmation Statement/s and easement registration dealing number/s as evidence of the registration of the easement/s referred to in part (a) of this condition.</p>	<p>(a) At the time of survey plan registration.</p> <p>(b) Within 20 business days of registration of the easements.</p>
6	Direct access is prohibited between the Bruce Highway and new lots 1 and 2 at any other location other than the permitted road access location described in Condition 1.	At all times.

Reasons for the decision

The reasons for this decision are as follows:

- a) Access between a state-controlled road, Bruce Highway, and adjacent land is managed by the Department of Transport and Main Roads under the *Transport Infrastructure Act 1994* (TIA).
- b) To ensure the development does not adversely impact the safety, function and operational efficiency of the state-controlled road network.
- c) To enable efficient internal circulation and ensure safety of road users on the Bruce Highway through restriction of vehicle movements and types as stated in the conditions.
- d) To ensure the through function and through priority of the Bruce Highway is maintained and is not adversely impacted by the design for access or its operation.

- e) To facilitate vehicles turning right from the Bruce Highway with an area to prop within while waiting for gaps in southbound through traffic on the Bruce Highway. Australian Road Rules permit vehicle to travel, up to 50metres, and prop within a line-marked median. The median treatment permits right turns into and out from the development without establishing a dedicated right turn lane into private property.
- f) To ensure access works to cater for approved access movements to/from the state-controlled road are constructed.
- g) To ensure that road access works cater for the largest vehicle type anticipated to require access being vehicles up to 26 metre B-double configurations.
- h) To minimise the potential for left turns and right turns out of the western access.
- i) To minimise the potential for left turns and right turns into the eastern access.
- j) To ensure traffic generated by the development up to the largest design vehicle can enter the site without reducing the operational safety or efficiency of the Bruce Highway.
- k) To ensure cyclists are catered for.
- l) To ensure only access locations assessed and supported for the development are used.
- m) To ensure maintenance responsibilities for the private road access works is stated.

Please refer to **Attachment A** for the findings on material questions of fact and the evidence or other material on which those findings were based.

Information about the Decision required to be given under section 67(2) of TIA

1. There is no guarantee of the continuation of road access arrangements, as this depends on future traffic safety and efficiency circumstances.
2. In accordance with section 70 of the TIA, the applicant for the planning application is bound by this decision. A copy of section 70 is attached as **Attachment B**, as required, for information.
3. In addition to the statements above right turns into and out from the site are available under this decision. Road users are permitted to travel within and turn across the painted median. The department will monitor operation of the access. Under section 67(2) of the TIA the department reserves the right to restrict or change access arrangements in the future to address any emerging road safety issues including limitations on right turns into and/or out from the site.

Further information about the decision

1. In accordance with section 67(7) of TIA, this decision notice:
 - a) starts to have effect when the development approval has effect; and
 - b) stops having effect if the development approval lapses or is cancelled; and
 - c) replaces any earlier decision made under section 62(1) in relation to the land.
2. In accordance with section 485 of the TIA and section 31 of the *Transport Planning and Coordination Act 1994* (TPCA), a person whose interests are affected by this decision may apply for a review of this decision only within 28 days after notice of the decision was given under the TIA. A copy of the review provisions under TIA and TPCA are attached in **Attachment C** for information.
3. In accordance with section 485B of the TIA and section 35 of TPCA a person may appeal against a reviewed decision. The person must have applied to have the decision reviewed

before an appeal about the decision can be lodged in the Planning and Environment Court. A copy of the Appeal Provisions under TIA and TPCA is attached in **Attachment C** for information.

Further approvals

The Department of Transport and Main Roads also provides the following information in relation to this approval:

1. Road Access Works Approval Required – Written approval is required from the department to carry out road works that are road access works (including driveways) on a state-controlled road in accordance with section 33 of the TIA. This approval must be obtained prior to commencing any works on the state-controlled road. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the department to make an application.
2. General advice:
 - a) It is recommended that you contact the Department of Transport and Main Roads through email to Bundaberg.office@tmr.qld.gov.au prior to relocation of the heavy vehicle counter referred to in Condition 2 c) e.

If further information about this approval or any other related query is required, Ms Andrea McPherson, Senior Town Planner should be contacted by email at WBB.IDAS@tmr.qld.gov.au or on (07) 4154 0208.

Yours sincerely



Andrea McPherson
Senior Town Planner

- Attachments:
- Attachment A – Decision evidence and findings
 - Attachment B - Section 70 of TIA
 - Attachment C - Appeal Provisions
 - Attachment D - Proposed Site Plan prepared by Verve dated 16.08.2021 reference 19115-DA01 (rev. P10) as amended by the Department of Transport and Main Roads on the 8 September 2021.
 - Attachment E - All movements site access arrangement, prepared by TTM, drawing no. 20BRT0073-14 (rev.A) sheet 2 of 3 amended by Department of Transport and Main Roads on the 8 September 2021.
 - Attachment F - All movements site access arrangement, prepared by TTM, drawing no. 20BRT0073-14 (rev.A) sheet 1 of 3 amended by Department of Transport and Main Roads on the 8 September 2021.

Attachment A

Decision Evidence and Findings

Findings on material questions of fact:

1. The objective of the Transport Infrastructure Act 1994(TIA) requires the establishment of a road network that is safe and efficient.
2. Section 62 of the *Transport Infrastructure Act 1994* allows the Department of Transport and Main Roads (the department) to make decisions about permitted road access locations between particular/adjacent land and a state-controlled road.
3. Section 62(1)(b) and (c) of the *Transport Infrastructure Act 1994* allows the department to place restrictions and conditions on the use of a permitted road access locations.
4. Section 62(1)(g) of the *Transport Infrastructure Act 1994* allows the Department of Transport and Main Roads to decide about road access works being a stated type, standard or extent or be constructed in a stated way.
5. To ensure the through function and through priority of the Bruce Highway is maintained and is not adversely impacted by the design for access or its operation.
6. Australian Road Rules permit vehicle to travel, up to 50 metres, and prop within a painted median. Provision of a dedicated right turn lane is not necessary to facilitate right turns into and right turns out from the development safely based on likely turning volumes at the site. The painted median area will provide sufficient area for right turning vehicles to slow and store clear of the through carriageway.
7. Entry only movements to the new direct access (permitted road access location 1) will enable efficient internal circulation and ensure the operational efficiency and safety of the state-controlled road is maintained.
8. Exit only movements to the new direct access (permitted road access location 2) will enable efficient internal circulation and ensure the operational efficiency and safety of the state-controlled road is maintained.
9. Erection of "No Entry" signage (R2-4) at the Permitted access location 1 and 2 accesses will regulate internal and external traffic so that access to and from the site is controlled and regulation of that movement by police is enabled.
10. The proposed Auxiliary left turn treatment is an acceptable treatment that can cater for turn movements generated by the development for a 10-year design horizon from opening.
11. The Bruce Highway is an approved B-double route. Information submitted by the applicant indicates that service vehicles are intended to include B-double. The access arrangements must be able to safely cater for the largest design vehicle that is anticipated to access the site.

Evidence or other material on which findings were based:

Title of Evidence / Material	Prepared by	Date	Reference no.	Version/Issue
Transport and Parking Code response	Applicant	for lodgement	--	--
Survey Plan	Landpartners	10/12/2019	BRLSbrls7690-00-16-1 Sheets 1 - 3	--
Stormwater Report	S20210166	March 2021	S2021016	5
Traffic Engineering Report	TTM	31/03/2021	20 BRT0073	3

Prelodgement Advice	State Assessment Referral Agency	23 October 2019	1910-13576SPL	--
SDAP Responses (v2.2)	Applicant	for lodgement	--	--
Proposed Reconfiguration Plan	Landpartners	19/03/2021	BRLS7690-000-18-4	--
Planning Report	Place Design Group	April 2021	1620008	--
Title Sheet	Verve	25.03.2021	19115 DA00	P5
Proposed Site Plan	Verve	17.03.2021	19115 DA01	P9
Building Elevations & Perspectives	Verve	25.03.2021	19115 DA02	P6
Building Elevations & Perspectives	Verve	25.03.2021	19115 DA03	P7
Signage Plans and Details	Verve	25.03.2021	19115 DA04	P4
Signage Details	Verve	03.03.2021	19115 DA05	P1
Building Floor Plan	Verve	25.03.2021	19115 DA06	P2
Technical Advice Request	State Assessment Referral Agency	27 April 2021	2104-22124SRA	--
Lot Plan Report	State Assessment Referral Agency	22/04/2021	Lot 3RP14425, 2RP14425, 1RP14425	--
DA Form 1	Applicant	for lodgement	1620008	--
Confirmation Notice	Bundaberg Regional Council	19 April 2021	525.2021.23.1	--
Email: TMR21-03 2770	TTM	7 May 2021	TMR21-032770	--
Roads and Maritime Services: Trip Generation Surveys	NSW Government	June 2013	13008	--
Fast Food Outlet Summary	--	--	--	--
Email: Technical Advice Request (Information Response received)	State Assessment Referral Agency	28 June 2021	2104-22124SRA	--
Letter: Response to Information Request	Place Design Group	28 June 2021	1620008	--
Traffic Engineering Report	TTM	25/05/2021	20 BRT0073	4
Proposal Plans	TTM	26 Mar 2021	20BRT0073-01, 03 -05	C
Proposal Plans	TTM	26 Mar 2021	20BRT0073-06	B
Proposal Plans	TTM	26 Mar 2021	20BRT0073-07, 12	A
Proposal Plans	TTM	26 Mar 2021	20BRT0073-12 Sheet 1-3	A
Trip Generation and Parking Demand Surveys of Fast Food Outlets Analysis for	Bitzios Consulting	13 September 2016	P2414.001	002

Roads and Maritime Services NSW.				
SARA Advice Notice	State Assessment Referral Agency	16 July 2021	2104-22124 SRA	--
Email: 28696 Bruce Highway Childers amended traffic plan (2104-22426 SRA)	State Assessment Referral Agency	23 July 2021	2104-22124 SRA	--
Email: Proposed MCU/RAL at 28696 Bruce Highway, Childers (TMR21-032770)	State Assessment Referral Agency	4 August 2021	2104-22124 SRA	--
Email to SARA: Proposed MCU/RAL at 28696 Bruce Highway - TMR21-032770 (2104-22124SRA)	Department of Transport and Main Roads	6 August 2021	TMR21-032770	--
Email: Applicant response 28696 Bruce Highway, Childers (2104-22124 SRA)	Place Design Group	20 Aug 2021	2104-22124SRA	--
Traffic Engineering Report	TTM	19/08/21	20BRT0073	5
Proposed Site Plan	Verve	16 August 2021	19115-DA01	P10
Extension to timeframe	Queensland Government	30 August 2021	2104-22124SRA	--
Road Planning and Design Manual	Department of Transport and Main Roads	2013	--	2 nd edition
Road Planning and Design Manual Edition 2: Volume 3 Supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections.	Department of Transport and Main Roads	September 2020		2 nd edition
Guide to Traffic Management Part 2: Traffic Theory Concepts	Austroads	2020	--	--
Guide to Road Design Part 4A: Unsignalised and Signalised Intersections	Austroads	2017	--	--
Manual of Uniform Traffic Control Devices	Department of Transport and Main Roads	July 2021	--	--

Attachment B
Section 70 of TIA

Transport Infrastructure Act 1994
Chapter 6 Road transport infrastructure
Part 5 Management of State-controlled roads

70 Offences about road access locations and road access works, relating to decisions under s 62(1)

- (1) This section applies to a person who has been given notice under section 67 or 68 of a decision under section 62(1) about access between a State-controlled road and adjacent land.
- (2) A person to whom this section applies must not—
- (a) obtain access between the land and the State-controlled road other than at a location at which access is permitted under the decision; or
 - (b) obtain access using road access works to which the decision applies, if the works do not comply with the decision and the noncompliance was within the person's control; or
 - (c) obtain any other access between the land and the road contrary to the decision; or
 - (d) use a road access location or road access works contrary to the decision; or
 - (e) contravene a condition stated in the decision; or
 - (f) permit another person to do a thing mentioned in paragraphs (a) to (e); or
 - (g) fail to remove road access works in accordance with the decision.

Maximum penalty—200 penalty units.

- (3) However, subsection (2)(g) does not apply to a person who is bound by the decision because of section 68.

Attachment C
Appeal Provisions

Transport Infrastructure Act 1994
Chapter 16 General provisions

485 Internal review of decisions

- (1) A person whose interests are affected by a decision described in schedule 3 (the *original decision*) may ask the chief executive to review the decision.
- (2) The person is entitled to receive a statement of reasons for the original decision whether or not the provision under which the decision is made requires that the person be given a statement of reasons for the decision.
- (3) The *Transport Planning and Coordination Act 1994*, part 5, division 2—
 - (a) applies to the review; and
 - (b) provides—
 - (i) for the procedure for applying for the review and the way it is to be carried out; and
 - (ii) that the person may apply to QCAT to have the original decision stayed.

485B Appeals against decisions

- (1) This section applies in relation to an original decision if a court (the appeal court) is stated in schedule 3 for the decision.
- (2) If the reviewed decision is not the decision sought by the applicant for the review, the applicant may appeal against the reviewed decision to the appeal court.
- (3) The *Transport Planning and Coordination Act 1994*, part 5, division 3—
 - (a) applies to the appeal; and
 - (b) provides—
 - (i) for the procedure for the appeal and the way it is to be disposed of; and
 - (ii) that the person may apply to the appeal court to have the original decision stayed.
- (4) Subsection (5) applies if—
 - (a) a person appeals to the Planning and Environment Court against a decision under section 62(1) on a planning application that is taken, under section 62A(2), to also be an application for a decision under section 62(1); and

(b) a person appeals to the Planning and Environment Court against a decision under the Planning Act on the planning application.

(5) The court may order—

(a) the appeals to be heard together or 1 immediately after the other; or

(b) 1 appeal to be stayed until the other is decided.

(6) Subsection (5) applies even if all or any of the parties to the appeals are not the same.

(7) In this section—

original decision means a decision described in schedule 3.

reviewed decision means the chief executive's decision on a review under section 485.

Transport Planning and Coordination Act 1994
Part 5, Division 2 – Review of Original Decisions

31 Applying for review

- (1) A person may apply for a review of an original decision only within 28 days after notice of the original decision was given to the person under the transport Act.
- (2) However, if—
 - (a) the notice did not state the reasons for the original decision; and
 - (b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)the person may apply within 28 days after the person is given the statement of the reasons.
- (3) In addition, the chief executive may extend the period for applying.
- (4) An application must be written and state in detail the grounds on which the person wants the original decision to be reviewed.

32 Stay of operation of original decision

- (1) If a person applies for review of an original decision, the person may immediately apply for a stay of the decision to the relevant entity.
- (2) The relevant entity may stay the original decision to secure the effectiveness of the review and any later appeal to or review by the relevant entity.
- (3) In setting the time for hearing the application, the relevant entity must allow at least 3 business days between the day the application is filed with it and the hearing day.
- (4) The chief executive is a party to the application.
- (5) The person must serve a copy of the application showing the time and place of the hearing and any document filed in the relevant entity with it on the chief executive at least 2 business days before the hearing.
- (6) The stay—
 - (a) may be given on conditions the relevant entity considers appropriate; and
 - (b) operates for the period specified by the relevant entity; and
 - (c) may be revoked or amended by the relevant entity.
- (7) The period of a stay under this section must not extend past the time when the chief executive reviews the original decision and any later period the relevant entity allows the applicant to enable the applicant to appeal against the decision or apply for a review of the decision as provided under the QCAT Act.

(8) The making of an application does not affect the original decision, or the carrying out of the original decision, unless it is stayed.

(9) In this section—

relevant entity means—

(a) if the reviewed decision may be reviewed by QCAT—QCAT; or

(b) if the reviewed decision may be appealed to the appeal court—the appeal court.

35 Time for making appeals

(1) A person may appeal against a reviewed decision only within—

(a) if a decision notice is given to the person—28 days after the notice was given to the person; or

(b) if the chief executive is taken to have confirmed the decision under section 34(5)—56 days after the application was made.

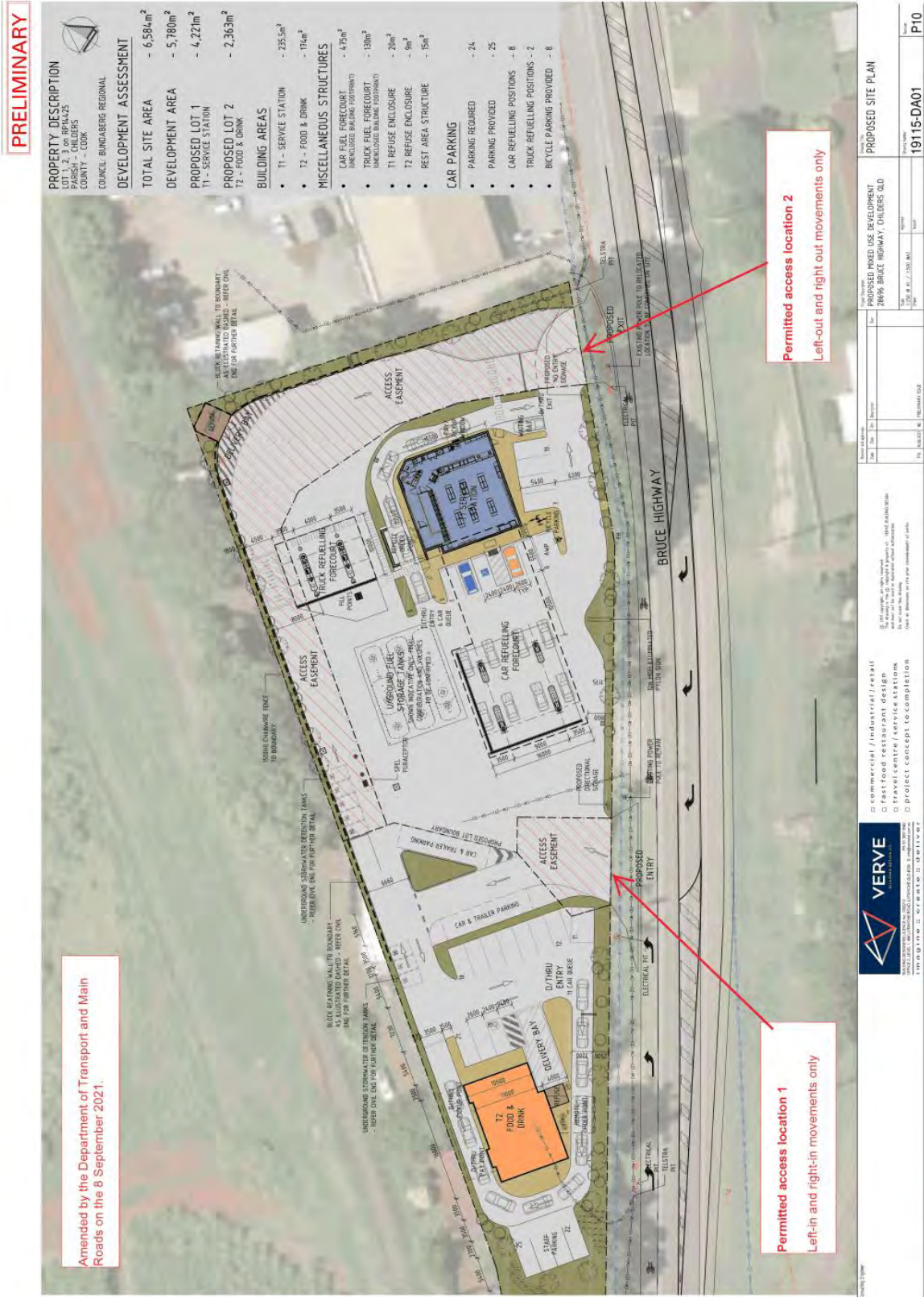
(2) However, if—

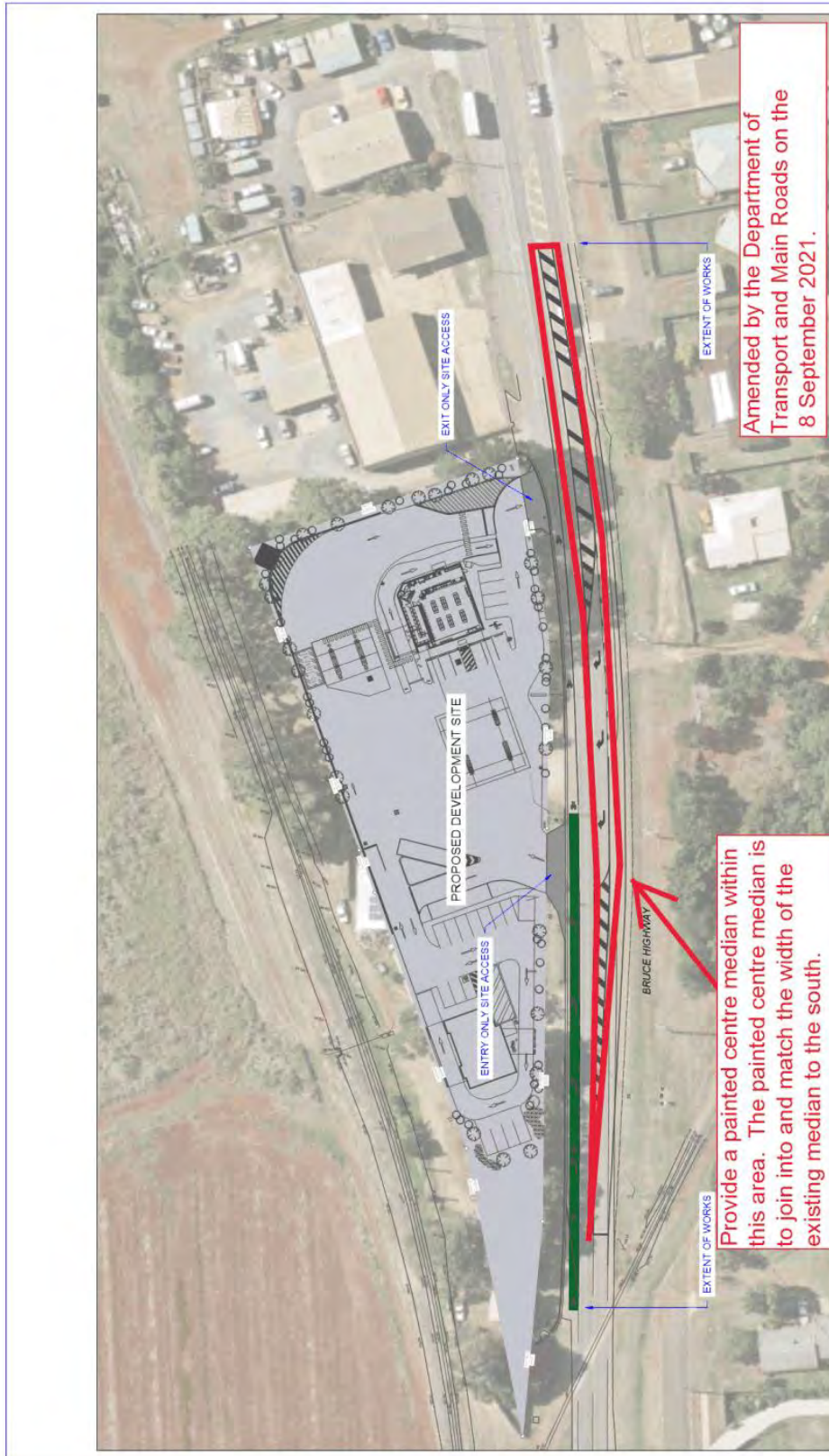
(a) the decision notice did not state the reasons for the decision; and

(b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)(a);

the person may apply within 28 days after the person is given a statement of the reasons.

(3) Also, the appeal court may extend the period for appealing.





PROJECT NUMBER 20BR00073		PROJECT TITLE 28696 BRUCE HIGHWAY, CHILDERS		PROJECT ID A3	
PROJECT NUMBER 20BR00073-14		PROJECT TITLE ALL MOVEMENTS SITE ACCESS ARRANGEMENT		PROJECT ID A	
DATE 18 Aug 2021		PROJECT TITLE PRELIMINARY FUNCTIONAL LAYOUT PLAN		PROJECT ID 1 OF 3	
TTM CONSULTING PTY LTD ABN 65 619 868 621 4/4 BRISBANE, QLD 4800 P.O. BOX 12016, BRISBANE, QLD 4002 T: (07) 3827 8558 F: (07) 3177 8651 E: info@ttmconsulting.com.au W: www.ttmconsulting.com.au					
NOT TO SCALE					



CONCEPTUAL STORMWATER MANAGEMENT PLAN

PROPOSED SERVICE STATION

**28696 BRUCE HIGHWAY
CHILDERS, QLD 4660**

**KILCOR REAL ESTATE
INVESTMENT MANAGEMENT**

**PLANS AND DOCUMENTS
referred to in the REFERRAL
AGENCY RESPONSE**



SARA ref: 2104-22124 SRA

Date: 12 October 2021

**Issue 5 – March 2021
Project No.: S2021016**

Head Office - Toowoomba
124 Russell Street, Toowoomba Qld 4350
p: 07 4632 8100
e: kmce@kehoemyers.com.au
w: www.kehoemyers.com.au

Ipswich
p: 07 3282 9569
e: ipswich@kehoemyers.com.au
ABN: 26 011 081 582 ACN: 011 081 582

Directors
Terry Kehoe
John Pikramenos
Grant Pendlebury
Björn Jachmann
Grant Parker



PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

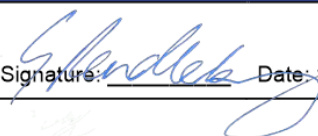
Document Control Page					
Issue	Date	Status	Author	Review	Approver
1	31/07/2020	For Client Approval	DJG	PJS	GRP
2	03/08/2020	For MCU Approval	DJG	PJS	GRP
3	23/02/2021	For Approval	DJG	PJS	GRP
4	09/03/2021	For Approval	DJG	PJS	GRP
5	24/03/2021	For Approval	DJG	PJS	GRP
Certification					
Author/s:	David Gegg				
Approver:	Grant Pendlebury	RPEQ No.: 5356	Signature: 	Date:	24/03/2021

TABLE OF CONTENTS

1	INTRODUCTION & EXECUTIVE SUMMARY	1
2	SITE DESCRIPTION	2
2.1	EXISTING SITE CONDITIONS	3
2.2	PROPOSED DEVELOPMENT	4
3	HYDROLOGY	5
3.1	EXISTING SITE INFRASTRUCTURE	5
3.2	PRE-DEVELOPED CATCHMENTS	6
3.3	POST-DEVELOPED CATCHMENTS	7
4	HYDRAULIC MODELLING	10
4.1	PRE-DEVELOPED MODEL	10
4.2	DEVELOPED MODEL	11
4.2.1	Developed Model Validation	11
5	STORMWATER QUALITY MANAGEMENT	12
5.1	DESIGN OBJECTIVES	12
5.2	METHODOLOGY	12
5.2.1	Meteorological Data	12
5.2.2	Catchment Characteristics	13
5.2.3	Rainfall-Runoff Parameters	13
5.2.4	Treatment Train Stages	13
5.2.5	Developed Model	13
5.3	MODEL RESULTS	14
5.4	CONSTRUCTION PHASE STORMWATER QUALITY MANAGEMENT	14
6	CONCLUSION	15
7	REFERENCES	16

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

LIST OF FIGURES

Figure 1 Aerial Photograph of the Proposed Development Site (<i>Queensland Globe</i> 2020)	2
Figure 2 Detailed Site Survey (<i>LandPartners</i> Project No. BRLS7690-000-16-1).....	3
Figure 3 Overall Site Layout (<i>Verve</i> Drawing: 19115-DA01_P9)	4
Figure 4 Existing Drainage Layout	5
Figure 5 Pre-Developed Stormwater Catchment Plan (<i>KMCE</i> Drawing: S2021016-SWM01-P2).....	6
Figure 6 Preliminary Stormwater Drainage Layout (<i>KMCE</i> Drawing: S2021016-PR02-P5).....	7
Figure 7 Post-Developed Stormwater Catchment Plan (<i>KMCE</i> Drawing: S2021016-SWM02-P4)	8

LIST OF TABLES

Table 1 Pre-developed Sub-catchment Properties	6
Table 2 Post-developed Sub-catchment Properties	9
Table 3 Peak Stormwater Pre-developed Modelling Results – Node A	10
Table 4 Peak Stormwater Modelling Results – Node A.....	11
Table 5 Catchment Characteristics	13
Table 6 Detention Tank 1 Filter Properties	13
Table 7 Detention Tank 2 Filter Properties	13
Table 8 Treatment Train Effectiveness	14

LIST OF APPENDICES

Appendix A.	Detailed Site Survey (<i>LandPartners</i> Project No BRLS7690-000-16-1)
Appendix B.	Approved Site Layout (<i>Verve</i> Drawing: 19115-DA01_P9)
Appendix C.	Pre-Developed Stormwater Catchment Plan (<i>KMCE</i> Drawing: S2020016-SWM01-P2)
Appendix D.	Preliminary Stormwater Drainage Layout (<i>KMCE</i> Drawing: S2020016-PR02-P5)
Appendix E.	Post-Developed Stormwater Catchment Plan (<i>KMCE</i> Drawing: S2020016-SWM02-P4)
Appendix F.	<i>DRAINS</i> Model Results
Appendix G.	<i>MUSIC</i> Model Parameters

1 INTRODUCTION & EXECUTIVE SUMMARY

Kehoe Myers Consulting Engineers has been engaged by Kilcor Real Estate Investment Management to prepare a Conceptual Stormwater Management Plan (CSWMP) as part of the design documentation in support of the Reconfiguring a Lot and Material Change of Use combined Development Application with the Bundaberg Regional Council (BRC) and Department of Transport and Main Roads (DTMR), for a New Service Station and Fash Food Outlet on a former Service Station/Van Park site at 28696 Bruce Highway, in Childers, Queensland.

This report seeks to address onsite stormwater management for the proposed development, and the following items will be addressed in this report:

- Hydraulic analysis to assess the required mitigation to ensure a case of 'non-worsening' or not incurring an actionable nuisance is achieved.
- Pollutant modelling to determine the required treatment train required to comply with BRC's pollutant reduction policy and the State Planning Policy (SPP).

From the below analysis it was determined that stormwater discharge conditions from the staged site can be maintained at or below pre-developed conditions by the provision of detention tanks within the development site for each new allotment. As such it is seen that the proposed development can achieve a case of no 'actionable nuisance' at the lawful points of discharge.

As a result of this analysis, it is then shown that the proposed development complies with the guidelines set by both the BRC and Queensland Urban Drainage Manual (QUDM). The report below details the achievement of these lawful points of discharge requirements.

The proposed development will also result in an increase in the export of gross pollutants, total suspended solids, total nitrogen and total phosphorus from the site and was assessed, in accordance with, the State Planning Policy. By using on-site stormwater quality devices, total pollutant loads can be reduced by the required amounts. The staged development will also be subject to construction phase stormwater quality management.

2 SITE DESCRIPTION

The proposed development is located on a 0.66 hectare site located at 28696 Bruce Highway, Childers. The real property description is Lots 1, 2 and 3 on RP14425. A Locality Plan highlighting the proposed development site is shown below.

Refer **Figure 1** below for site location with respect to adjoining roads and lots.



Figure 1 Aerial Photograph of the Proposed Development Site (Queensland Globe 2020)

2.1 EXISTING SITE CONDITIONS

From the detailed survey of the subject allotment by *LandPartners* (Project No. BRLS7690-000-16-1), attached in **Appendix A**, the site is currently seen to be a former Service Station that has been repurposed into a caravan park with existing driveway accesses to the Bruce Highway. The current allotment features numerous buildings and small structures consistent with a caravan park, including an office, cabins and amenities.

A snapshot of the Site survey of the proposed development site is shown below in **Figure 2**.



Figure 2 Detailed Site Survey (*LandPartners* Project No. BRLS7690-000-16-1)

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

2.2 PROPOSED DEVELOPMENT

The proposed development layout has been developed in association with the Client and Verve Architects. From this liaison, the proposed two lot commercial development consisting of Stage 1 (Service Station) and Stage 2 (Fast Food Outlet), a development layout was created. With this layout, a preliminary stormwater network design was undertaken.

A snapshot of the proposed Site Layout of the development is shown below in **Figure 3** and a full plan of the proposed site is attached in **Appendix B**.

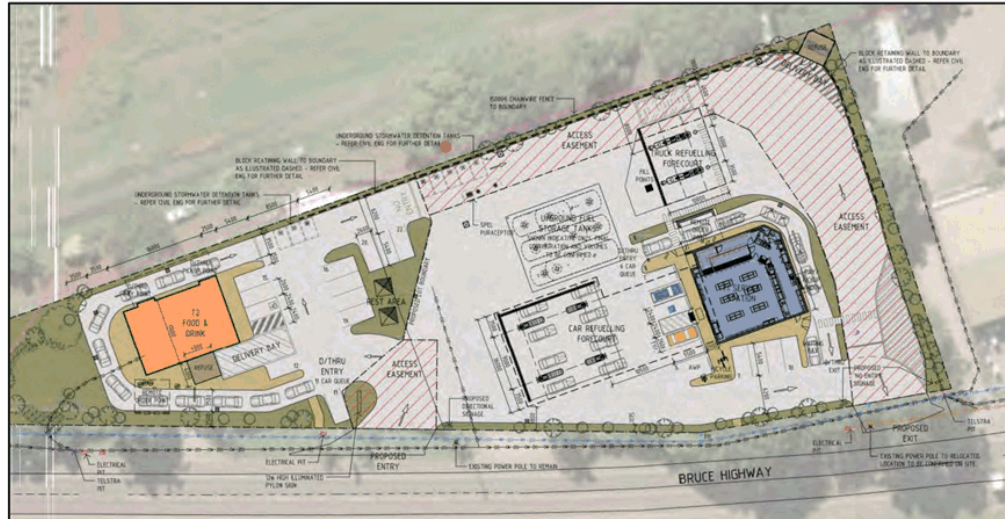


Figure 3 Overall Site Layout (Verve Drawing: 19115-DA01_P9)

3.2 PRE-DEVELOPED CATCHMENTS

The existing catchment area is seen to fall generally north towards the Isis Central Sugar Mill rail line where it is collected by a drainage channel and flows to a gully inlet (Node A) located to the north of the development site.

From this analysis, pre-developed catchments were calculated for the development site. A snapshot of these determined pre-developments catchment is included in **Figure 5** below and a full plan is attached in **Appendix C**.

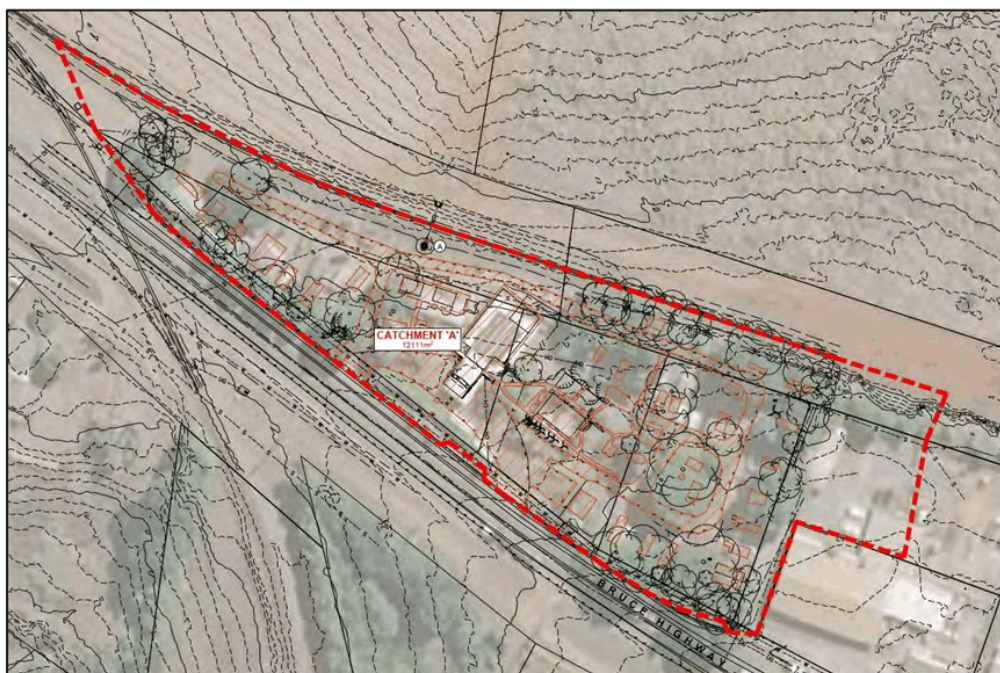


Figure 5 Pre-Developed Stormwater Catchment Plan (KMCE Drawing: S2021016-SWM01-P2)

From the site assessment all stormwater flows, one existing node of discharge has been identified. This point of discharge has been selected as point of confluence of the existing catchment that can then be analysed against post-development flows. This node of discharge is shown on the attached stormwater catchment plan in **Appendix C** and include:

- A. Gully pit, existing channel north of proposed development within rail land

From the detailed assessment of the existing stormwater catchments, the design attributes have been determined and are presented in **Table 1** below.

Table 1 Pre-developed Sub-catchment Properties

Catchment Name	Area	Impervious	Pervious	Impervious	Pervious
	(Ha)	Tc (min)	Tc (min)	C10	C10
A	1.2111	10	10	0.9	0.65

From this assessment of the proposed staged development and preliminary stormwater design, post-developed catchments have been determined. These determined catchments are presented in **Figure 7** below and a full plan is attached in **Appendix E**.

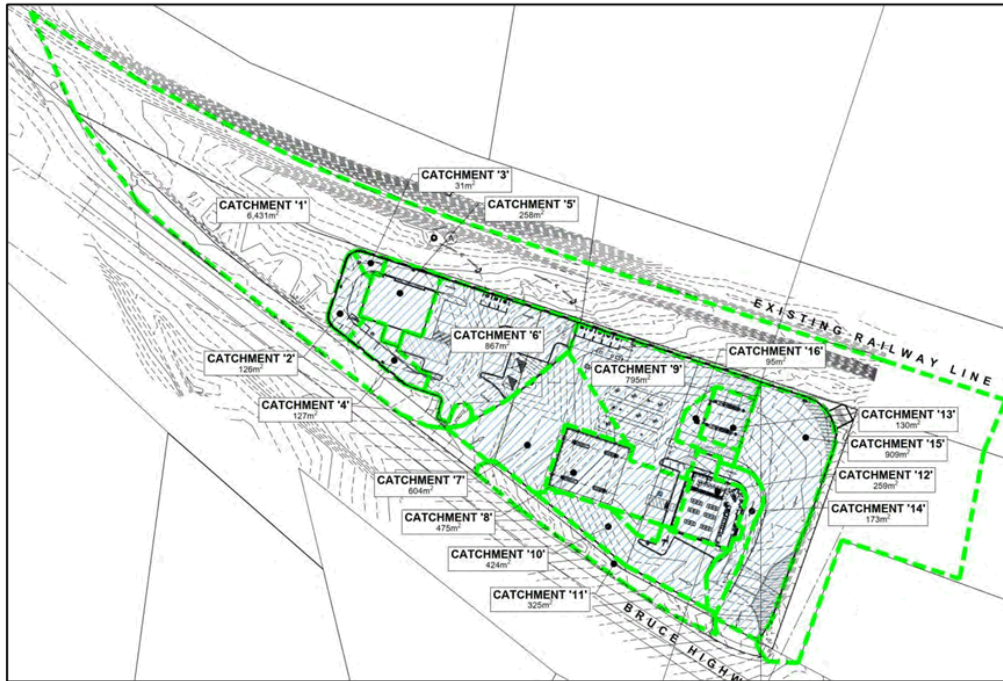


Figure 7 Post-Developed Stormwater Catchment Plan (KMCE Drawing: S2021016-SWM02-P4)

From the site assessment of all stormwater flows, one existing node of discharge has been identified as detailed in **Section 2.1** above. From the assessment of post-development catchments, it is seen that this discharge point has not changed location. This node of discharge is shown on the attached post-development stormwater catchment plan in **Appendix E** and includes:

- A. Gully pit, existing channel north of proposed development in rail land

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

From the detailed assessment of the post-development catchments, the design attributes have been determined and are presented in **Table 2** below.

Table 2 Post-developed Sub-catchment Properties

Catchment Name	Area	Impervious	Pervious	Impervious	Pervious
	(Ha)	Tc (min)	Tc (min)	C10	C10
1	0.6431	10	10	0.9	0.65
2	0.0126	7	7	0.9	0.65
3	0.0031	5	5	0.9	0.65
4	0.0127	5	5	0.9	0.65
5	0.0258	5	5	0.9	0.65
6	0.0867	5	5	0.9	0.65
7	0.0604	5	5	0.9	0.65
8	0.0475	5	5	0.9	0.65
9	0.0795	5	5	0.9	0.65
10	0.0424	5	5	0.9	0.65
11	0.0325	5	5	0.9	0.65
12	0.0259	5	5	0.9	0.65
13	0.0130	5	5	0.9	0.65
14	0.0173	5	5	0.9	0.65
15	0.0909	5	5	0.9	0.65
16	0.0095	5	5	0.9	0.65
TOTAL	1.209				

From the analysis of the above catchments, it can be seen that the overall area draining to stormwater discharge to Node A has remained the same. The staged site has however increased its fraction impervious areas.

4 HYDRAULIC MODELLING

Stormwater analysis for this report has been undertaken using *DRAINS*. *DRAINS* is an engineering software package for designing urban stormwater drainage systems. To enable modelling of the proposed 'stormwater detention tank', we have used the "Extended Rational Method" hydrology loss model to convert Australian Rainfall and Runoff (AR&R) Temporal Patterns and rainfall data into runoff Hydrographs.

In order to ascertain the rain event that would require the greatest volume of detention, a range of rainfall events were analysed in *DRAINS* for each model (5, 10, 15, 20, 25, 30, 45, 60, 90 & 120 minutes) under a range of Average Recurrence Intervals (ARI) or Annual Exceedance Probabilities (AEP). Values for rainfall intensity are based on the AR&R Maps (Skewness – G, F2 & F50). Analyses have been conducted within the catchments to determine Pre and Post development flows for the 2-year (39% AEP) to the 100-year (1% AEP) rainfall events. The detention system has been modelled for each storm event scenario to assist in establishing a maximum 2-year to 100-year discharge (Q_2 to Q_{100}).

From the below modelling and analysis it is proposed to provide attenuation of peak stormwater discharges by the use of two detention tanks within the development site. This proposed arrangement will be sized to provide the necessary attenuation of peak flows in all storm events.

4.1 PRE-DEVELOPED MODEL

To enable direct comparison between the Pre-development and Post-development stormwater flows, the Pre-development catchment areas detailed in **Section 3.2** above were modelled within *DRAINS*. These results are then reported for each discharge node location as detailed above in **Section 2.1**.

The results of this Pre-Development model are hence presented below in **Table 3**.

Table 3 Peak Stormwater Pre-developed Modelling Results – Node A

Temporal Pattern (minutes)	Minor ARI (AEP %) (m ³ /s)				Major ARI (AEP %) (m ³ /s)	
	2 (39%)	5 (18%)	10 (10%)	20 (5%)	50 (2%)	100 (1%)
5	0.156	0.212	0.256	0.307	0.387	0.453
10	0.258	0.352	0.422	0.504	0.633	0.740
15	0.239	0.324	0.400	0.478	0.589	0.689
20	0.233	0.317	0.384	0.459	0.557	0.652
25	0.228	0.311	0.374	0.448	0.510	0.598
30	0.212	0.290	0.350	0.419	0.475	0.557
45	0.191	0.262	0.311	0.374	0.466	0.548
60	0.168	0.231	0.281	0.339	0.401	0.472
90	0.146	0.203	0.253	0.306	0.350	0.419
120	0.129	0.180	0.230	0.280	0.290	0.346

Note: The bold numbers represent the peak flow for each ARI.

4.2 DEVELOPED MODEL

Following the creation of the pre-developed model within *DRAINS*, the separate post-development catchments were modelled using the characteristics defined in **Section 3.2** above. From the first iteration of the design model, it was seen that stormwater discharges to Node A were increased due to the increases in the staged impervious areas of the overall catchment.

This model was then tasked to ascertain the amount of storage volume required to reduce the post-developed peak discharges to the discharge Node A to pre-developed discharge rates via detention volume within the proposed detention tanks for each allotment.

From several iterations of the design model, it was determined that appropriately sized detention tanks totalling capacity of 56kL within the proposed development areas could successfully attenuate the post-development stormwater flows to be below pre-development levels. When these selected detention parameters were input into the post-developed *DRAINS* model, the detailed detention amounts were seen to successfully attenuate peak stormwater flows to the existing channel north of proposed development.

The following **Table 4**, summarises the results obtained from the post-developed *DRAINS* model compared to the pre-developed reported in **Section 4.1** above for combined flow to each discharge node and for the worst-case storm events. The complete listing of the results is contained in **Appendix F**.

Table 4 Peak Stormwater Modelling Results – Node A

ARI (AEP)	Temporal Pattern (min)		Peak Flow (m ³ /s)		Difference (m ³ /s)
	Pre-developed	Post-developed	Pre-developed	Post-developed	
2 (39%)	10	10	0.258	0.227	-0.031
5 (18%)	10	10	0.352	0.299	-0.053
10 (10%)	10	15	0.422	0.352	-0.071
20 (5%)	10	10	0.504	0.466	-0.038
50 (2%)	10	10	0.633	0.588	-0.045
100 (1%)	10	10	0.740	0.732	-0.008

From the above-displayed table, it can be seen that the stormwater discharged to Node A, were decreased due to the combined 56kL detention volume modelled prior to discharge of stormwater to Node A, and the discharge is able to successfully detain peak flows to pre-developed peak flow levels within all storm events.

4.2.1 Developed Model Validation

From the QUDM guidelines, it is recommended that computer models are calibrated to flow data or “be ‘compared’ with the peak discharge derived for the same catchment using the Rational Method” (QUDM 2013).

However, as this report utilises the “Extended Rational Method” hydrology loss model, a ‘comparison’ back to the ‘Rational Method’ will be redundant as all ‘peak discharge’ catchment flows will be the same. As such no comparison of obtained hydrographs peak discharge is required.

5 STORMWATER QUALITY MANAGEMENT

Stormwater Quality Management is required for the proposed development based on the requirements of the State Planning Policy as the site is within a within the Central Queensland Climate Region (South). The following is provided to demonstrate that the proposed development will meet the requirements of the State Planning Policy and Bundaberg Regional Council Planning Scheme.

A *SPEL* 'Purceptor P040' will be used to treat any stormwater from fuel refuelling areas (under canopies) to remove any hydrocarbons to acceptable levels. The device can contain up to 9,000 Litres in the event of a fuel spill and contains an alarm when the tank is nearly full. When the alarm is activated, the operator will organise for a licenced contractor to dispose of any waste and hydrocarbons to an approved disposal facility. Also, the introduction of *SPEL* StormSacks and *SPEL* Filters to the system helps to reduce surface-based stormwater pollutants.

This strategy of dealing with refuelling areas is in accordance with ACAPMA 'Best Practise Guidelines' and is general industry practise throughout Australia in how hydrocarbons are dealt with at new service stations.

5.1 DESIGN OBJECTIVES

The State Planning Policy describes Water Quality Objectives (WQO's) to reduce the pollutant loads from each new allotment discharged to receiving waters from the urban development. The following minimum reductions in total pollutant load have been adopted to develop a strategy to manage stormwater quality for the proposed development within the 'Central Queensland (South)' climatic region:

- \geq 85% reduction in total suspended solids load (TSS)
- \geq 70% reduction in total phosphorus load (TP)
- \geq 45% reduction on total nitrogen load (TN)
- \geq 90% reduction in gross pollutant load.

5.2 METHODOLOGY

MUSIC Version 6 was used to evaluate the effectiveness of a proposed treatment train with respect to the water quality objectives and to indicate sizing requirements for a single bio-retention basin, with the intention to provide a voluntary contribution towards a regional solution for stormwater quality.

5.2.1 Meteorological Data

Meteorological data was taken as per the Water by Design's *MUSIC Modelling Guidelines* (2010). For this project, rainfall and evapotranspiration data was taken from the Bundaberg rainfall station (Station ID39128) and covers the historical region of 05/12/1996 to 14/12/2005. A full listing of the *MUSIC* model design parameters is given in **Appendix G**.

5.2.2 Catchment Characteristics

To determine the Water Quality catchment, the subject development was assessed for the total new pit catchments and proposed roof areas. The characteristics of the sub-catchments have been reproduced below in **Table 5**.

Table 5 Catchment Characteristics

Catchment Name	Area (Ha)	Land Use (Source Node)	Fraction Impervious (%)
Commercial – Roof	0.112	Roof	100%
Commercial – Roads	0.411	Commercial	100%
Commercial – Ground	0.030	Commercial	33%
Sum	0.553		

5.2.3 Rainfall-Runoff Parameters

Rainfall runoff and pollutant export parameters for the land uses indicated above were adopted in accordance with Water by Design's *MUSIC Modelling Guidelines* (2010). These parameters have been reproduced and attached in **Appendix G**.

5.2.4 Treatment Train Stages

The proposed treatment train will consist of several treatment types for stormwater quality control. These types work as a whole to manage stormwater quality from the site.

- **SPEL StormSacks:** A *SPEL StormSack* will be placed in selected grated inlet pits to remove gross pollutants.
- **SPEL Filter (EMC 45):** Media cartridges placed in detention tank to filter TSS, TP and TN. Two separate nodes for treatment from detention tank and filter cartridges.
- **Detention Tank:** Detaining stormwater to allow for natural settling of pollutants.

5.2.5 Developed Model

Adopting the above parameters and treatment train stages, a *MUSIC* model was created. This model was then tasked to ascertain the size and characteristics of the detention surface area and number of filter cartridges required to achieve the required Stormwater Quality Objectives.

From several iterations of the design model, an appropriately sized treatment system was determined. The resulting size and characteristics of the proposed Detention and SPEL Filter system are presented in **Table 6** and **Table 7** below.

Table 6 Detention Tank 1 Filter Properties

Filter Tank Properties	Value
Surface Area (m ²)	35
Weir Height (m)	0.85
Number of Filter units	2
High Flow Bypass (m ³ /s)	0.00566

Table 7 Detention Tank 2 Filter Properties

Filter Tank Properties	Value
Surface Area (m ²)	21
Weir Height (m)	0.85
Number of Filter units	1
High Flow Bypass (m ³ /s)	0.00283

5.3 MODEL RESULTS

The results of the *MUSIC* modelling are presented in Table 8 below. As below, it can be seen that the utilised treatment train will be effective in achieving the desired stormwater quality objectives.

Table 8 Treatment Train Effectiveness

Parameter	Sources	Residual Load	% Reduction	
			Required	Achieved
Flow (ML/yr)	3.74	3.74	N/A	0
Total Suspended Solids (kg/yr)	1180	144	85	87.8
Total Phosphorus (kg/yr)	2.14	0.632	70	70.5
Total Nitrogen (kg/yr)	11.8	5.47	45	53.8
Gross Pollutants (kg/yr)	87.9	0	90	100

From these results, it is proposed that 2 *SPEL* Filter EMC45 unit are installed in the Lot 1 Detention Tank, 1 x *SPEL* Filter EMC45 unit are installed in the Lot 2 Detention Tank and the system has a total detention surface area of 56m².

5.4 CONSTRUCTION PHASE STORMWATER QUALITY MANAGEMENT

While the development will ultimately comply with objectives of State Planning Policy - July 2017, Water Quality, Section 1, it is also required to comply with the requirements of Appendix 2 Table A: Construction Phase – Stormwater Management Design Objectives during the construction works.

Pollutants typically generated during the construction phase include:

- Litter
- Sediment
- Hydrocarbons
- Toxic Materials
- pH Altering Substances

During the detailed design and construction phase, an erosion and sediment control plan will be prepared for the site. The erosion and sediment control plan will be based on the ICEA document '*Best Practice Erosion and Sediment Control*', International Erosional Control Association (Australasia) to achieve compliance under the *Environmental Protection Act 1994*.

The erosion and sediment control plan shall address the following:

- Use and location of sediment control devices including; sediment fencing and sediment traps for stormwater entry pits.
- Erosion control measures during earthworks, including any staging or sequencing of the works.

6 CONCLUSION

This report summarises the conceptual stormwater management practices proposed to safely manage the adverse stormwater quantity and quality generated by the proposed staged development, in order to support the RAL & MCU Development Application for the proposed Service Station and Fast Food Outlet at 28696 Bruce Highway, in Childers, Queensland.

As detailed in the report above, it was determined that stormwater quantity discharge conditions from the sites can be maintained at or below pre-developed conditions by the provision of detention tanks within each lot of the proposed development site.

Therefore it is seen that development achieves a case of not incurring an 'actionable nuisance' to all downstream properties and assets. As a result of this analysis, it is then shown that the proposed development complies with the guidelines set by both the Bundaberg Regional Council, Department of Transport and Main Roads and Queensland Urban Drainage Manual (QUDM).

The development will also result in an increase in the export of total suspended solids, total nitrogen and total phosphorus from the site. The site was assessed to be within Central Queensland (South) climatic region as per the State Planning Policy, therefore, stormwater quality management is required for this development. Stormwater pollutant reduction targets for Central Queensland (South) as per the Queensland State Planning Policy are achieved by using 7 *SPEL* StormSacks and 3 *SPEL* Filters (EMC45) within the detention tank with a total surface area of 56m².

Further to stormwater quality, any refuelling areas beneath the canopy will drain through a *SPEL* 'Purceptor' that will allow treated stormwater to pass to the downstream stormwater network and contain any hydrocarbons within its 9,000 Litre containment tank.

As such it is therefore seen that the proposed development of the Service Station at 28696 Bruce Highway will meet both the stormwater Quantity and Quality objectives as detailed within the Queensland State Planning Policy and the Bundaberg Regional Council's Planning Scheme.

7 REFERENCES

Text References

The Institution of Engineers, Australia 1987, *Australian Rainfall & Runoff – A Guide to Flood Estimation*, Vol 1-2, The Institution of Engineers, Australia, Barton

Bundaberg Regional Council 2015, Bundaberg Regional Council Planning Scheme 2015, Bundaberg Queensland

Queensland Department of Natural Resources and Water 2013, *Queensland Urban Drainage Manual – 3rd Edition - provisional*, Department of Natural Resources and Water, Brisbane

Queensland Government 2017, *State Planning Policy*, July 2017, Department of Infrastructure, Local Government Planning, Brisbane, Australia

Water by Design 2010, *MUSIC Modelling Guidelines*, SEQ Healthy Waterways Partnership, Brisbane Qld, ISBN 978-0-9806278-4-8

Software Used

MUSIC – Version 6.2.1

DRAINS – Version 2020.061 – 15 December 2020

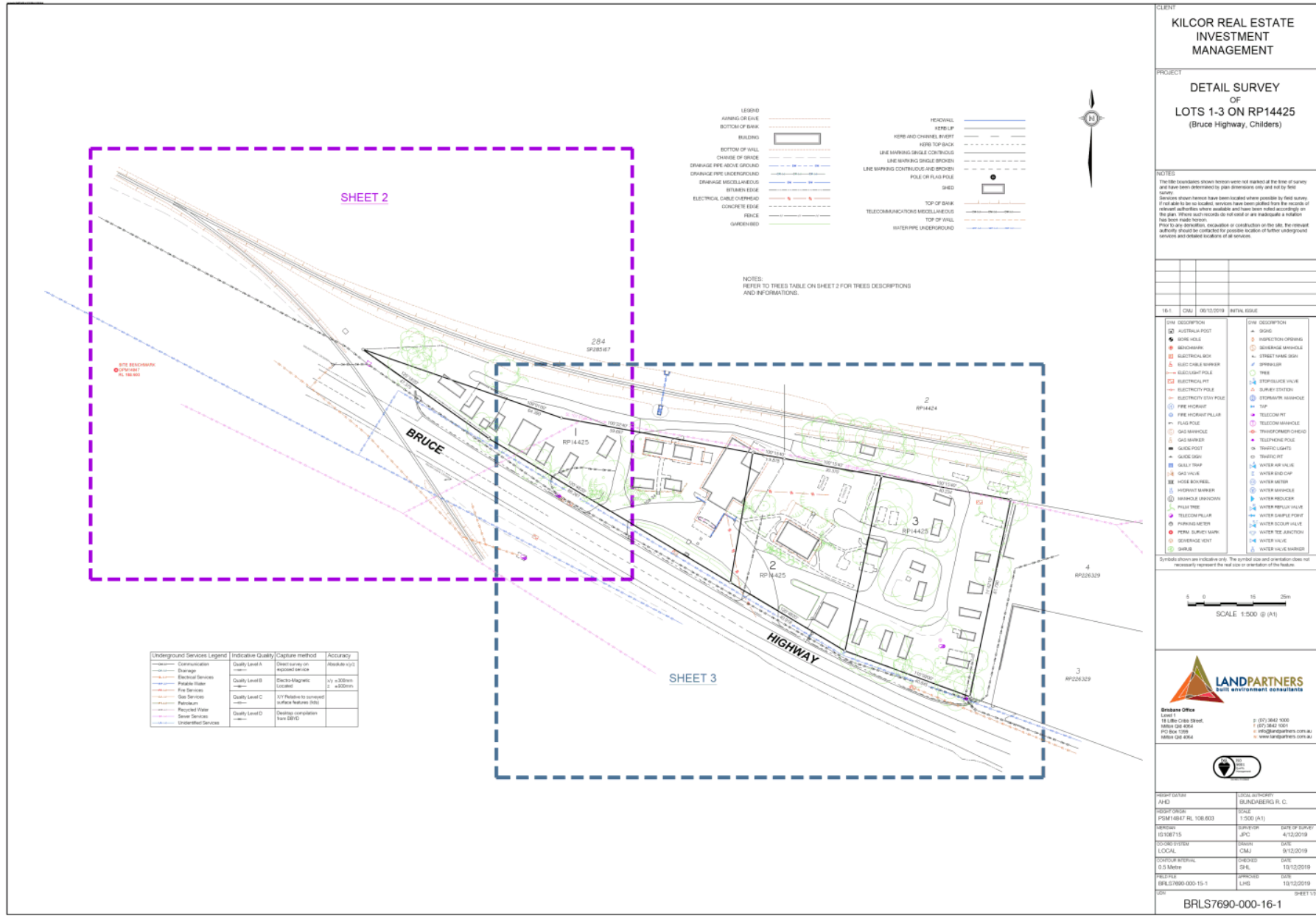
PROJECT NO: S20210106

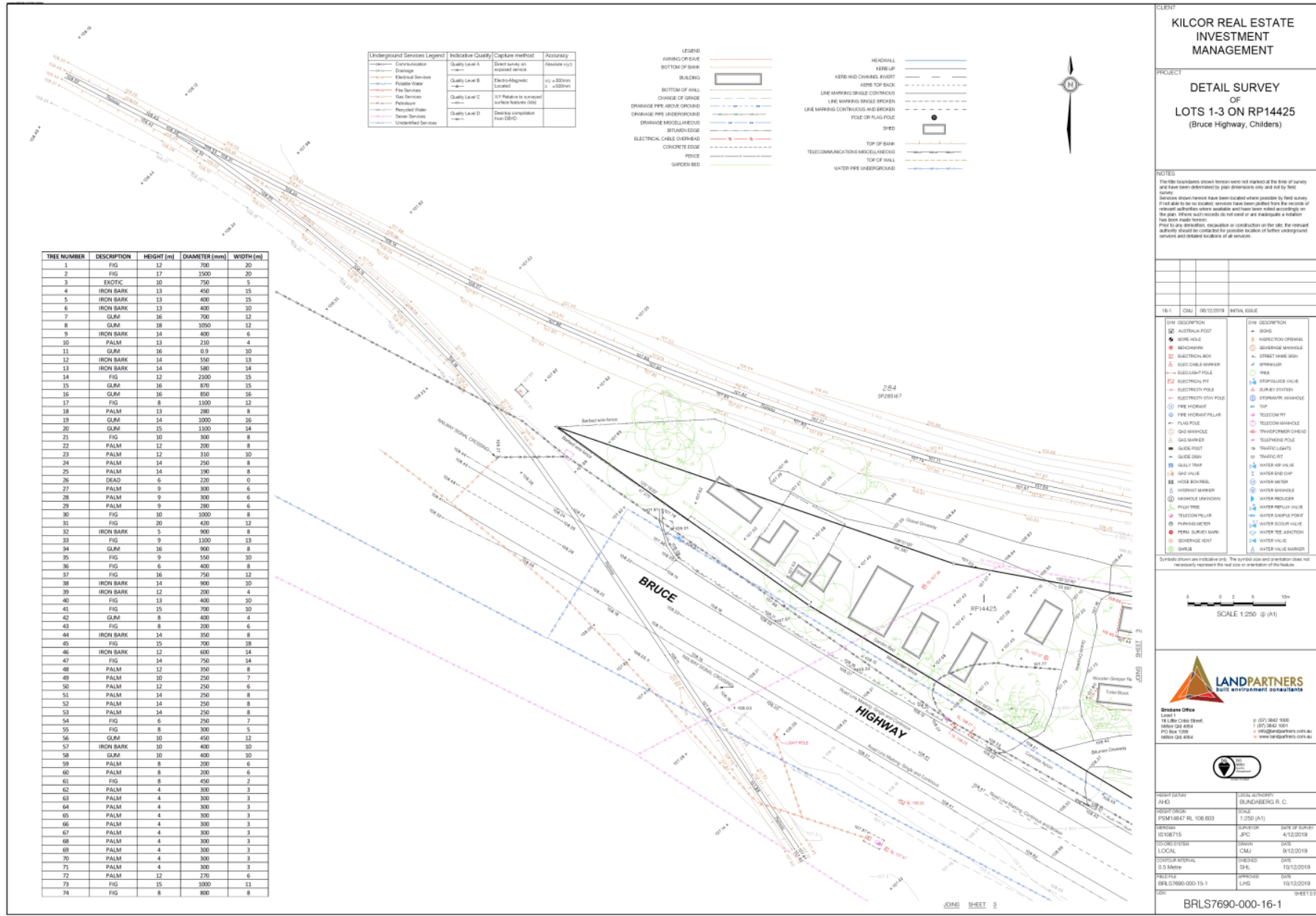
CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

Appendix A. Detailed Site Survey
(LandPartners Project No BRLS7690-000-16-1)

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021





PROJECT NO: S20210106

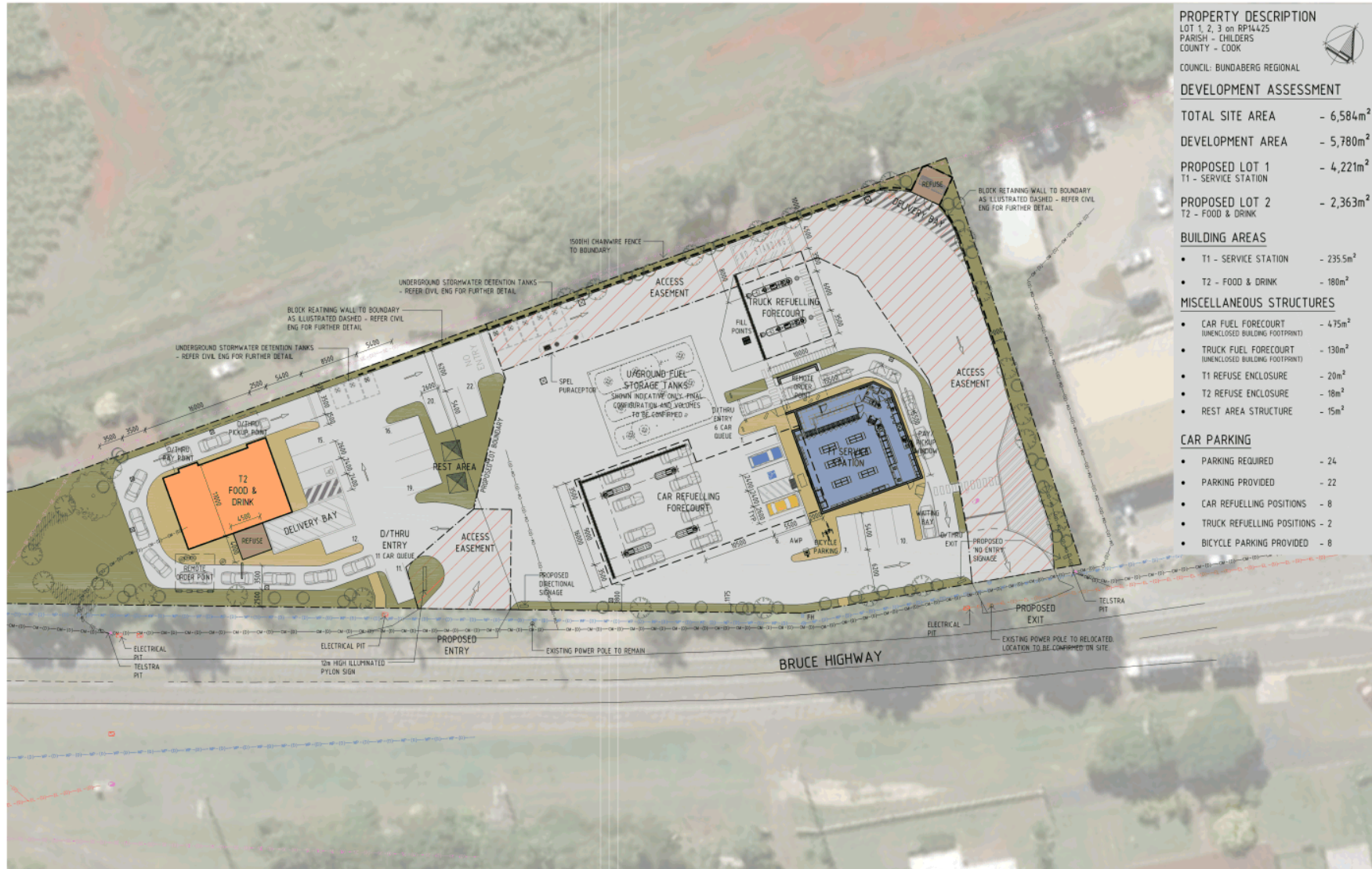
CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

Appendix B. Approved Site Layout
(Verve Drawing: 19115-DA01_P9)

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021

PRELIMINARY



PROPERTY DESCRIPTION

LOT 1, 2, 3 on RP14425
PARISH - CHILDERS
COUNTY - COOK



COUNCIL: BUNDABERG REGIONAL

DEVELOPMENT ASSESSMENT

TOTAL SITE AREA - 6,584m²

DEVELOPMENT AREA - 5,780m²

PROPOSED LOT 1
T1 - SERVICE STATION - 4,221m²

PROPOSED LOT 2
T2 - FOOD & DRINK - 2,363m²

BUILDING AREAS

- T1 - SERVICE STATION - 235.5m²
- T2 - FOOD & DRINK - 180m²

MISCELLANEOUS STRUCTURES

- CAR FUEL FORECOURT (UNENCLOSED BUILDING FOOTPRINT) - 475m²
- TRUCK FUEL FORECOURT (UNENCLOSED BUILDING FOOTPRINT) - 130m²
- T1 REFUSE ENCLOSURE - 20m²
- T2 REFUSE ENCLOSURE - 18m²
- REST AREA STRUCTURE - 15m²

CAR PARKING

- PARKING REQUIRED - 24
- PARKING PROVIDED - 22
- CAR REFUELLING POSITIONS - 8
- TRUCK REFUELLING POSITIONS - 2
- BICYCLE PARKING PROVIDED - 8

Consulting Engineer



- commercial / industrial / retail
- fast food restaurant design
- travel centre / service stations
- project concept to completion

© 1997 copyright, all rights reserved.
This drawing is the ©, copyright & property of VERVE BUILDING DESIGN and may not be used or duplicated without authorisation.
Do not scale this drawing.
Check all dimensions on site prior commencement of works.

Rev	Date	Description
PH	19/11/2011	PRELIMINARY ISSUE

Project Description	
PROPOSED MIXED USE DEVELOPMENT 28696 BRUCE HIGHWAY, CHILDERS OLD	
Date	12/01/11
Scale	AS / 1:500 (BAS)
Drawn	WJW

Drawing Title	
PROPOSED SITE PLAN	
Sheet Number	19115-DA01
Page	P9

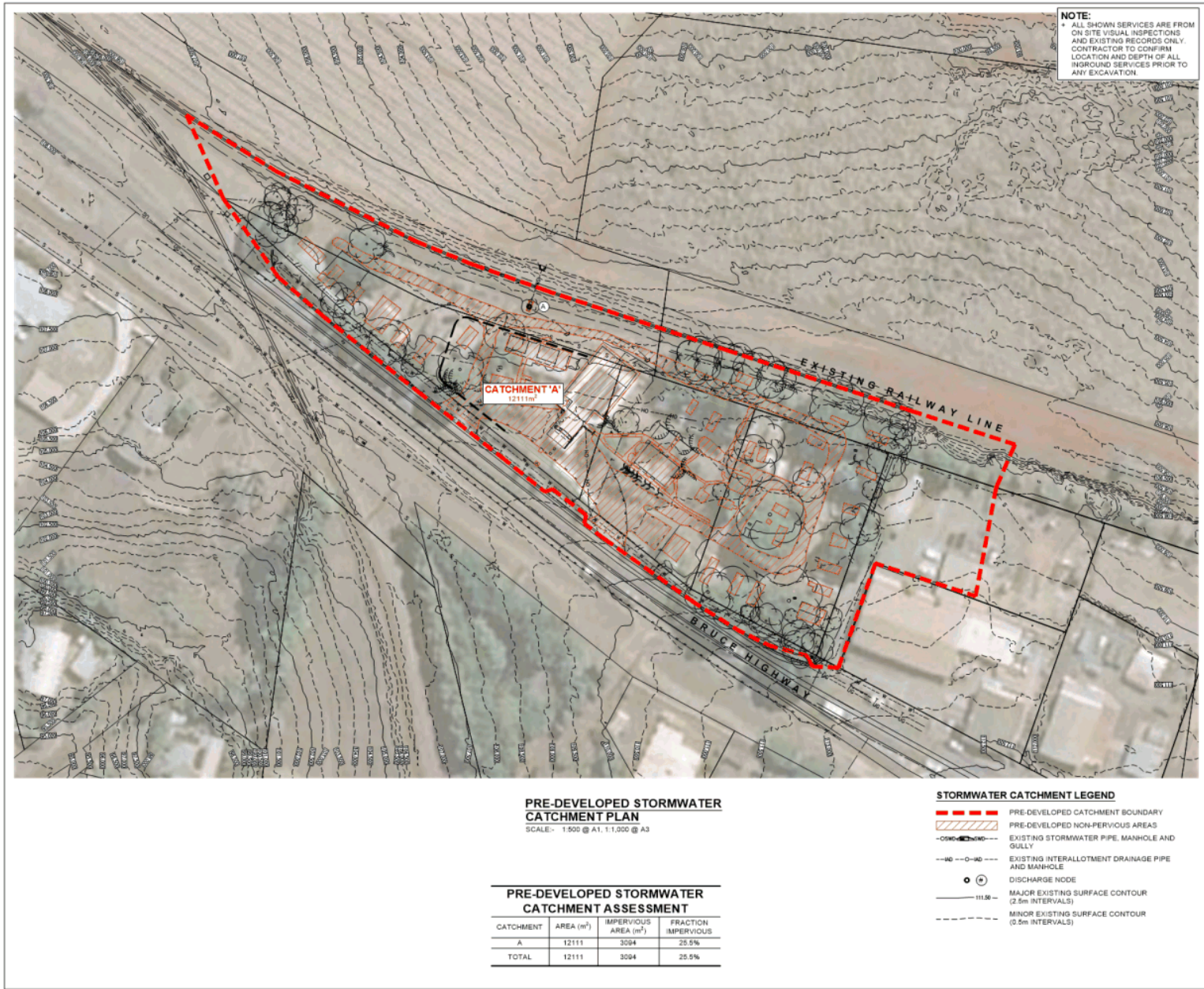
PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

**Appendix C. Pre-Developed Stormwater Catchment Plan
(KMCE Drawing: S2020016-SWM01-P2)**

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021

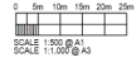


NOTE:
 * ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

COPYRIGHT
 Kehoe Myers Consulting Engineers Pty. Ltd. Reserve the right to the design and documentation of the work contained on this drawing. This work is covered by copyright and cannot be reproduced or copied in any form without the written permission of Kehoe Myers Consulting Engineers Pty. Ltd. Any service, agreement or implied to the use of this document is restricted to the terms of agreement between the client and consulting engineer for professional services.

DATUM
 PSM
 RL

DRAWING ISSUE			
ISSUE	DATE	DETAILS	INITIAL
P1	31.07.20	FOR INFORMATION	GRP
P2	23.02.21	FOR INFORMATION	



PRELIMINARY
 NOT FOR CONSTRUCTION
 DATE 23.02.21 05:12 PM



CIVIL | STRUCTURAL | HYDRAULIC

CLIENT
 KILCOR REAL ESTATE INVESTMENT MANAGEMENT

PROJECT
 PROPOSED SERVICE STATION DEVELOPMENT, 28696 BRUCE HIGHWAY, CHILDERS QLD.

DRAWING TITLE
 PRE-DEVELOPED STORMWATER CATCHMENT PLAN

PRE-DEVELOPED STORMWATER CATCHMENT PLAN
 SCALE: 1:500 @ A1, 1:1,000 @ A3

- STORMWATER CATCHMENT LEGEND**
- PRE-DEVELOPED CATCHMENT BOUNDARY
 - PRE-DEVELOPED NON-PERVIOUS AREAS
 - EXISTING STORMWATER PIPE, MANHOLE AND GULLY
 - EXISTING INTERALLOTMENT DRAINAGE PIPE AND MANHOLE
 - DISCHARGE NODE
 - MAJOR EXISTING SURFACE CONTOUR (2.5m INTERVALS)
 - MINOR EXISTING SURFACE CONTOUR (0.5m INTERVALS)

PRE-DEVELOPED STORMWATER CATCHMENT ASSESSMENT

CATCHMENT	AREA (m ²)	IMPERVIOUS AREA (m ²)	FRACTION IMPERVIOUS
A	12111	3094	25.5%
TOTAL	12111	3094	25.5%

DESIGN	DG	ORIGINAL SIZE	A1
DRAWN	MB	PROJECT NUMBER	S2021016
CHECKED	GRP	DRAWING NUMBER	
APPROVED	RFEG # 5330	DRAWING NUMBER	SWM01
DATE 23.02.21		ISSUE	P2

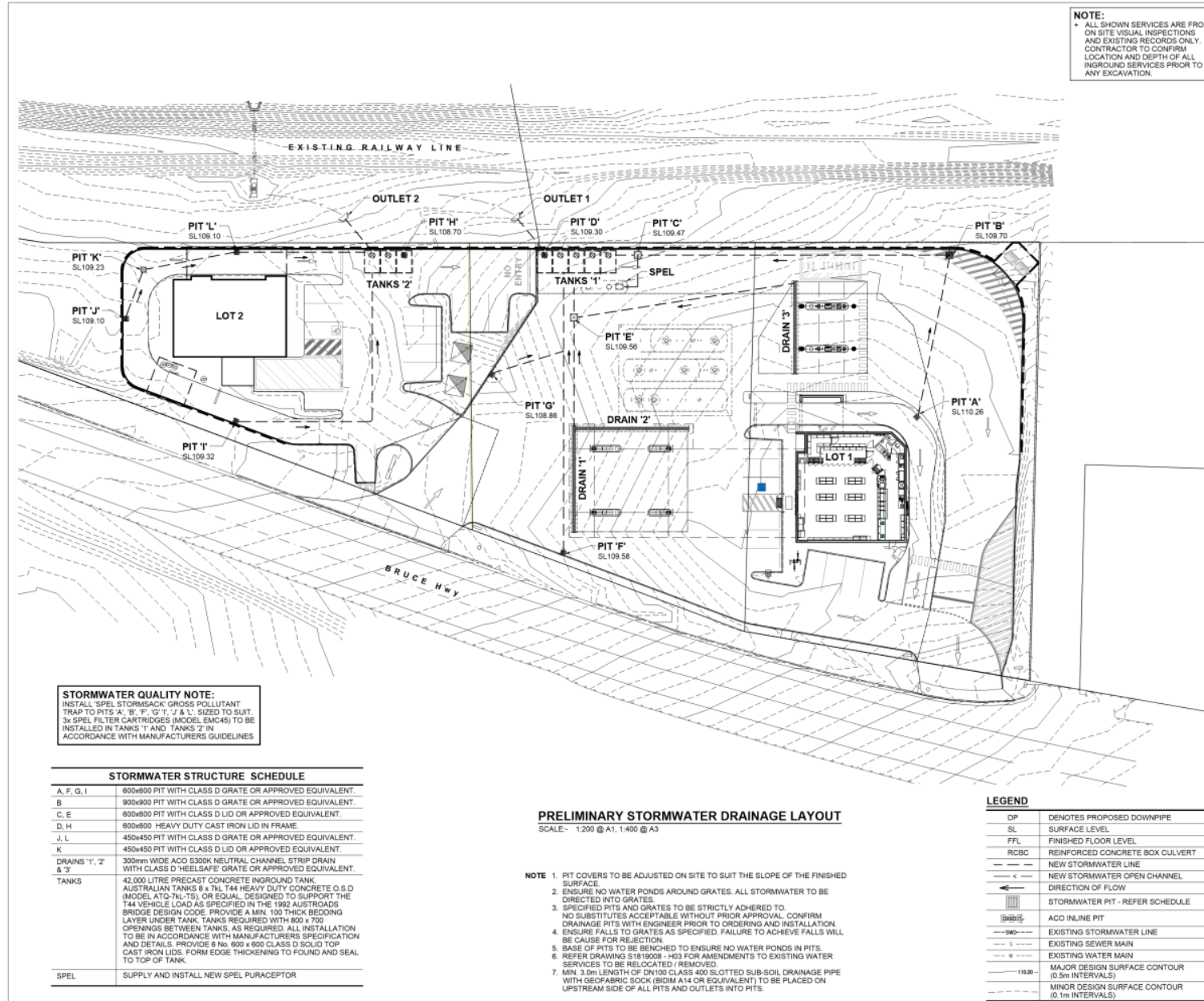
PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

**Appendix D. Preliminary Stormwater Drainage Layout
(KMCE Drawing: S2020016-PR02-P5)**

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021



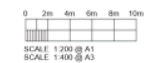
NOTE:
 * ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

COPYRIGHT
 Kehoe Myers Consulting Engineers Pty Ltd. Reserve the right to the design and documentation of the work contained on this drawing that work is created by copyright and cannot be reproduced or stored in any retrieval system without the written permission of Kehoe Myers Consulting Engineers Pty Ltd. Any transfer, expressed or implied, to the use of the document is restricted to the terms of agreement between the client and consulting engineer for professional services.



ISSUE

ISSUE	DATE	DETAILS	INITIAL
P2	23.02.21	FOR INFORMATION	GRP
P3	09.03.21	FOR INFORMATION	GRP
P4	12.03.21	FOR INFORMATION	GRP
P5	24.03.21	FOR INFORMATION	GRP



PRELIMINARY
 NOT FOR CONSTRUCTION
 DATE 24.03.21 12:19 PM

STORMWATER QUALITY NOTE:
 INSTALL 'SPEL' STORMSACK; GROSS POLLUTANT TRAP TO PITS 'A', 'B', 'F', 'G', 'I', 'J' & 'L'; SIZED TO SUIT. 3x SPEL FILTER CARTRIDGES (MODEL EMC45) TO BE INSTALLED IN TANKS '1' AND 'TANKS '2' IN ACCORDANCE WITH MANUFACTURERS GUIDELINES.

STORMWATER STRUCTURE SCHEDULE

A, F, G, I	800x800 PIT WITH CLASS D GRATE OR APPROVED EQUIVALENT.
B	800x800 PIT WITH CLASS D GRATE OR APPROVED EQUIVALENT.
C, E	800x800 PIT WITH CLASS D LID OR APPROVED EQUIVALENT.
D, H	800x800 HEAVY DUTY CAST IRON LID IN FRAME
J, L	450x450 PIT WITH CLASS D GRATE OR APPROVED EQUIVALENT.
K	450x450 PIT WITH CLASS D LID OR APPROVED EQUIVALENT.
DRAINS '1', '2' & '3'	300mm WIDE ACO 5300K NEUTRAL CHANNEL STRIP DRAIN WITH CLASS D 'HEELSAFE' GRATE OR APPROVED EQUIVALENT.
TANKS	42,000 LITRE PRECAST CONCRETE INGROUND TANK, AUSTRALIAN TANKS 8 x TUL T44 HEAVY DUTY CONCRETE O.S.D (MODEL ATQ-TL-TS), OR EQUAL, DESIGNED TO SUPPORT THE T44 VEHICLE LOAD AS SPECIFIED IN THE 1992 AUSTRALIAN BRIDGE DESIGN CODE. PROVIDE A MIN. 100 THICK BEDDING LAYER UNDER TANK. TANKS REQUIRED WITH 800 x 700 OPENINGS BETWEEN TANKS, AS REQUIRED. ALL INSTALLATION TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION AND DETAILS. PROVIDE 8 No. 600 x 600 CLASS D SOLID TOP CAST IRON LIDS, FORM EDGE THICKENING TO FOUND AND SEAL TO TOP OF TANK.
SPEL	SUPPLY AND INSTALL NEW SPEL PURACECTOR

PRELIMINARY STORMWATER DRAINAGE LAYOUT
 SCALE: 1:200 @ A1, 1:400 @ A3

- NOTE**
- PIT COVERS TO BE ADJUSTED ON SITE TO SUIT THE SLOPE OF THE FINISHED SURFACE.
 - ENSURE NO WATER PONDS AROUND GRATES. ALL STORMWATER TO BE DIRECTED INTO GRATES.
 - SPECIFIED PITS AND GRATES TO BE STRICTLY ADHERED TO. NO SUBSTITUTES ACCEPTABLE WITHOUT PRIOR APPROVAL. CONFIRM DRAINAGE PITS WITH ENGINEER PRIOR TO ORDERING AND INSTALLATION.
 - ENSURE FALLS TO GRATES AS SPECIFIED. FAILURE TO ACHIEVE FALLS WILL BE CAUSE FOR REJECTION.
 - BASE OF PITS TO BE BENCH TO ENSURE NO WATER PONDS IN PITS.
 - REFER DRAWING S181800B - H3 FOR AMENDMENTS TO EXISTING WATER SERVICES TO BE RELOCATED / REMOVED.
 - MIN. 3.0m LENGTH OF DN100 CLASS 400 SLOTTED SUB-SOIL DRAINAGE PIPE WITH GEOTEXTILE SOCK (BIDIM A14 OR EQUIVALENT) TO BE PLACED ON UPSTREAM SIDE OF ALL PITS AND OUTLETS INTO PITS.

LEGEND

DIP	DENOTES PROPOSED DOWNPIPE
SL	SURFACE LEVEL
FIL	FINISHED FLOOR LEVEL
RCBC	REINFORCED CONCRETE BOX CULVERT
---	NEW STORMWATER LINE
- - -	NEW STORMWATER OPEN CHANNEL
→	DIRECTION OF FLOW
⊞	STORMWATER PIT - REFER SCHEDULE
⊞	ACO INLINE PIT
---	EXISTING STORMWATER LINE
- - -	EXISTING SEWER MAIN
- - -	EXISTING WATER MAIN
---	MAJOR DESIGN SURFACE CONTOUR (0.5m INTERVALS)
- - -	MINOR DESIGN SURFACE CONTOUR (0.1m INTERVALS)

Kehoe Myers
 CONSULTING ENGINEERS
 KEHOEMYERS.COM.AU
 PH +617 4532 8100

CIVIL | STRUCTURAL | HYDRAULIC

CLIENT
 KILCOR REAL ESTATE INVESTMENT MANAGEMENT

PROJECT
 PROPOSED SERVICE STATION DEVELOPMENT, 28696 BRUCE HIGHWAY, CHILDERS QLD.

DRAWING TITLE
 PRELIMINARY STORMWATER DRAINAGE LAYOUT

DESIGN	JMG	ORIGINAL SIZE	A1
DRAWN	JMG	PROJECT NUMBER	S2021016
CHECKED	GRP	DRAWING NUMBER	PR02
APPROVED	JP/EO # 3356	ISSUE	P5
DATE	24.03.21		

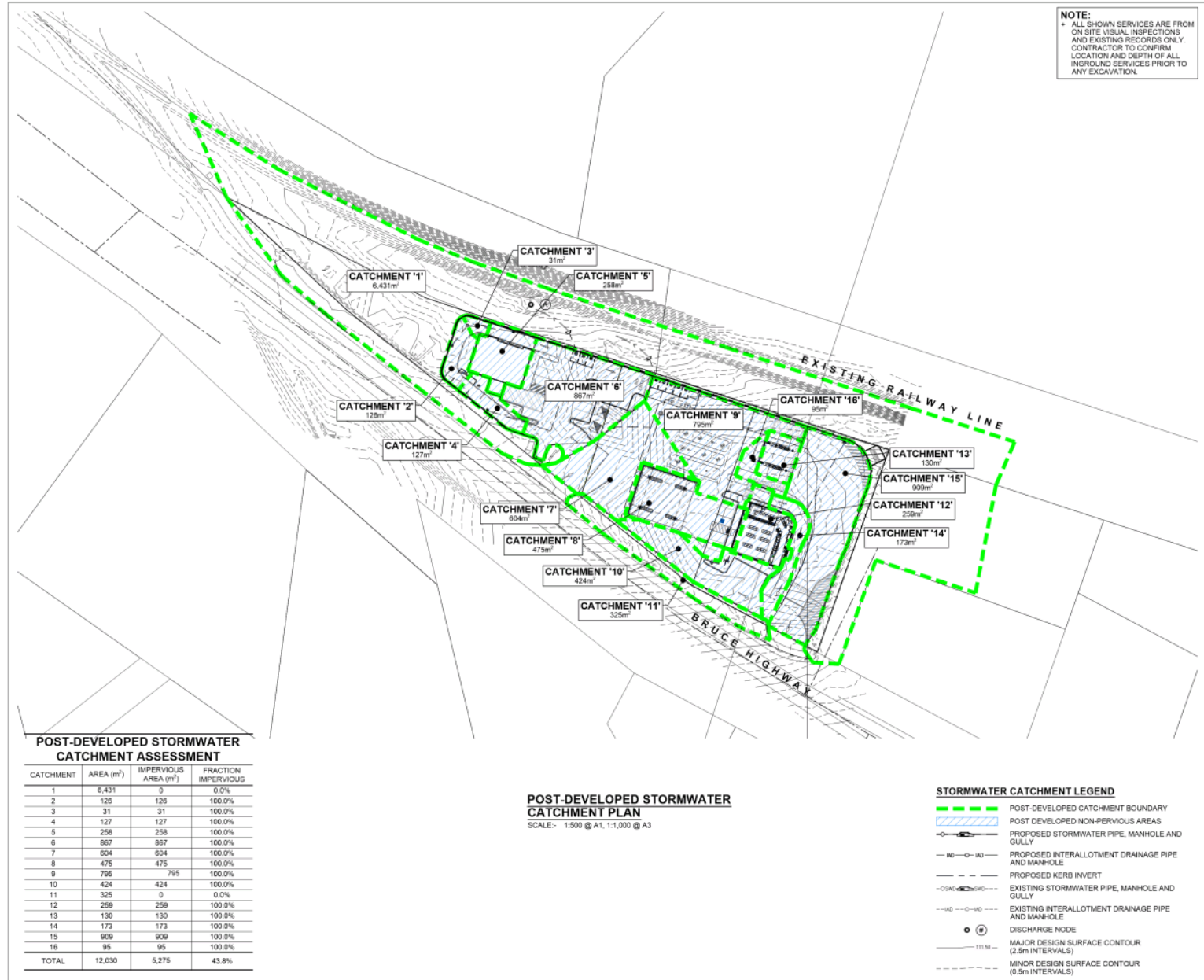
PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

**Appendix E. Post-Developed Stormwater Catchment Plan
(KMCE Drawing: S2020016-SWM02-P4)**

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021



NOTE:
ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

COPYRIGHT
Kehoe Myers Consulting Engineers Pty Ltd. Reserve the right to the design and documentation of the work contained on this drawing that work is created by copyright and cannot be reproduced or copied in any form without the written permission of Kehoe Myers Consulting Engineers Pty Ltd. Any further, expressed or implied, to the use of the document is reserved to the benefit of agreement between the client and consulting engineer for professional services.

DATUM
PSM
RL

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	31.07.20	FOR INFORMATION	GRP
P2	23.02.21	FOR INFORMATION	GRP
P3	09.03.21	FOR INFORMATION	GRP
P4	24.03.21	FOR INFORMATION	GRP

0 5m 10m 15m 20m 25m
SCALE: 1:500 @ A1
SCALE: 1:1,000 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 24.03.21 12:20 PM

Kehoe Myers
CONSULTING ENGINEERS
KEHOEMYERS.COM.AU
PH +617 4832 8100

CIVIL | STRUCTURAL | HYDRAULIC

CLIENT
KILCOR REAL ESTATE INVESTMENT MANAGEMENT

PROJECT
PROPOSED SERVICE STATION DEVELOPMENT, 28696 BRUCE HIGHWAY, CHILDERS QLD.

DRAWING TITLE
POST-DEVELOPED STORMWATER CATCHMENT PLAN

DESIGN	JMG	ORIGINAL SIZE	A1
DRAWN	JMG	PROJECT NUMBER	S2021016
CHECKED	GRP	DRAWING NUMBER	SWM02
APPROVED	RPED # 3356	DATE	24.03.21
		ISSUE	P4

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

Appendix F. DRAINS Model Results

ARI (AEP %)	Temporal Pattern (min)	Pre-developed (m ³ /s)	Post-developed (m ³ /s)	Difference (m ³ /s)
2 (39%)	5	0.156	0.161	0.005
	10	0.258	0.227	-0.031
	15	0.239	0.220	-0.019
	20	0.233	0.211	-0.022
	25	0.228	0.213	-0.016
	30	0.212	0.202	-0.010
	45	0.191	0.181	-0.010
	60	0.168	0.166	-0.002
	90	0.146	0.149	0.002
	120	0.129	0.130	0.001
5 (18%)	5	0.212	0.211	-0.001
	10	0.352	0.299	-0.053
	15	0.324	0.289	-0.035
	20	0.317	0.278	-0.039
	25	0.311	0.281	-0.030
	30	0.290	0.269	-0.021
	45	0.262	0.242	-0.020
	60	0.231	0.223	-0.008
	90	0.203	0.203	0.000
	120	0.180	0.178	-0.002
10 (10%)	5	0.256	0.249	-0.007
	10	0.422	0.351	-0.072
	15	0.400	0.352	-0.048
	20	0.384	0.337	-0.047
	25	0.374	0.320	-0.054
	30	0.350	0.317	-0.033
	45	0.311	0.283	-0.028
	60	0.281	0.262	-0.019
	90	0.253	0.242	-0.011
	120	0.230	0.218	-0.012

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

ARI (AEP %)	Temporal Pattern (min)	Pre-developed (m ³ /s)	Post-developed (m ³ /s)	Difference (m ³ /s)
20 (5%)	5	0.307	0.291	-0.016
	10	0.504	0.466	-0.038
	15	0.478	0.453	-0.025
	20	0.459	0.433	-0.026
	25	0.448	0.402	-0.046
	30	0.419	0.409	-0.010
	45	0.374	0.366	-0.008
	60	0.339	0.312	-0.027
	90	0.306	0.288	-0.018
120	0.280	0.260	-0.021	
50 (2%)	5	0.387	0.380	-0.007
	10	0.633	0.588	-0.045
	15	0.589	0.584	-0.005
	20	0.557	0.542	-0.015
	25	0.510	0.525	0.015
	30	0.475	0.491	0.016
	45	0.466	0.469	0.003
	60	0.401	0.396	-0.005
	90	0.350	0.335	-0.015
120	0.290	0.283	-0.007	
100 (1%)	5	0.453	0.469	0.016
	10	0.740	0.732	-0.008
	15	0.689	0.686	-0.004
	20	0.652	0.645	-0.007
	25	0.598	0.613	0.016
	30	0.557	0.582	0.025
	45	0.548	0.550	0.002
	60	0.472	0.463	-0.009
	90	0.419	0.419	0.000
120	0.346	0.334	-0.012	

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021

PROJECT NO: S20210106

CHILDERS SERVICE STATION – STORMWATER MANAGEMENT PLAN

Appendix G. MUSIC Model Parameters

Table 1 Meteorological Data & Rainfall Data

Input	Data Used
Rainfall Station	Bundaberg ID 33119
Time Step	6 min
Modelling Period	15/12/1996 – 14/12/2005
Average Annual Rainfall (mm)	786
Evapotranspiration (mm)	1629

Table 2 Rainfall-Runoff Parameter Table

Parameter	Data Used
Landuse	Commercial
Rainfall Threshold (mm)	1
Soil Storage Capacity (mm)	18
Initial Storage (% of Capacity)	10
Field Capacity (mm)	80
Infiltration Capacity Coefficient – a	243
Infiltration Capacity Coefficient – b	0.6
Initial Depth (mm)	50
Daily Recharge Rate (%)	0
Daily Baseflow Rate (%)	31
Daily Deep Seepage Rate (%)	0

Table 3 Water Quality Parameters

Catchment	Flow Type	Total Suspended Solids		Total Phosphorus		Total Nitrogen	
		Mean (Log ₁₀ mg/L)	σ (Log ₁₀ mg/L)	Mean (Log ₁₀ mg/L)	σ (Log ₁₀ mg/L)	Mean (Log ₁₀ mg/L)	σ (Log ₁₀ mg/L)
Commercial - Ground level	Base Flow	0.780	0.390	-0.600	0.500	0.320	0.300
	Storm Flow	2.160	0.380	-0.390	0.340	0.370	0.340
Commercial – Roads	Base Flow	0.780	0.390	-0.600	0.500	0.320	0.300
	Storm Flow	2.43	0.380	-0.300	0.340	0.370	0.340
Commercial - Roof	Base Flow	N/A	N/A	N/A	N/A	N/A	N/A
	Storm Flow	1.3	0.38	-0.89	0.34	0.37	0.34

Estimation Method: Stochastically Generated

Table 4 SPEL Filter Tank Properties

Filter Tank Properties	Value
Surface Area (m ²)	56.0
Weir Height (m)	0.85
Number of Filter units	3
High Flow Bypass (m ³ /s)	0.00849

Table 5 SPEL Stormsacks Properties

Stormsack Properties	Number
Number installed in surface pits	7

KEHOE MYERS CONSULTING ENGINEERS

ISSUE 4, MARCH 2021

Ashlee Dickinson

From: No Reply <mydas-notifications-prod2@qld.gov.au>
Sent: Tuesday, 12 October 2021 4:44 PM
To: Development
Cc: lauren.s@placedesigngroup.com
Subject: 2104-22124 SRA application correspondence
Attachments: 2104-22124 SRA - SARA approved report - Stormwater Management Plan - 11102021.pdf; DTMR TIA - Application decision - s62A (PA) - Approval_1 (11102021)_.pdf; 2104-22124 SRA - SARA approved plans.pdf; GE83-N Representations about a referral agency response.pdf; 2104-22124 SRA - SARA Referral Agency Response (conditions).pdf

Categories: Ashlee

Please find attached a notice regarding application [2104-22124 SRA](#).

If you require any further information in relation to the application, please contact the State Assessment and Referral Agency on the details provided in the notice.

This is a system-generated message. Do not respond to this email.
RA6-N



Email Id: RFLG-1021-0012-0536



Item

21 December 2021

Item Number:	File Number:	Part:
L2	522.2021.268.1	DEVELOPMENT ASSESSMENT

Portfolio:

Planning & Development Services

Subject:

Material Change of Use for Telecommunication Facility - 1A Kensington Street, Norville

Report Author:

Dean Catorall, Para Planner

Authorised by:

Michael Ellery, Group Manager Development

Link to Corporate Plan:

Our infrastructure and development - 2.3 Sustainable development - 2.3.3 Review and consistently enforce the planning scheme to ensure sustainable environmental practices.

Summary:

APPLICATION NO	522.2021.268.1
PROPOSAL	Material Change of Use for Telecommunication Facility
APPLICANT	Stilmark Holdings Pty Ltd
OWNER	Wright Brothers Computers Pty Ltd & JA Wright
PROPERTY DESCRIPTION	Lot 2 on RP96755
ADDRESS	1A Kensington Street, Norville
PLANNING SCHEME	Bundaberg Regional Council Planning Scheme 2015
ZONING	Neighbourhood Centre Zone
OVERLAYS	Acid Sulphate Soils Overlay Airport and Aviation Facilities Overlay Flood Hazard Overlay Infrastructure Overlay
LEVEL OF ASSESSMENT	Impact
SITE AREA	319 m ²
CURRENT USE	Food and Drink Outlet
PROPERLY MADE DATE	20 August 2021
STATUS	The 35 business day decision period ends on 15 December 2021
REFERRAL AGENCIES	Department of State Development, Manufacturing, Infrastructure and Planning

NO OF SUBMITTERS	Ten (10)
PREVIOUS APPROVALS	Not applicable
SITE INSPECTION CONDUCTED	18 October 2021
LEVEL OF DELEGATION	C2

1. INTRODUCTION

1.1 Proposal

The Applicant seeks a Development Permit for Material Change of Use for a Telecommunication Facility. The proposal includes a 17.3 m tall monopole which includes four (4) Optus 4G panel antennas and four (4) Optus 5G panel antennas stacked on top of the monopole giving an overall finished height of 22.5 m. The antennas will be enclosed in a shroud to be placed over the monopole which will screen them from view. The base of the facility will locate within the existing floor area of the fish and chip shop on the site, with the pole protruding from its roof. All wiring associated with the facility will be internal to the pole or ground level shop. The tenancy on which the proposed use will be located will cease to be used for a shop and will instead house infrastructure supporting the operation of the tower.

The Applicant states that *“the facility will provide for new and improved Optus coverage to the suburbs of Norville, Svensson Heights and Walkervale as well as to the southern parts of the Bundaberg CBD. It will also improve the level of service to the Bundaberg TAFE complex and the Bundaberg Multiplex – two key outcomes sought from this project – as well as to the key transport thoroughfares of Walker Street and the North Coast rail corridor”*.

Pursuant to Table 5.4.8 of the Bundaberg Regional Council Planning Scheme 2015, the proposal requires Impact Assessment.

1.2 Site Description

The premises is located within the Neighbourhood Centre Zone with an area of 319 m² and a 21.12 m road frontage length to Kensington Street. The premises is currently improved by a commercial building which is currently/historically used for the purposes of a Shop (AMS Computer Services) and a Food and Drink Outlet (That Fish & Chip Shop). The premises features a driveway crossover to Kensington Street and a single car parking space on the southern side of the building.

Nearby premises directly adjacent to the Walker Street and Kensington Street intersection are improved by commercial premises such as a Service Station, two (2) Shops (Hairdressers) and Health Care Facilities. More broadly, the locality includes the Bundaberg TAFE approximately 180 m to the west, the Walker Street Craft Centre approximately 400 m to the north west, the Bundaberg Multiplex approximately 200 m to the north and Bundaberg State High School approximately 200 m to the north east. Other than these non-residential features of the locality, the surrounding land uses are predominantly low-rise residential activities which locate within the Low Density Residential Zone.

2. ASSESSMENT PROVISIONS

2.1. Assessment Benchmarks

The following are the benchmarks applying for this development:

Benchmarks applying for the development	Benchmark reference
Zone Code: Neighbourhood Centre Zone	Bundaberg Regional Council Planning Scheme 2015
Overlay Code <ul style="list-style-type: none"> Flood hazard overlay code 	Bundaberg Regional Council Planning Scheme 2015
Use Code <ul style="list-style-type: none"> Telecommunications facility code 	Bundaberg Regional Council Planning Scheme 2015
Other Development Code <ul style="list-style-type: none"> Landscaping code Nuisance code Transport and parking code Works, services and infrastructure code 	Bundaberg Regional Council Planning Scheme 2015
Planning Scheme Policies <ul style="list-style-type: none"> Planning scheme policy for development works Planning scheme policy for waste management 	Bundaberg Regional Council Planning Scheme 2015

3. ISSUES RELEVANT TO THE APPLICATION

The following significant issues have been identified in the assessment of the application:

Land Use Zoning

The land locates within the Neighbourhood Centre Zone, the purpose of which is to provide for a small range of land uses and activities to support the basic convenience needs of local neighbourhoods or parts of neighbourhoods. The zone would regularly accommodate small-scale convenience shopping, offices, community activities and other uses which directly support the basic convenience needs of the immediate community. Specific Outcome 3.4.2.1(a) of the Strategic Framework of the Bundaberg Regional Council Planning Scheme 2015 provides a further description of the intent of Neighbourhood activity centres, stating the following:

“Neighbourhood activity centres typically service residential neighbourhoods or small towns and villages with small-scale convenience shopping that caters for day-to-day and top-up needs, locally servicing professional offices, community services and other activities of a local servicing nature.

Neighbourhood activity centres may also comprise existing standalone business or entertainment activities (such as service stations and hotels) that may otherwise

typically form part of a higher order centre. Neighbourhood activity centres located in urban settings commonly have a walking distance catchment.”

It is noted that the existing use of the premises, small scale shop and food and drink outlet, are consistent with the intent and descriptors associated with a Neighbourhood Activity Centre.

In respect to the use of the site for the purpose of a Telecommunications Facility, the Applicant included in their development application an assessment against the Neighbourhood Centre Zone Code which simplified the relevant outcomes sought for development in the area. While it is recognised that the development would likely provide a greater service for the day-to-day needs of the surrounding catchment, it is not a retail/shopping need that is being fulfilled by the development as intended by the code. Furthermore, the development reduces the capacity of local shopping services in the locality by utilising an available tenancy for such services.

It is Council officer's views that the Applicant has failed to demonstrate compliance with Part 3.4.2 of the Strategic Framework or the purpose and outcomes of the Neighbourhood Centre Zone Code.

Built Form, Design and Proximity to Sensitive Land Uses

The proposal will feature a finished overall height of 22.5 m above ground level consisting of a monopole with shrouded antennas on top. The base of the pole, including the associated electrical equipment at ground level will locate within the existing building, with the pole protruding from the roof of the building.

It is acknowledged that the development locates on premises located in a commercial zone, however, it does directly adjoin residential premises along Walker Street, Kensington Street and Glenmorris Street.

The planning scheme through the Strategic Framework, Neighbourhood Centre Zone Code and Telecommunications Facilities Code sets parameters around the design of development in these areas to ensure that they are compatible with the intent of the zone and do not adversely impact on the surrounding locality. Part 3.6.5.1(c) of the Strategic Framework requires *“telecommunications and information infrastructure to be integrated in a sustainable and attractive manner which does not unduly impact on the amenity or landscape qualities of the area”*. This part of the Strategic Framework feeds through to the Telecommunications facility code which requires for such facility to be visually integrated with its natural or townscape setting and does not adversely affect the amenity of surrounding sensitive land uses.

Telecommunications facilities are typically designed to have a similar height to surrounding structures or vegetation in order to demonstrate that they are able to visually integrate with the townscape setting. For reference, the Neighbourhood Centre Zone code requires development to have a low-rise built form that is compatible with the existing and intended scale and character of the streetscape and surrounding area, typically in the form of a maximum building height of 2 storeys and 8.5 m above natural ground level.

Acceptable Outcome 1.2 of the Telecommunications facility provides further guidance, in the form of minimum setback requirements, to ensure that such facilities are able to visually integrate with the townscape setting and not adversely impact on the amenity of surrounding sensitive land uses. These setbacks include a minimum distance of 400 m from a residential activity, 500 m from any childcare centre, community care

centre, educational establishment or park, 20 m from any public pathway and 1km from any other existing or approved telecommunications facility.

In comparison to the regular design parameters, the proposal includes a 22.5 m tall structure where the predominant building height is single storey, setback approximately 15 m from the nearest residential activity and approximately 200 m from two different Educational Establishments and a Community Use. While it is acknowledged that the setback criteria is just one way of achieving the intent of the Telecommunications facility code, the distance of the proposed development from nearby residential activities is extremely close noting the disparity between the height of the proposed facility and the predominant built form of the locality.

It should also be noted that the location of the subject site locates approximately 25m from the Walker & Kensington Street intersection. Walker Street, being a State controlled road, is a thoroughfare for public, private and active transport users. Two traffic counts taken in 2014 & 2020 on Walker Street adjacent to the railway line (BUN287 & Walker Street Ch1400) measured an average daily count of 13,731 and 14,110 vehicle trips respectively, each of which would view the development if it were to be constructed. Corridors, such as Walker Street, form much of the built character and place identity associated with particular suburbs or even towns for users of the corridors. Due to the proximity of the site to the Walker & Kensington Street intersection the proposed development would likely adversely impact on the visual amenity of the locality of Norville beyond those that live and work in the immediate vicinity of the proposal.

As a result of the design and location of the proposed Telecommunications Facility the development is unable to meet the criteria of the Strategic Framework, Telecommunications Facility Code and Neighbourhood Centre Zone as it is considered that it unduly and unreasonably impacts on the amenity qualities of the area and surrounding sensitive uses, is not visually integrated or compatible with its setting.

Better Suited Locations

A common theme throughout the submissions received by Council during the public notification period was that there are likely better suited locations in the locality in which the development could be sited where it would have lesser impacts on the surrounding locality. Suggested locations included the Bundaberg TAFE site as well as the Bundaberg Multiplex site.

Both of the suggested locations include established structures and landscaping that would suggest that a new telecommunications facility could more easily be visually integrated with the surrounding environment. Furthermore, these premises are able to provide greater setback distances from any proposed telecommunications facility to nearby residential activities.

The Applicant addressed alternate locations in their response to Council's Information Request by stating that "*there are also no other more appropriate locations or zones available for the proposal*", however, the author does not qualify this statement.

The use of established structures for the siting of telecommunications facilities in the Bundaberg Region, particularly in urban areas, is common. Examples of such facilities include the facility attached to the top of the water tower at 8 Heaps Street, Avenell Heights, the facility that sits on top of the Bundaberg Base Hospital and the facility attached to the professional offices at 142 Bourbong Street (the Whale Building) and

157A Bourbong Street (Telstra Building). These facilities utilise the existing built form of their environment in order to reduce the apparent bulk of the telecommunications facilities and are designed such that it is not immediately apparent that these premises are utilised for the purpose of telecommunication facilities.

There are other examples in the Bundaberg Region where telecommunications facilities have not been designed in the above manner. Such examples include the towers located at 74 Quay Street and 7 Takalvan Street where they are associated with current or former television studios, 258 Bourbong Street where it collocates with the QPS station and 73 George Street, adjacent to Rotary Park & the tennis complex. It is noted that these examples are associated with broadcasting studios, have been developed under State exemptions or are in limited development zones where future urban activities are not anticipated. Although some of these examples do directly adjoin residential activities, they are associated with a broader function of the premises – ie they do not directly adjoin residential activities unless they necessarily have to.

The proposed development differs to the existing examples in the urban setting of Bundaberg in that it does not utilise the existing urban built form to the extent required for it to visually integrate with the locality and is not required to locate on this particular premises due to some connection to associated business activities on the same site. Noting these differences, there are no limiting factors on where the proposed facility could locate, and therefore the suggestion that the facility could be moved to another site which has the benefit of taller buildings and existing vegetation in which the development can take advantage of is an accurate observation that the Applicant has not explored. For this reason, an argument that the development ought to be approved despite its visual and amenity impacts due to the provision of a higher level of services to the locality is not a sound justification without further investigation by the Applicant.

Electromagnetic Energy (EME)

A common theme among the submissions received during the public notification period included potential health impacts resulting from the proposed development once operational. The Applicant provided an Environmental EME Report for the development which identified that the maximum EME level calculated for the development is 4.18% out of 100% of the public exposure limit, 51 m from the development location (4.14% between 0 m – 50 m).

It is noted that the proposed development intends to operate within the limits set by the Planning Scheme, in particular Acceptable Outcome 2 of the Telecommunications Facility Code which states that:

The telecommunications facility is designed and operated to restrict human exposure to electromagnetic radiation in accordance with the: -

- (a) Radio Communications (Electromagnetic Radiation – Human Exposure) Standard 2003; and*
- (b) Radio Protection Standard for Maximum Exposure Levels to Radiofrequency Fields.*

It is considered that the development could comply or be conditioned to comply with these requirements.

Transport and Parking

There is limited onsite space for car parking and vehicle manoeuvring. The Applicant has stated that it will commission a construction management plan which incorporates an appropriate traffic management plan prior to any construction being undertaken. It is considered that such plan would be appropriate to alleviate any concerns regarding impact on the local road network. It is noted that the State has required a similar document as part of the Referral Agency Response to ensure that there will be no impact to traffic on the State Controlled Road (Walker Street).

Although there are no on-site car parks nominated for the proposed development, once operational it will require minimal attendance by the license carrier. As such, existing on-street car parking is deemed appropriate to service the proposed development and any traffic impacts could be adequately managed through the imposition of reasonable and relevant conditions.

Public Notification

Ten submissions were made to Council during the notification period, all objecting to the proposal. The following matters were raised by submitters:

Matters raised in any submissions	Description of how matters were dealt with in reaching the decision
The design and location of the proposed telecommunications facility will have a visual impact on the amenity of nearby dwellings and the locality.	It is agreed that the design and location of the proposal will impact on the amenity of nearby dwellings and the locality and is a reason for the development’s refusal.
The development will reduce the property value of nearby dwellings.	Whilst the impact on property values of adjoining premises has not been quantified, given the significant impact on the amenity of surrounding area it is considered likely that if approved the use would have some effect on property values. Whilst this has not been relied upon in the assessment of the application as it is not linked to an assessment benchmark, this issue could potentially constitute a “relevant matter” pursuant to s 45(5)(b) of the <i>Planning Act 2016</i> .
The construction phase of the development will impact on the local transport network.	If the development were approved, impacts on the local transport network could be appropriately managed through the requirements to prepare a construction management plan and traffic management plan.
The telecommunications facility will have adverse health impacts to people residing or working within nearby premises.	The Applicant has provided an Environmental EME report which demonstrates that the development can operate within a safe level of public exposure limits.

Matters raised in any submissions	Description of how matters were dealt with in reaching the decision
There would be a privacy impact on nearby residents if cameras were to be installed on the tower.	If the development were approved, this issue could be resolved through the imposition of a condition ensuring that cameras could not be placed on the tower.
There are more suitable locations in the area that will have lesser amenity impacts on nearby residents.	It is agreed that the design and location of the proposal has not fully explored alternate options in the locality that may be more suitable for the development which has been discussed in this report.
The telecommunications facility will interfere with electronics in nearby dwellings.	This issue was a matter raised in Council's Information Request. The Applicant has provided advice recommending it would be unlikely for such impacts to occur, however, if they were to occur could be rectified easily. If the development were to be approved, appropriate conditions could be imposed requiring for the operator of the development to liaise with any affected land owner to rectify such issues.
Not all residents in the area were notified of the proposed development.	The planning legislation only requires for adjoining land owners to be notified of Impact Assessable development. The Applicant has confirmed by notice that they have complied with the public notification requirements.
Due to the proximity of the facility to nearby dwellings, the structure could potentially fall onto a dwelling in a natural disaster (in particular an earthquake)	If the development were approved, any such structure would be required to be designed and constructed in accordance with the relevant parts of the National Construction building codes. NCC 2019, Volume 1, Part BP1.1 requires the design of the structure to take into account, during the construction and use phase, the ability to perform adequately under all reasonable expected design actions. Such actions would include wind action and earthquake action among others.

4. REFERRALS

4.1 Internal Referrals

Advice was received from the following internal departments:

Internal department	Referral Comments Received
Development Assessment - Engineering	17 November 2021
Engineering Services	24 August 2021

Regulatory Services	23 August 2021
---------------------	----------------

Any significant issues raised in the referrals have been included in section 3 of this report.

4.2 Referral Agency

Referral Agency responses were received from the following State agencies:

Agency	Concurrence/ Advice	Date Received	Conditions Yes/No
Department of State Development, Manufacturing, Infrastructure and Planning	Concurrence	14 October 2021	Yes

Any significant issues raised have been included in section 3 of this report.

5. PUBLIC NOTIFICATION

Pursuant to the *Planning Act 2016*, this application was advertised for 15 business days from 27 September 2021 until 26 October 2021.

The Applicant submitted documentation on 27 October 2021 advising that public notification had been carried out in accordance with the *Planning Act 2016*. Council received ten (10) submissions in relation to this development application during this period. Any significant issues raised have been included in section 3 of this report.

Communication Strategy:

Communications Team consulted. A Communication Strategy is:

- Not required
 Required

Attachments:

- [↓1](#) Locality Plan
[↓2](#) Site Plan
[↓3](#) Proposal Plans
[↓4](#) Referral Agency Response

Recommendation:

That the Development Application 522.2021.268.1 detailed below be decided as follows:

1. Location details

Street address: 1A Kensington Street Norville
Real property description: Lot 2 on RP96755
Local government area: Bundaberg Regional Council

2. Details of the proposed development

Development Permit for Material Change of Use (Telecommunication Facility)

3. Decision

Decision details: Refused

4. Referral agencies for the application

For an application involving	Name of referral agency	Advice agency or concurrence agency	Address
<p>State-controlled road Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 <i>Development application for a material change of use, other than an excluded material change of use, that is assessable under a local categorising instrument, if all or part of the premises—</i> (a) are within 25m of a State transport corridor; or (b) are a future State transport corridor; or (c) are— (i) adjacent to a road that intersects with a State-controlled road; and (ii) within 100m of the intersection</p>	<p>Department of State Development, Manufacturing, Infrastructure and Planning</p>	<p>Concurrence Agency</p>	<p>State Assessment and Referral Agency (SARA) E: WBBSARA@dilgp.qld.gov.au P: PO Box 979 Bundaberg Qld 4670</p>

5. Details of refusal

The Bundaberg Regional Council was not directed to refuse the application by a referral agency.

6. Reasons for refusal

Under section 63(2)(f)(ii) of the *Planning Act 2016*, the Bundaberg Regional Council must set out reasons for the decision to refuse the application.

The reasons for this refusal are:

1. The proposed development does not comply with the provisions of the Bundaberg Regional Council Planning Scheme 2015, namely:
 - (a) The proposed development does not comply with specific outcome 3.6.2.1(e)(v) & (vi) and specific outcome 3.6.5.1(c)(ii) of the Infrastructure and Services Theme of the Strategic Framework, because:
 - (i) The development is greater than twice the height of any surrounding element of the built environment;
 - (ii) The development is setback as close as 15m to a neighbouring residential activity;
 - (iii) The development locates nearby a thoroughfare (Walker Street) and is a key location in the context of the Norville locality;
 - (iv) As a result of (i)-(iii), the development is not able to integrate in a sustainable and attractive manner, has not been designed to promote high quality urban design outcomes and will unduly impact on the amenity qualities of the area.
 - (b) The proposed development does not comply with specific outcome 3.4.2.1(a) of the Economic Development Theme of the Strategic Framework, because:
 - (i) The proposed development is for an “other use” in the Neighbourhood centre zone;
 - (ii) The Neighbourhood centre zone is to provide for small-scale convenience shopping that caters for the day-to-day and top-up needs of the immediate residential neighbourhood.
 - (iii) The development does represent a small-scale convenience shopping use;
 - (iv) As a result of (i)-(iii) the proposed development does not reflect or support the preferred pattern of settlement described by the Bundaberg Regional Council Planning Scheme 2015.
 - (c) The proposed development does not comply with the purpose of the Neighbourhood centre zone code, because:
 - (i) The neighbourhood centre zone is to provide for a small range of land uses and activities that support the basic convenience needs of local neighbourhoods or parts of neighbourhoods;
 - (ii) The proposed development is for Telecommunications facility and does not represent a “basic convenience need”;

- (iii) The proposed development removes an existing tenancy from the existing supply of commercial tenancies in the locality that are intended to provide for 'basic convenience needs'.
- (d) The proposed development does not comply with the overall outcomes of the Neighbourhood centre zone code, because:
- (i) The development is not for a business activity that services the day-to-day needs of the local catchment;
 - (ii) The development comprises an overall height of 22.5 m, is physically distinct as a telecommunication tower and is setback as close as 15m to neighbouring residential activities;
 - (iii) As a result of (ii), the development does not have a low-rise built form and does not incorporate a high standard of architecture and urban design;
 - (iv) As a result of (ii) & (iii), the development is considered to be incompatible with and is not sympathetic to its local setting and context;
 - (v) As a result of (ii)-(iv), the development will unreasonably impact on the amenity of the surrounding premises.
- (e) The proposed development does not comply with the purpose of the Telecommunications facility code, because:
- (i) The development comprises an overall height of 22.5 m, is physically distinct as a telecommunication tower;
 - (ii) The development is setback as close as 15 m to neighbouring residential activities;
 - (iii) As a result of (i) & (ii), the development does not protect the amenity of the surrounding premises.
- (f) The proposed development does not comply with the overall outcomes of the Telecommunications facility code, because:
- (v) The development is greater than twice the height of any surrounding element of the built environment;
 - (vi) The development is setback as close as 15 m to a neighbouring residential activity;
 - (vii) The development locates nearby a thoroughfare (Walker Street) and is a key location in the context of the Norville locality;
 - (viii) As a result of (i)-(iii), the development is not able to visually integrate with its setting and will adversely affect the amenity of surrounding sensitive land uses.
- (g) The proposed development does not comply with the purpose or overall outcomes of the Landscaping code, because:
- (i) The development is not located on a site that provides for opportunities to provide for landscaping in a manner consistent with the desired character and amenity of the Bundaberg Region.

Findings on material questions of fact

- The subject site is located in the Neighbourhood centre zone of the Bundaberg Regional Council Planning Scheme 2015;

- The development application was made for a Material Change of Use for a Telecommunications Facility;
- The subject site is located at 1A Kensington Street, properly described as Lot 2 on RP96755, locates adjacent to Kensington Street and comprises an area of 319 m²;
- Nearby land is predominantly located within the Low Density Residential zone and improved by residential activities commensurate to the intent of the zone. Nearby land immediately adjacent to the Walker Street and Kensington Street intersection are improved by commercial development for Health Care Services, Shop and Service Station.
- Bundaberg Regional Council, as the statutory Assessment Manager, undertook assessment of the development application against the applicable assessment benchmarks identified by the Local categorising instrument and the *Planning Regulation 2017*.

Evidence or other material on which the findings were based

- The development application;
- The Bundaberg Regional Council Planning Scheme 2015;
- The *Planning Act 2016*;
- The *Planning Regulation 2017*; and
- State Planning Policy 2017.

7. Properly made submissions

Properly made submissions were received from the following principal submitters:

Name of principal submitter	Residential or Business Address	Electronic Address
Kevin Megaw	100 Walker Street, Norville	esldrivingschool@yahoo.com
Deirdre & Chris Barraclough	98 Walker Street, Norville	Erinb04@live.com
Hannah Jonas	96 Walker Street, Norville	Hannah.rose.watson94@hotmail.com.au
Christine Cross	81 walker Street, Bundaberg West	Christinec656@gmail.com
Grant Morgan	98 Walker Street, Norville	redridgenursery@gmail.com
Carol Thompson	79 Walker Street, Norville	Carolthompson91151@gmail.com
Grace Scheuer	15 Glenmorris Street, Norville	-

Kay Thomas	47 Nott Street, Norville	Thomaskay7@gmail.com
Jeff & Leanne Bradley	7 Forsyth Street, Gin Gin	Bradleybunch68@gmail.com
Ross Dunn	27 Brand Street, Norville	rosszen@gmail.com

8. Rights of appeal

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in Chapter 6, Part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see Chapter 6, Part 2 of the *Planning Act 2016*).

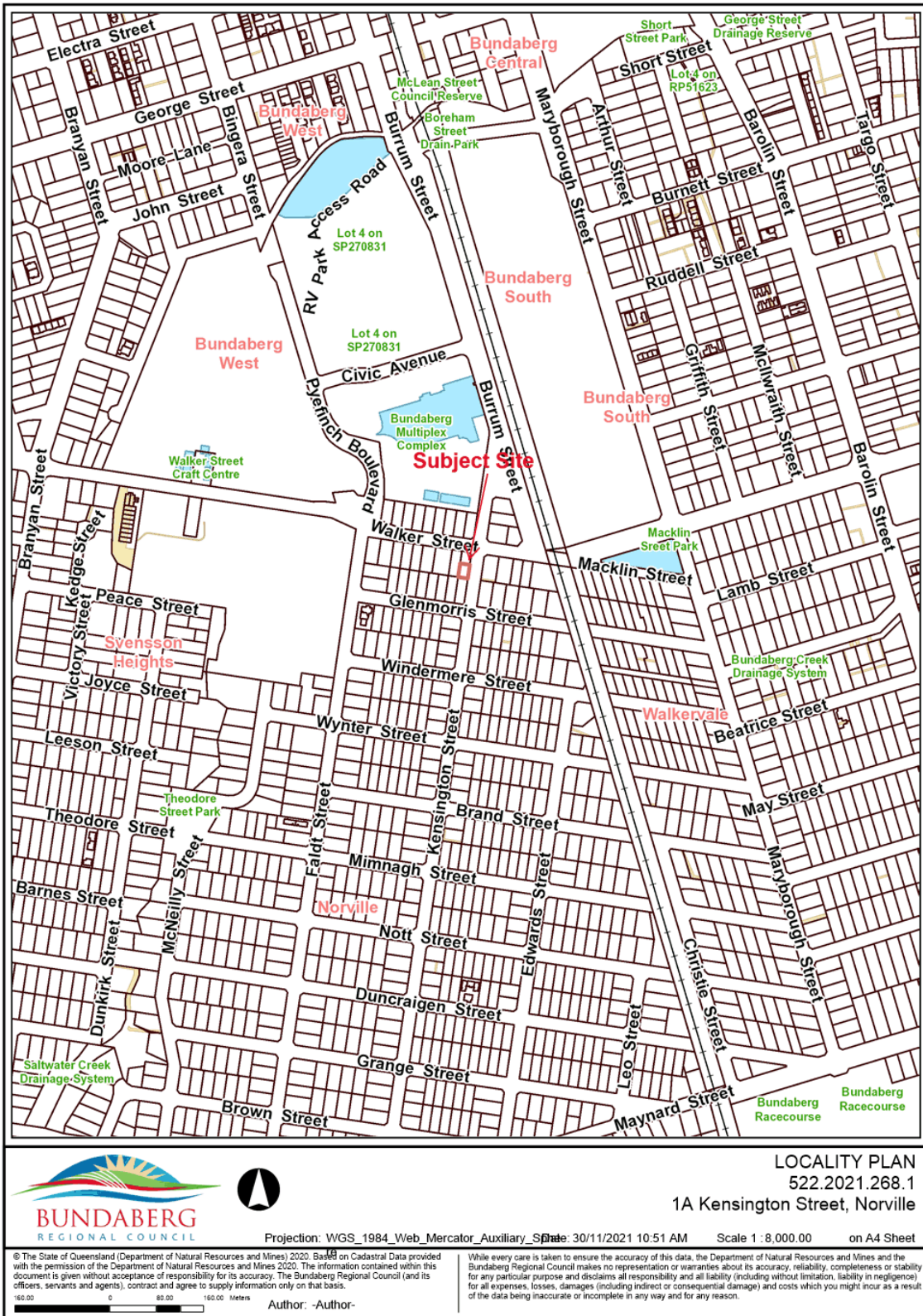
Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

The timeframes for starting an appeal in the Planning and Environment Court are set out in Section 229 of the *Planning Act 2016*.

Schedule 1 is an extract from the *Planning Act 2016* that sets down the applicant's appeal rights.





SITE PLAN
522.2021.268.1
1A Kensington Street, Norville

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

0 2.50 5.00 meters

Author: -Author-

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere Date: 30/11/2021 10:50 AM Scale 1 : 250.00 on A4 Sheet

		08.06.2021	18.06.2021																
DATE OF ISSUE																			
DRAWING PACKAGE VERSION		1	2																
DRAWING REGISTER																			
AQ4680-001 - 00	COVER SHEET + DRAWING REGISTER	A	B																
GENERAL DRAWINGS																			
AQ4680-001 - G1	LOCALITY AND SITE PLANS	A	B																
AQ4680-001 - G2	SITE LAYOUT	A	B																
AQ4680-001 - G3	SITE ELEVATION	A	B																
AQ4680-001 - G4	SITE SPECIFICATIONS	A	B																
STRUCTURAL DRAWINGS																			
AQ4680-001 - S1	COMPOUND SETOUT	A	B																
ELECTRICAL DRAWINGS																			
AQ4680-001 - E1	SITE EARTHING PLAN	A	B																
MISCELLANEOUS DRAWINGS																			
AQ4680-001 - L1	OPTUS LICENCE AREAS	A	B																
COMPONENT DRAWINGS																			
CD 200.1.1	CONSTRUCTION NOTES - SHEET 1	03	03																
CD 200.1.2	CONSTRUCTION NOTES - SHEET 2	02	02																
CD 203.4.3	OPLAN OUTDOOR UNIT SLAB DETAIL (1 BAY-6 BAY)	01	01																
CD 205.1.1	EARTHING INSPECTION PIT	03	03																
CD 205.1.2	EARTH BAR TYPES	01	01																
CD 205.2.1	EARTHING SCHEMATIC NEW STEEL MONOPOLE	04	04																
CD 205.2.7	GSMP & ISOLATION H-FRAME	02	02																
CD 206.1.1	SITE SIGNAGE DETAILS	01	01																
CD 206.1.2	SITE SIGNAGE DETAILS TYPICAL MONOPOLE GROUND SITE	01	01																
GA552	TURRET HEADFRAME	0	0																



BUNDY STH

1a KENSINGTON STREET,
NORVILLE,
QLD 4670

SITE ID: AQ4680-001



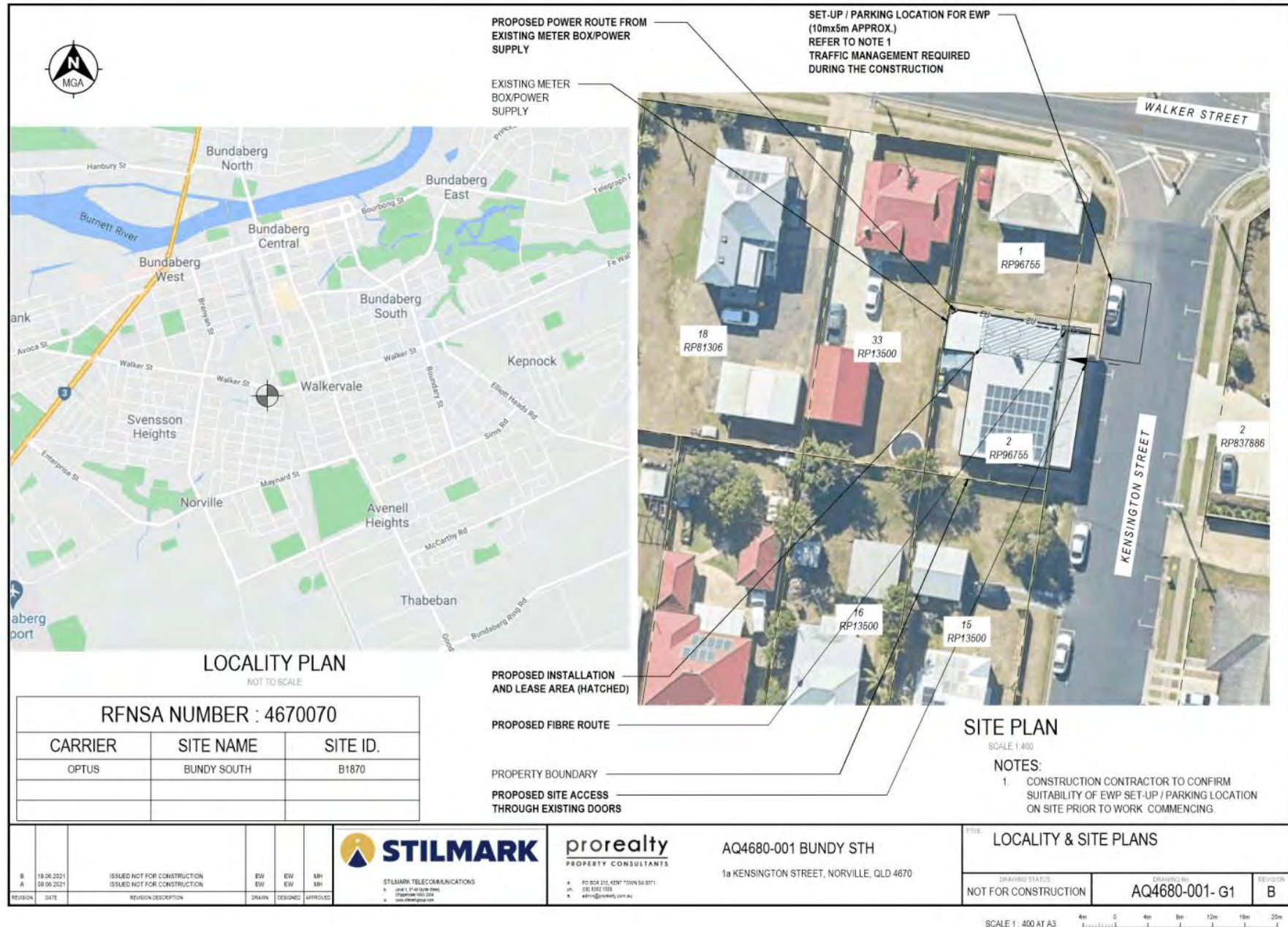
STILMARK TELECOMMUNICATIONS

a. 37-45 Myrtle Street,
Chippendale NSW 2008
w. www.stilmarkgroup.com

NOT FOR CONSTRUCTION

DRAWING No. AQ4680-001 - 00

A3



LOCALITY PLAN
NOT TO SCALE

RFNSA NUMBER : 4670070

CARRIER	SITE NAME	SITE ID.
OPTUS	BUNDY SOUTH	B1670

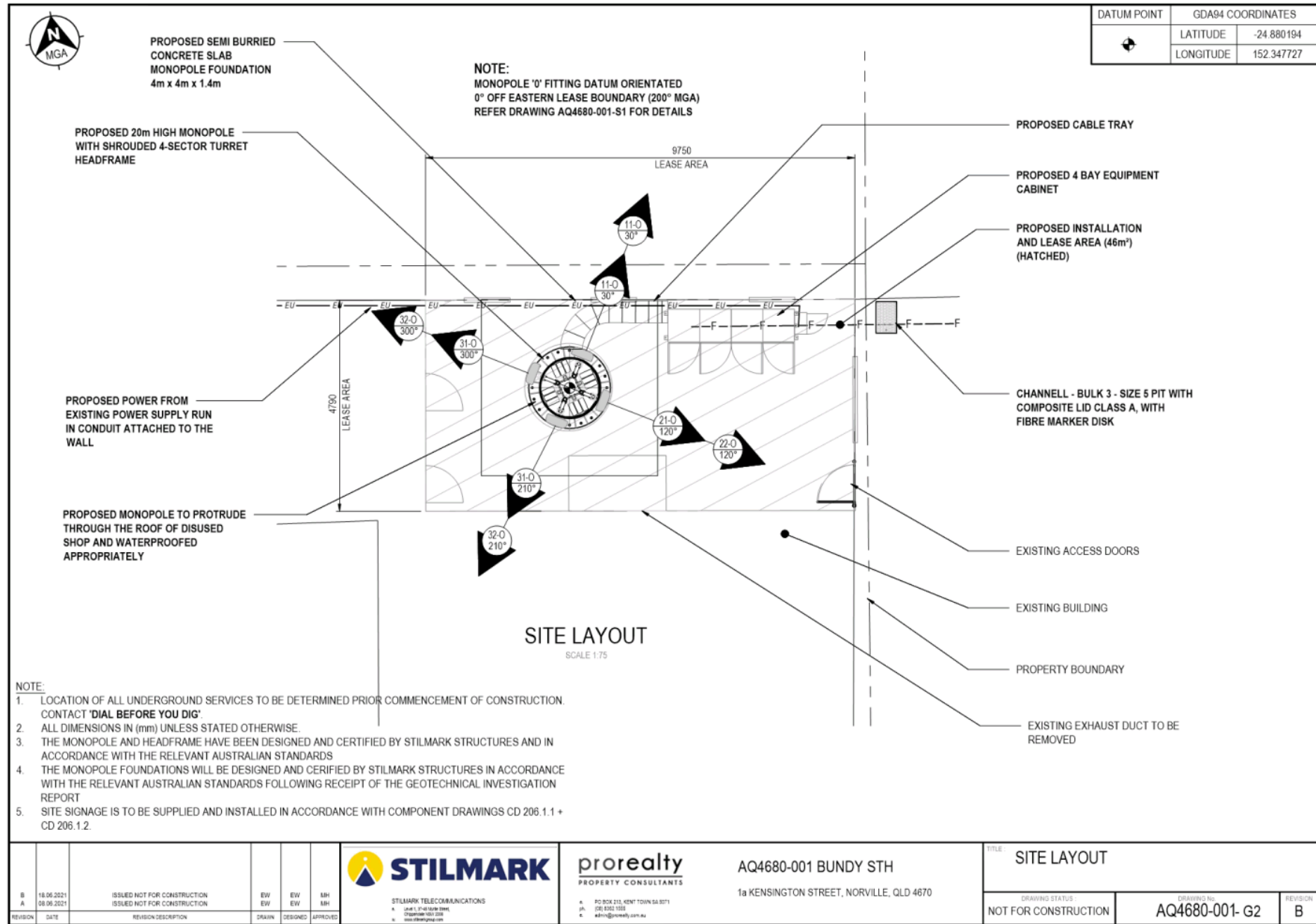
SITE PLAN
SCALE 1:400

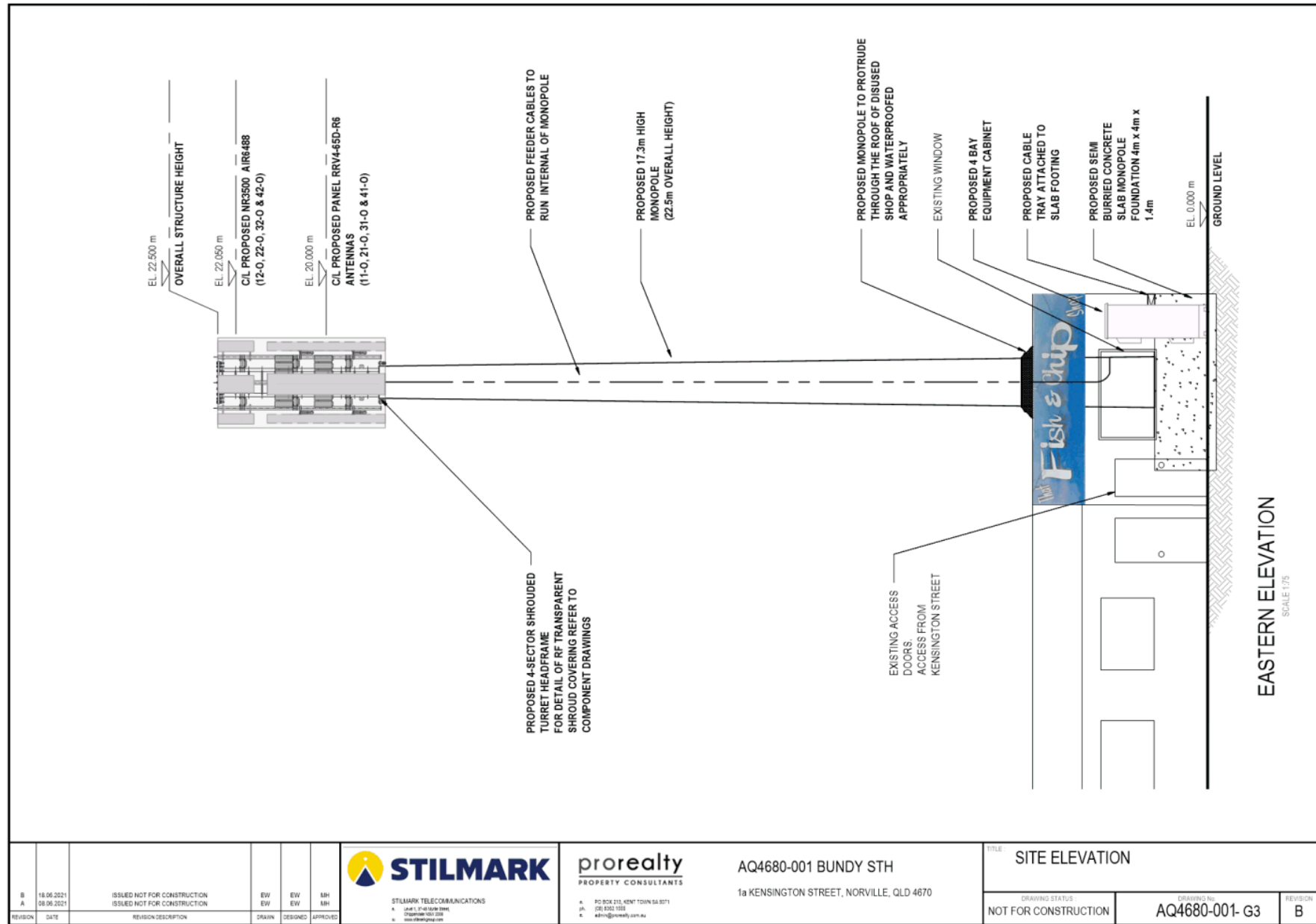
NOTES:

- CONSTRUCTION CONTRACTOR TO CONFIRM SUITABILITY OF EWP SET-UP / PARKING LOCATION ON SITE PRIOR TO WORK COMMENCING.

B A 18.06.2021 08.09.2021 ISSUED NOT FOR CONSTRUCTION ISSUED NOT FOR CONSTRUCTION	EW EW EW EW MH MH	STILMARK TELECOMMUNICATIONS 11 John St, Bundaberg QLD 4670 075499 6000 www.stilmark.com.au	AQ4680-001 BUNDY STH 1a KENSINGTON STREET, NORVILLE, QLD 4670	FILE: LOCALITY & SITE PLANS	
				DRAWING STATUS: NOT FOR CONSTRUCTION	DRAWING NO: AQ4680-001- G1

SCALE 1 : 400 AT A3 A3





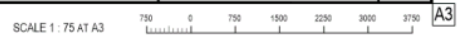
REVISION	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	APPROVED
B	18.06.2021	ISSUED NOT FOR CONSTRUCTION	EW		
A	08.06.2021	ISSUED NOT FOR CONSTRUCTION	EW		

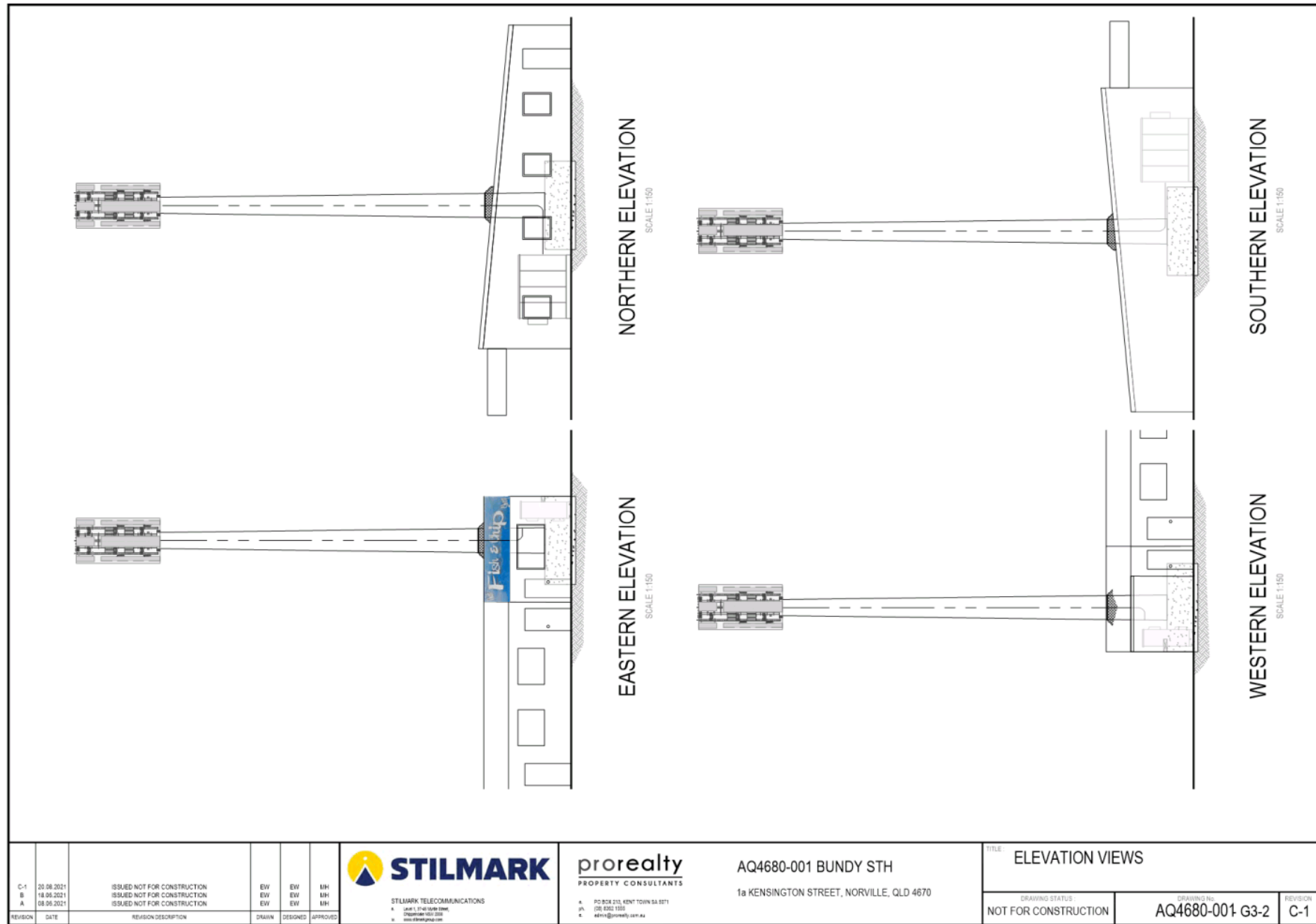
STILMARK
STILMARK TELECOMMUNICATIONS
Unit 1, P4-41 North Street,
Stirling QLD 4078
www.stilmark.com.au

prorealty
PROPERTY CONSULTANTS
PO BOX 210, KENT TOWN SA 5071
PH: (08) 8362 1055
#pro@prorealty.com.au

AQ4680-001 BUNDY STH
1a KENSINGTON STREET, NORVILLE, QLD 4670

TITLE: SITE ELEVATION		REVISION: B
DRAWING STATUS: NOT FOR CONSTRUCTION	DRAWING NO: AQ4680-001-G3	





REVISION	DATE	REVISION DESCRIPTION	DRAWN	DESIGNED	APPROVED
C-1	23.08.2021	ISSUED NOT FOR CONSTRUCTION	EW	EW	MH
B	18.08.2021	ISSUED NOT FOR CONSTRUCTION	EW	EW	MH
A	08.08.2021	ISSUED NOT FOR CONSTRUCTION	EW	EW	MH

STILMARK
 STILMARK TELECOMMUNICATIONS
 Unit 1, 1741 North Street,
 Brisbane QLD 4000
 www.stilmark.com.au

prorealty
 PROPERTY CONSULTANTS
 PO BOX 210, KENT TOWN SA 5211
 Unit 1, 1741 North Street,
 Brisbane QLD 4000
 MH@prorealty.com.au

AQ4680-001 BUNDY STH
 1a KENSINGTON STREET, NORVILLE, QLD 4670

TITLE: ELEVATION VIEWS		
DRAWING STATUS: NOT FOR CONSTRUCTION	DRAWING NO: AQ4680-001-G3-2	REVISION: C-1



A3

Environmental EME Report

Location	1A Kensington Street, NORVILLE QLD 4670		
Date	17/06/2021	RFNSA No.	4670070

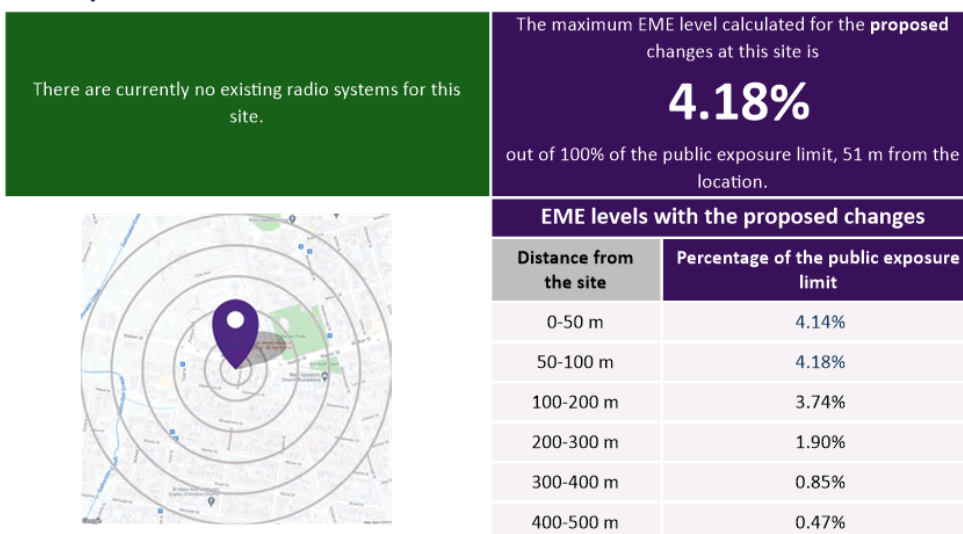
How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at 1A Kensington Street, NORVILLE QLD 4670. These levels have been calculated by WaveForm Global using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

A document describing how to interpret this report is available at ARPANSA's website:

[A Guide to the Environmental Report.](#)

A snapshot of calculated EME levels at this site



For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at <http://www.rfnsa.com.au/4670070>.

Radio systems at the site

This base station currently has equipment for transmitting the services listed under the existing configuration. The proposal would modify the base station to include all the services listed under the proposed configuration.

Carrier	Existing		Proposed	
	Systems	Configuration	Systems	Configuration
Optus			4G, 5G	LTE700 (proposed), LTE900 (proposed), LTE1800 (proposed), LTE2100 (proposed), NR3500 (proposed)

An in-depth look at calculated EME levels at this site

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined. All EME levels are relative to 1.5 m above ground and all distances from the site are in 360° circular bands.

Distance from the site	Existing configuration			Proposed configuration		
	Electric field (V/m)	Power density (mW/m ²)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m ²)	Percentage of the public exposure limit
0-50m				12.26	398.37	4.14%
50-100m				12.36	405.49	4.18%
100-200m				9.68	248.47	3.74%
200-300m				6.85	124.41	1.90%
300-400m				4.58	55.54	0.85%
400-500m				3.41	30.81	0.47%

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the [Communications Alliance Ltd Deployment Code C564:2020](#) or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m ²)	Percentage of the public exposure limit
No locations identified				

Proposed Telecommunication Facility

1A Kensington Street, NORVILLE

DA: 522.2021.268.1

Photomontage Set

Photo points



View 1



View 2



View 3



RA6-N



SARA reference: 2108-24414 SRA
 Council reference: 522.2021.268.1
 Applicant reference: AQ4680-001 Bundy South

14 October 2021

Chief Executive Officer
 Bundaberg Regional Council
 PO Box 3130
 BUNDABERG QLD 4670
 development@bundaberg.qld.gov.au

Attention: Mr Dean Catorall

Dear Mr Catorall

SARA response—1a Kensington Street, Norville

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency (SARA) on 14 September 2021.

Response

Outcome:	Referral agency response – with conditions
Date of response:	14 October 2021
Conditions:	The condition in Attachment 1 must be attached to any development approval
Advice:	Advice to the applicant is in Attachment 2
Reasons:	The reasons for the referral agency response are in Attachment 3

Development details

Description:	Development Permit Material Change of Use – Telecommunications Facility
SARA role:	Referral Agency
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 (10.9.4.2.4.1)—Material change of use of premises within 25m of a state-controlled road and within 100m of a state-controlled road intersection (Planning Regulation 2017)
SARA reference:	2108-24414 SRA

Page 1 of 6

Wide Bay Burnett regional office
 Level 1, 7 Takalvan Street, Bundaberg
 PO Box 979, Bundaberg QLD 4670

2108-24414 SRA

Assessment Manager: Bundaberg Regional Council
Street address: 1a Kensington Street, Norville
Real property description: Lot 2 on RP96755
Applicant name: Stilmark Holdings Pty Ltd C/- SAQ Consulting Pty Ltd
Applicant contact details: PO Box 50
CLAYFIELD QLD 4011
mark@saqconsulting.com.au

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 *Development Assessment Rules*). Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Jackie Larrarte, Senior Planning Officer, on 07 4122 0408 or via email WBBSARA@dasilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Susan Kidd
Manager (Program Improvement)

cc Stilmark Holdings Pty Ltd C/- SAQ Consulting Pty Ltd, mark@saqconsulting.com.au
enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Representations about a referral agency response provisions

2108-24414 SRA

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following condition must be attached to any development approval relating to this application)

No.	Conditions	Condition timing
	<p>10.9.4.2.4.1—Material change of use of premises within 25m of a state-controlled road and within 100m of a state-controlled road intersection—The chief executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition:</p>	
1.	<p>(a) A Construction Management Plan must be prepared by a suitably qualified and experienced expert and given to the District Director (Wide Bay Burnett) of the Department of Transport and Main Roads via WBB.IDAS@tmr.qld.ov.au or PO Box 486, Bundaberg, QLD 4670.</p> <p>(b) The Construction Management Plan must demonstrate that there will be no disruption to traffic on Walker Street during the course of construction.</p> <p>(c) The construction of the development must be undertaken in accordance with the Construction Management Plan.</p>	<p>(a) and (b) Prior to obtaining development approval for building work or operational work, whichever occurs first</p> <p>(c) At all times during construction of the development</p>

2108-24414 SRA

Attachment 2—Advice to the applicant

General advice

- | | |
|----|---|
| 1. | Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> , its regulation or the <i>State Development Assessment Provisions (SDAP)</i> , version 2.6. If a word remains undefined it has its ordinary meaning. |
|----|---|

2108-24414 SRA

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for SARA's decision are:

The proposed development complies with *State code 1: Development in a state-controlled road environment* of the SDAP. Specifically, the development:

- does not create a safety hazard for users of a state-controlled road
- does not compromise the structural integrity of state-controlled roads, road transport infrastructure or road works
- does not result in a worsening of the physical condition or operating performance of state-controlled roads and the surrounding road network
- does not compromise the state's ability to construct, or significantly increase the cost to construct state-controlled roads and future state-controlled roads
- does not compromise the state's ability to maintain and operate state-controlled roads, or significantly increase the cost to maintain and operate state-controlled roads
- does not compromise the structural integrity of public passenger transport infrastructure or compromise the operating performance of public passenger transport services.

Material used in the assessment of the application:

- the development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- the SDAP (version 2.6), as published by SARA
- the *Development Assessment Rules*
- SARA DA Mapping system
- *Human Rights Act 2019*.

2108-24414 SRA

Attachment 4—Representations about a referral agency response provisions

(page left intentionally blank)

Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules¹ regarding **representations about a referral agency response**

Part 6: Changes to the application and referral agency responses

28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
- (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
 - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
 - (c) the applicant has given written agreement to the change to the referral agency response.²
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
- (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and
 - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

¹ Pursuant to Section 68 of the *Planning Act 2016*

² In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

Part 7: Miscellaneous

30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.³

³ An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.

Marlaina Pickering

From: No Reply <mydas-notifications-prod2@qld.gov.au>
Sent: Thursday, 14 October 2021 3:21 PM
To: WBBSARA@dsdilgp.qld.gov.au; RAP@dsdilgp.qld.gov.au; Development
Cc: mark@saqconsulting.com.au
Subject: 2108-24414 SRA application correspondence
Attachments: 2108-24414 SRA - Representations about a referral agency response provisions.pdf; 2108-24414 SRA - Response with conditions.pdf

Categories: Marlaina

Please find attached a notice regarding application [2108-24414 SRA](#).

If you require any further information in relation to the application, please contact the State Assessment and Referral Agency on the details provided in the notice.

This is a system-generated message. Do not respond to this email.

RA6-N



Email Id: RFLG-1021-0012-0603



Item

21 December 2021

Item Number:	File Number:	Part:
L3	522.2020.229.1	DEVELOPMENT ASSESSMENT

Portfolio:

Planning & Development Services

Subject:

Material Change of Use for Service Station, Shopping Centre and Showroom - 60 Rifle Range Road, Bargara

Report Author:

Katrina Peardon, Planning Officer

Authorised by:

Michael Ellery, Group Manager Development

Link to Corporate Plan:

Our infrastructure and development - 2.3 Sustainable development - 2.3.3 Review and consistently enforce the planning scheme to ensure sustainable environmental practices.

Summary:

APPLICATION NO	522.2020.229.1
PROPOSAL	Material Change of Use for Service Station, Shopping Centre and Showroom
APPLICANT	Bargara Village Pty Ltd
OWNER	Bargara Village Pty Ltd
PROPERTY DESCRIPTION	Lot 7 on SP228667
ADDRESS	60 Rifle Range Road, Bargara
PLANNING SCHEME	Bundaberg Regional Council Planning Scheme 2015
ZONING	Local Centre Zone
OVERLAYS	Acid sulphate soils Sea turtle sensitive area
LEVEL OF ASSESSMENT	Impact
SITE AREA	1.942 ha
CURRENT USE	Vacant
PROPERLY MADE DATE	13 January 2021
STATUS	The 35 business day decision period ends on 10 August 2021
REFERRAL AGENCIES	Not applicable
NO OF SUBMITTERS	Three (3)
PREVIOUS APPROVALS	325.2007.50993.1 Development Permit for Material Change of Use for General Business (Supermarket, Shops, Medical Centre, Pharmacy, Commercial Premises/Catering Industries (Fast Food)) via The Planning and Environment Court dated 1 June 2009

	[Extension of time issued for an additional eight (8) years via the Planning and Environment Court dated 14 August 2015]
SITE INSPECTION CONDUCTED	21 September 2021
LEVEL OF DELEGATION	C2

1. INTRODUCTION

1.1. Proposal

The applicant seeks a Development Permit for a Material Change of Use for Shopping Centre, Service Station and Showroom over four (4) stages.

The proposed total Gross floor area (GFA) when complete will be 5,224.09 m². The development is planned in four (4) stages as follows:

Stage 1: Service Station with a GFA of 207 m² including a Café/Restaurant of 170.67 m² GFA with alfresco dining.

Stage 2: Five (5) Speciality Shops with GFA between 214 m² – 283 m², six (6) Retail Stores with GFA between 84 m² – 129 m² and a Café/Restaurant with a GFA of 216.5 m².

Stage 3a: Four (4) Bulky Goods shops with GFA between 305 m² – 309 m².

Stage 3b: Limited line Supermarket with a GFA of 1,510.74 m².

The proposal includes the following features:

- Maximum building height of 7.4 m
- Site cover of 26.9% (5,224.09 m²)
- Landscaped area of 16.41% (3,186.63 m²)
- 204 car parking spaces, including 10 persons with disability (PWD) spaces
- 42 bicycle parking spaces
- Left-in/left-out only via Hughes Road and two (2) separate crossovers from Rifle Range Road including a left-in only to the service station and a T-intersection further to the east allowing vehicle movements to the east and west.

The proposed stages of development are as follows:

Stage	Building	Gross Floor Area
1	Service Station	207 m²
	Café/Restaurant	170.67 m²
	Total	377.67 m²
2	Speciality Shop 1	255.23 m²
	Speciality Shop 2 (Bottle Shop)	214.14 m²
	Speciality Shop 3	233.55 m²
	Speciality Shop 4	282.20 m²
	Speciality Shop 5 (Gymnasium)	282.68 m²

	Retail 1	128.42 m²
	Retail 2	119.52 m²
	Retail 3	119.52 m²
	Retail 4	84.52 m²
	Retail 5	84.52 m²
	Retail 6	84.52 m²
	Café/Restaurant	216.58 m²
	Total	2,105.40 m²
3a	Bulky Goods 1	309.16 m²
	Bulky Goods 2	305.98 m²
	Bulky Goods 3	305.98 m²
	Bulky Goods 4	309.16 m²
	Total	1,230.28 m²
3b	Supermarket	1,510.74 m²
	Total	1,510.74 m²
	Stage 3a & 3b total	2,741.02 m²
	Total Site Building Area	5,224.09 m²

As part of the development application, the following reports were submitted:

- Service Station Economic Assessment prepared by Ethos Urban
- Showroom and Bulky Goods Economic Assessment prepared by Ethos Urban
- Traffic Impact Assessment prepared by RMA Engineers
- Waste Management Plan prepared by RMA Engineers
- Civil Services Engineering Report prepared by Intrax Engineers
- Landscape Concept Plan prepared by Saunders Havill Group
- Environmental Noise Impact Assessment Report prepared by CRG Acoustics Pty Ltd
- Stormwater Management Plan prepared by Storm Water Consulting Pty Ltd

The proposed development requires Impact assessment as per Table 5.4.7 of the Bundaberg Regional Council Planning Scheme 2015 due to the Service Station and Showroom use components.

1.2. Site Description

The subject site is located within the Local centre zone, with an area of 1.942 ha. The site is located on the corner of Hughes Road and Rifle Range Road, having a road frontage of 80 m and 150 m respectively.

The site is currently unimproved, containing no buildings, structures or infrastructure. The site previously contained a dwelling house, which was removed from the site in 2015 (Council reference: 301.2015.75689.1).

The site is predominantly flat, falling from the Hughes Road frontage (17.5 m AHD) to the eastern property boundary (16 m AHD). Council’s sewer, water and stormwater infrastructure locate within the road reserve, with a 2.5 m wide pedestrian pathway located along the Hughes Road frontage of the site. No formal vehicle crossovers are currently provided to the site.

The site is surrounded by Low Density Residential zoned land to the north, east and south, mostly developed for residential lots. The site is directly adjoined by Lot 8 on SP228667, being a 4.93 ha vacant lot, which adjoins the Palm Lake Resort, containing aged care facility, health care centre and relocatable home park. Emerging Communities zoned land is located to the west of the site, predominantly undeveloped and Rural zoned land to the south-west being utilised for rural cropping activities.

1.3. Site History

A Development Permit for Material Change of Use for General Business (Supermarket, Shops, Medical Centre, Pharmacy, Commercial Premises/Catering Industries (Fast Food)) was issued for the site 1 June 2009, via the Planning & Environment Court (Council reference: 325.2007.50993.1). A change to the Consent Order was requested via the Planning & Environment Court, to extend the relevant period. An eight (8) year extension to the relevant period was issued 14 August 2015, extending the Development Permit to 14 August 2023.

2. ASSESSMENT PROVISIONS

2.1. Assessment Benchmarks

The following are the benchmarks applying for this development:

Benchmarks applying for the development	Benchmark reference
Zone Code: Local Centre Zone	Bundaberg Regional Council Planning Scheme 2015
Overlay Code • Sea Turtle Sensitive Area Code	Bundaberg Regional Council Planning Scheme 2015
Use Code • Business Uses Code • Service Station Code	Bundaberg Regional Council Planning Scheme 2015
Other Development Code • Landscaping Code • Nuisance Code • Transport and Parking Code • Works, Services and Infrastructure Code	Bundaberg Regional Council Planning Scheme 2015
Planning Scheme Policies • Planning scheme policy for development works • Planning scheme policy for waste management	Bundaberg Regional Council Planning Scheme 2015
Local Plan Code • Central Coastal Urban Growth Area Local Plan Code	Bundaberg Regional Council Planning Scheme 2015

2.2. Relevant Matters

The following matters were given regard to or assessment carried out against, in undertaking the assessment of this development application.

<p>Other relevant matters to the assessment of the development under section 45(5)(b)</p>
--

<p>Development Approval - 325.2007.50993.1 - Material Change of Use for General Business (Supermarket, Shops, Medical Centre, Pharmacy, Commercial Premises/Catering Industries (Fast Food))</p>
--

3. ISSUES RELEVANT TO THE APPLICATION

The following significant issues have been identified in the assessment of the application:

Consistency with Strategic Planning Intent

The proposed material change of use is subject to assessment against the Central coastal urban growth area structure plan and the relevant codes of the Planning Scheme to ensure that the proposed use will achieve the intended character for the locality. An assessment was provided by the applicant, which articulated that the proposal is able to comply the local plan provisions.

The Purpose and overall outcomes of the Central Coastal Urban Growth Area Structure Plan Code *is to provide for the logical, orderly, efficient and sustainable development of the central coastal urban growth area in a manner that:*

- (a) *facilitates the creation of complete and vibrant communities comprising of interconnected residential neighbourhoods and supporting local services, community facilities and open space;*
 - (i) *development provides for any new activity centres to establish as vibrant, mixed use places with both residential and non-residential activities appropriate to their role and location, and displaying high quality urban design and landscaping;*

The proposal is for a Shopping Centre, Service Station and Showroom use, providing for the surrounding coastal residential development.

The development provides for a total of 18 tenancies, including a limited line supermarket, four (4) small bulky goods stores, two (2) café/restaurants, five (5) speciality stores including a gymnasium and bottle shop, and six (6) retail stores. As discussed below, the proposed development is supported by economic assessment reports and justification for the

With reference to Performance outcome PO1 of the Central Coastal Urban Growth Area Local Plan Code for the pattern of settlement and land use structure, Figure 7.2.1 'Central Coastal Urban Growth Area Structure Plan Concept' shows the site being a Local Activity Centre.

The proposed development will deliver non-residential uses to support the surrounding residential development. The development proposes high quality urban design outcomes, with substantial landscaping along the site frontage and internal areas.

As discussed in detail below, the submitted needs assessment demonstrated that the proposed development would service the local area, with current gaps experienced by the surrounding community. The delivery of this centre will ensure that the surrounding residential neighbourhood is a complete and vibrant community, with many of the surrounding residents locating within easy walking distance to the proposed development.

It is considered that the proposal complied with the purpose, overall outcomes and performance outcomes of the Central Coastal Urban Growth Area Local Plan Code.

Planning Scheme Zoning

The subject site is zoned Local Centre zone. The purpose of the zone is to:

- *provide for a limited range of land uses and activities to meet the local level retail, business and community needs of coastal towns and their surrounding rural catchments and residential neighbourhoods within Bundaberg*
- *accommodate local shopping and commercial activities, cafes and dining, community services and residential development where it can integrate and enhance the fabric of the activity centre, but is not the predominant use*
- *be developed as well-designed, safe and visually attractive centres, predominantly in a low-rise building format, where significant off-site impacts are avoided*
- *complement and do not undermine the role and function of higher order activity centres*

The following assessment against the role and function of the Local Centre zone supports that the development will provide for the needs of the surrounding coastal town, with a mix of retail, small footprint bulky goods and service station. The proposed development is of a low-rise building format, with lighting and noise impacts addressed through an environmental noise impact report and appropriate conditioning.

The submitted economic assessments conclude that the development will not undermine the role and function of higher order activity centres, with development to bridge current gaps in coastal development, with bulky goods component to be limited to an acceptable total footprint.

Business Uses Code

The purpose of the Business Uses Code is to ensure that business uses and other centre activities are developed in a manner consistent with the Bundaberg Regional Activity Centre Network and are of a high quality design which reflects good centre design principles and appropriately responds to local character, environment and amenity considerations.

The purpose of the Business Uses Code is achieved through a number of overall outcomes which require business uses to be consistent with the role and function of the centre and intentions of the zone it's located in, incorporates building and landscape design that responds to the character of the particular local area, integrates into its surrounds and avoids or mitigates adverse impacts upon the amenity, privacy or environmental quality of nearby residential uses.

Role and function of centre

Local activity centres provide for local shopping needs, function as local employment nodes and comprise a mix of commercial, cafes/dining, entertainment and community

services for a surrounding residential neighbourhood. They may have a small residential component including visitor accommodation.

Performance outcome PO1 of the code states that the business use is of a type, scale and intensity that is consistent with the role and function of the centre and the intentions of the zone it is located in. The Bundaberg Region Activity Centre Network is derived from the Economic Development theme within the Strategic Framework of the Planning Scheme. The subject site is identified as a Local Activity Centre within the Strategic Framework Map SFM-001 (Settlement pattern elements) and SFM-002 (Economic development elements. Section 3.4.2 of the Strategic Framework states the following intent for Bargara South Local activity centre:

Local activity centres provides for local shopping needs, function as local employment nodes and comprise a mix of commercial, cafes/dining, entertainment and community services for a surrounding residential neighbourhood. They may have a small residential component including visitor accommodation.

Specific outcomes for the Activity Centre Networks also states that “*development does not undermine or compromise the activity centre network either by proposing centre activities outside of an activity centre or by proposing a higher order or larger scale of uses than intended for a particular activity centre*”.

The activity centre network in the Strategic Framework shows the central coastal area between Burnett Heads and Elliott Heads is serviced by a District Centre at Bargara Central, with Local Centres at Burnett Heads town centre, Bargara town centre, Bargara south (proposed; current DA) and Elliott Heads (proposed).

In this context, the proposed local centre at Bargara south is intended to service a residential neighbourhood roughly comprising the southern part of Bargara along with parts of Innes Park and Coral Cove. The proposed Shopping Centre is code assessable development in the Local Centre zone and is considered to be consistent with purpose and overall outcomes of the Local Centre Zone Code (in terms of scale of the proposed centre and its impact on the activity centre network).

The Service Station and Showroom uses are Impact Assessable uses in the Local Centre zone. These uses typically service a broader catchment and have potential to impact on the activity centre network and/or surrounding residential amenity. To support these components of the proposal, the applicant submitted a Service Station Economic Assessment and Showroom and Bulky Goods Economic Assessment, prepared by Ethos Urban.

The Service Station Economic Assessment supports that there is a current gap in the service station network in the study area, with service stations within the study area servicing a population of approximately 6,000 persons compared to the regional Queensland average of 3,230 persons per service station. Additionally, the report outlines the labour force participation rate in the study area is low compared to the average, and therefore the extent of community beyond the study area for work is not as high, resulting in the service station predominantly servicing the surrounding residential development. The proposed service station will service the southern Bargara area south to Elliott Heads, with the current and forecast demand for fuel sufficient to support the existing and proposed service station. The Service Station Economic Assessment shows there is current demand for the proposed Service

Station, and that it is not expected to adversely affect the viability of existing service stations in the broader central coastal area.

The Showroom and Bulky Goods Economic Assessment identifies that the specialised centre zone is intended to provide for bulky goods and showroom uses, as outlined in the purpose of the Local Centre Zone Code. A number of Specialised Centre zoned areas locate within the urban areas of Bundaberg, however no Specialised Centre zoned land is currently located within the trade area of the assessment (Burnett Heads to Elliott Heads). The assessment suggests that due to the limited floor space opportunities as part of the proposed development, the assessment suggests that the development is unlikely to have any significant competitive influence on existing retailers in precincts such as Johanna Boulevard/Takalvan Street given the critical mass of floorspace and range of anchor tenants provided within the existing precinct. The assessment outlines that continuing population and spending growth in the region will support the ongoing viability and development of larger bulky goods precincts in the urban areas of Bundaberg, and the use will provide trade area residents, businesses and visitors with improved convenience and accessibility to a limited range of bulky goods retail and showroom uses that would otherwise not be available in the trade area.

The Showroom and Bulky Goods Economic Assessment supports that there is demand for a limited amount of bulky goods/showroom uses to service the nominated trade area (which includes the broader central coastal area) and that the proposed 1,230 m² of bulky goods/showroom uses will not undermine the activity centre network.

Critically, the Central Coastal Urban Growth Area Local Plan Code (Overall outcome (k) and PO10) indicates that, subject to demonstrated need, an additional specialised activity centre/low impact industry area may be established at an appropriate location in the growth area to predominantly service residents in the broader central coastal area.

It should also be noted that the proposed bulky goods tenancies are only a maximum of 309 m² each.

Regularly this is not large enough for large format style bulky goods stores such as furniture stores, large hardware stores, bulk stationary stores and the like to locate. It's anticipated that the uses of that will go in these tenancies will be of a size and scale to serve the local community.

In order to ensure that the Showroom component of the development does not impact higher order centre zones, it is recommended a condition be applied to limit the total floor area of the use to 1,231 m², and restrict each building to be individually tenanted, not permitting the amalgamation of tenancies. Additionally, if showroom uses are not proposed within the tenancies, the shopping centre use would extend over the full site, allowing for other uses to locate in the buildings.

Furthermore, advice given from Council's strategic planning team is that given the size and scale of the proposed Showroom uses, that these tenancies may have been able to fall within the definition of a 'shopping centre' being "The use of premises for an integrated shopping complex consisting mainly of shops". The proposed showroom uses account for 23.5% of the total GFA of the proposed shopping complex and may be used interchangeably for shops. Given that more than 75% of the shopping complex will be used for shops it is considered that these tenancies may have been able to fall under this definition.

Relationship of building to streetscape and public realm

Performance outcome PO2 requires of the Business Uses Code requires business uses to locate in buildings that clearly defines, frames or encloses the street and other usable public and semi-public open space; has a front building line that is consistent with the existing or intended built form of the locality; and has a positive street front address and helps create or maintain an attractive and coherent local streetscape character.

The correlating acceptable outcome AO2.2 prescribes a 6 m setback for all buildings from the street frontage, and for main entrances of buildings to front the street. The proposed development provides a compliant 6 m setback for all buildings fronting Rifle Range Road. The proposed Bulky Goods store fronting Hughes Road provides a 6.7 m setback at the northern-most elevation, however due to the geometry of Hughes Road along the frontage approaching the roundabout from the north, the curvature of the road gradually reduces the southern-most elevation setback to 3.8 metres. The building line is therefore considered to be consistent when viewed from the street and will provide a consistent building setback line when the site to the north is developed, due to the curvature of Hughes Road. The applicant has also provided additional landscaping along the Hughes Road frontage along the Bulky Goods building façade. Car parking areas and buildings are located in a way to ensure that car parking areas do not dominate the streetscape. This is further assisting by the provision of landscaping along both frontages.

Building height

Performance outcome PO8 of the Local Centre Zone Code requires that development, other than in the Burnett Heads and Bargara town centres, has a low-rise built form that is compatible with the existing and intended scale and character of the streetscape and surrounding area.

The corresponding Acceptable Outcome AO9 references a maximum building height of 2 storeys and 10 m. The proposal plans demonstrate the proposed development has a compliant maximum building height of 7.4 m, with building heights for each individual buildings as follows:

- Stage 1 Service Station canopy: 5.5 m
- Stage 1 Service Station building and Café/Restaurant: 7.2 m
- Stage 2 Café/ Restaurant & Retail Shops 1 – 6: 5.895 m
- Stage 2 Speciality Shops 1 – 5: 6.595 m
- Stage 3a Bulky Goods 1 – 4: 7.397 m
- Stage 3b Supermarket: 7.152 m

Built form and urban design

Performance outcome PO11 of the Local Centre Zone Code and Performance Outcome PO7 of the Business Uses Code relate to built form, building features and articulation. The Performance Outcomes seek to achieve a high standard of architecture, urban design and landscaping that creates visual interest, attractive and functional buildings, streets and places.

The proposed buildings have articulated and textured facades, which include a variety of external finishes (including painted rendered walls, gloss paint, wall tiles, raw concrete panels and powder coated metal extrusions), pedestrian awnings, screening and glazed windows as shown on the proposal plans. The proposed buildings are

articulated and finished in a manner that positively attribute to the streetscape and creates visual interest through the design of façade facing both the Hughes Road and Rifle Range Road frontages. The rear elevations of the buildings facing the adjoining lot have been amended to include powder coated metal extrusions, attaching to the painted concrete panels, with alternate colours to be utilised. These building features ensures that no buildings contain an unbroken length longer than 15 m. The proposal also involves a large portion of the site to be landscaped (3,186 m²/16.41% of the site), with landscaping proposed along the full extent of both road frontages, along the side/rear boundaries of the site (except for the bin storage area along the northern boundary, where an acoustic fence is proposed for a length of approximately 16 m) and throughout the site, including shade trees within the car parking areas.

The proposed development has a site cover of 26.9% complying with the maximum site coverage of 70% as prescribed by Acceptable Outcome AO6.1 of the Business Uses Code.

All buildings are setback a minimum 3 m from all side boundaries containing a 2 m wide landscaping strip, compliant with Acceptable Outcome AO6.3 of the Business Uses Code.

Noise

Performance outcome PO1 of the Nuisance Code states that development is located, designed, constructed and operated to ensure that noise emissions do not adversely impact upon surrounding sensitive land uses.

As part of the development application, an Environmental Noise Impact Report prepared by CRG Acoustics was submitted, with noise modelling and predictions of onsite commercial activity noise emissions supplied and recommendations regarding acoustic treatments to be provided. Each stage of development was individually assessed, with the completion of Stages 2 & 3 expected to minimise the impact of Stage 1 on land uses to the north.

The following recommendations were provided to mitigate onsite activity noise impacts:

- Limiting of hours of operation in accordance with those proposed in the development application.
- Construction of the acoustic barriers as detailed in Sketch 1 and Sketch 2 of Appendix A. Barriers are to be free of gaps and holes including between the base of the barriers and the ground. Typical materials include earth berms, 19mm lapped timber fence (40% overlap), 9 mm FC sheet, toughened glass, Perspex, masonry, or a combination of the above (a minimum surface mass of 11kg/m²).
- Driveway and car parking areas be finished with surface coatings which prevent tyre squeal (an uncoated unpolished concrete or bitumen surface is acceptable).
- Drainage grating over trafficable areas be well secured to prevent rattling.
- Mechanical plant for the development be designed and installed to comply with the noise criterion presented in Section 4. As final plant selection has not been completed, an assessment of plant should be conducted during the design phase.

- Based upon the assumed mechanical plant and source levels, outside condenser units and refrigeration compressors will likely require acoustic screens / enclosures and exhaust fans likely to require acoustic silencers/ attenuators.
- To minimise noise emissions and the acoustic treatment requirement, mechanical plant should be located as far as possible from the nearest offsite noise sensitive receivers, particularly the future residential uses to the immediate north and east.

To minimise visual impact to the adjoining residential lot, it is recommended that the acoustic barriers be conditioned to require any portion of the barrier exceeding 2 m to be constructed of Perspex or a similar clear material, with a minimum surface mass of 11kg/m².

Using a combination of the above recommendations, the proposed development is not expected to result in a negative impact to surrounding residential amenity. The proposed activities and operations are expected to meet the relevant noise criteria and objectives, with the exception of waste collection, truck movements and deliveries which will be limited to the hours of 7 am to 6 pm to minimise impacts on nearby residents.

The report concludes that based upon the proposed layout of the development, onsite activities can be designed and constructed to achieve acceptable levels of the adopted criterion subject to acoustic treatments and management controls as outlined above.

It is also noted that notwithstanding any condition of this development permit, all uses the subject of this development permit are required with the acoustic quality objectives of the Environmental Protection (Noise) Policy 2019.

Hours of operation

Acceptable outcome AO9.1 of the Business Uses Code requires that undesirable visual, noise and odour impacts on public spaces and residential uses are avoided or reduced by, where appropriate, limiting the hours of operation of the business use to maintain acceptable levels of residential amenity relative to the site context and setting.

Proposed hours of operation of the Shopping Centre/Showroom use are as detailed below:

- Bulky Goods / Supermarket, 7 am – 9 pm 7 days per week;
- Café / restaurants 7 am to 11 pm, 7 days per week;
- Bottle Shop in Specialty Shop 2, 10 am to 10 pm, 7 days per week;
- Gym (self serve style) in Specialty Shop 5, 24 hours, 7 days per week;
- Goods delivery and waste collection 7 am to 6 pm, 7 days per week.

The proposed development has been designed and sited to ensure that the proposed buildings locate along the perimeter of the site, allowing the development to orientate towards the centre of the site. The siting of buildings reduces the impact of the business use on the adjoining residential lot, with acoustic fencing to be provided between the two sections in which building breaks are proposed. The proposed acoustic fencing is to be provided in both Stage 2 and Stage 3b of the development where buildings do not locate along the site boundaries, as recommended by the Environmental Noise Impact Report prepared by CRG Acoustics Pty Ltd. The proposed acoustic barrier is to have a maximum height of 3.75 m, constructed of a

combination of a 2 m high masonry wall with a 1.75 m high Perspex above. All rear elevations of the proposed buildings include architectural features to ensure no unbroken length exceeds 15 m, combined with a landscaping buffer, and a compliant setback of 3 m to ensure visual amenity of the adjoining lot is not adversely impacted. The proposed loading bay to the northern boundary to service the proposed supermarket will be appropriately screened to ensure no adverse amenity impacts on existing and future residential development to the north.

Hours of operation for each use type, and deliveries, loading/unloading activities and refuse collection will be limited in accordance with the submitted Environmental Noise Impact Report. Additionally, a condition relating to amplified noise associated with the gym use (speciality shop 5) is to be restricted to 7 am to 8 pm Monday to Sunday.

Acceptable Outcome AO9 of the Service Station Code requires a 2 m high solid screen fence along all common boundaries where adjoining land included in a residential zone, and hours of operation limited to between 6.00 am and 10.00 pm. As the proposed development does not involve the construction of a 2 m high solid screen fence along the side boundaries, and proposes 24-hour operation, 7 days per week and as such assessment is required against the correlating Performance Outcome. Performance Outcome PO9 states that the service station ensures the amenity of existing or planned residential activities on adjoining premises is protected.

The proposed development has been designed to site the service station in the south-western corner of the site, with the fuel bowsers setback approximately 50 m and the associated service station building setback approximately 60 m from the northern property boundary. Currently the closest adjoining residential development is Palm Lake, with dwellings located an additional 55 m from the northern property boundary of the site, resulting in a separation distance exceeding 100 m.

As outlined above, the applicant has provided an Environmental Noise Impact Report outlining the proposed hours of operation in association with noise mitigation measures allows for each stage of development, including the service station for Stage 1 without acoustic fencing to meet acoustic quality objectives.

It is also noted that notwithstanding any condition of this development permit, all uses the subject of this development permit are required with the acoustic quality objectives of the Environmental Protection (Noise) Policy 2019.

Landscaping

The purpose of the Landscaping Code is to ensure that landscaping is provided in a manner which is consistent with the desired character and amenity of the Bundaberg Region. Overall outcomes which will achieve this purpose are based upon landscaping that complements and integrates built environment and form, adds to the desired character, minimises energy and water consumption, encourages local plant species and is functional, durable, practical and considers personal safety.

As part of the development application, a Landscape Concept Design prepared by Saunders Havill Group was submitted. The Concept Design outlines the masterplan and variety of landscaping proposed to be utilised as part of the development. The proposed landscaping includes feature tiered landscaping of groundcovers, shrubs and small trees throughout the development, large feature shade trees, car park shade trees, car park low level planting and buffer planting along the site boundaries. It is recommended Council's standard condition be applied to require a full landscape plan

to be prepared in accordance with Council's Planning Scheme Policy for Development Works to be submitted for approval.

Lighting

Performance Outcome PO7 of the Nuisance Code states development ensures that lighting and glare does not have any significant adverse amenity impacts or create nuisance to surrounding premises. Performance Outcome PO3 of the Sea Turtle Sensitive Area Overlay Code also seeks to ensure development minimises reflective glare that contributes to sky glow.

The proposed building materials consisting of painted rendered walls, wall tiles and raw concrete are of a low reflectivity. Paint colours to be utilised on rendered walls are of a grey and charcoal colour and are not considered to result in any reflectivity issues. Council's standard condition for lighting within a Sea Turtle Sensitive Area Overlay are recommended to be applied to the development. These conditions will require compliance with Australian Standards and ensure external lighting installed prevents the light from escaping upward and directs light down and away from the ocean.

Transport and Parking Code

The purpose of the Transport and Parking Code is to ensure that transport infrastructure (including pathways, public transport infrastructure, roads, parking and service areas) is provided in a manner which meets the needs of the development, whilst maintaining a safe and efficient road network, promoting active and public transport use and preserving the character and amenity of the Bundaberg Region.

Roadworks

It should be noted that Council has recently been successful in receiving funding through the TIDS program to upgrade Rifle Range Road and to link proposed works of the Palm Lake development with the Hughes Road/Rifle Range Road/Windermere Road roundabout. The works are proposed to be completed in the 2022 – 2023 financial year. Advice should be given regarding the Rifle Range Road frontage works so that it would allow flexibility that this work can be carried out by either Council or the developer, dependant on the timing of development or Council works. If Council do the works, it would not provide turning treatments etc, that are required for the development. It is recommended that this matter be discussed internally between Planning and Engineering staff at the operational works stage.

Recent Palm Lake Approval saw the conditioning of the widening of Rifle Range Road for the length of the development land to a half width Urban Road – Trunk Collector standard which involves a 7.7 m seal from the road centreline (526.2019.179.1). This road was trunk offsetable and it is envisioned the same will be arranged for this development. To provide complete connectivity along Rifle Range Road and avoid a missing portion between the two developments, it is recommended that the widening be constructed past the development boundary to meet up with the conditioned road widening at the Palm Lake development.

Pedestrian connectivity/Active transport

The recent Palm Lake Development Approval (526.2019.179.1) required a 2.5 m wide path on the northern side of Rifle Range Road, as indicated on Council's LGIP as a collector pathway (LGIP ID: P.FP.00055). This path was trunk offsetable and it is envisioned the same will be arranged for this development.

To provide complete connectivity along Rifle Range Road and avoid a missing portion between the two developments, it is recommended that the path be constructed past the development boundary to meet up with the conditioned path at the Palm Lake development.

Access

A channelised left turn should be constructed at access 1 to minimise the impact on Hughes Road traffic (80 km/h road). With the internal parking areas located within close proximity to the entrance there is potential that vehicles manoeuvring in and out of parking bays (ones closer to Hughes Road) would affect Hughes Road traffic flows, particularly in the longer term when traffic volumes on the Hughes Road extension increase. The length of the turning lane required to service the development will be determined as part of the detailed design phase of Operational Works application, based on traffic modelling. It should be noted that the existing pathway along Hughes Road is located hard against the property boundary, advice is recommended noting services integration and finished levels should be closely checked at this location as there is limited space to make adjustments.

Swept paths for largest design vehicle in access 2 will be submitted and reviewed at detailed design stage of the Operational Works application process, incorporating any widening required. Detailed design of the channelised right and auxiliary left turn treatments (as proposed) should be conditioned for access 3.

Accesses are recommended to be conditioned in accordance with Council's Standard Drawing R1011 – Industrial and Commercial Driveway Slab.

Internal manoeuvring

The bin store area and loading area in stage 3B will need to be amended as per option b in the applicant's response to Council's Information Request dated 29 April 2021.

The identified conflict point required careful consideration with the design, and it was recommended that an alternative design be considered to minimise the conflict of vehicles approaching head-on in opposing directions. This area also serves as a manoeuvring area for service vehicles and the safety impacts manoeuvring within a high conflict area should be reviewed. The applicant responded to Council's Information Request on 29 April 2021 and it is recommended that appropriate line marking be established at this area to avoid vehicle manoeuvring confusion. Detailed design is required to be completed as part of the Operational Works application.

Car Parking

As part of the development a total of 204 on-site parking spaces are proposed, including 10 parking spaces for persons with disability (PWD) and dedicated loading area allowing for deliveries and waste collection. At the parking rates prescribed by Table 9.3.5.3.3 of the Transport and Parking Code, a total of 226 parking spaces would need to be provided to service the development. The proposal provides a total of 204, plus additional temporary parking at the service station fuel bowsers.

Due to the cross utilisation of car parking spaces allowing motorists to visit multiple tenancies, Council accept a 10-20% reduction in the total number of car parking spaces provided, specifically noting that the short fall of parking occurs as part of Stage 3b of the development.

It is also acknowledged that different tenancies will result in different peak parking demands. The following table outlines the prescribed minimum car parking requirements for each stage of development and parking spaces proposed:

Stage	Building	Gross Floor Area	Car parking ratio prescribed	Car parking proposed
1	Service Station	207 m ²	1 space/20 m ² GFA (when involving sale of goods) + 2 spaces / service bay	
	Café/Restaurant (Shopping centre)	170.67 m ²	1 space/20 m ² GFA	
	Total	377.67 m²	19	18
2	Speciality Shops (5)	1,267.8 m ²	1 space/20 m ² GFA	
	Retail Shops (6)	621.02 m ²	1 space/20 m ² GFA	
	Café/Restaurant	216.58 m ²	1 space/20 m ² GFA	
	Total	2,105.40 m²	105	113
3a	Bulky Goods Stores (4)	1,230.28 m ²	1 space/50 m ² GFA	
	Total	1,230.28 m²	25	32
3b	Supermarket	1,510.74 m ²	1 space/20 m ² GFA	
	Total	1,510.74 m²	76	41
Total Site Building Area		5,224.09 m²	225	204

Car parking and manoeuvring areas are recommended to be constructed from unpolished concrete or bitumen sealed to help reduce negative noise impacts to surrounding residential amenity, in accordance with the Environmental Noise Impact Report prepared by CRG Acoustics Pty Ltd (dated 12 April 2021). It is recommended a condition be applied requiring asphalt sealing of all car parking and manoeuvring areas to help reduce noise given the close proximity of residential uses. Asphalt is quieter than sealed or concreted pavements. This also complies with the Planning Scheme Policy for Development Works section SC6.3.3.4.9.1(4) which requires pavement surfacing, at a minimum be equivalent to the road surface fronting the development, with Rifle Range Road being asphalt.

Pedestrian and bicycle access and manoeuvring

As part of the development a total of 42 bicycle parking spaces are proposed. At the rates prescribed by Table 9.3.5.3.3 of the Transport and Parking Code, a total of 29 bicycle parking spaces would need to be provided to service the development. The proposal provides additional spaces to that required by the code, and are located through each stage of development, as indicated in the below table.

Stage	Building	Gross Floor Area	Bicycle parking ratio prescribed	Bicycle parking proposed
1	Service Station	207 m ²	1 space / 400 m ² GFA (minimum 6 spaces)	
	Café/Restaurant (Shopping centre)	170.67 m ²	1 space/200 m ² GFA	
	Total	377.67 m²	7	12
2	Speciality Shops (5)	1,267.8 m ²	1 space/200 m ² GFA	
	Retail Shops (6)	621.02 m ²	1 space/200 m ² GFA	
	Café/Restaurant	216.58 m ²	1 space/200 m ² GFA	
	Total	2,105.40 m²	11	18
3a	Bulky Goods Stores (4)	1,230.28 m ²	1 space/400 m ² GFA	
	Total	1,230.28 m²	3	6
3b	Supermarket	1,510.74 m ²	1 space/200 m ² GFA	
	Total	1,510.74 m²	8	6
Total Site Building Area		5,224.09 m²	29	42

Works, Services and Infrastructure Code

The purpose of the Works, Services and Infrastructure Code is to ensure that development works and the provision of infrastructure and services meets the needs of the development, and is undertaken in a professional and sustainable manner.

An assessment of the preliminary proposal against the applicable performance outcomes has demonstrated that the proposal either generally complies or can be conditioned to provide further information to demonstrate compliance with the requirements of the Code. The breakdown of various matters featured under this code is below.

Sewerage

Applicant proposes point of connection to the existing 525 mm sewer main located along the Hughes Road frontage.

Connection to the main is located at the stage 1 boundary and it is proposed that internal connections for stage 2 and 3 be located at the shared boundaries with stage 1. The invert of the closest sewer manhole is RL14.14 which will service approximately 140 m of the site. An internal lift station is proposed to service the entire 170 m of the site.

The proposal is acceptable to Council, complying with the Works, Services and Infrastructure Code. Standard conditioning regarding sewerage required to service the development is recommended.

Water

Applicant proposes point of connection to the existing 100 mm water main crossing Rifle Range Road. Connection to the main is located at the stage 1 boundary and it is proposed that internal connections for stage 2 and 3 be located at the shared boundaries with stage 1. It is also proposed that a booster pump be installed at the boundary and also storage tanks if required given the firefighting requirements for the proposed buildings.

The proposal is acceptable to Council, advice note regarding sub-meters being installed in accordance with the relevant Acts and Codes is recommended.

Stormwater

The site is identified within two stormwater catchments, partly within the Palm Lake Resorts stormwater catchment (approximately 70% of the site) with the remaining catchment draining to Rifle Range Road.

The applicant's preference is to drain the whole of the subject site to the Palm Lake connection pipe to the north. As part of the Palm Lake development approval (325.2012.34663.1), it was conditioned that they continue to receive upstream stormwater flows. This option requires on-site detention via an underground detention tank to manage and limit the amount of discharge from the site to the catchment which only currently anticipates 70% of the stormwater discharge. It would also require infrastructure under easement within the northern parcel of land adjacent to the development. Negotiations with adjoining landowners in relation to obtaining this easement were not successful, therefore the applicant proposes to construct on-site detention with pump discharge to Rifle Range Road.

The applicant proposes to locate the detention basin and overflow basin within the stage 3B portion of land. While Council is agreeable to this solution, it is recommended to include conditioning which requests the applicant to provide an updated Stormwater Management Plan at the time of submitting an Operational Works application for this stage of development.

The submitted Stormwater Management Plan as response to Council's further advice letter dated 9 July 2021 notes the use of 3 x Ultraflow pumps (model: UMDZHF7500/100/3) to manage the discharge to Rifle Range Road. Council noted that the required pump out rate is 160L/s while the 3 pumps can provide 150 L/s. The applicant has been advised that detailed design of the pump out system will be required to be provided as part of the Operational Works application and is recommended to be conditioned.

With respect to stormwater quality, the applicant has advised in the Stormwater Management Plan that a standard pit and pipe system throughout the car parking will collect the surface runoff and downpipes from the roof drainage. Gross Pollutant Traps (GPT's) such as SPEL Stormsack baskets will be utilised in the stormwater pits. For the proposed Service Station, an underground fuel spill capture system (eg SPEL Purceptor) is also proposed. This complies with the outcomes of the code, and it is recommended standard conditions be applied.

Acid Sulfate Soils

The purpose of the Acid Sulfate Soils Overlay Code is to ensure that the generation or release of acid and associated metal contaminants from acid sulfate soils (ASS)

does not have significant adverse effects on the natural environment, built environment, infrastructure or human health. The purpose of the code will be achieved through the following overall outcome:

- a. *development ensures that the release of acid and associated metal contaminants into the environment is avoided by either:*
 - (i) *not disturbing acid sulfate soils (ASS) when excavating or otherwise removing soil or sediment, extracting groundwater or filling land; or*
 - (ii) *(ii) treating and, if required, undertaking ongoing management of any disturbed ASS and drainage waters.*

It is recommended an Acid Sulfate Soil Management Plan be submitted as per advice given in the applicant’s proposal (Town Planning Report, page 13). Through appropriate mitigation and management methods, these matters are generally dealt with at the time of construction, and as such, should be conditioned to be investigated and a management plan provided if present, as part of the operational works application.

Public Notification

The following matters were raised by submitters:

Matters raised in any submissions	Description of how matters were dealt with in reaching the decision
The proposal involves a bottle shop retailer within the shopping centre component. The submitter raised concerns regarding alcohol issues within the community and wishes this use to be restricted	A ‘Shop’ use is consistent with the Local Centre zone code, with a Shopping Centre use not able to restrict the type of ‘shop’ uses occurring.
The site contains a large tree in which the submitter wishes the developer to retain as part of the proposal as it houses a variety of birds and is visible to the residents of Palm Lake	The site does not contain any Matters of State Environmental Significance for vegetation or wildlife habitat areas. The existing tree is identified on the proposal plans and would be required to be removed in order for the development of Stage 3a to occur.
Potential air quality issues for surrounding residential development	The development will be required to comply with the Air quality objectives contained in the Environmental Protection (Air) Policy 2008.
Submission in support of the development, recognising the current gap of services for fuel, retail and shopping for local residents. States the development will have a positive effect on the local and regional economy.	Noted

3 REFERRALS

4.1 Internal Referrals

Advice was received from the following internal departments:

Internal department	Referral Received	Comments
Development Assessment - Engineering	9 November 2021	
Water Services	27 January 2021	
Health and Regulatory Services	2 February 2021	
Infrastructure Services	22 January 2021	

Any significant issues raised in the referrals have been included in section 3 of this report.

4.2 Referral Agency

Not Applicable

4 PUBLIC NOTIFICATION

Pursuant to the *Planning Act 2016*, this application was advertised for 15 business days from 7 May 2021 until 31 May 2021. The Applicant submitted documentation on 1 June 2021 advising that public notification had been carried out in accordance with the *Planning Act 2016*. Council received three (3) submissions in relation to this development application during this period. Any significant issues raised have been included in section 3 of this report.

5 DRAFT CONDITIONS

Draft conditions were issued to the Applicant on 22 November 2021.

The Applicant submitted representations to Council on 24 November 2021 relating to the following draft conditions:

- Condition 2 (Staging)

After a review of the submitted representations, the following conditions have been amended:

- Condition 2 (Staging) – Amended

6 REASONS FOR DECISION

The reasons for this decision are:

- The development is located within the Local Centre zone and within the Central Coastal Urban Growth Area Local Plan identified as a Local Activity Centre.
- The development is consistent with strategic framework intent and supported by economic assessments.
- The development has a low rise-built form and landscaping sympathetic to the surrounding local setting.

- An Environmental Noise Impact Assessment was submitted which supports the development and details recommendations that mitigate any potential offsite impacts to existing and future sensitive land uses
- The development is able to be provided with a level of infrastructure required to service the development.

The development can comply or can be conditioned to comply with the relevant benchmarks of the Bundaberg Regional Council Planning Scheme 2015.

Communication Strategy:

Communications Team consulted. A Communication Strategy is:

- Not required
 Required

Attachments:

- ↓1 Locality Plan
 ↓2 Site Plan
 ↓3 Proposal Plans

Recommendation:

That the Development Application 522.2020.229.1 detailed below be decided as follows:

1. Location details

Street address: 60 Rifle Range Road, Bargara
 Real property description: Lot 7 on SP228667
 Local government area: Bundaberg Regional Council

2. Details of the proposed development

Development Permit for Material Change of Use for Service Station, Shopping Centre and Showroom

3. Decision

Decision details: Approved in full with conditions. These conditions are set out in Schedule 1 and are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

The following approvals are given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval		<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Approved plans and specifications

Copies of the following plans, specifications and/or drawings are enclosed.

Drawing title	Prepared by	Date	Reference no	Version
Aspect of development: Material Change of Use				
Stage Key Plan	Caddco Pty Ltd	25.3.21	052-2019 TP01	G
Floor Plan	Caddco Pty Ltd	25.3.21	052-2019 TP02	G
Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP03	G
Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP04	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP05	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP06	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP07	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP08	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP09	G
Plans & Elevations	Caddco Pty Ltd	25.3.21	052-2019 TP10	G
Environmental Noise Impact Report	CRG Acoustics Pty Ltd	12 April 2021	20157	Rev 2
Stormwater Management Plan	Storm Water Consulting Pty Ltd	8 October 2021	J8670 v1.0	v1.0
Waste Management Plan	RMA Engineers	14 December 2020	15908	0

5. Conditions

This approval is subject to the conditions in Schedule 1. These conditions are clearly identified to indicate whether the assessment manager or concurrence agency imposed them.

6. Further development permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- All Building Work
- All Plumbing and Drainage Work
- All Operational Work

7. Properly made submissions

Properly made submissions were received from the following principal submitters:

Name of principal submitter	Residential or Business Address	Electronic Address
Palm Lake Works	PO Box 10479, Southport BC QLD 4215	AlexanderE@palllake.com.au
Deb Annesley	Unknown	debannesley@hotmail.com
Jenny Tyler	378/39 Wearing Road, Bargara QLD 4670	ralphtyler@bigpond.com

8. Referral agencies for the application

Not applicable

9. Currency period for the approval

This development approval will lapse at the end of the period set out in section 85 of *Planning Act 2016*.

10. Agreements under Section 49(4)(b) or 66(2)(b) or (c) of the Planning Act 2016

There are no agreements about these matters.

11. Conditions about infrastructure

The following conditions about infrastructure have been imposed under Chapter 4 of the *Planning Act 2016*:

Condition/s	Provision under which the condition was imposed
25, 28, 29, 30, 31, 33, 35, 37, 38	Section 145 – Non-trunk Infrastructure
34, 43	Section 128 – Trunk Infrastructure

12. Rights of appeal

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in Chapter 6, Part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see Chapter 6, Part 2 of the *Planning Act 2016*).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see Schedule 1 of the *Planning Act 2016*.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in Section 229 of the *Planning Act 2016*.

Schedule 2 is an extract from the *Planning Act 2016* that sets down the applicant's appeal rights and the appeal rights of a submitter.

SCHEDULE 1 CONDITIONS AND ADVICES IMPOSED BY THE ASSESSMENT MANAGER

PART 1A – CONDITIONS IMPOSED BY THE ASSESSMENT MANAGER

NO.	CONDITION	TIMING
DEVELOPMENT IN STAGES		
1.	Development is to be carried out in accordance with the stages identified on the Approved plans.	As indicated
2.	The development may be staged in accordance with the stage boundaries shown on the Approved plans. Staging must be completed sequentially in the stage order indicated on the Approved plans unless otherwise agreed to in writing by the Assessment Manager.	As indicated
USE SPECIFIC		
3.	Provide informational and directional signage where necessary to direct cyclists to bicycle parking spaces and advise the public of their presence.	Prior to the commencement of the use and then to be maintained
4.	The Showroom use (Bulky Goods 1 – 4) on the site must not to exceed a maximum Gross floor area of 1,231 m ² . Each showroom building must be individually tenanted, with the amalgamation of tenancies not permitted.	At all times
5.	The Showroom use (Bulky Goods 1 – 4) may be used for the approved Shopping centre use.	At all times
BUILDING WORK ASSOCIATED WITH THE MCU		
6.	Ensure all assessable building work is carried out in accordance with a valid Building development approval.	Prior to the commencement of work
7.	Ensure all external finishes, including façade treatments and materials, are in accordance with the Approved plans.	Prior to the issue of a Certificate of classification/ final inspection and then to

		be maintained
AMENITY		
DUST		
8.	Ensure dust emissions do not result in levels at sensitive land uses which exceed the Air quality objectives set out in the Environmental Protection (Air) Policy 2008 and do not cause environmental nuisance by dust deposition.	Prior to the commencement of the use and then to be maintained
HOURS OF OPERATION		
9.	Operating hours of the use are limited to: <ul style="list-style-type: none"> a. Bulky Goods, Supermarket, Retail and Speciality Shop (where not specified) 7 am to 9 pm Monday to Sunday b. Café/Restaurants 7 am to 11 pm Monday to Sunday c. Bottle Shop (Specialty Shop 2) 10 am to 10 pm Monday to Sunday d. Gym (Specialty Shop 5) 24 hours, Monday to Sunday e. Service Station 24 hours, Monday to Sunday 	At all times
10.	Deliveries, loading/unloading activities, and refuse collection must be undertaken between the hours of 7 am to 6 pm Monday to Sundays.	At all times
LIGHTING		
11.	During operating hours, all parking, pedestrian areas, and entrances/exits must be well lit with vandal resistant lighting and with intensities to satisfy the requirements of AS1158 – Public Lighting Code.	Prior to the commencement of the use and then to be maintained
12.	Design and install all external lighting in accordance with <i>AS4282 – Control of the obtrusive effects of outdoor lighting</i> so as not to cause nuisance to residents or obstruct or distract pedestrian or vehicular traffic.	Prior to the commencement of the use and then to be maintained
13.	Design and install all external lighting to be the most energy efficient, dark sky compliant (which prevents the light from escaping upward and direct light down and away from the	Prior to the commencement of the

	foreshore) and amber lighting available in the National Electricity Market Load Tables for Unmetered Connection Points (AEMO 2015).	use and then to be maintained
NOISE		
14.	Noise levels from the use must achieve the acoustic environment and acoustic quality objectives for sensitive receiving environments set out in the Environment Protection (Noise) Policy 2008.	At all times
15.	<p>Work must be carried out in accordance with the recommendations contained within the Environmental Noise Impact Report prepared by CRG Acoustics Pty Ltd dated 12 April 2021 with the exception of the following:</p> <p>a. The location of the acoustic barrier to be provided in Stage 3b must return into the site to screen the bin storage area, in accordance with the Response to Information Request prepared by Saunders Havill Group dated 29 April 2021.</p> <p>b. Acoustic barriers exceed a height of 2 m, the part exceeding this height must utilise Perspex or similar clear materials which have a minimum surface mass of 11kg/m².</p>	Prior to the commencement of the use and then to be maintained
16.	Submit to the Assessment Manager certification from a suitably qualified person confirming the recommendations of the approved Acoustic report have been complied with.	Prior to the commencement of the use
17.	<p>Amplified noise associated within the approved Gym (Speciality Shop 5) use must not operate outside the hours of 7 am to 8 pm Monday to Sunday.</p> <p>Note: <i>This condition does not apply to background pre-recorded music (eg music played through a stereo system) that does not emit audible noise beyond the boundary of the premises.</i></p>	At all times
SCREENING OF PLANT AND SERVICES		
18.	Install and maintain suitable screening to all air conditioning, lift motor rooms, plant, service facilities, or similar equipment located on the rooftop or to an external face of the building. The screening structures must be constructed from materials that are consistent with materials used elsewhere on the building façade or as an architectural feature of and visually consistent with the profile of the building.	Prior to the commencement of the use and then to be maintained

OPERATIONAL WORK ASSOCIATED WITH THE MCU		
19.	<p>Ensure all Operational work that is Accepted development complies with the nominated assessment benchmarks or a Development application for Operational work is submitted to and approved by Council.</p> <p>Note: <i>Where Accepted development does not comply with a nominated requirement for accepted development, a Development application for Operational work must be submitted to Council.</i></p>	Prior to the commencement of work
20.	<p>Provide certification from a Registered Professional Engineer of Queensland (RPEQ) that any operational work that is Accepted development has been designed and constructed in accordance with the conditions of this Development approval and any other relevant approval issued by Council.</p> <p>Note: <i>Council does not require the submission of an Operational works development application for work that is nominated as Accepted development where the works comply with the nominated requirements for Accepted development and are certified by a RPEQ.</i></p>	Prior to the commencement of the use
CONSTRUCTION MANAGEMENT		
21.	<p>Unless otherwise approved in writing by the Assessment Manager, ensure no audible noise from work is made:</p> <ul style="list-style-type: none"> a. on a business day or Saturday, before 6.30 am or after 6.30 pm b. on any other day, at any time. 	At all times during construction
EARTHWORKS		
22.	<p>Carry out all earthworks in accordance with the approved plans, the applicable Planning scheme codes, and the Planning scheme policy for development works.</p> <p>Note: <i>Earthworks that comply with the applicable requirements for accepted development do not require the submission of an Operational works development application.</i></p> <p><i>Where the applicable requirements for accepted development are not met, an Operational works development application must be submitted to Assessment Manager.</i></p>	At all times

23.	Provide to the Assessment Manager certification from a Registered Professional Engineer of Queensland (RPEQ) that the Earthworks have been designed and constructed in accordance with the conditions of this Development approval and any other relevant approval issued by the Assessment Manager.	Prior to the commencement of the use
EROSION AND SEDIMENT CONTROL		
24.	Prepare and implement an Erosion and sediment control (ESC) management plan for the site in accordance with the Environment Protection Agency's (EPA – Guideline – <i>EPA Best Practice Urban Stormwater Management</i> – Erosion and Sediment Control and International Erosion Control Association's (IECA) – <i>Best Practice Erosion and Sediment Control</i> , and the <i>Queensland Urban Drainage Manual (QUDM)</i> .	Prior to site work commencing and at all times during construction
ACID SUFLATE SOILS		
25.	Perform relevant investigation into the presence of Acid Sulfate Soils and if present, prepare an Acid Sulfate Soils treatment and management plan for the works, that facilitates compliance with the Bundaberg Regional Council's Acid Sulfate Soils Overlay Code performance outcomes. All works on site must be undertaken in accordance with appropriate ASS management practices. Testing results and any subsequent management plan must be submitted to the Assessment Manager.	Prior to site work commencing
STORMWATER		
26.	Carry out all stormwater drainage work in accordance with Storm Water Consulting's Stormwater Management Plan dated 8 October 2021. Note: <i>Submission of the stormwater management plan must form part of an Operational works application.</i>	Prior to the commencement of the use and then to be maintained
27.	Prepare and submit for approval to the Assessment Manager, detailed design of the pump out system for the management of stormwater. Note: Submission of the detailed design may form part of an Operational works application.	Prior to the site work commencing
28.	Prepare and submit for approval to the Assessment Manager an updated Stormwater management plan in accordance	As indicated

	<p>with the applicable Planning scheme codes and the Planning scheme policy for development works.</p> <p>The plan is to include, but not be limited to the following:</p> <ul style="list-style-type: none"> a. the detail design and layout of all necessary stormwater drainage systems and stormwater quality management systems for the whole of the development including stage 3B; b. the provision of any required on-site detention/retention necessary to limit discharge to pre-development generated peak levels up to and including the Q100 ARI return interval (or 1% AEP); c. the provision of stormwater quality improvement devices; and d. demonstration that the development will not result in actionable nuisance on upstream or downstream properties. <p>All stormwater drainage work must be carried out in accordance with the approved Stormwater management plan.</p> <p>Note:</p> <p>Submission of the stormwater management plan must form part of the Operational works application for Stage 3B.</p>	
29.	<p>Maintain the stormwater management pump out system as per the inspection regime noted in Storm Water Consulting's Stormwater Management Plan dated 8 October 2021.</p> <p>A detailed log of all maintenance activities of the system is to be recorded and retained for submission to Council when requested.</p>	At all times
WATER		
30.	<p>Provide a reticulated water supply service in accordance with the applicable Planning scheme codes and the Planning scheme policy for development works.</p>	Prior to the commencement of the use and then to be maintained
31.	<p>Provide a metered water service, and internal infrastructure as required, to satisfy the firefighting and water supply demands of the development.</p> <p>Note:</p> <p><i>Water infrastructure must be designed by an appropriately qualified hydraulic consultant to assess the suitability of the</i></p>	Prior to the commencement of the use and then to be maintained

	<i>water supply system to cater for the proposed development, including firefighting requirements in accordance with AS2419 – Fire hydrant installation.</i>	
SEWERAGE		
32.	Provide a reticulated sewerage service in accordance with the applicable Planning scheme codes and Planning scheme policy for development works.	Prior to the commencement of use
33.	All sewerage infrastructure must be clear of all proposed and existing buildings.	At all times
ROADWORKS, ACCESS, AND CAR PARKING		
34.	<p>Design and construct the site accesses and driveways in accordance with Bundaberg Regional Council’s standard drawing R1011, the Approved plans, applicable Planning scheme codes, and the Planning scheme policy for development work.</p> <p>Note: <i>Detailed design must be determined from swept path analysis for the largest design vehicle and incorporated as part of the assessment for Operational works for each stage incorporating the access.</i></p>	Prior to the commencement of the use and then to be maintained
35.	<p>Provide pavement widening including but not limited to, underground drainage, kerb and channel, 2.5 m wide pedestrian path and street trees to the Rifle Range Road frontage of the development site in accordance with the Planning scheme policy for development works and the following requirements:</p> <ol style="list-style-type: none"> a. Rifle Range Road must be widened on the side fronting the development to an Urban Road – Trunk Collector standard; b. Rifle Range Road roadway must be paved to a minimum half width of 7.7 metres measured from the invert of the kerb and channel to road centreline; and c. The overall design for Rifle Range Rd must incorporate channelised right and auxiliary left turn treatments as generally shown in RMA’s Traffic Impact Assessment Report, dated 15 December 2020. <p>Note: <i>Detailed design of the overall road upgrade must be determined as part of the assessment for Operational works at the first stage of development, however construction may be staged to correspond with the relevant stages of the development and associated access points.</i></p>	As indicated

<p>36.</p>	<p>Provide a dedicated left turning lane along Hughes Rd for access 1. The length of this lane is to be determined from further traffic modelling.</p> <p>Note:</p> <p><i>Detailed design must be determined as part of the assessment for Operational works for the first stage of the development.</i></p>	<p>As indicated</p>
<p>37.</p>	<p>Remove all disused or redundant vehicular crossings, kerb drainage outlets, and footpath crossovers and reinstate kerb and channel, and footpaths as required.</p>	<p>Prior to the commencement of the use</p>
<p>38.</p>	<p>Design and construct off-street car parking, access, and manoeuvring areas in accordance with the Approved plans, applicable Planning scheme codes, and the Planning scheme policy for development work.</p> <p>Car parking, access, and manoeuvring areas must:</p> <ol style="list-style-type: none"> a. provide a minimum of 204 car parking spaces staged as per table 7.2 in RMA’s Traffic Impact Assessment Report, dated 15 December 2020 b. provide a minimum of 42 bicycle parking spaces staged as per table 7.3 in RMA’s Traffic Impact Assessment Report, dated 15 December 2020 c. be designed and constructed in accordance with AS2890 Parking facilities – off-street car parking d. provide parking spaces for people with a disability in accordance with the Building Code of Australia and AS2890.6 Off-street parking for people with disabilities e. provide on-site loading, unloading, and manoeuvring for all necessary service vehicles f. allow all design vehicles to enter and exit the site in a forward gear g. be constructed and sealed with asphalt h. be signed and delineated in accordance with the Queensland manual of uniform traffic control devices i. allow for the provision of fill and/or boundary retaining walls and the containment and management of site stormwater drainage j. be drained to a legal point of discharge k. be available free of charge to staff and customers during operating hours l. provide shade trees in car parking areas at a minimum ratio of one (1) tree for every six (6) parking spaces. <p>Note:</p> <p><i>Where there is any conflict between the Approved plans and the Planning Scheme provisions, the Approved plans prevail.</i></p>	<p>Prior to the commencement of use and then to be maintained</p>

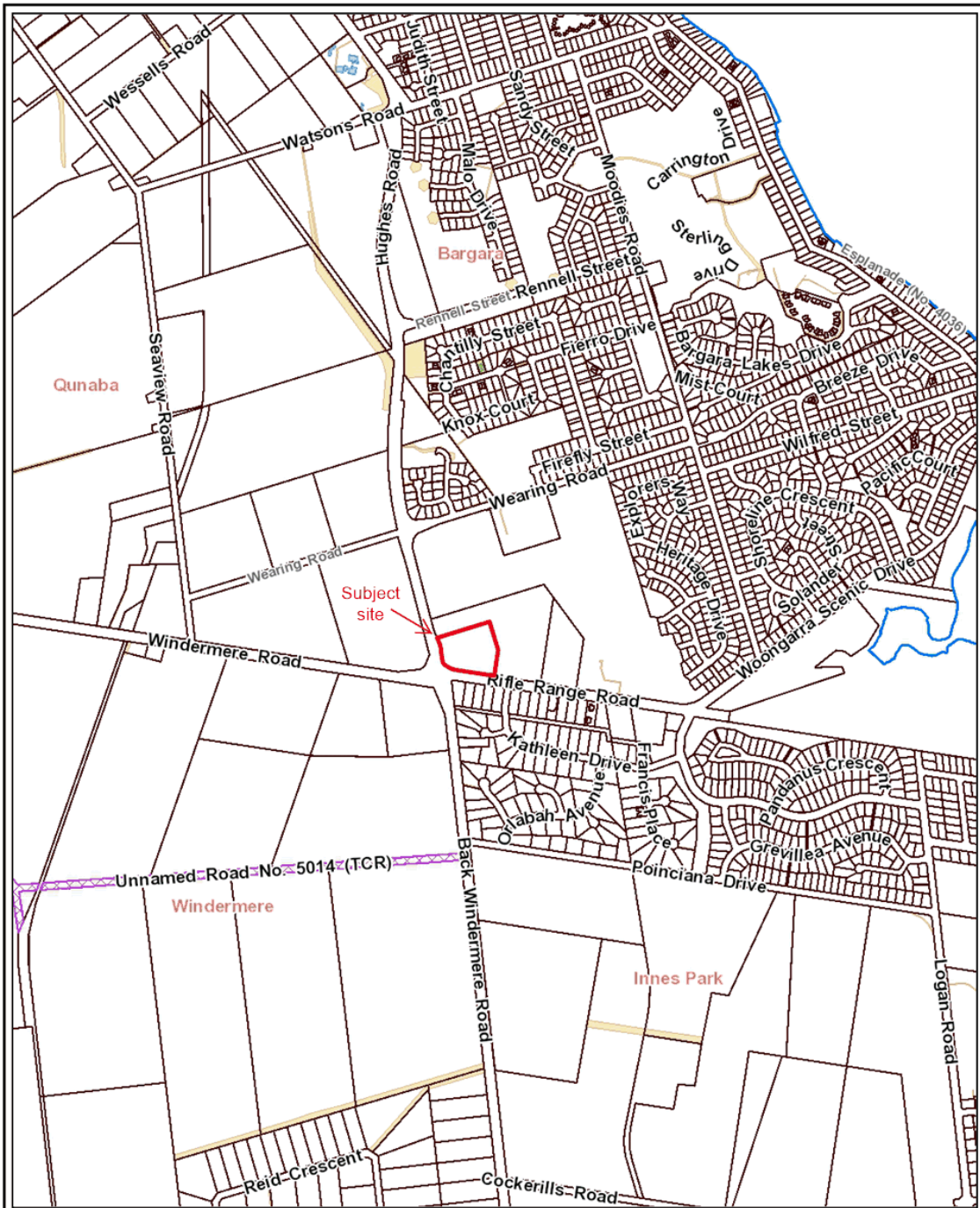
39.	Repair any damaged kerb and channel, footpath, or road (including removal of concrete slurry from footpath, roads, kerb and channel, and stormwater gullies and drainlines) and reinstate existing traffic signs and pavement markings that have been removed or damaged during any works carried out in association with the approved development.	Prior to the commencement of the use
40.	Dedicate all new road, including widening and truncations, as road reserve.	Prior to the commencement of the use
41.	Amend the bin store area and loading area in Stage 3B as per option B in the applicant's response to Council's Information Request, dated 29 April 2021. Detail must be determined as part of the assessment for Operational works for Stage 3B.	Prior to the commencement of the use
42.	Provide appropriate line marking at the internal conflict area in stage 3B as identified in Council's Information Request, generally in accordance with the applicant's response to Council's Information Request, dated 29 April 2021, to avoid vehicle manoeuvring confusion. Detail must be determined as part of the assessment for Operational works for stage 3B.	Prior to the commencement of the use
43.	Ensure all existing and proposed utility services and connections (eg electricity, telecommunications, water, and sewerage) are wholly located within the site or within a suitable easement to the satisfaction of the Assessment Manager.	Prior to the commencement of the use
PEDESTRIAN AND CYCLIST PATHS		
44.	Provide a 2.5m wide pathway for the full frontage of the site along Rifle Range Road, extending to the eastern boundary of Lot 2 on RP812670. Note: <i>Submission of the detail design must form part of an Operational works application for the first stage of development.</i>	Prior to the commencement of the use
WASTE MANAGEMENT		
45.	Maintain and operate an adequate waste disposal service in accordance with the submitted Waste Management Plan and the Planning Scheme Policy for Waste Management, including the maintenance of refuse bins and associated storage areas so as not to cause an environmental nuisance.	At all times

PART 1B – ADVICE NOTES

NO.	ADVICE	TIMING
INFRASTRUCTURE CHARGES		
1.	Infrastructure charges notice (331.2021.1260.1) applicable to the development is attached to this Development approval.	At all times
ENVIRONMENTAL HARM		
2.	<p>The <i>Environmental Protection Act 1994</i> states that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm. Environmental harm includes environmental nuisance.</p> <p>In this regard persons and entities, involved in the civil, earthworks, construction, and operational phases of this development, are to adhere to their ‘general environmental duty’ to minimise the risk of causing environmental harm. Environmental harm is defined by the Act as any adverse effect, or potential adverse effect whether temporary or permanent and of whatever magnitude, duration or frequency on an environmental value and includes environmental nuisance. Therefore, no person should cause any interference with the environment or amenity of the area by reason of the emission of noise, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, wastewater, waste products, grit, sediment, oil, or otherwise, or cause hazards likely in the opinion of the administering authority to cause undue disturbance or annoyance to persons or affect property no connected with the use.</p>	At all times
GENERAL		
3.	<p>An audit check of the Operational Works drawings has been undertaken in relation to the proposed works. A detailed check of the calculations and drawings has not been undertaken, as they have been certified by a Registered Professional Engineer of Queensland (RPEQ).</p> <p>The RPEQ bears full responsibility for all aspects of the engineering design, including the identification and resolution of any design faults that may arise throughout the course of the Operational works. The Assessment Manager reserves the right to require further amendments and/or additions at a later date should design errors become apparent.</p>	At all times

4.	Inspections by Council are independent of, and do not negate, the Registered Professional Engineer of Queensland (RPEQ) inspections that ensure compliance with the decision notice for Operational work.	At all times
AMENITY		
5.	Ensure the development does not cause environmental nuisance or environmental harm as per the Environmental Protection Act 1994.	At all times
6.	Storage of flammable and /or combustible liquids must comply with the minor storage provisions of AS1940 – the storage and handling of flammable and combustible liquids.	At all times
WATER AND SEWERAGE		
7.	<p>In order for agreed Council work to be performed on existing live water and sewer infrastructure:</p> <ul style="list-style-type: none"> a. ensure a detailed design proposal is submitted to the Assessment Manager, marked ‘For construction’ b. complete a Notice to Service Provider application at https://www.bundaberg.qld.gov.au/water-sewer-connections c. pay the applicable lodgment fee d. if necessary, a quote will be prepared by Council’s Water Service section once the detailed design proposal is approved e. follow instructions provided with the quotation and pay the quoted fee <p>Note:</p> <p><i>The Notice to Service Provider application can cater for both water and sewer connection requirements in the one application. The applicable lodgment fee will be adjusted at the time of lodgment according to the features requested.</i></p>	Prior to commencement of the use
8.	<p>Connection to water or sewer infrastructure is subject to further approvals. For further information about these requirements, please contact Council’s Water Services section on 1300 883 699.</p> <p>No plumbing and drainage works are to commence prior to the issuing of the Plumbing and Drainage Approval by the Council.</p>	Prior to commencement of the use
9.	Sub-meters shall be installed in accordance with the relevant Acts and Codes. Arrangements for the installation of any metered service and sub-meters, or removal of an existing service, are to be made with Council’s Water Services section. All works are to be undertaken by Council at the Developer’s expense.	Prior to commencement of the use

ROADWORKS		
10.	It should be noted that the existing pathway along Hughes Rd is located hard against the property boundary. Due to this, widening of the road reserve in this location should be considered. At a minimum, service integration and finished levels should be closely checked at this location due to limited room to make adjustments.	Prior to construction works commencing
11.	Council's Roads and Drainage Department have secured funding for the upgrade of a portion of Rifle Range Rd. The applicant is encouraged to work collaboratively with Council when undertaking the detailed design for submission of the operational works application with regards to the conditioned works required in Rifle Range Rd, to ensure clashes are mitigated.	As indicated
TRAFFIC MANAGEMENT		
12.	<p>Council requires the use of Aassignit software for documentation and reporting of Traffic management control plans. Developers, Principal Contractors, Sub-contractors, and Suppliers are required to use Aassignit software.</p> <p>Council provides Aassignit software and training free of charge. Contact Aassignit directly at adfmin@assignit.com for the software to be delivered to your business.</p> <p>Following uploading your Traffic management control plan to the Aassignit system, confirmation is to be sent to development@bundaberg.qld.gov.au.</p>	At all times
NATURE AND EXTENT OF THE APPROVED DEVELOPMENT		
13.	This decision notice does not represent an approval to commence Building work.	At all times



Locality Plan
522.2020.299.1
60 Rifle Range Road, Bargarra

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere Date: 7/12/2021 9:42 AM

Scale 1 : 16,000.00 on A4 Sheet

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Author: Katrina Peardon

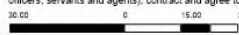


Site Plan
522.2020.299.1
60 Rifle Range Road, Bargarra

Projection: WGS_1984_Web_Mercator_Auxiliary_Spheroid Date: 7/12/2021 9:31 AM Scale 1 : 1,500.00 on A4 Sheet

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.



Author: Katrina Peardon

PROPOSED DEVELOPMENT



COMMERCIAL BUILDING AREAS	
Overall site area	19418.44 sqm.
Stage 1	
Site area for Stage 1	4079.77sqm.
Service Station -	207.00 sqm
Cafe' / Restaurant -	170.67 sqm
Total Build Area (stage 1) -	377.67 sqm
Stage 2	
Site area for Stage 2	8581.95sqm.
Speciality Shop 1 -	255.23 sqm
Speciality Shop 2 -	214.14 sqm
Speciality Shop 3 -	233.55 sqm
Speciality Shop 4 -	282.20 sqm
Speciality 5 / Gymnasium -	282.68 sqm
Retail 1 -	128.42 sqm
Retail 2 -	119.52 sqm
Retail 3 -	119.52 sqm
Retail 4 -	84.52 sqm
Retail 5 -	84.52 sqm
Retail 6 -	84.52 sqm
Cafe' / Restaurant -	216.56 sqm
Total Build Area (stage 2) -	2105.40 sqm
Stage 3	
Site area for Stage 3a	2383.72sqm.
Site area for Stage 3b	4373.49sqm.
Supermarket -	1510.74 sqm
Bulky Goods 1 -	309.16 sqm
Bulky Goods 2 -	305.98 sqm
Bulky Goods 3 -	305.98 sqm
Bulky Goods 4 -	309.16 sqm
Total Build Area (stage 3) -	2741.02 sqm
TOTAL BUILDING AREA	
TOTAL BUILDING AREA	5224.09 sqm.
Building site coverage (overall area)	26.90%
Total Car Parking Provided	204 spaces
Total bicycle Parking Provided	42 spaces
Landscaped areas	3186.63 sqm
landscaped site coverage	16.41%.

01 AERIAL PLAN
SCALE 1:1000

LANDSCAPING
Landscaping to be in accordance with the Design Guidelines & to the requirements of Local City Council. Refer to Landscape consultant's drawings and specifications for full details.

LIGHTING
External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land to the satisfaction of the Responsible Authority.

DISABLED ACCESS
Building entrances are in accordance with the Australian Standard 1428:2005 - Design Rule for Access by the Disabled.

CAR PARKING
Disabled car parking spaces to be 4800mm long x 2400mm wide and be in accordance with A.S. 2890.1 (2004).
Car parking spaces to be 4800mm long x 2600mm wide and be in accordance with A.S. 2890.1 (2004).
All car parking bays to be line marked in 80mm wide white weatherproof paint in accordance with A.S. 2890.1 (2004).

VEHICLE CROSSINGS
All new crossings shall be to the requirements of the relevant Statutory Authority.

LOADING BAYS
All loading bays to be 7600mm long x 3600mm wide and in accordance with A.S. 2890.1 (2004).



01 KEY PLAN
SCALE NTS



STAGE KEY PLAN

AT:- 60 Rifle Range Road, BARGARA



A1 sheet

SHEET No: 7961 JOB No: 92-279
DATE: Aug 2020 SCALE: AS SHOWN @ A1 SIZE

© COPYRIGHT
All rights reserved. These drawings are the property of CADDCO and are not to be reproduced, in whole or in part, without the written authority of CADDCO. Landmarks are to be maintained in situ, from their original location.

PROPOSED DEVELOPMENT

Stage 3b

2383.72sq.m



Stage 2

8581.95sq.m



Stage 3a

2383.72sq.m

Stage 1

4079.77sq.m

- LANDSCAPING**
Landscaping to be in accordance with the Design Guidelines & to the requirements of Local City Council. Refer to Landscape consultant's drawings and specifications for full details.
 - LIGHTING**
External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land to the satisfaction of the Responsible Authority.
 - DISABLED ACCESS**
Building entrances are in accordance with the Australian Standard AS 2890 - Design Rule for Access by the Disabled.
 - CAR PARKING**
Disabled car parking spaces to be 4900mm long x 2400mm wide and be in accordance with A.S. 2890.1 (2004).
Car parking spaces to be 4900mm long x 2600mm wide and be in accordance with A.S. 2890.1 (2004).
All car parking bays to be line marked in 80mm wide white weatherproof paint in accordance with A.S. 2890.1 (2004).
 - VEHICLE CROSSINGS**
All new crossings shall be to the requirements of the relevant Statutory Authority.
 - LOADING BAYS**
All loading bays to be 7000mm long x 3600mm wide and line marked in accordance with A.S. 2890.1 (2004).
- SECURITY EXTERNAL LIGHTING**
Luminaire pole mounted at 6m height.

01 SITE PLAN
SCALE 1:300

FLOOR PLAN

AT:- 60 Rifle Range Road, BARGARA



A1 sheet

SHEET No: 1902 JOB No: 192-219
DATE: Aug 2020 SCALE: AS SHOWN @ A1 SIZE

© COPYRIGHT
All rights reserved. These drawings are the property of CADDCO. No part of these drawings may be reproduced or transmitted in any form or by any means without the prior written authority of CADDCO. Landmarked and in the possession of CADDCO.

PROPOSED DEVELOPMENT



01 STREETScape ELEVATIONS
SCALE 1:150

ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

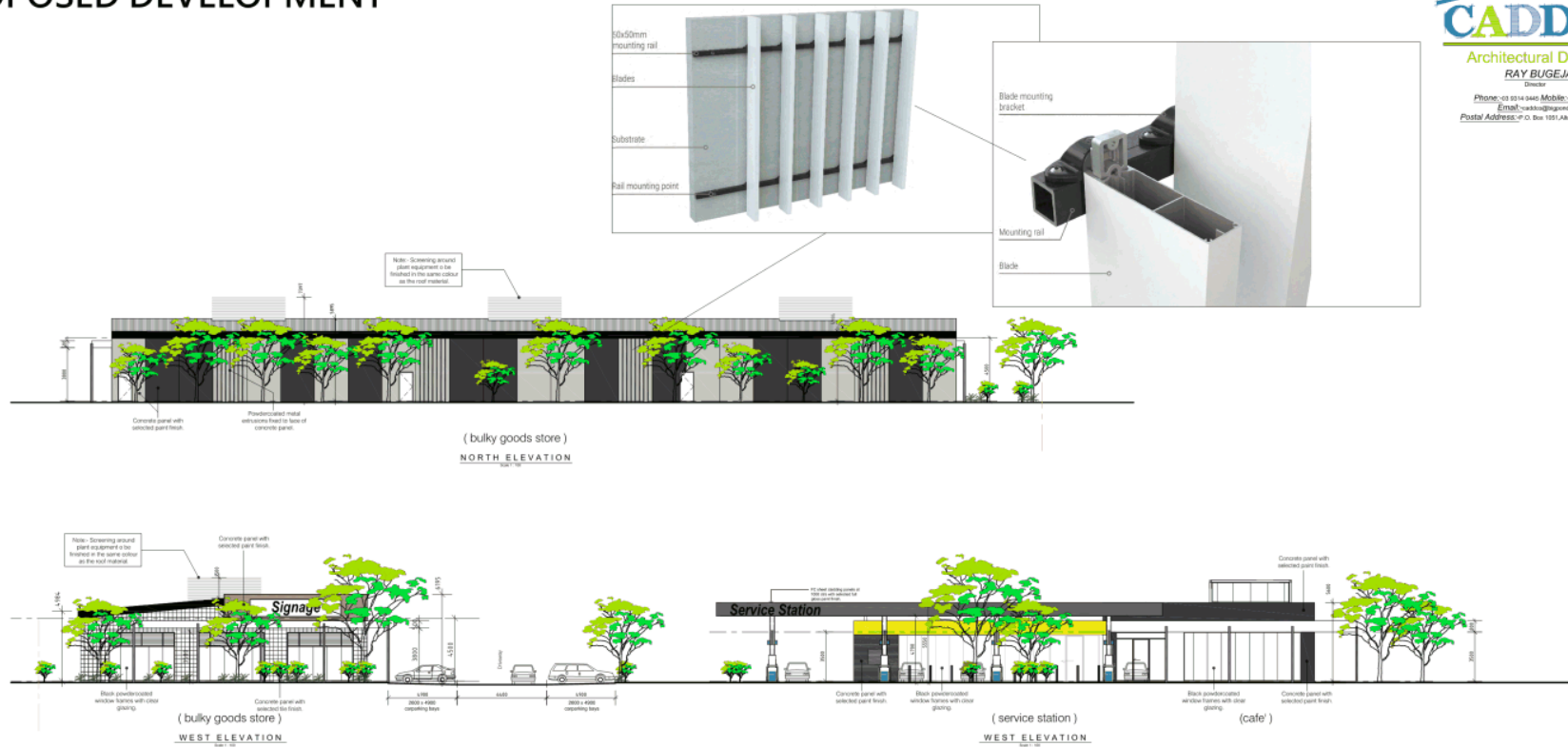
A1 sheet

SHEET No. TFC3 JOB No. 252-2878
DATE Aug 2023 SCALE AS SHOWN @ A1 SHEET

COPYRIGHT
All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the express written authority of C.A.D.D.C.O. Architectural Drafting & Development Pty Ltd. All other rights reserved.

REVISION
G
Revision 25.3.21

PROPOSED DEVELOPMENT



01 STREETScape ELEVATIONS
SCALE 1 : 150



External Finishes Schedule

ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

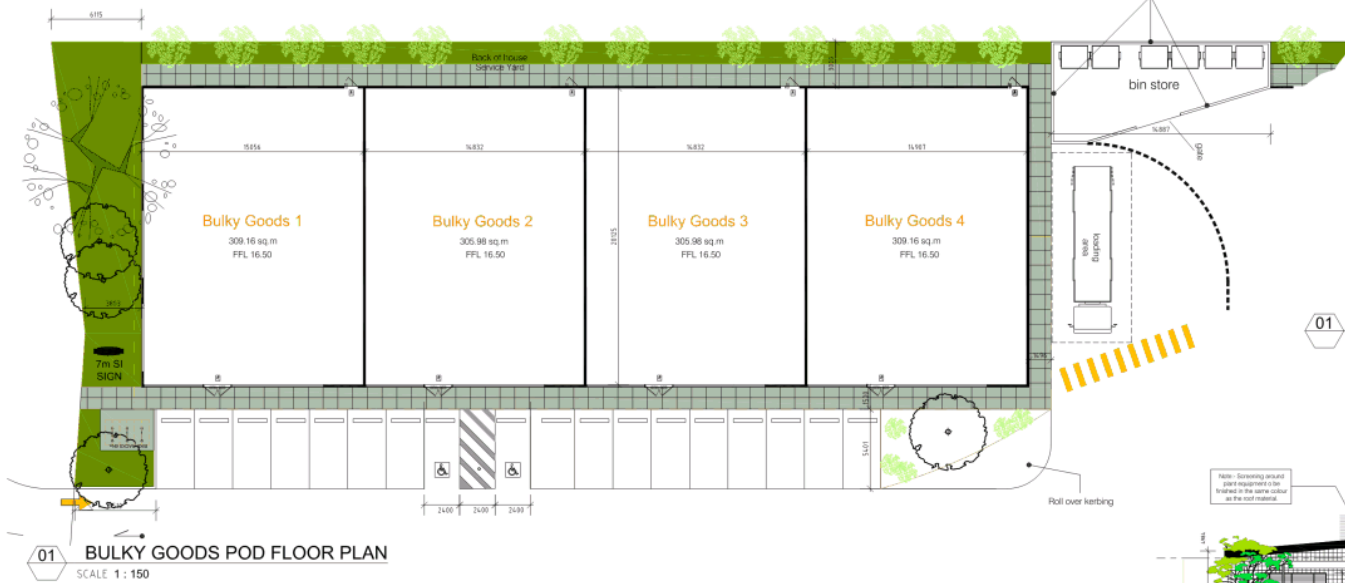


A1 sheet

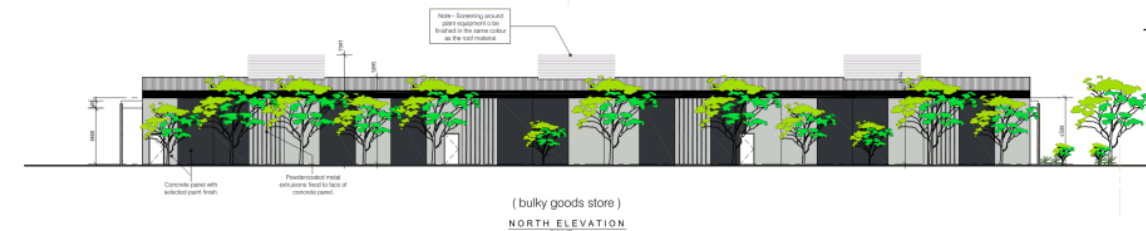
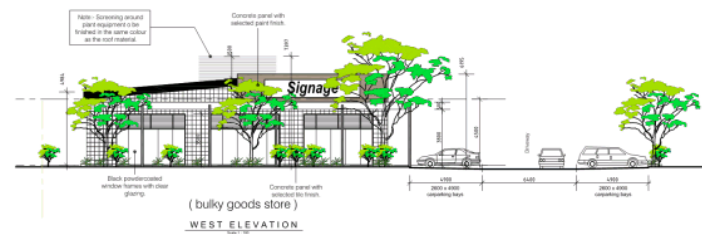
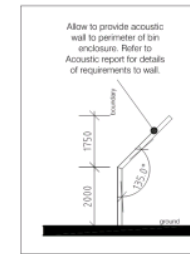
SHEET No. TFDL JOB No. 052-2179
DATE Aug 2023 SCALE A3 SHOWN @ A1 SHEET

COPYRIGHT
All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior written authority of C.A.D.D.C.O. Pty Ltd. Development and Environment Pty Ltd. (Development and Environment Pty Ltd.)

PROPOSED DEVELOPMENT



01 ACOUSTIC WALL TO BIN STORE DETAIL
SCALE NTS



01 BULKY GOODS POD ELEVATIONS
SCALE 1:150



PLAN & ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No. TPO5	JOB No. 152-2170	COPYRIGHT
DATE Aug 2023	SCALE A1 SHOWN @ A1 SHEET	All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of this document may be reproduced without the prior written consent of C.A.D.D.C.O. Development and Environment Pty Ltd. Reproduction prohibited.

PROPOSED DEVELOPMENT



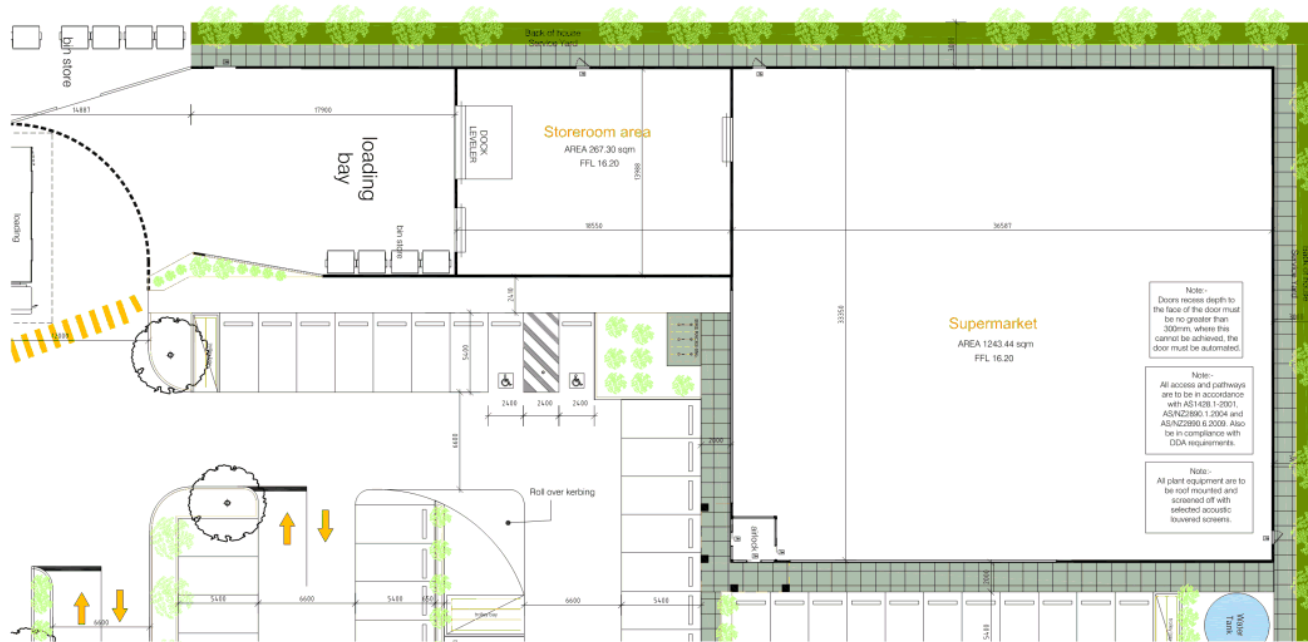
Architectural Drafting
RAY BUGEJA
Director

Phone: 08 93 94 9446 Mobile: 0411 899 126
Email: ray@raybugeja.com
Postal Address: P.O. Box 1591 Altona Meadows, 3028

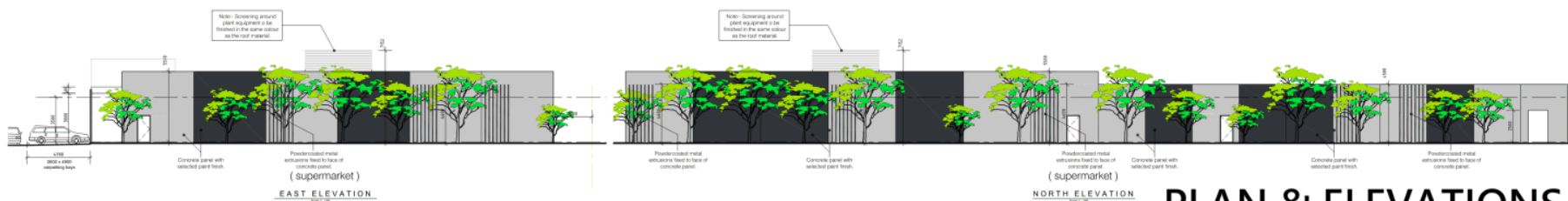
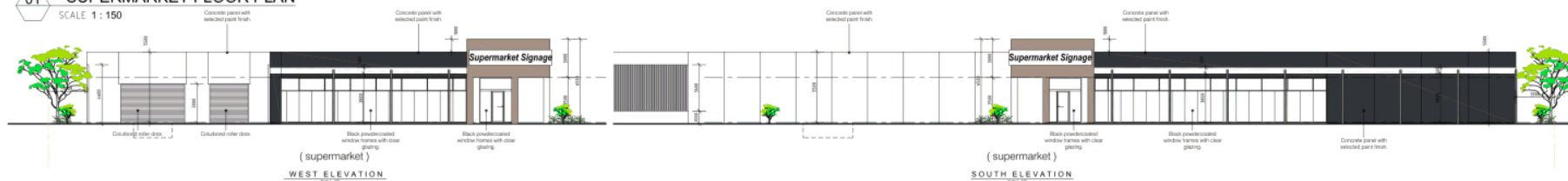
REVISION

G

Revision 25.3.21



01 SUPERMARKET FLOOR PLAN
SCALE 1:150



01 SUPERMARKET ELEVATIONS
SCALE 1:150

PLAN & ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No. TPO JOB No. 252-2878
DATE Aug 2022 SCALE AS SHOWN @ A1 SHEET

© COPYRIGHT
All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, without the prior written authority of C.A.D.D.C.O. Development and Environment Pty Ltd. All rights reserved.

PROPOSED DEVELOPMENT

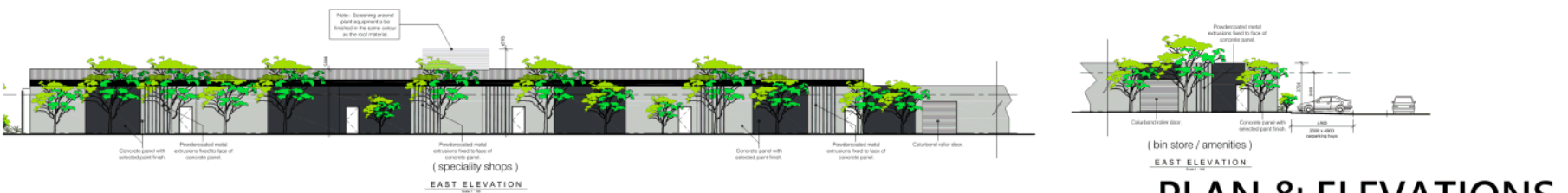


Architectural Drafting
RAY BUGEJA
Director

Phone: 08 93 14 3446 Mobile: 0411 890 126
Email: ray@cadco.com.au
Postal Address: P.O. Box 1591, Altona Meadows, 3028



01 SPECIALITY SHOP POD FLOOR PLAN
SCALE 1: 150



01 SPECIALITY SHOP POD ELEVATIONS
SCALE 1: 150

PLAN & ELEVATIONS

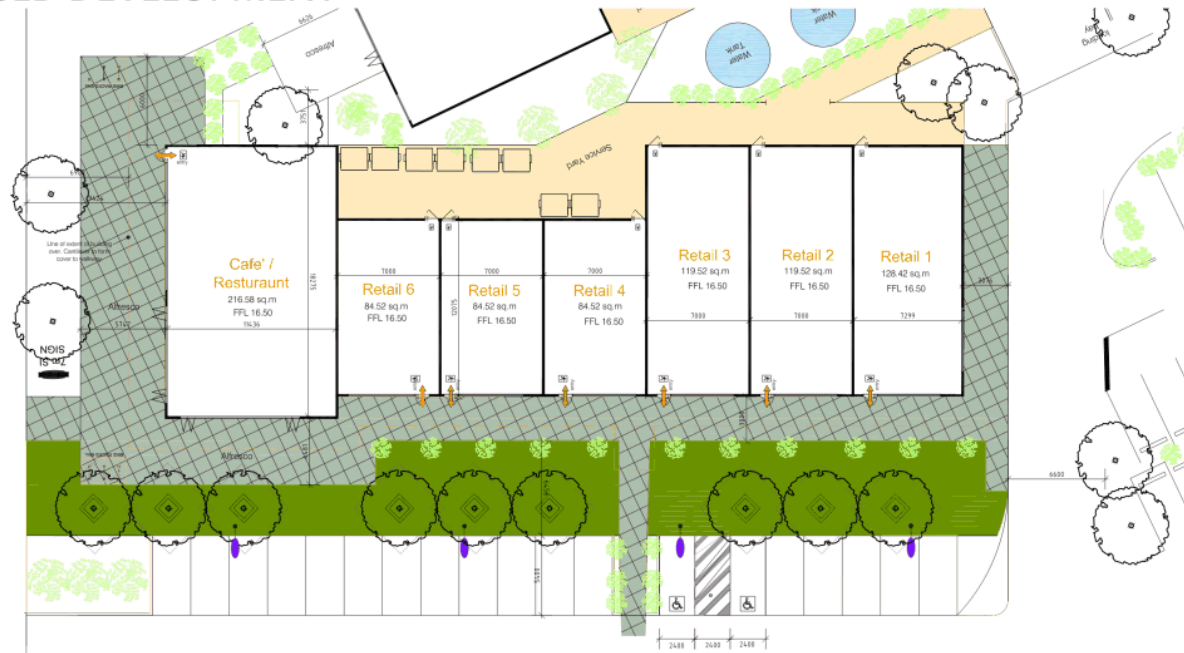
AT:- 60 Rifle Range Road, BARGARA

A1 sheet

© COPYRIGHT
All rights reserved. These drawings are the property of CADDCO Pty Ltd. No part of these drawings or any part of the information contained herein may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior written authority of CADDCO Pty Ltd. Unauthorised use of these drawings is strictly prohibited.

SHEET No. TPT07 JOB No. 052-2179
DATE Aug 2023 SCALE AS SHOWN @ A1 SHEET

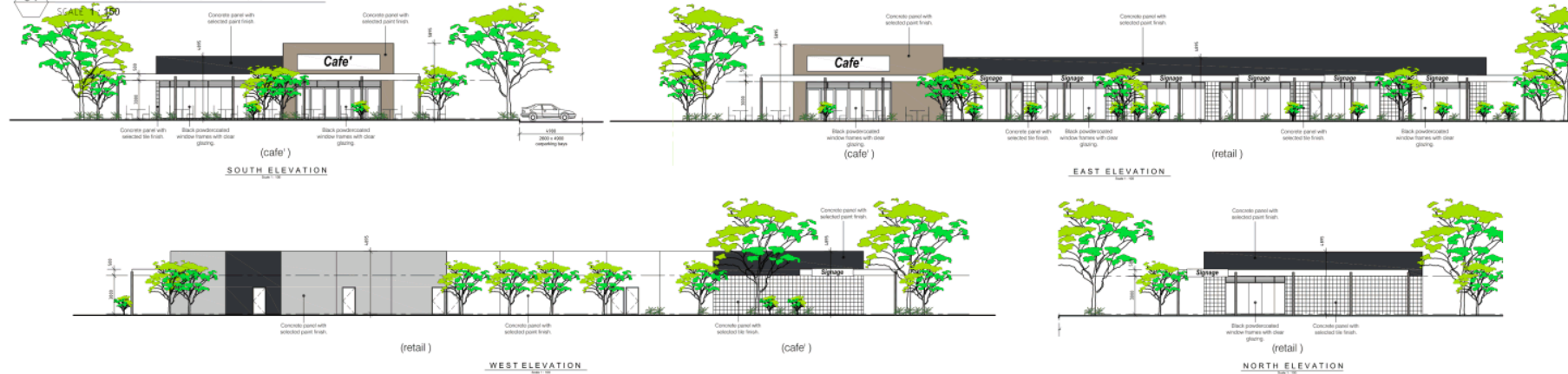
PROPOSED DEVELOPMENT



CADDCO Pty Ltd
 Architectural Drafting
 RAY BUGEJA
 Director
 Phone: 03 5314 0440 Mobile: 0411 890 126
 Email: ray@addco.com.au
 Postal Address: P.O. Box 1551 Altona Meadows, 3028

REVISION
G
 Revision 25.3.21

01 RETAIL / CAFE' POD FLOOR PLAN



01 RETAIL / CAFE' POD ELEVATIONS

PLAN & ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No. TPO3 JOB No. 052-2179
 DATE Aug 2023 SCALE AS SHOWN @ A1 SHEET

COPYRIGHT
 All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the prior written authority of C.A.D.D.C.O. Development and Environmental Pty. Limited. All rights reserved.

PROPOSED DEVELOPMENT



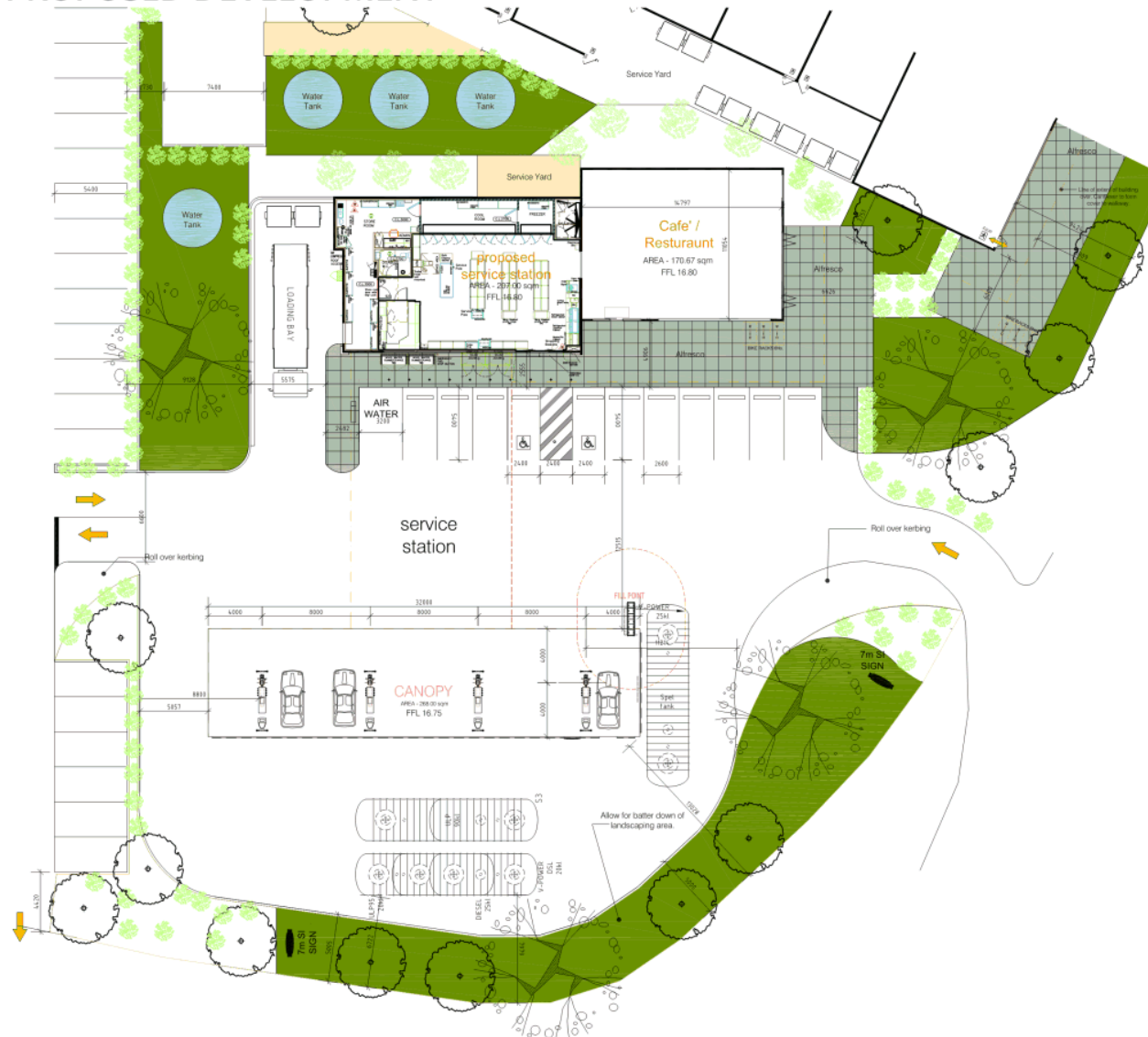
Architectural Drafting
RAY BUGEJA
Director

Phone: 08 5314 0440 Mobile: 0411 890 126
Email: ray@raybugeja.com
Postal Address: P.O. Box 1551, Akras Meadows, 3028

REVISION



Revision 25.3.21



01 SERVICE STATION / CAFE' FLOOR PLAN
SCALE 1:150

PLAN & ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No. 1701 JOB No. 252-219
DATE Aug 2021 SCALE AS SHOWN @ A1 SHEET

COPYRIGHT
All rights reserved. These drawings are the property of C.A.D.D.C.O. Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of C.A.D.D.C.O. Pty Ltd.

PROPOSED DEVELOPMENT



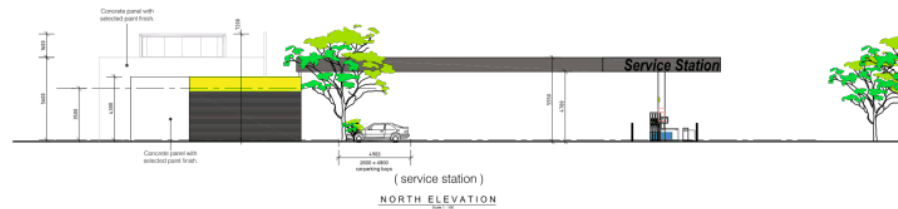
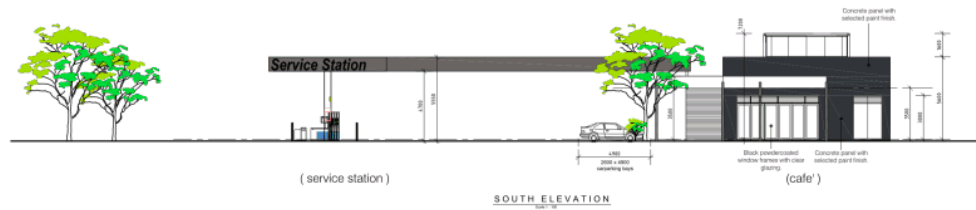
Architectural Drafting
RAY BUGEJA
 Director

Phone: 03 5314 3440 Mobile: 0411 895 126
 Email: ray@raybugeja.com
 Postal Address: P.O. Box 1551, Altona Meadows, 3028

REVISION



Revision 25.3.21



01 SERVICE STATION / CAFE' FLOOR PLAN
 SCALE 1 : 150

PLAN & ELEVATIONS

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No. TP10 JOB No. 252-2179
 DATE Aug 2023 SCALE AS SHOWN @ A1 SHEET

© COPYRIGHT
 All rights reserved. These drawings are the property of CADDCO Pty Ltd. No part of these drawings may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior written authority of CADDCO Pty Ltd. Development and Environment Pty Ltd. All rights reserved.



Material Change of Use for Shopping Centre, Service Station & Showroom
60 Rifle Range Road, Bargara
(Lot 7 on SP228667)

ENVIRONMENTAL NOISE IMPACT REPORT

Prepared for

Bargara Village Pty Ltd

12 April 2021

crgref: 20157 report Rev 2

1.0 INTRODUCTION

This report is in response to a request from Bargara Village Pty Ltd for an environmental noise impact assessment of a Material Change of Use for Shopping Centre, Service Station and Showroom. In undertaking the noise assessment, noise modelling was created, and predictions of onsite commercial activity noise emissions were produced. Based upon the predicted noise impact levels, recommendations regarding acoustic treatment to the development have been provided.

It is noted that the subject site currently holds a development approval (dated 14th August 2014) for a Mixed Use development comprising a Supermarket, Shops, Medical Centre, and two Fast Food tenancies.

This report is a revision to a previous assessment and is required to respond to the Item 1 of the Information Request from Bundaberg Regional Council dated 10th February 2021 as presented below:

Acoustic fence

1. The submitted Environmental Noise Impact Report prepared by CRG Acoustics recommends a 3.75m high acoustic barrier to be constructed for a length of approximately 48m along the eastern property boundary as part of Stage 2 and for a length of approximately 28.5m along the northern property boundary as part of Stage 3A. Acceptable outcome AO9.2 prescribes '*where the business use requires the use of acoustic attenuation measures to mitigate adverse impacts on nearby sensitive land uses, such measures are designed and constructed to be compatible with the local streetscape*'. The proposal does not adequately address the Performance outcome PO9, ensuring that the acoustic fence is compatible with the local streetscape and may result in unreasonable amenity impacts to the surrounding residential area. It is requested that compliance with Performance outcome PO9 be demonstrated. If the proposed acoustic measures were revised to reduce the overall height of the acoustic barrier located on the property boundary or alternatively revise bin storage location and opportunities for the loading bay to be enclosed with a shutting door, it is considered that Performance outcome PO9 may be achieved.

In response to Item 1, to minimise overall amenity impact of the acoustic barriers on the adjacent receivers we have recommended that the barriers (i.e. eastern barrier between Stages 2 and 3B) be constructed of a combination of materials being a 2.0m high masonry wall (typical acoustic barrier height) with a transparent 1.75m high Perspex barrier above (overall total height of 3.75m). Further, for the northern acoustic barrier between Stages 3A and 3B we have recommended a kinked barrier, with a 2.0m boundary wall height and a further kinked section 1.75m in height (at a 45° degree incline away from the boundary). These treatments will lessen the overall amenity impact of the recommended acoustic barriers.

2.0 DESCRIPTION OF THE DEVELOPMENT

The site is described as 60 Rifle Range Road, Bargara (Lot 7 on SP228667) and is in a "Local Centre" zone. The site is bounded by Rifle Range Road to the south, Hughes Road to the west and undeveloped land (zoned "Low Density Residential") to the north and east. The topography of the site and surrounding land is generally flat. For site location refer to Appendix A.

The proposal is to construct a Mixed Use Commercial development over three stages as detailed below. For the development plan refer to Appendix B.

Stage 1: A service station with café / restaurant at the southwest corner of the subject site fronting both Rifle Range Road and Hughes Road. The service station yard stand areas and refuelling area will be at the western end of Stage 1 with the onsite building at the eastern end. The café / restaurant will be positioned at the southern end of the onsite building and include alfresco dining areas. The loading bay and bin storage area is positioned along the northern side of the building.

Stage 2: A retail site comprising a restaurant / café tenancy, six retail tenancies and five Specialty Shop tenancies at the southeast corner of the subject site. The restaurant / café tenancy and six retail tenancies will be positioned along the western side of Stage 2 with carparking through the centre and the five Specialty Shop tenancies along the eastern end.

Stage 3: A supermarket tenancy and three Bulky Goods tenancies along the northern end of the subject site. The supermarket tenancy will be positioned at the northeast end of Stage 3 with the three Bulky Goods tenancies positioned at the southwest end of Stage 3. Carparking is proposed along the southern and central areas of Stage 3, with the main loading dock and bin storage areas between the Supermarket and Bulky Goods tenancies along the northern boundary.

Hours of operation are proposed as follows:

- Bulky Goods / Supermarket, standard commercial hours, 7am – 9pm 7 days per week.
- Service Station 24 hours, 7 days per week.
- Café / Restaurants 7am to 11pm, 7 days per week.
- Bottle Shop in Specialty Shop 2, 10am to 10pm, 7 days per week.
- Gym (self serve style) in Specialty Shop 5, 24 hours, 7 days per week.
- Goods delivery and waste collection 7am to 6pm, 7 days per week.

Proposed commercial activities have been assessed to ensure acceptable acoustical amenity can be achieved at the nearest potentially affected offsite noise sensitive receivers. The nearest noise sensitive receivers include existing and future residential dwellings to the immediate north and east, with existing dwellings to the south across Rifle Range Road. It is noted that the future residential properties to the immediate north and east (zoned "Low Density Residential") are assumed to be single storey only, given the existing residential dwellings further to the north and east are all single storey. For offsite receiver locations refer to Figure 2 in Appendix A.

Further, each Stage of development has been assessed individually, with Stage 1 assessed in the absence of Stage 2 and 3 built structures; Stage 2 assessed in the absence of Stage 3 built structures (assumed Stage 1 is constructed); and Stage 3 assessed with both Stage 2 and Stage 3 structures constructed. Therefore, once Stage 3 is constructed, predicted noise impacts from Stages 1 and 2 will be reduced further at the northern and eastern receivers from those presented in Sections 5.1 and 5.2.

3.0 AMBIENT NOISE SURVEY

3.1 Instrumentation

The following equipment was used to record ambient noise levels in the locale.

- Rion NC 73 Calibrator; and
- Rion NL 21 Environmental Noise Logger.

All instrumentation used in this assessment hold current calibration certificate from a certified NATA calibration laboratory.

3.2 Background Measurement Methodology

A logger was located at the southeast corner of subject site. The microphone was in a free-field location, approximately 1.2m above ground. Refer to Figure 2 in Appendix A for the logger location.

The logger was set to record noise statistics in 15-minute blocks continually between Friday 30/10/2020 and Friday 6/11/2020.

All measurements were conducted generally in accordance with Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”. The operation of the sound level logging equipment was field calibrated before and after the measurement session with no significant drift from the reference signal recorded.

Daily weather observations were obtained from the Bureau of Meteorology’s website at the Bundaberg weather station. Weather conditions during the noise monitoring period were fine, a temperature range between 15 to 33°C, and a relative humidity between 20 and 70%.

3.3 Background Measurement Results

Table 1 below presents the Rating Background noise levels (RBLs) calculated from the logger. The RBL for each period was calculated in accordance with the methodology detailed in the QLD EPA guideline “Planning for noise control”. Graphical presentation of the measured noise levels is presented in the Appendix C.

Background Noise Descriptor	Time Period	Measured Level dB(A)
RBL Daytime	7am to 6pm	42
RBL Evening	6pm to 10pm	39
RBL Late Evening	10pm to 11pm	38
RBL Night-time	10pm to 7am	31

Table 1: Rating Background noise levels calculated from measured background noise levels.

4.0 NOISE ASSESSMENT CRITERION

There is no set criterion set out in Section SC6.5.3.2 "*Acoustic Assessment Report*" of Bundaberg Regional Council's Planning Scheme 2015, however, reference is made to the Environmental Protection Act 1994 and Environmental Protection (Noise) Policy 1997 (EPP Noise). The EPP (Noise) 1997 has been superseded therefore the proposed development has been assessed against the specific noise limits pursuant to the Environmental Protection (Noise) Policy 2019 to ensure the proposed development meets the requirements of the Environmental Protection Act 1994 (as amended).

Section 6 of the Environmental Protection (Noise) Policy 2019 provides the following framework for environmental values to be enhanced or protected:

6 Environmental values

The environmental values to be enhanced or protected under this policy are—

- (a) the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and
- (b) the qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following—
 - (i) sleep;
 - (ii) study or learn;
 - (iii) be involved in recreation, including relaxation and conversation; and
- (c) the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

Section 9 of the Environmental Protection (Noise) Policy 2019 provides the following framework for management intent for noise:

9 Management intent for noise

- (1) This section states the management intent for an activity involving noise that affects, or may affect, an environmental value to be enhanced or protected under this policy.

Note—

See section 35 of the *Environmental Protection Regulation 2019*.

- (2) To the extent it is reasonable to do so, noise must be dealt with in a way that ensures—
 - (a) the noise does not have any adverse effect, or potential adverse effect, on an environmental value under this policy; and
 - (b) background creep in an area or place is prevented or minimised.
- (3) Despite subsection (2)(b), if the acoustic quality objectives for an area or place are not being achieved or maintained, the noise experienced in the area or place must, to the extent it is reasonable to do so, be dealt with in a way that progressively improves the acoustic environment of the area or place.
- (4) In this section—

background creep, for noise in an area or place, means a gradual increase in the total amount of background noise in the area or place as measured under the document called the 'Noise measurement manual' published on the department's website.

Schedule 1 of the Environmental Protection (Noise) Policy 2019 provides the following specific “Acoustic Quality Objectives” to ensure that the above is achieved:

Column 1	Column 2	Column 3			Column 4
Sensitive receptor	Time of day	Acoustic quality objectives (measured at the receptor) dB(A)			Environmental value
		L _{Aeq,adj,1hr}	L _{A10,adj,1hr}	L _{A1,adj,1hr}	
residence (for outdoors)	daytime and evening	50	55	65	health and wellbeing
residence (for indoors)	daytime and evening	35	40	45	health and wellbeing
	night-time	30	35	40	health and wellbeing, in relation to the ability to sleep

Table 2: Criterion from Schedule 1 of the Environmental Protection (Noise) Policy 2019.

It is noted that the EPP Noise 2019 provides no numeric criteria for control of background creep. For this reason, we have applied the previous criteria applied under the EPP Noise 2008, as follows. Based upon the measured RBL levels presented in Section 3.3, the “Background Creep” criterion (as previously defined under the Environmental Protection (Noise) Policy 2008) equates to the following levels at the nearest offsite receivers:

Time Varying Noise Source	Noise Limit, SPL dB(A) L _{eq}
Day 7am to 6pm	47 (RBL level 42 + 5 dB)
Evening 6pm to 10pm	44 (RBL level 39 + 5 dB)
Late Evening 10pm to 11pm	43 (RBL level 38 + 5 dB)
Night-time 10pm to 6am	36 (RBL level 31 + 5 dB)
Continuous Noise Source	Noise Limit, SPL dB(A) L ₉₀
Day 7am to 6pm	42 (RBL level 42 + 0 dB)
Evening 6pm to 10pm	39 (RBL level 39 + 0 dB)
Late Evening 10pm to 11pm	38 (RBL level 38 + 0 dB)
Night-time 10pm to 6am	31 (RBL level 31 + 0 dB)

Table 3: Noise limit criterion for “Background Creep”.

The above criteria has been accepted by Bundaberg Regional Council in 2019 for a Fast Food outlet in East Bundaberg, and student accommodation in the Bundaberg CBD.

5.0 PREDICTED ONSITE ACTIVITY NOISE IMPACTS

5.1 Stage 1 Predicted Noise Emissions

RMA Engineering provided a traffic generation rates of 65 movements in and 65 movements out per peak hour for Stage 1. The generation rates have been used for modelling daytime and evening car movements (as shown in the point calculation sheets presented in Appendix C).

All noise source levels used in the assessment have been collected from similar assessments. All noise levels assessed under the "Acoustic Quality Objectives" criterion have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – "Acoustics-Description and measurement of environmental noise".

The following noise source levels would typically occur as part of the proposed Stage 1 uses and have been assessed within this report.

Activity / Noise Source	Assumed Duration (secs.)	Event Noise Level, SPL dB(A) @ 1m			
		L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
Car door closures	1.5	75	80*	82*	85*
Car engine start-ups	3	73	73	74	75
Car movements in – RMA Traffic rate	22	68	68	70	73
Car movements out – RMA Traffic rate	22	68	68	70	73
Truck engine start-ups at loading bay	3	78	78	81	83
Truck movements	45	87	87	89	90
Truck with refrigeration unit at loading bay	900	81	81	82	83
Truck airbrakes	2	90	95*	103*	107*
Deliveries at loading bay	900	75	80*	85*	87*
Group of people talking outside	600	62	62	70	73
Waste collection at loading bay	180	92	97*	102*	107*
Alfresco Dining	720	75	75	78	82

* Denotes + 5 dB correction for impulsiveness in accordance with AS1055. ** Denotes + 5 dB correction for tonality in accordance with AS1055.

Table 4: Typical noise source levels associated with the proposed Stage 1 uses.

With regards to the L_{A10} 1hr and L_{A01} 1hr levels, in many cases, particularly during the night-time period, noise events such as car door closures may not register as L_{A10} or L_{A01} levels if the events do not occur for 10% or 1% of the time period respectively. For example, a 1 second event would have to occur 360 times during a one hour period to register as an L_{A10}, and 36 times during a one hour period to register as an L_{A01} as these noise descriptors are statistically defined. If the events do not occur for the minimum number of iterations (or time period) we have presented the results as "N/A" in Table 5.

For the L_{Aeq} levels we have presented both the adjusted 15 minute duration and also the adjusted one hour duration. For assessment of the “Background Creep” criterion we have adopted the L_{Aeq} 15 minute duration levels.

Based upon the location of the onsite activities in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 5.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development. For point source calculations refer to Appendix C.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L_{eq} 15 min	L_{eq} 1hr	L_{10} 1hr	L_{01} 1hr	L_{eq} 1hr	L_{10} 1hr	L_{01} 1hr
R1: Existing single-storey dwellings to the north							
Car door closures at building (DAY)	20	25	N/A	46	17	N/A	38
Car door closures at bowser (DAY)	23	28	N/A	47	21	N/A	39
Car door closures at building (NIGHT)	15	19	N/A	N/A	<15	N/A	N/A
Car door closures at bowser (NIGHT)	17	21	N/A	N/A	<15	N/A	N/A
Car engine starts at building (DAY)	19	18	N/A	36	<15	N/A	28
Car engine starts at bowser (DAY)	23	21	N/A	37	<15	N/A	29
Car engine starts at building (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts at bowser (NIGHT)	15	<15	N/A	N/A	<15	N/A	N/A
Car movement to site (DAY)	24	24	30	33	16	22	25
Car movement from site (DAY)	27	27	33	36	20	26	29
Car movement to site (NIGHT)	19	18	N/A	33	<15	N/A	25
Car movement from site (NIGHT)	22	21	N/A	36	<15	N/A	29
Truck engine starts loading bay	15	17	N/A	N/A	<15	N/A	N/A
Truck movement to site	37	34	N/A	50	26	N/A	42
Truck movement from site	40	37	N/A	53	30	N/A	46
Trucks with refrigeration unit	43	40	44	45	32	36	37
Truck airbrakes hard stand	31	35	N/A	N/A	28	N/A	N/A
Truck airbrakes loading bay	28	30	N/A	N/A	22	N/A	N/A
Deliveries at loading bay	37	42	47	49	34	39	41
Group of people talking outside	21	21	31	34	<15	24	27
Waste collection of metal bin	47	46	N/A	69	38	N/A	61
Alfresco dining	34	39	43	47	31	35	39
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 5: Predicted Stage 1 short duration noise impact levels at noise sensitive receivers.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R2: Future dwellings to the immediate north (assumed as single-storey)							
Car door closures at building (DAY)	26	31	N/A	52	23	N/A	44
Car door closures at bowser (DAY)	30	35	N/A	53	27	N/A	46
Car door closures at building (NIGHT)	21	25	N/A	N/A	17	N/A	N/A
Car door closures at bowser (NIGHT)	24	28	N/A	N/A	20	N/A	N/A
Car engine starts at building (DAY)	25	24	N/A	42	16	N/A	34
Car engine starts at bowser (DAY)	29	28	N/A	43	20	N/A	36
Car engine starts at building (NIGHT)	20	18	N/A	N/A	<15	N/A	N/A
Car engine starts at bowser (NIGHT)	21	20	N/A	N/A	<15	N/A	N/A
Car movement to site (DAY)	29	29	35	38	21	27	30
Car movement from site (DAY)	36	36	42	45	28	34	37
Car movement to site (NIGHT)	24	22	N/A	38	15	N/A	30
Car movement from site (NIGHT)	30	29	N/A	45	22	N/A	37
Truck engine starts loading bay	21	23	N/A	N/A	15	N/A	N/A
Truck movement to site	42	39	N/A	55	31	N/A	47
Truck movement from site	49	46	N/A	62	38	N/A	54
Trucks with refrigeration unit	49	46	50	51	38	42	43
Truck airbrakes hard stand	40	44	N/A	N/A	36	N/A	N/A
Truck airbrakes loading bay	34	36	N/A	N/A	29	N/A	N/A
Deliveries at loading bay	43	48	53	55	40	45	47
Group of people talking outside	27	27	37	40	20	29	32
Waste collection of metal bin	53	52	N/A	75	44	N/A	67
Alfresco dining	38	43	47	51	36	40	44
R3: Existing single-storey dwellings to the east							
Car door closures at building (DAY)	<15	<15	N/A	26	<15	N/A	19
Car door closures at bowser (DAY)	<15	18	N/A	36	<15	N/A	28
Car door closures at building (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car door closures at bowser (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts at building (DAY)	<15	<15	N/A	16	<15	N/A	<15
Car engine starts at bowser (DAY)	<15	<15	N/A	26	<15	N/A	18
Car engine starts at building (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts at bowser (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car movement to site (DAY)	15	15	21	24	<15	<15	17
Car movement from site (DAY)	15	15	21	24	<15	<15	17
Car movement to site (NIGHT)	<15	<15	N/A	24	<15	N/A	17
Car movement from site (NIGHT)	<15	<15	N/A	24	<15	N/A	17
Truck engine starts loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Truck movement to site	28	25	N/A	41	18	N/A	34
Truck movement from site	28	25	N/A	41	18	N/A	34
Trucks with refrigeration unit	33	30	34	35	22	26	27
Truck airbrakes hard stand	19	23	N/A	N/A	16	N/A	N/A
Truck airbrakes loading bay	18	20	N/A	N/A	<15	N/A	N/A
Deliveries at loading bay	27	32	37	39	24	29	31
Group of people talking outside	<15	<15	22	25	<15	<15	17
Waste collection of metal bin	37	36	N/A	59	28	N/A	51
Alfresco dining	26	31	35	39	23	27	31
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 5 (Cont.): Predicted Stage 1 short duration noise impact levels at noise sensitive receivers.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R4: Future dwellings to the immediate east (assumed as single-storey)							
Car door closures at building (DAY)	<15	16	N/A	37	<15	N/A	30
Car door closures at bowser (DAY)	22	27	N/A	46	20	N/A	38
Car door closures at building (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car door closures at bowser (NIGHT)	16	20	N/A	N/A	<15	N/A	N/A
Car engine starts at building (DAY)	<15	<15	N/A	27	<15	N/A	20
Car engine starts at bowser (DAY)	21	20	N/A	36	<15	N/A	28
Car engine starts at building (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts at bowser (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car movement to site (DAY)	26	26	32	35	18	24	27
Car movement from site (DAY)	25	25	31	34	17	23	26
Car movement to site (NIGHT)	21	19	N/A	35	<15	N/A	27
Car movement from site (NIGHT)	19	18	N/A	34	<15	N/A	26
Truck engine starts loading bay	15	17	N/A	N/A	<15	N/A	N/A
Truck movement to site	39	36	N/A	52	28	N/A	44
Truck movement from site	38	35	N/A	51	27	N/A	43
Trucks with refrigeration unit	43	40	44	45	32	36	37
Truck airbrakes hard stand	30	34	N/A	N/A	26	N/A	N/A
Truck airbrakes loading bay	28	30	N/A	N/A	23	N/A	N/A
Deliveries at loading bay	37	42	47	49	34	39	41
Group of people talking outside	24	24	33	36	16	26	29
Waste collection of metal bin	47	46	N/A	69	38	N/A	61
Alfresco dining	37	42	46	50	34	38	42
R5: Existing dwellings to the south across Rifle Range Road							
Car door closures at building (DAY)	24	29	N/A	50	22	N/A	43
Car door closures at bowser (DAY)	26	31	N/A	49	24	N/A	42
Car door closures at building (NIGHT)	20	23	N/A	N/A	16	N/A	N/A
Car door closures at bowser (NIGHT)	20	24	N/A	N/A	16	N/A	N/A
Car engine starts at building (DAY)	24	22	N/A	40	15	N/A	33
Car engine starts at bowser (DAY)	25	24	N/A	39	17	N/A	32
Car engine starts at building (NIGHT)	18	17	N/A	N/A	<15	N/A	N/A
Car engine starts at bowser (NIGHT)	17	16	N/A	N/A	<15	N/A	N/A
Car movement to site (DAY)	31	31	37	40	24	30	33
Car movement from site (DAY)	26	26	33	36	19	25	28
Car movement to site (NIGHT)	26	25	N/A	40	17	N/A	33
Car movement from site (NIGHT)	21	20	N/A	36	<15	N/A	28
Truck engine starts loading bay	15	17	N/A	N/A	<15	N/A	N/A
Truck movement to site	44	41	N/A	57	34	N/A	50
Truck movement from site	40	36	N/A	53	29	N/A	45
Trucks with refrigeration unit	43	40	44	45	32	36	37
Truck airbrakes hard stand	35	39	N/A	N/A	32	N/A	N/A
Truck airbrakes loading bay	28	30	N/A	N/A	23	N/A	N/A
Deliveries at loading bay	37	42	47	49	34	39	41
Group of people talking outside	27	27	37	40	20	29	32
Waste collection of metal bin	47	46	N/A	69	38	N/A	61
Alfresco dining	39	44	48	52	37	40	44
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 5 (Cont.): Predicted Stage 1 short duration noise impact levels at noise sensitive receivers.

Continuous activity noise source levels have been compiled from similar previous investigations. All noise levels have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”.

It should be stressed that mechanical plant selections have yet to be undertaken, for this reason; we have applied noise levels from other similar commercial sites as follows:

- Rooftop kitchen exhaust fans each generating 62 dB(A) at 3m.
- Rooftop toilet exhaust fans each generating 52 dB(A) at 3m.
- Eastern services yard air conditioner units each generating 60 dB(A) at 3m.
- Eastern services yard refrigeration compressor units each generating 62 dB(A) at 3m.

Based upon the assumed locations of the onsite mechanical plant in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 6.

As a worst case scenario we have assumed that all mechanical plant in Stage 1 will be running at the same time.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development.

For point source calculations refer to Appendix C.

Continuous Noise Source	Predicted Noise Impact, SPL L ₉₀ dB(A)	
	Nearest Façade / Outdoor Private Space	Inside Windows Open
R1: Existing single-storey dwellings to the north		
Combined mech. plant	26	19
R2: Future dwellings to the immediate north (assumed as single-storey)		
Combined mech. plant	31	24
R3: Existing single-storey dwellings to the east		
Combined mech. plant	18	<15
R4: Future dwellings to the immediate east (assumed as single-storey)		
Combined mech. plant	29	21
R5: Existing dwellings to the south across Rifle Range Road		
Combined mech. plant	30	22
Daytime / Evening Criterion	42 / 39	35
Late Evening Criterion 10pm – 11pm	38	30
Night-time Criterion	31	30

Table 6: Predicted Stage 1 continuous noise impact levels at noise sensitive receivers.

5.2 Stage 2 Predicted Noise Emissions

RMA Engineering provided a traffic generation rates of 40 movements in and 40 movements out per peak hour for Stage 2. The generation rates have been used for modelling daytime and evening car movements (as shown in the point calculation sheets presented in Appendix C).

All noise source levels used in the assessment have been collected from similar assessments. All noise levels assessed under the “Acoustic Quality Objectives” criterion have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”.

The following noise source levels would typically occur as part of the proposed Stage 2 uses and have been assessed within this report.

Activity / Noise Source	Assumed Duration (secs.)	Event Noise Level, SPL dB(A) @ 1m			
		L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
Car door closures	1.5	75	80*	82*	85*
Car engine start-ups	3	73	73	74	75
Car movements in – RMA Traffic rate	22	68	68	70	73
Car movements out – RMA Traffic rate	22	68	68	70	73
Truck engine start-ups at loading bay	3	78	78	81	83
Truck movements	80	87	87	89	90
Truck with refrigeration unit at loading bay	900	81	81	82	83
Truck airbrakes	2	90	95*	103*	107*
Deliveries at loading bay	900	75	80*	85*	87*
Group of people talking outside	600	62	62	70	73
Waste collection	180	92	97*	102*	107*
Alfresco Dining	720	75	75	78	82

* Denotes + 5 dB correction for impulsiveness in accordance with AS1055. ** Denotes + 5 dB correction for tonality in accordance with AS1055.

Table 7: Typical noise source levels associated with the proposed Stage 2 uses.

With regards to the L_{A10} 1hr and L_{A01} 1hr levels, in many cases, particularly during the night-time period, noise events such as car door closures may not register as L_{A10} or L_{A01} levels if the events do not occur for 10% or 1% of the time period respectively. For example, a 1 second event would have to occur 360 times during a one hour period to register as an L_{A10}, and 36 times during a one hour period to register as an L_{A01} as these noise descriptors are statistically defined. If the events do not occur for the minimum number of iterations (or time period) we have presented the results as “N/A” in Table 8.

For the L_{Aeq} levels we have presented both the adjusted 15 minute duration and also the adjusted one hour duration. For assessment of the "Background Creep" criterion we have adopted the L_{Aeq} 15 minute duration levels.

Based upon the location of the onsite activities in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 8.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development. For point source calculations refer to Appendix C.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L_{eq} 15 min	L_{eq} 1hr	L_{10} 1hr	L_{01} 1hr	L_{eq} 1hr	L_{10} 1hr	L_{01} 1hr
R1: Existing single-storey dwellings to the north							
Car door closures near carpark (DAY)	23	28	N/A	48	21	N/A	40
Car door closures far carpark (DAY)	21	26	N/A	45	18	N/A	38
Car door closures near carpark (NIGHT)	18	22	N/A	N/A	15	N/A	N/A
Car door closures far carpark (NIGHT)	16	20	N/A	N/A	<15	N/A	N/A
Car engine starts near carpark (DAY)	21	20	N/A	38	<15	N/A	30
Car engine starts far carpark (DAY)	18	17	N/A	35	<15	N/A	28
Car engine starts near carpark (NIGHT)	18	17	N/A	38	<15	N/A	30
Car engine starts far carpark (NIGHT)	15	<15	N/A	35	<15	N/A	28
Car movement to site (DAY)	24	24	32	35	17	25	28
Car movement from site (DAY)	22	22	30	33	<15	22	25
Car movement to site (NIGHT)	21	20	N/A	35	<15	N/A	28
Car movement from site (NIGHT)	19	18	N/A	33	<15	N/A	25
Truck engine starts loading bay	15	17	N/A	N/A	<15	N/A	N/A
Truck movement to site	41	38	N/A	51	30	N/A	44
Truck movement from site	41	35	N/A	51	27	N/A	44
Truck airbrakes hard stand	30	33	N/A	N/A	26	N/A	N/A
Truck airbrakes loading bay	29	31	N/A	N/A	23	N/A	N/A
Deliveries at loading bay	37	42	47	49	35	40	42
Group of people talking outside	21	21	31	34	<15	23	26
Trucks with refrigeration unit	43	40	44	45	33	37	38
Waste collection of metal bin	47	46	N/A	69	39	N/A	42
Alfresco dining	31	36	40	44	29	33	37
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 8: Predicted Stage 2 short duration noise impact levels at noise sensitive receivers.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R2: Future dwellings to the immediate north (assumed as single-storey)							
Car door closures near carpark (DAY)	31	36	N/A	55	28	N/A	48
Car door closures far carpark (DAY)	26	31	N/A	50	23	N/A	43
Car door closures near carpark (NIGHT)	26	30	N/A	N/A	22	N/A	N/A
Car door closures far carpark (NIGHT)	21	25	N/A	N/A	17	N/A	N/A
Car engine starts near carpark (DAY)	28	27	N/A	45	20	N/A	38
Car engine starts far carpark (DAY)	23	22	N/A	40	15	N/A	33
Car engine starts near carpark (NIGHT)	25	24	N/A	45	17	N/A	38
Car engine starts far carpark (NIGHT)	20	19	N/A	40	<15	N/A	33
Car movement to site (DAY)	31	31	39	42	24	32	35
Car movement from site (DAY)	27	27	35	38	19	27	30
Car movement to site (NIGHT)	28	27	N/A	42	19	N/A	35
Car movement from site (NIGHT)	24	22	N/A	38	15	N/A	30
Truck engine starts loading bay	22	24	N/A	N/A	17	N/A	N/A
Truck movement to site	47	44	N/A	57	36	N/A	50
Truck movement from site	47	41	N/A	57	33	N/A	50
Truck airbrakes hard stand	35	39	N/A	N/A	32	N/A	N/A
Truck airbrakes loading bay	35	37	N/A	N/A	30	N/A	N/A
Deliveries at loading bay	44	49	54	56	41	46	48
Group of people talking outside	27	27	37	40	19	29	32
Trucks with refrigeration unit	50	47	51	52	39	43	44
Waste collection of metal bin	54	53	N/A	76	45	N/A	68
Alfresco dining	35	40	44	48	33	37	41
R3: Existing single-storey dwellings to the east							
Car door closures near carpark (DAY)	<15	<15	N/A	25	<15	N/A	18
Car door closures far carpark (DAY)	<15	<15	N/A	29	<15	N/A	21
Car door closures near carpark (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car door closures far carpark (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts near carpark (DAY)	<15	<15	N/A	15	<15	N/A	<15
Car engine starts far carpark (DAY)	<15	<15	N/A	19	<15	N/A	<15
Car engine starts near carpark (NIGHT)	<15	<15	N/A	15	<15	N/A	<15
Car engine starts far carpark (NIGHT)	<15	<15	N/A	19	<15	N/A	<15
Car movement to site (DAY)	<15	<15	<15	<15	<15	<15	<15
Car movement from site (DAY)	<15	<15	<15	<15	<15	<15	<15
Car movement to site (NIGHT)	<15	<15	N/A	<15	<15	N/A	<15
Car movement from site (NIGHT)	<15	<15	N/A	<15	<15	N/A	<15
Truck engine starts loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Truck movement to site	22	19	N/A	33	<15	N/A	25
Truck movement from site	22	16	N/A	33	<15	N/A	25
Truck airbrakes hard stand	<15	15	N/A	N/A	<15	N/A	N/A
Truck airbrakes loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Deliveries at loading bay	18	23	28	30	15	20	22
Group of people talking outside	<15	<15	<15	17	<15	<15	<15
Trucks with refrigeration unit	24	21	25	26	<15	18	19
Waste collection of metal bin	39	38	N/A	61	31	N/A	54
Alfresco dining	<15	16	20	24	<15	<15	17
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 8 (Cont.): Predicted Stage 2 short duration noise impact levels at noise sensitive receivers.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R4: Future dwellings to the immediate east (assumed as single-storey)							
Car door closures near carpark (DAY)	29	34	N/A	53	26	N/A	45
Car door closures far carpark (DAY)	<15	18	N/A	37	<15	N/A	29
Car door closures near carpark (NIGHT)	24	27	N/A	N/A	20	N/A	N/A
Car door closures far carpark (NIGHT)	<15	<15	N/A	N/A	<15	N/A	N/A
Car engine starts near carpark (DAY)	26	25	N/A	43	17	N/A	35
Car engine starts far carpark (DAY)	<15	<15	N/A	27	<15	N/A	19
Car engine starts near carpark (NIGHT)	23	22	N/A	43	<15	N/A	35
Car engine starts far carpark (NIGHT)	<15	<15	N/A	27	<15	N/A	19
Car movement to site (DAY)	17	17	25	28	<15	18	21
Car movement from site (DAY)	<15	<15	20	23	<15	<15	15
Car movement to site (NIGHT)	<15	<15	N/A	28	<15	N/A	21
Car movement from site (NIGHT)	<15	<15	N/A	23	<15	N/A	15
Truck engine starts loading bay	18	20	N/A	N/A	<15	N/A	N/A
Truck movement to site	44	41	N/A	55	34	N/A	47
Truck movement from site	44	38	N/A	55	31	N/A	47
Truck airbrakes hard stand	33	37	N/A	N/A	29	N/A	N/A
Truck airbrakes loading bay	31	33	N/A	N/A	26	N/A	N/A
Deliveries at loading bay	40	45	50	52	37	42	44
Group of people talking outside	19	19	29	32	<15	21	24
Trucks with refrigeration unit	46	43	47	48	35	40	41
Waste collection of metal bin	66	65	N/A	88	57	N/A	80
Alfresco dining	25	30	34	38	22	26	30
R5: Existing dwellings to the south across Rifle Range Road							
Car door closures near carpark (DAY)	30	35	N/A	54	27	N/A	47
Car door closures far carpark (DAY)	25	30	N/A	49	22	N/A	42
Car door closures near carpark (NIGHT)	25	28	N/A	N/A	21	N/A	N/A
Car door closures far carpark (NIGHT)	20	23	N/A	N/A	16	N/A	N/A
Car engine starts near carpark (DAY)	27	26	N/A	44	19	N/A	37
Car engine starts far carpark (DAY)	22	21	N/A	39	<15	N/A	32
Car engine starts near carpark (NIGHT)	24	23	N/A	44	16	N/A	37
Car engine starts far carpark (NIGHT)	19	18	N/A	39	<15	N/A	32
Car movement to site (DAY)	32	32	40	43	24	32	35
Car movement from site (DAY)	26	26	34	37	18	27	30
Car movement to site (NIGHT)	29	27	N/A	43	20	N/A	35
Car movement from site (NIGHT)	23	22	N/A	37	<15	N/A	30
Truck engine starts loading bay	<15	16	N/A	N/A	<15	N/A	N/A
Truck movement to site	49	46	N/A	60	39	N/A	52
Truck movement from site	49	46	N/A	60	39	N/A	52
Truck airbrakes hard stand	38	42	N/A	N/A	34	N/A	N/A
Truck airbrakes loading bay	27	29	N/A	N/A	22	N/A	N/A
Deliveries at loading bay	36	41	46	48	33	38	40
Group of people talking outside	29	29	39	42	21	31	34
Trucks with refrigeration unit	42	39	43	44	31	35	36
Waste collection of metal bin	46	45	N/A	68	37	N/A	60
Alfresco dining	43	48	52	56	40	44	48
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45
Late Evening Criterion 10pm – 11pm	43	NA	NA	NA	30	35	40
Night Criterion	36	NA	NA	NA	30	35	40

Table 8 (Cont.): Predicted Stage 2 short duration noise impact levels at noise sensitive receivers.

Continuous activity noise source levels have been compiled from similar previous investigations. All noise levels have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”.

It should be stressed that mechanical plant selections have yet to be undertaken, for this reason; we have applied noise levels from other similar commercial sites as follows:

- Rooftop kitchen exhaust fans at café / restaurant each generating 62 dB(A) at 3m.
- Rooftop toilet exhaust fans at café / restaurant each generating 52 dB(A) at 3m.
- Rooftop air conditioner units each generating 60 dB(A) at 3m.
- Rooftop refrigeration compressor units each generating 62 dB(A) at 3m.

Based upon the assumed locations of the onsite mechanical plant in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 9.

As a worst case scenario we have assumed that all mechanical plant in Stage 2 will be running at the same time.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development.

For point source calculations refer to Appendix C.

Continuous Noise Source	Predicted Noise Impact, SPL L ₉₀ dB(A)	
	Nearest Façade / Outdoor Private Space	Inside Windows Open
R1: Existing single-storey dwellings to the north		
Combined mech. plant	26	18
R2: Future dwellings to the immediate north (assumed as single-storey)		
Combined mech. plant	31	23
R3: Existing single storey dwellings to the east		
Combined mech. plant	20	<15
R4: Future dwellings to the immediate east (assumed as single-storey)		
Combined mech. plant	34	27
R5: Existing dwellings to the south across Rifle Range Road		
Combined mech. plant	32	25
Daytime / Evening Criterion	42 / 39	35
Late Evening Criterion 10pm – 11pm	38	30
Night-time Criterion	31	30

Table 9: Predicted Stage 2 continuous noise impact levels at noise sensitive receivers.

5.3 Stage 3 Predicted Noise Emissions

RMA Engineering provided a traffic generation rates of 129 movements in and 129 movements out per peak hour for Stage 3. The generation rates have been used for modelling daytime and evening car movements (as shown in the point calculation sheets presented in Appendix C).

All noise source levels used in the assessment have been collected from similar assessments. All noise levels assessed under the “Acoustic Quality Objectives” criterion have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”.

The following noise source levels would typically occur as part of the proposed Stage 3 uses and have been assessed within this report.

Activity / Noise Source	Assumed Duration (secs.)	Event Noise Level, SPL dB(A) @ 1m			
		L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
Car door closures	1.5	75	80*	82*	85*
Car engine start-ups	3	73	73	74	75
Car movements in – RMA Traffic rate	35	68	68	70	73
Car movements out – RMA Traffic rate	35	68	68	70	73
Truck engine start-ups at loading bay	3	78	78	81	83
Truck movements	85	87	87	89	90
Truck with refrigeration unit at loading bay	900	81	81	82	83
Truck airbrakes	2	90	95*	103*	107*
Deliveries at loading bay	900	75	80*	85*	87*
Group of people talking outside	600	62	62	70	73
Waste collection	180	92	97*	102*	107*

* Denotes + 5 dB correction for impulsiveness in accordance with AS1055. ** Denotes + 5 dB correction for tonality in accordance with AS1055.

Table 10: Typical noise source levels associated with the proposed Stage 3 uses.

With regards to the L_{A10} 1hr and L_{A01} 1hr levels, in many cases, particularly during the night-time period, noise events such as car door closures may not register as L_{A10} or L_{A01} levels if the events do not occur for 10% or 1% of the time period respectively. For example, a 1 second event would have to occur 360 times during a one hour period to register as an L_{A10}, and 36 times during a one hour period to register as an L_{A01} as these noise descriptors are statistically defined. If the events do not occur for the minimum number of iterations (or time period) we have presented the results as “N/A” in Table 10.

For the L_{Aeq} levels we have presented both the adjusted 15 minute duration and also the adjusted one hour duration. For assessment of the “Background Creep” criterion we have adopted the L_{Aeq} 15 minute duration levels.

Based upon the location of the onsite activities in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 10.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development. For point source calculations refer to Appendix C.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R1: Existing single-storey dwellings to the north							
Car door closures near carpark	18	23	N/A	39	15	N/A	31
Car door closures far carpark	16	21	N/A	37	<15	N/A	30
Car engine starts near carpark	16	16	N/A	29	<15	N/A	21
Car engine starts far carpark	<15	<15	N/A	27	<15	N/A	20
Car movement to site	21	21	23	26	<15	16	19
Car movement from site	19	19	21	24	<15	<15	16
Truck engine starts loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Truck movement to site	33	30	N/A	44	23	N/A	36
Truck movement from site	33	30	N/A	44	23	N/A	36
Truck airbrakes hard stand	23	28	N/A	N/A	21	N/A	N/A
Truck airbrakes loading bay	21	26	N/A	N/A	18	N/A	N/A
Deliveries at loading bay	26	31	36	38	24	29	31
Group of people talking outside	<15	<15	24	27	<15	16	19
Trucks with refrigeration unit	33	30	34	35	23	27	28
Waste collection	46	48	63	68	41	56	61
R2: Future dwellings to the immediate north (assumed as single-storey)							
Car door closures near carpark	22	27	N/A	44	20	N/A	36
Car door closures far carpark	17	22	N/A	38	15	N/A	31
Car engine starts near carpark	20	20	N/A	34	<15	N/A	26
Car engine starts far carpark	15	15	N/A	28	<15	N/A	21
Car movement to site	24	24	26	29	17	19	22
Car movement from site	19	19	21	24	<15	<15	16
Truck engine starts loading bay	21	23	N/A	N/A	15	N/A	N/A
Truck movement to site	42	39	N/A	53	32	N/A	45
Truck movement from site	42	39	N/A	53	32	N/A	45
Truck airbrakes hard stand	32	37	N/A	N/A	30	N/A	N/A
Truck airbrakes loading bay	34	39	N/A	N/A	31	N/A	N/A
Deliveries at loading bay	40	45	50	52	37	42	44
Group of people talking outside	19	19	29	32	<15	21	24
Trucks with refrigeration unit	46	43	47	48	35	39	40
Waste collection	57	59	74	79	52	67	72
R3: Existing single-storey dwellings to the east							
Car door closures near carpark	<15	<15	N/A	29	<15	N/A	21
Car door closures far carpark	<15	<15	N/A	28	<15	N/A	21
Car engine starts near carpark	<15	<15	N/A	19	<15	N/A	<15
Car engine starts far carpark	<15	<15	N/A	18	<15	N/A	<15
Car movement to site	<15	<15	<15	16	<15	<15	<15
Car movement from site	<15	<15	<15	15	<15	<15	<15
Truck engine starts loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Truck movement to site	23	20	N/A	34	<15	N/A	26
Truck movement from site	23	20	N/A	34	<15	N/A	26
Truck airbrakes hard stand	<15	18	N/A	N/A	<15	N/A	N/A
Truck airbrakes loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Deliveries at loading bay	<15	18	23	25	<15	15	17
Group of people talking outside	<15	<15	<15	15	<15	<15	<15
Trucks with refrigeration unit	19	16	20	21	<15	<15	<15
Waste collection	30	32	47	52	24	39	44
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45

Table 10: Predicted Stage 3 short duration noise impact levels at noise sensitive receivers.

Fluctuating Noise Source	Predicted Noise Impact, SPL dB(A)						
	Nearest Façade / Outdoor Private Space				Inside Windows Open		
	L _{eq} 15 min	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr	L _{eq} 1hr	L ₁₀ 1hr	L ₀₁ 1hr
R4: Future dwellings to the immediate east (assumed as single-storey)							
Car door closures near carpark	18	23	N/A	39	15	N/A	31
Car door closures far carpark	<15	17	N/A	33	<15	N/A	26
Car engine starts near carpark	16	16	N/A	29	<15	N/A	21
Car engine starts far carpark	<15	<15	N/A	23	<15	N/A	16
Car movement to site	21	21	23	26	<15	15	18
Car movement from site	17	17	19	22	<15	<15	<15
Truck engine starts loading bay	<15	<15	N/A	N/A	<15	N/A	N/A
Truck movement to site	28	25	N/A	39	18	N/A	31
Truck movement from site	28	25	N/A	39	18	N/A	31
Truck airbrakes hard stand	18	23	N/A	N/A	16	N/A	N/A
Truck airbrakes loading bay	21	26	N/A	N/A	18	N/A	N/A
Deliveries at loading bay	26	31	36	38	24	29	31
Group of people talking outside	28	28	38	41	21	30	33
Trucks with refrigeration unit	32	29	33	34	22	26	27
Waste collection	44	46	61	66	38	53	58
R5: Existing dwellings to the south across Rifle Range Road							
Car door closures near carpark	25	30	N/A	46	22	N/A	39
Car door closures far carpark	23	28	N/A	45	21	N/A	37
Car engine starts near carpark	23	23	N/A	36	15	N/A	29
Car engine starts far carpark	21	21	N/A	35	<15	N/A	27
Car movement to site	29	29	31	34	22	24	27
Car movement from site	28	28	30	33	20	22	25
Truck engine starts loading bay	15	17	N/A	N/A	<15	N/A	N/A
Truck movement to site	40	37	N/A	50	29	N/A	42
Truck movement from site	40	37	N/A	50	29	N/A	42
Truck airbrakes hard stand	29	34	N/A	N/A	27	N/A	N/A
Truck airbrakes loading bay	28	33	N/A	N/A	25	N/A	N/A
Deliveries at loading bay	33	38	43	45	31	36	38
Group of people talking outside	22	22	31	34	<15	24	27
Trucks with refrigeration unit	39	36	40	41	29	33	34
Waste collection	44	46	61	66	38	53	58
Applicable Criterion	B. Creep		Acoustic Quality Objectives				
Daytime / Evening Criterion	47 / 44	50	55	65	35	40	45

Table 10 (Cont.): Predicted Stage 3 short duration noise impact levels at noise sensitive receivers.

Continuous activity noise source levels have been compiled from similar previous investigations. All noise levels have been corrected for impulsiveness or tonality as per Australian Standard AS 1055:1997 – “Acoustics-Description and measurement of environmental noise”.

It should be stressed that mechanical plant selections have yet to be undertaken, for this reason; we have applied noise levels from other similar commercial sites as follows:

- Rooftop toilet exhaust fans each generating 52 dB(A) at 3m.
- Rooftop air conditioner units each generating 60 dB(A) at 3m.
- Rooftop refrigeration compressor units each generating 62 dB(A) at 3m.

Based upon the assumed locations of the onsite mechanical plant in relation to the surrounding noise sensitive receivers (building façades, inside rooms with windows open and outside at the childcare play space areas), we predict the following noise impact levels as presented in Table 11.

As a worst case scenario we have assumed that all mechanical plant in Stage 3 will be running at the same time.

The predicted levels assume that the recommended treatments detailed in Section 6 are incorporated into the development.

For point source calculations refer to Appendix C.

Continuous Noise Source	Predicted Noise Impact, SPL L ₉₀ dB(A)	
	Nearest Façade / Outdoor Private Space	Inside Windows Open
R1: Existing single-storey dwellings to the north		
Combined mech. plant	26	18
R2: Future dwellings to the immediate north (assumed as single-storey)		
Combined mech. plant	39	32
R3: Existing single-storey dwellings to the east		
Combined mech. plant	<15	<15
R4: Future dwellings to the immediate east (assumed as single-storey)		
Combined mech. plant	39	32
R5: Existing dwellings to the south across Rifle Range Road		
Combined mech. plant	19	<15
Daytime / Evening Criterion	42 / 39	35

Table 11: Predicted Stage 3 continuous noise impact levels at noise sensitive receivers.

6.0 RECOMMENDED ACOUSTIC TREATMENTS

We recommend that the following acoustic treatments and management controls be incorporated into the development to mitigate onsite activity noise impacts:

- Hours of operation be limited to as follows:
 - Bulky Goods / Supermarket, standard commercial hours, 7am – 9pm 7 days per week.
 - Service Station 24 hours, 7 days per week.
 - Café / Restaurants 7am to 11pm, 7 days per week.
 - Bottle Shop in Specialty Shop 2, 10am to 10pm, 7 days per week.
 - Gym (self serve style) in Specialty Shop 5, 24 hours, 7 days per week.
 - Goods delivery and waste collection 7am to 6pm, 7 days per week.
- Construction of the acoustic barriers as detailed in Sketch 1 and Sketch 2 of Appendix A. Barriers are to be free of gaps and holes including between the base of the barriers and the ground. Typical materials include earth berms, 19mm lapped timber fence (40% overlap), 9mm FC sheet, toughened glass, Perspex, masonry, or a combination of the above (a minimum surface mass of 11kg/m²). To minimise visual impact to the future adjacent residential lots we recommend that the barrier/s be constructed of a combination of materials (i.e. standard 2.0m high masonry wall, with 1.75m high of Perspex above).
- Driveway and car parking areas be finished with surface coatings which prevent tyre squeal (an uncoated unpolished concrete or bitumen surface is acceptable).
- Drainage grating over trafficable areas be well secured to prevent rattling.
- Mechanical plant for the development be designed and installed to comply with the noise criterion presented in Section 4. As final plant selection has not been completed, an assessment of plant should be conducted during the design phase.
 - Based upon the assumed mechanical plant and source levels, outside condenser units and refrigeration compressors will likely require acoustic screens / enclosures and exhaust fans likely to require acoustic silencers / attenuators.
 - To minimise noise emissions and the acoustic treatment requirement, mechanical plant should be located as far as possible from the nearest offsite noise sensitive receivers, particularly the future residential uses to the immediate north and east.

7.0 DISCUSSION

The proposal is to construct a Mixed Use Commercial development over three stages. Each Stage has been assessed individually, with Stage 1 assessed in the absence of Stage 2 and 3 built structures; Stage 2 assessed in the absence of Stage 3 built structures (assumed Stage 1 is constructed); and Stage 3 assessed with both Stage 2 and Stage 3 structures constructed. Therefore, once Stage 3 is constructed, predicted noise impacts from Stages 1 and 2 will be reduced further at the northern and eastern receivers from those presented in Sections 5.1 and 5.2. As an indication, both the building shells and acoustic barrier treatments of Stages 2 and 3 would give a minimum 10 to 15 dB reduction to the northern and eastern offsite receivers to the levels presented in Sections 5.1. and 5.2.

For Stage 1, based upon the assumed onsite operations and recommended acoustic treatments and management controls, onsite activity noise emissions are predicted to impact the façades of the nearest offsite noise sensitive receivers generally within the relevant *"Acoustic Quality Objective"* criterion except for waste collection, truck movements, refrigeration trucks and alfresco dining. Noise emissions activities are predicted generally within the *"Background Creep"* criterion (which is based upon the measured background levels at the logger location) for the relevant period (i.e. deliveries within the daytime period between 7am and 6pm), except for waste collection, truck movements and refrigeration trucks at the future dwellings to the immediate north at 2 dB above the daytime *"Background Creep"* criterion. As noted above, once Stages 2 and 3 are constructed noise impacts from the service station are expected to be compliant with the *"Acoustic Quality Objective"* and *"Background Creep"* criterion at the northern and eastern receivers except for waste collection.

For Stage 2, based upon the assumed onsite operations and recommended acoustic treatments and management controls, onsite activity noise emissions are predicted to impact the façades of the nearest offsite noise sensitive receivers generally within the relevant *"Acoustic Quality Objective"* criterion except for waste collection, truck movements, refrigeration trucks, deliveries and alfresco dining. Noise emissions activities are predicted generally within the *"Background Creep"* criterion for the relevant period (i.e. deliveries within the daytime period between 7am and 6pm), except for waste collection, truck movements (at 2 dB above the criterion) and refrigeration trucks. As noted above, once Stage 3 is constructed noise impacts from the service station are expected to be compliant with the *"Acoustic Quality Objective"* and *"Background Creep"* criterion at the northern receivers except for waste collection.

For Stage 3, based upon the assumed onsite operations and recommended acoustic treatments and management controls, onsite activity noise emissions are predicted to impact the façades of the nearest offsite noise sensitive receivers within the relevant *"Acoustic Quality Objective"* criterion except for waste collection, and deliveries activities at 2 dB above the indoor *"Acoustic Quality Objective"* criterion at the future dwellings to the north. As the average person cannot typically detect a 3 dB variation in sound pressure level a 2 dB rise is unlikely to be detectable. Activities are predicted within the *"Background Creep"* criterion for the relevant period (i.e. deliveries within the daytime period between 7am and 6pm), except for waste collection.

To minimise the potential for annoyance we have recommended that deliveries and waste collection (the main predicted noise exceedances) be limited to the daytime period between 7am to 6pm. As waste collection and delivery activities are typically of short duration and of an infrequent nature such activities are unlikely to cause annoyance.

Further, to minimise overall amenity impact of the acoustic barriers on the adjacent receivers we have recommended that the barriers (i.e. eastern barrier between Stages 2 and 3B) be constructed of a combination of materials being a 2.0m high masonry wall (typical acoustic barrier height) with a transparent 1.75m high Perspex barrier above (overall total height of 3.75m). Further, for the northern acoustic barrier between Stages 3A and 3B we have recommended a kinked barrier, with a 2.0m boundary wall height and a further kinked section 1.75m in height (at a 45° degree incline away from the boundary). These treatments will lessen the overall amenity impact of the recommended acoustic barriers.

We have provided an indication of potential noise impact levels of likely onsite mechanical plant; although the levels are merely a guide as no plant selections have yet been completed. For this reason, additional more detailed assessment/s should be conducted upon determination of plant. Based upon the assumed mechanical plant and source levels, outside condenser units and refrigeration compressors are likely to require acoustic screens / enclosures and exhaust fans likely to require acoustic silencers / attenuators.

8.0 CONCLUSIONS

This report is in response to a request from Bargara Village Pty Ltd for an environmental noise impact assessment of a Material Change of Use for Shopping Centre, Service Station and Showroom.

This report is a revision to a previous assessment and is required to respond to the Item 1 of the Information Request from Bundaberg Regional Council dated 10th February 2021.

Overall, based upon the proposed layout of the development, onsite activities can be designed and constructed to achieve acceptable levels of the adopted criterion subject to acoustic treatments and management controls detailed in Section 6 of this report incorporated into the development.

Report Reviewed By:



JAY CARTER BSc
Director

Report Compiled by:



Matthew Lopez BEng
Consultant



APPENDIX A

Subject Site, Measurement Location, Surrounding Noise Sensitive Receivers and Acoustical Sketches

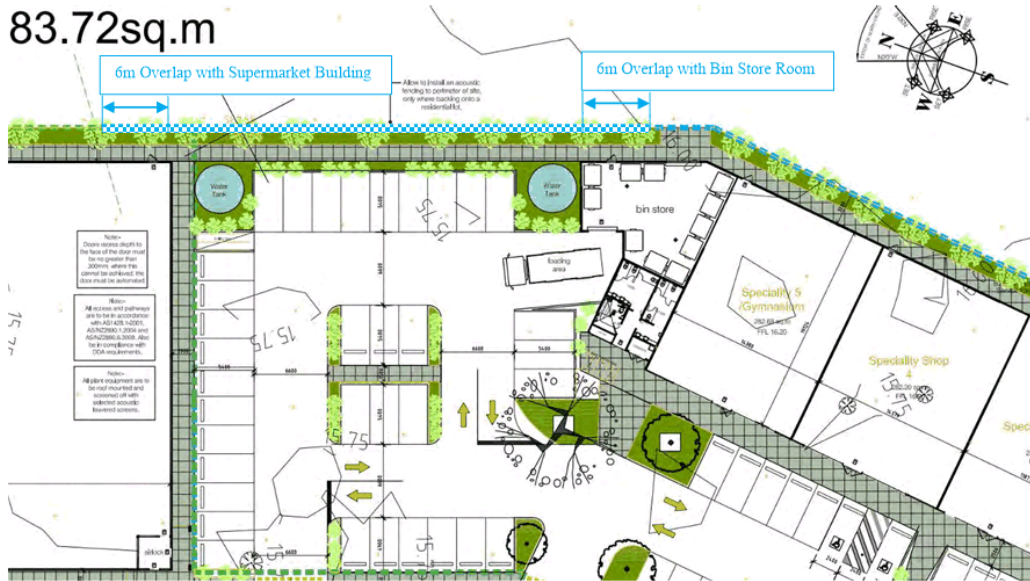
Figure No. 1: Subject Site Location (Google Maps).




Figure No. 2: Subject Site, Logger Location and Surrounding Noise Sensitive Receivers (QLD Globe).



Sketch No. 1: Stage 2 layout and recommended acoustic barrier treatments (Not to Scale).

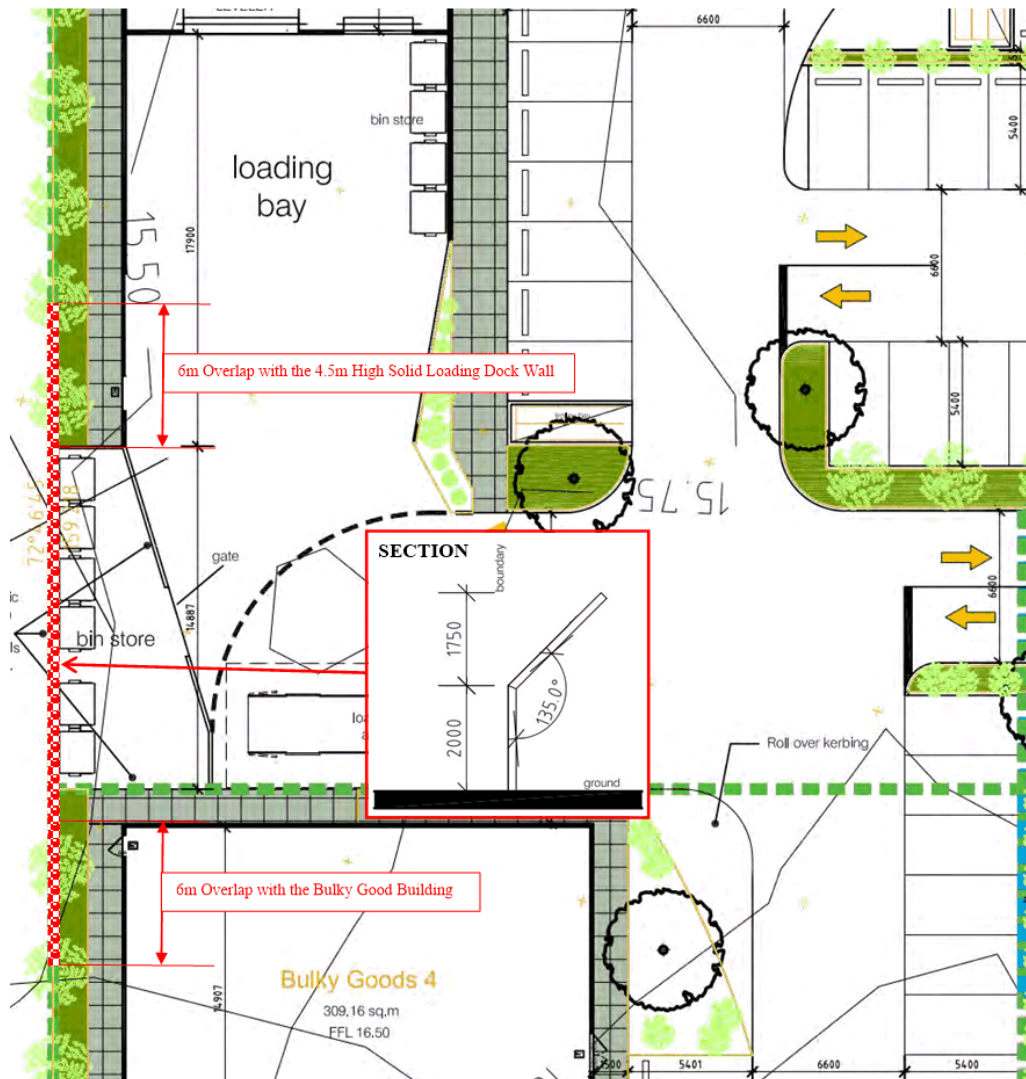


ACOUSTIC TREATMENT LEGEND


 Recommended 3.75m high acoustic barrier constructed above existing ground or the finished carpark hardstand, whichever is higher. To be constructed at Stage 2, given the adjacent carpark and loading dock form part of Stage 2.

Barriers are to be free of gaps and holes including between the base of the barriers and the ground. To minimise visual impact to the future adjacent residential lots we recommend that the barrier be constructed of a combination of 2.0m high masonry wall with 1.75m high of Perspex above (a minimum surface mass of 11kg/m² required).

Sketch No. 2: Stage 3 layout and recommended acoustic barrier treatments (Not to Scale).



ACOUSTIC TREATMENT LEGEND

 Recommended 3.75m high acoustic kinked barrier constructed above existing ground or the finished carpark hardstand, whichever is higher. The barrier is to connect with the proposed solid loading bay wall (eastern extent) and the Bulky Goods 4 building (western extent). To be constructed at Stage 3 works, given the adjacent loading docks form part of Stage 3.

Barriers are to be free of gaps and holes including between the base of the barriers and the ground. Typical materials include earth berms, 19mm lapped timber fence (40% overlap), 9mm FC sheet, toughened glass, Perspex, masonry, or a combination of the above (a minimum surface mass of 11kg/m²).



APPENDIX B

Development Plans

PROPOSED DEVELOPMENT



COMMERCIAL BUILDING AREAS	
Overall site area	19418.44 sqm.
Stage 1	
Site area for Stage 1	4079.77sqm.
Service Station -	207.00 sqm
Cafe / Restaurant -	170.67 sqm
Stage 2	
Site area for Stage 2	8581.95sqm.
Speciality Shop 1 -	255.23 sqm
Speciality Shop 2 -	214.14 sqm
Speciality Shop 3 -	233.55 sqm
Speciality Shop 4 -	282.20 sqm
Speciality 5 / Gymnasium -	282.88 sqm
Retail 1 -	128.42 sqm
Retail 2 -	119.52 sqm
Retail 3 -	119.52 sqm
Retail 4 -	84.52 sqm
Retail 5 -	84.52 sqm
Retail 6 -	84.52 sqm
Cafe / Restaurant -	216.58 sqm
Stage 3	
Site area for Stage 3a	2383.72sqm.
Site area for Stage 3b	4373.49sqm.
Supermarket -	1510.74 sqm
Bulky Goods 1 -	309.16 sqm
Bulky Goods 2 -	305.98 sqm
Bulky Goods 3 -	305.98 sqm
Bulky Goods 4 -	309.16 sqm
Summary	
Building site coverage (overall area)	26.90%
Total Car Parking Provided	204 spaces
Total bicycle Parking Provided	42 spaces
Landscaped areas	3186.63 sqm
landscaped site coverage	16.41%.

01 AERIAL PLAN
SCALE 1:1000

LANDSCAPING
Landscaping to be in accordance with the Design Guidelines & to the requirements of Local City Council. Refer to Landscape consultant's drawings and specifications for full details.

LIGHTING
External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land to the satisfaction of the Responsible Authority.

DISABLED ACCESS
Building entrances are in accordance with the Australian Standard 1428-2008 - Design Rule for Access by the Disabled.

CAR PARKING
Disabled car parking spaces to be 4900mm long x 2400mm wide and be in accordance with A.S. 2890.1 (2004).
Car parking spaces to be 4900mm long x 2600mm wide and be in accordance with A.S. 2890.1 (2004).
All car parking bays to be line marked in 80mm wide white weatherproof paint in accordance with A.S. 2890.1 (2004).

VEHICLE CROSSINGS
All new crossings shall be to the requirements of the relevant Statutory Authority.

LOADING BAYS
All loading bays to be 7600mm long x 3600mm wide and be marked in accordance with A.S. 2890.1 (2004).



01 KEY PLAN
SCALE NTS



STAGE KEY PLAN

AT:- 60 Rifle Range Road, BARGARA



A1 sheet

SHEET No: 1/01
DATE: Aug 2020
JOB No: 171-2019
SCALE: A1 10000 @ 11.5x17.1

COPYRIGHT
All rights reserved. These plans are the property of CADDCO Pty Ltd. No part of these plans may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of CADDCO Pty Ltd.

PROPOSED DEVELOPMENT

Stage 3b

2383.72sq.m

Stage 2

8581.95sq.m



Stage 3a

2383.72sq.m

Stage 1

4079.77sq.m

- LANDSCAPING**
Landscaping to be in accordance with the Design Guidelines & to the requirements of Local City Council. Refer to Landscape consultant's drawings and specifications for full details.
- LIGHTING**
External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land to the satisfaction of the Responsible Authority.
- DISABLED ACCESS**
Building entrances are in accordance with the Australian Standard AS2209 - Design Rule for Access by the Disabled.
- CAR PARKING**
Disabled car parking spaces to be 4900mm long x 2400mm wide and be in accordance with A.S. 2890.1 (2004).
Car parking spaces to be 4900mm long x 2600mm wide and be in accordance with A.S. 2890.1 (2004).
All car parking bays to be marked in 30mm wide white weatherproof paint in accordance with A.S. 2890.1 (2004).
- VEHICLE CROSSINGS**
All new crossings shall be to the requirements of the relevant Statutory Authority.
- LOADING BAYS**
All loading bays to be 7000mm long x 3600mm wide and be marked in accordance with A.S. 2890.1 (2004).
- SECURITY EXTERNAL LIGHTING**
Luminaire pole mounted at 6m height.

REVISION

G

Revision 25.3.21

01 SITE PLAN

SCALE 1:300

FLOOR PLAN

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET NO. 102
DATE: Aug 2018
SCALE: AS SHOWN @ 1:300

COPYRIGHT

© 2018 CADDCO Pty Ltd. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior written permission of CADDCO Pty Ltd.

PROPOSED DEVELOPMENT

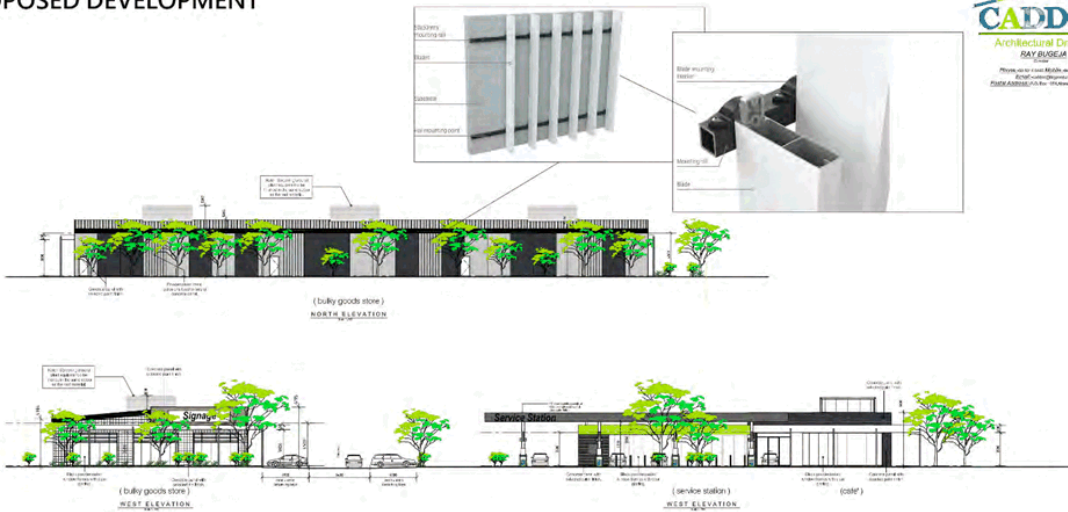


01 STREETScape ELEVATIONS
SCALE 1:150

ELEVATIONS
AT- 60 Rifle Range Road, BARGARA

A1 sheet

PROPOSED DEVELOPMENT



01 STREETScape ELEVATIONS
SCALE 1:150

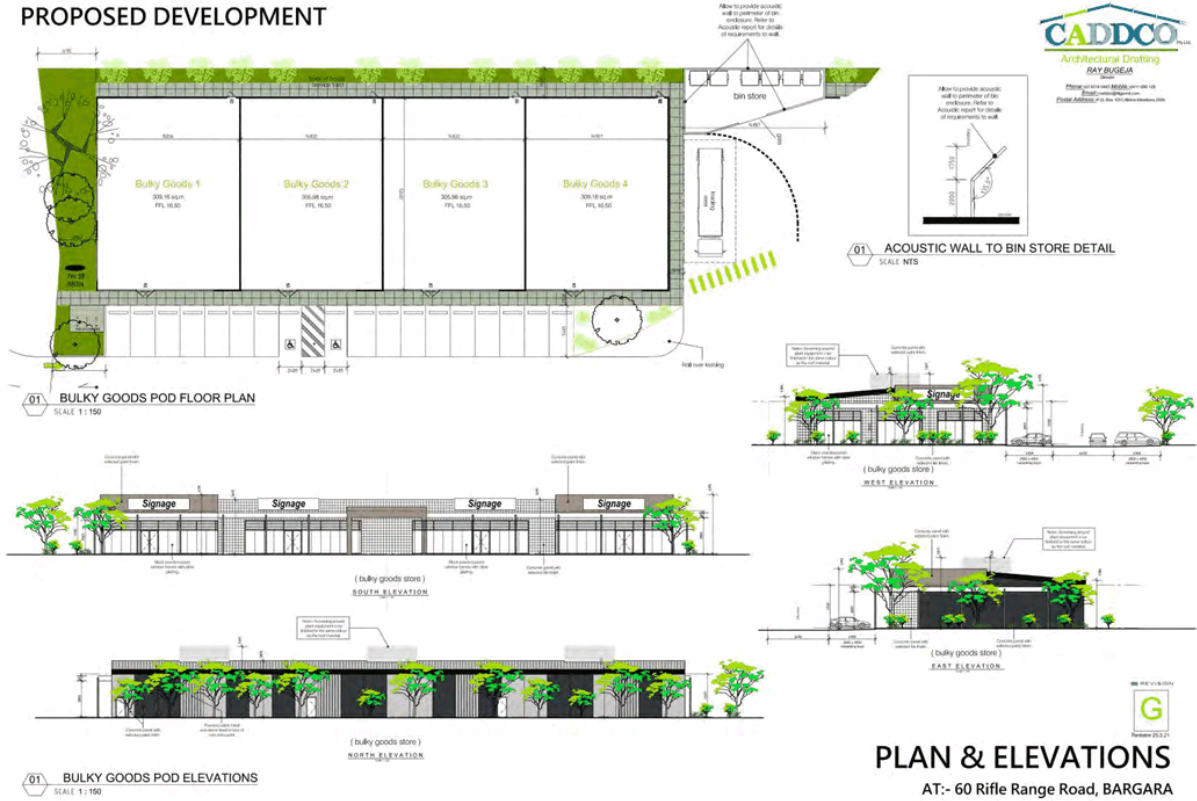


External Finishes Schedule

ELEVATIONS
AT- 60 Rifle Range Road, BARGARA

A1 sheet

PROPOSED DEVELOPMENT



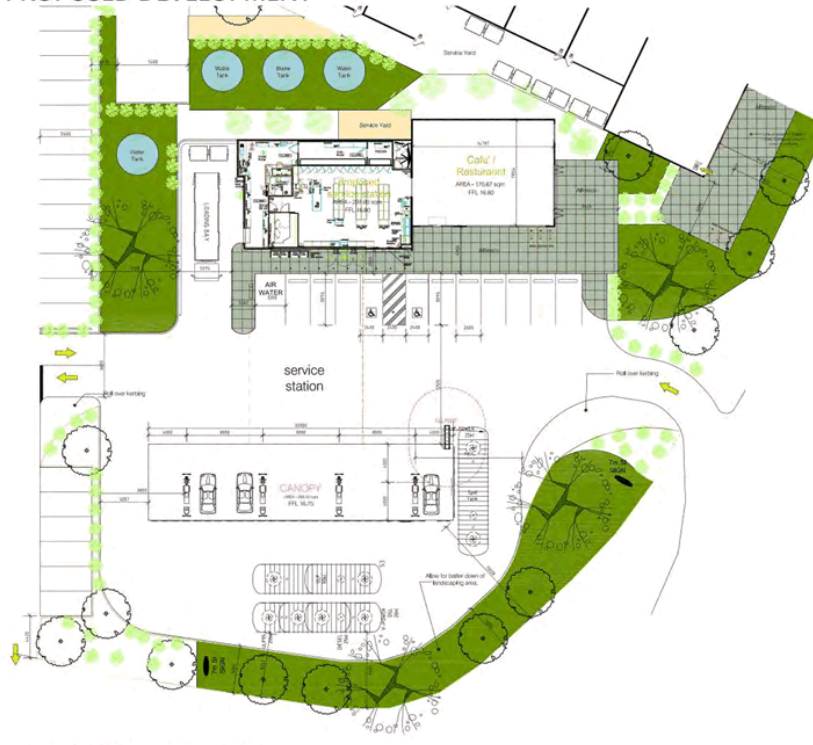
A1 sheet

PROPOSED DEVELOPMENT



A1 sheet

PROPOSED DEVELOPMENT



PLAN & ELEVATIONS
AT:- 60 Rifle Range Road, BARGARA

01 SERVICE STATION / CAFE' FLOOR PLAN
SCALE 1:150

A1 sheet

PROPOSED DEVELOPMENT



PLAN & ELEVATIONS
AT:- 60 Rifle Range Road, BARGARA

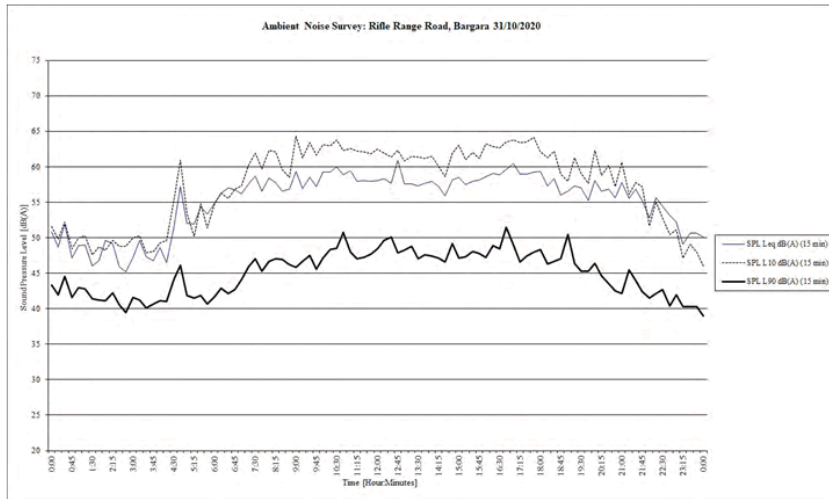
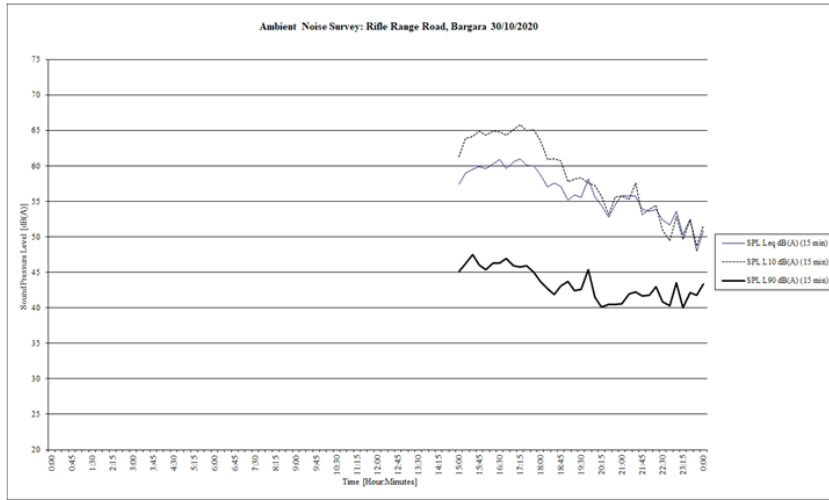
01 SERVICE STATION / CAFE' FLOOR PLAN
SCALE 1:150

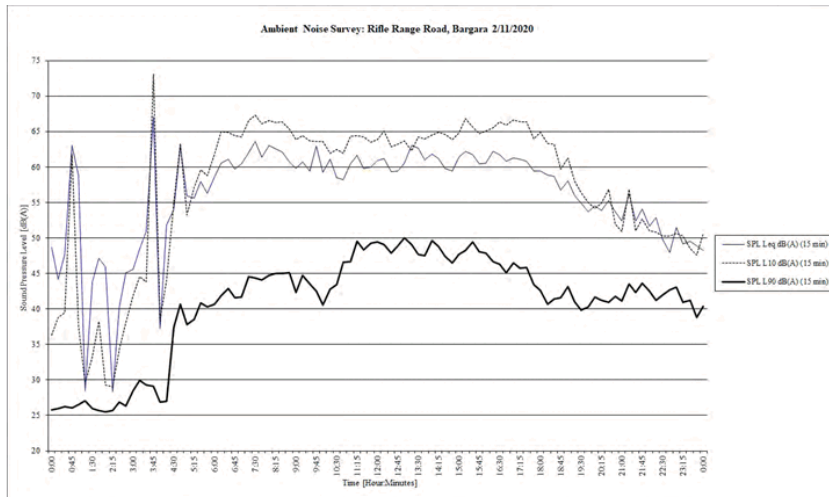
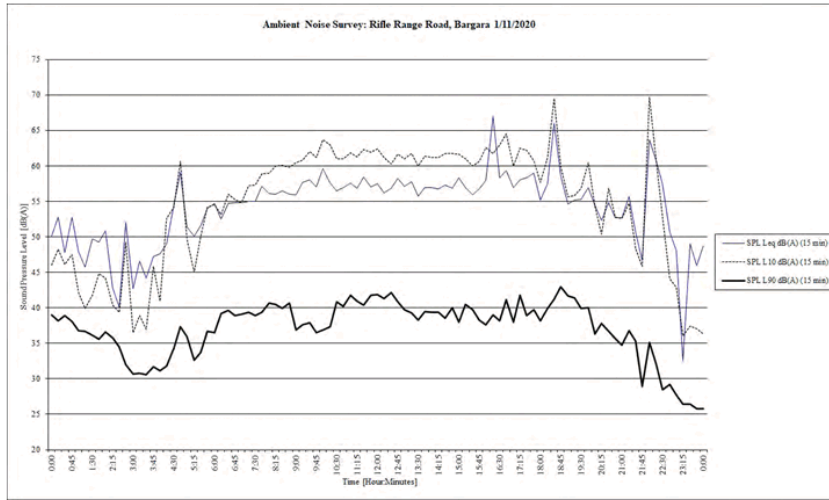
A1 sheet

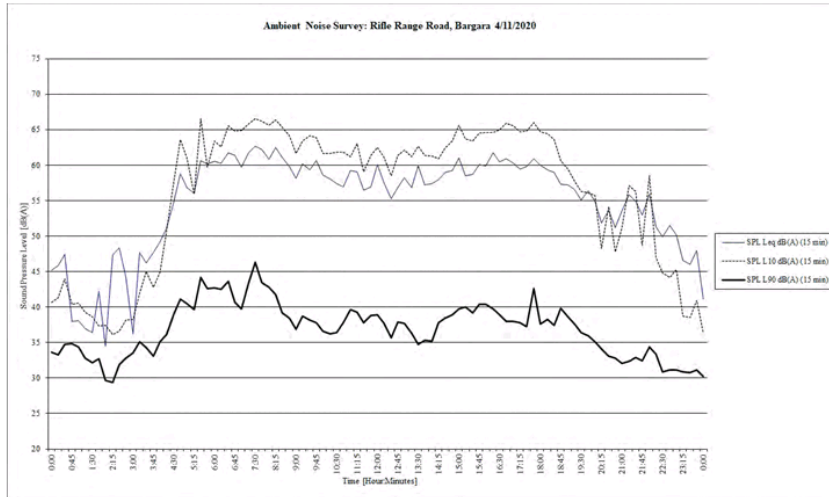
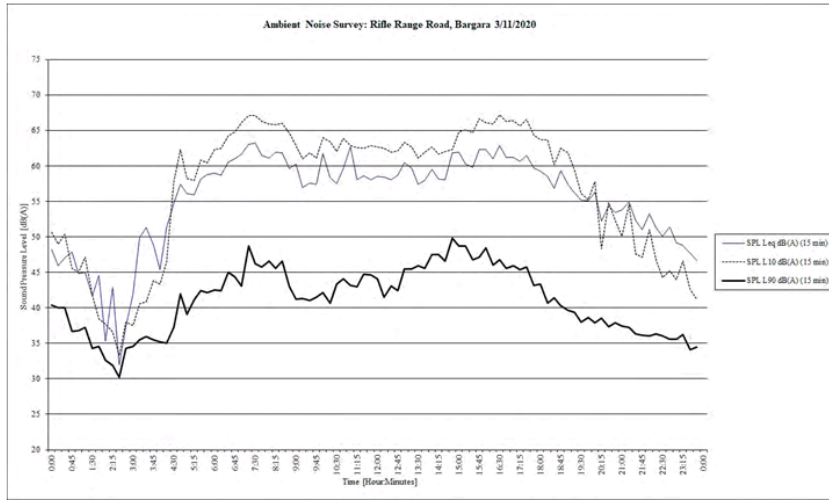


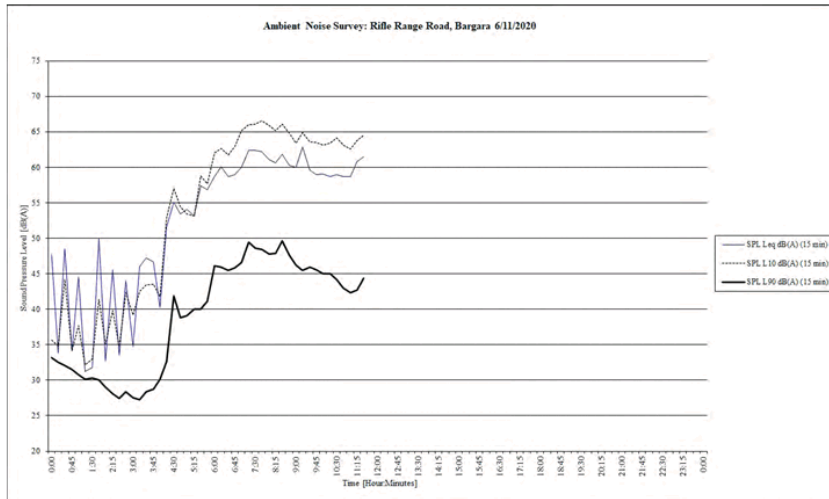
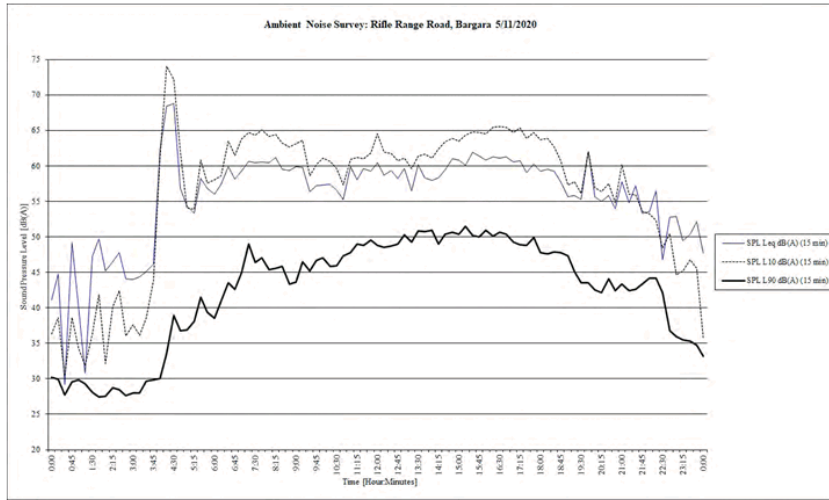
APPENDIX C

Measurement Results and Model Calculations / Predictions











STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north										R2: Future dwellings to the immediate north									
CAR DOOR CLOSURE near building DAY / EVEN					CAR DOOR CLOSURE near building DAY / EVEN					CAR DOOR CLOSURE at houses DAY / EVEN					CAR DOOR CLOSURE at houses DAY / EVEN				
Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01
Noise source level for single event										Noise source level for single event									
Duration of single event										Duration of single event									
Number of events in the measurement period										Number of events in the measurement period									
Total time duration of combined events										Total time duration of combined events									
Noise source level for assessment time period										Noise source level for assessment time period									
Tonality / Impulsiveness correction										Tonality / Impulsiveness correction									
Minimum distance to receiver										Minimum distance to receiver									
Distance attenuation (-6 dB per doubling of distance)										Distance attenuation (-6 dB per doubling of distance)									
Barrier screening										Barrier screening									
Façade reflection										Façade reflection									
Impact at nearest façade										Impact at nearest façade									
Reduction through open window (also minus 2.5 dB façade)										Reduction through open window (also minus 2.5 dB façade)									
Impact inside open window										Impact inside open window									
CAR DOOR CLOSURE near building NIGHT										CAR DOOR CLOSURE near building NIGHT									
CAR DOOR CLOSURE at houses NIGHT										CAR DOOR CLOSURE at houses NIGHT									
CAR ENGINE STARTS at building DAY / EVEN										CAR ENGINE STARTS at building DAY / EVEN									



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀, L₅₀ and L₉₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
CAR ENGINE STARTS at bousers DAY / EVEN					CAR ENGINE STARTS at bousers DAY / EVEN				
	Creep LAeq	Acoustic Quality Objectives LA10 LA01				Creep LAeq	Acoustic Quality Objectives LA10 LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds				Duration of single event	3 Seconds			
Number of events in the measurement period	18 Events				Number of events in the measurement period	18 Events			
Total time duration of combined events	55.0 Seconds				Total time duration of combined events	55.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	61	60	N/A	75	Noise source level for assessment time period	61	60	N/A	75
Tonality / Impulsiveness correction	0				Tonality / Impulsiveness correction	0			
Minimum distance to receiver	109				Minimum distance to receiver	52			
Distance attenuation (-6 dB per doubling of distance)	-41				Distance attenuation (-6 dB per doubling of distance)	-34			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	23	21	N/A	37	Impact at nearest facade	29	28	N/A	43
Reduction through open window (also minus 2.5 dB facade)	-7.5				Reduction through open window (also minus 2.5 dB facade)	-7.5			
Impact inside open window	14	N/A	29	dB(A)	Impact inside open window	20	N/A	36	dB(A)
CAR ENGINE STARTS at building NIGHT					CAR ENGINE STARTS at building NIGHT				
	Creep LAeq	Acoustic Quality Objectives LA10 LA01				Creep LAeq	Acoustic Quality Objectives LA10 LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds				Duration of single event	3 Seconds			
Number of events in the measurement period	3 Events				Number of events in the measurement period	3 Events			
Total time duration of combined events	9.0 Seconds				Total time duration of combined events	9.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	53	52	N/A	N/A	Noise source level for assessment time period	53	52	N/A	N/A
Tonality / Impulsiveness correction	0				Tonality / Impulsiveness correction	0			
Minimum distance to receiver	119				Minimum distance to receiver	62			
Distance attenuation (-6 dB per doubling of distance)	-42				Distance attenuation (-6 dB per doubling of distance)	-36			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	14	13	N/A	N/A	Impact at nearest facade	20	18	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5				Reduction through open window (also minus 2.5 dB facade)	-7.5			
Impact inside open window	5	N/A	N/A	dB(A)	Impact inside open window	11	N/A	N/A	dB(A)
CAR ENGINE STARTS at bousers NIGHT					CAR ENGINE STARTS at bousers NIGHT				
	Creep LAeq	Acoustic Quality Objectives LA10 LA01				Creep LAeq	Acoustic Quality Objectives LA10 LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds				Duration of single event	3 Seconds			
Number of events in the measurement period	3 Events				Number of events in the measurement period	3 Events			
Total time duration of combined events	9.0 Seconds				Total time duration of combined events	9.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	53	52	N/A	N/A	Noise source level for assessment time period	53	52	N/A	N/A
Tonality / Impulsiveness correction	0				Tonality / Impulsiveness correction	0			
Minimum distance to receiver	109				Minimum distance to receiver	53			
Distance attenuation (-6 dB per doubling of distance)	-41				Distance attenuation (-6 dB per doubling of distance)	-34			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	15	14	N/A	N/A	Impact at nearest facade	21	20	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5				Reduction through open window (also minus 2.5 dB facade)	-7.5			
Impact inside open window	6	N/A	N/A	dB(A)	Impact inside open window	12	N/A	N/A	dB(A)
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY				
	Creep LAeq	Acoustic Quality Objectives LA10 LA01				Creep LAeq	Acoustic Quality Objectives LA10 LA01		
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 Seconds				Duration of single event	22 Seconds			
Number of events in the measurement period	16 Events				Number of events in the measurement period	16 Events			
Total time duration of combined events	357.5 Seconds				Total time duration of combined events	357.5 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	70	73	Noise source level for assessment time period	64	64	70	73
Tonality / Impulsiveness correction	0				Tonality / Impulsiveness correction	0			
Minimum distance to receiver	135				Minimum distance to receiver	78			
Distance attenuation (-6 dB per doubling of distance)	-43				Distance attenuation (-6 dB per doubling of distance)	-38			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	24	24	30	33	Impact at nearest facade	29	29	36	38
Reduction through open window (also minus 2.5 dB facade)	-7.5				Reduction through open window (also minus 2.5 dB facade)	-7.5			
Impact inside open window	16	22	25	dB(A)	Impact inside open window	21	27	30	dB(A)
CAR MOVEMENT FROM DAY					CAR MOVEMENT FROM DAY				
	Creep LAeq	Acoustic Quality Objectives LA10 LA01				Creep LAeq	Acoustic Quality Objectives LA10 LA01		
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 Seconds				Duration of single event	22 Seconds			
Number of events in the measurement period	16 Events				Number of events in the measurement period	16 Events			
Total time duration of combined events	500 Seconds				Total time duration of combined events	500 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	70	73	Noise source level for assessment time period	64	64	70	73
Tonality / Impulsiveness correction	0				Tonality / Impulsiveness correction	0			
Minimum distance to receiver	92				Minimum distance to receiver	35			
Distance attenuation (-6 dB per doubling of distance)	-39				Distance attenuation (-6 dB per doubling of distance)	-31			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	27	27	33	36	Impact at nearest facade	36	36	42	48
Reduction through open window (also minus 2.5 dB facade)	-7.5				Reduction through open window (also minus 2.5 dB facade)	-7.5			
Impact inside open window	20	26	29	dB(A)	Impact inside open window	28	34	37	dB(A)



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀, L₅₀ and L₉₀ for levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north					
CAR MOVEMENT TO NIGHT					CAR MOVEMENT TO NIGHT					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	65		70	73	dB(A)	65		70	73	dB(A)
Duration of single event		22			Seconds		22			Seconds
Number of events in the measurement period	5		15		Events	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		135			m		78			m
Distance attenuation (-6 dB per doubling of distance)		-43			dB		-38			dB
Barrier screening		0.0			dB		0.0			dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	19	18	N/A	33	dB(A)	24	22	N/A	38	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	10	N/A	25		dB(A)	15	N/A	30		dB(A)
Noise source level for single event	65		70	73	dB(A)	65		70	73	dB(A)
Duration of single event		22			Seconds		22			Seconds
Number of events in the measurement period	5		15		Events	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		83			m		35			m
Distance attenuation (-6 dB per doubling of distance)		-39			dB		-31			dB
Barrier screening		0.0			dB		0.0			dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	22	21	N/A	36	dB(A)	30	29	N/A	45	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	13	N/A	29		dB(A)	22	N/A	37		dB(A)
Noise source level for single event	78		81	83	dB(A)	78		81	83	dB(A)
Duration of single event		3			Seconds		3			Seconds
Number of events in the measurement period	1		2		Events	1		2		Events
Total time duration of combined events	3.0		6.0		Seconds	3.0		6.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	53	50	N/A	N/A	dB(A)	53	50	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0		5		dB	0		5		dB
Minimum distance to receiver		112			m		55			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB		-35			dB
Barrier screening		0.0			dB		0.0			dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	15	17	N/A	N/A	dB(A)	21	23	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	9	N/A	N/A		dB(A)	15	N/A	N/A		dB(A)
Noise source level for single event	78		81	83	dB(A)	78		81	83	dB(A)
Duration of single event		3			Seconds		3			Seconds
Number of events in the measurement period	1		2		Events	1		2		Events
Total time duration of combined events	3.0		6.0		Seconds	3.0		6.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	53	50	N/A	N/A	dB(A)	53	50	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0		5		dB	0		5		dB
Minimum distance to receiver		112			m		55			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB		-35			dB
Barrier screening		0.0			dB		0.0			dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	21	23	N/A	N/A	dB(A)	21	23	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	15	N/A	N/A		dB(A)	15	N/A	N/A		dB(A)
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		45			Seconds		45			Seconds
Number of events in the measurement period	2		4		Events	2		4		Events
Total time duration of combined events	90.0		180.0		Seconds	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		135		135	m		78		78	m
Distance attenuation (-6 dB per doubling of distance)		-43		-43	dB		-38		-38	dB
Barrier screening		0.0		0.0	dB		0.0		0.0	dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	37	34	N/A	50	dB(A)	42	39	N/A	56	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	26	N/A	42		dB(A)	31	N/A	47		dB(A)
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		45			Seconds		45			Seconds
Number of events in the measurement period	2		4		Events	2		4		Events
Total time duration of combined events	90.0		180.0		Seconds	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		135		135	m		78		78	m
Distance attenuation (-6 dB per doubling of distance)		-43		-43	dB		-38		-38	dB
Barrier screening		0.0		0.0	dB		0.0		0.0	dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	40	37	N/A	53	dB(A)	49	46	N/A	62	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	30	N/A	46		dB(A)	38	N/A	54		dB(A)
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		45			Seconds		45			Seconds
Number of events in the measurement period	2		4		Events	2		4		Events
Total time duration of combined events	90.0		180.0		Seconds	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		92		92	m		35		35	m
Distance attenuation (-6 dB per doubling of distance)		-39		-39	dB		-31		-31	dB
Barrier screening		0.0		0.0	dB		0.0		0.0	dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	40	37	N/A	53	dB(A)	49	46	N/A	62	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	30	N/A	46		dB(A)	38	N/A	54		dB(A)
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		45			Seconds		45			Seconds
Number of events in the measurement period	2		4		Events	2		4		Events
Total time duration of combined events	90.0		180.0		Seconds	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver		92		92	m		35		35	m
Distance attenuation (-6 dB per doubling of distance)		-39		-39	dB		-31		-31	dB
Barrier screening		0.0		0.0	dB		0.0		0.0	dB
Facade reflection		2.5			dB		2.5			dB
Impact at nearest facade	40	37	N/A	53	dB(A)	49	46	N/A	62	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	30	N/A	46		dB(A)	38	N/A	54		dB(A)



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 5% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
WASTE COLLECTION INDUSTRIAL BIN - Service	Creep	Acoustic Quality Objectives			WASTE COLLECTION INDUSTRIAL BIN - Service	Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	92		97	102	Noise source level for single event	92		97	102
Duration of single event		180			Duration of single event		180		
Number of events in the measurement period	1	1			Number of events in the measurement period	1	1		
Total time duration of combined events	180.0	180.0			Total time duration of combined events	180.0	180.0		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	85	79	N/A	102	Noise source level for assessment time period	85	79	N/A	102
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver		112			Minimum distance to receiver		55		
Distance attenuation (-6 dB per doubling of distance)		-41			Distance attenuation (-6 dB per doubling of distance)		-35		
Barrier screening		0			Barrier screening		0		
Facade reflection		2.5			Facade reflection		2.5		
Impact at nearest facade	47	46	N/A	69	Impact at nearest facade	63	62	N/A	76
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window		38	N/A	61	Impact inside open window		44	N/A	67
ALFRES CO DINING					ALFRES CO DINING				
Noise source level for single event	Creep	Acoustic Quality Objectives			Noise source level for single event	Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Duration of single event		720			Duration of single event		720		
Number of events in the measurement period	1	4			Number of events in the measurement period	1	4		
Total time duration of combined events	720.0	2880.0			Total time duration of combined events	720.0	2880.0		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	74	74	78	82	Noise source level for assessment time period	74	74	78	82
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver		140			Minimum distance to receiver		83		
Distance attenuation (-6 dB per doubling of distance)		-43			Distance attenuation (-6 dB per doubling of distance)		-38		
Barrier screening		0.0			Barrier screening		0.0		
Facade reflection		2.5			Facade reflection		2.5		
Impact at nearest facade	34	39	43	47	Impact at nearest facade	38	43	47	51
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window		31	36	39	Impact inside open window		36	40	44



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east										R4 Future dwellings: to the immediate east									
CAR DOOR CLOSURE near building DAY / EVEN					CAR DOOR CLOSURE near building DAY / EVEN					CAR DOOR CLOSURE at houses DAY / EVEN					CAR DOOR CLOSURE at houses DAY / EVEN				
Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01
Noise source level for single event										Noise source level for single event									
Duration of single event										Duration of single event									
Number of events in the measurement period										Number of events in the measurement period									
Total time duration of combined events										Total time duration of combined events									
Noise source level for assessment time period										Noise source level for assessment time period									
Tonality / Impulsiveness correction										Tonality / Impulsiveness correction									
Minimum distance to receiver										Minimum distance to receiver									
Distance attenuation (-6 dB per doubling of distance)										Distance attenuation (-6 dB per doubling of distance)									
Onsite building screening										Onsite building screening									
Façade reflection										Façade reflection									
Impact at nearest façade										Impact at nearest façade									
Reduction through open window (also minus 2.5 dB façade)										Reduction through open window (also minus 2.5 dB façade)									
Impact inside open window										Impact inside open window									
CAR DOOR CLOSURE near building NIGHT										CAR DOOR CLOSURE near building NIGHT									
CAR DOOR CLOSURE at houses NIGHT										CAR DOOR CLOSURE at houses NIGHT									
CAR ENGINE STARTS at building DAY / EVEN										CAR ENGINE STARTS at building DAY / EVEN									



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀, L₅₀ and L₉₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east					R4 Future dwellings: to the immediate east						
CAR ENGINE STARTS at bousers DAY/ EVEN	Creep	Acoustic Quality Objectives			Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3				Seconds	Duration of single event	3			Seconds	
Number of events in the measurement period	18	55			Events	Number of events in the measurement period	18	55			Events
Total time duration of combined events	55.0	185.0			Seconds	Total time duration of combined events	55.0	185.0			Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	61	60	N/A	75	dB(A)	Noise source level for assessment time period	61	60	N/A	75	dB(A)
Tonality / Impulsiveness correction	0	0			dB	Tonality / Impulsiveness correction	0	0			dB
Minimum distance to receiver	377				m	Minimum distance to receiver	125				m
Distance attenuation (-6 dB per doubling of distance)	-52				dB	Distance attenuation (-6 dB per doubling of distance)	-42				dB
Barrier screening	0.0				dB	Barrier screening	0.0				dB
Facade reflection	2.5				dB	Facade reflection	2.5				dB
Impact at nearest facade	12	11	N/A	26	dB(A)	Impact at nearest facade	21	20	N/A	36	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5				dB	Reduction through open window (also minus 2.5 dB facade)	-7.5				dB
Impact inside open window	3	N/A	18	dB(A)	Impact inside open window	13	N/A	28	dB(A)		
CAR ENGINE STARTS at building NIGHT					CAR ENGINE STARTS at building NIGHT						
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3				Seconds	Duration of single event	3			Seconds	
Number of events in the measurement period	3	9			Events	Number of events in the measurement period	3	9			Events
Total time duration of combined events	9.0	27.0			Seconds	Total time duration of combined events	9.0	27.0			Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	53	52	N/A	N/A	dB(A)	Noise source level for assessment time period	53	52	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0	0			dB	Tonality / Impulsiveness correction	0	0			dB
Minimum distance to receiver	361				m	Minimum distance to receiver	105				m
Distance attenuation (-6 dB per doubling of distance)	-51				dB	Distance attenuation (-6 dB per doubling of distance)	-40				dB
Onsite building screening	-10.0				dB	Onsite building screening	-10.0				dB
Facade reflection	2.5				dB	Facade reflection	2.5				dB
Impact at nearest facade	-6	-7	N/A	N/A	dB(A)	Impact at nearest facade	5	4	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5				dB	Reduction through open window (also minus 2.5 dB facade)	-7.5				dB
Impact inside open window	-14	N/A	N/A	dB(A)	Impact inside open window	-4	N/A	N/A	dB(A)		
CAR ENGINE STARTS at bousers NIGHT					CAR ENGINE STARTS at bousers NIGHT						
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3				Seconds	Duration of single event	3			Seconds	
Number of events in the measurement period	3	9			Events	Number of events in the measurement period	3	9			Events
Total time duration of combined events	9.0	27.0			Seconds	Total time duration of combined events	9.0	27.0			Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	53	52	N/A	N/A	dB(A)	Noise source level for assessment time period	53	52	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0	0			dB	Tonality / Impulsiveness correction	0	0			dB
Minimum distance to receiver	377				m	Minimum distance to receiver	125				m
Distance attenuation (-6 dB per doubling of distance)	-52				dB	Distance attenuation (-6 dB per doubling of distance)	-42				dB
Barrier screening	0.0				dB	Barrier screening	0.0				dB
Facade reflection	2.5				dB	Facade reflection	2.5				dB
Impact at nearest facade	4	3	N/A	N/A	dB(A)	Impact at nearest facade	14	12	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5				dB	Reduction through open window (also minus 2.5 dB facade)	-7.5				dB
Impact inside open window	-8	N/A	N/A	dB(A)	Impact inside open window	5	N/A	N/A	dB(A)		
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY						
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)		
Duration of single event	22				Seconds	Duration of single event	22			Seconds	
Number of events in the measurement period	16	65			Events	Number of events in the measurement period	16	65			Events
Total time duration of combined events	357.5	1430.0			Seconds	Total time duration of combined events	357.5	1430.0			Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	64	64	70	73	dB(A)	Noise source level for assessment time period	64	64	70	73	dB(A)
Tonality / Impulsiveness correction	0	0			dB	Tonality / Impulsiveness correction	0	0			dB
Minimum distance to receiver	369				m	Minimum distance to receiver	110				m
Distance attenuation (-6 dB per doubling of distance)	-51				dB	Distance attenuation (-6 dB per doubling of distance)	-41				dB
Barrier screening	0.0				dB	Barrier screening	0.0				dB
Facade reflection	2.5				dB	Facade reflection	2.5				dB
Impact at nearest facade	15	15	21	24	dB(A)	Impact at nearest facade	26	26	32	38	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5				dB	Reduction through open window (also minus 2.5 dB facade)	-7.5				dB
Impact inside open window	8	14	17	dB(A)	Impact inside open window	18	24	27	dB(A)		
CAR MOVEMENT FROM DAY					CAR MOVEMENT FROM DAY						
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)		
Duration of single event	22				Seconds	Duration of single event	22			Seconds	
Number of events in the measurement period	16	65			Events	Number of events in the measurement period	16	65			Events
Total time duration of combined events	500	1430.0			Seconds	Total time duration of combined events	500	1430.0			Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	64	64	70	73	dB(A)	Noise source level for assessment time period	64	64	70	73	dB(A)
Tonality / Impulsiveness correction	0	0			dB	Tonality / Impulsiveness correction	0	0			dB
Minimum distance to receiver	369				m	Minimum distance to receiver	125				m
Distance attenuation (-6 dB per doubling of distance)	-51				dB	Distance attenuation (-6 dB per doubling of distance)	-42				dB
Barrier screening	0.0				dB	Barrier screening	0.0				dB
Facade reflection	2.5				dB	Facade reflection	2.5				dB
Impact at nearest facade	15	15	21	24	dB(A)	Impact at nearest facade	28	28	31	34	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5				dB	Reduction through open window (also minus 2.5 dB facade)	-7.5				dB
Impact inside open window	8	14	17	dB(A)	Impact inside open window	17	23	26	dB(A)		



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east

TRUCKS WITH REFRIGERATION UNIT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	81	78	82	83
Duration of single event	900			
Number of events in the measurement period	1	2		
Total time duration of combined events	900.0	1800.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	81	78	82	83
Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver	350			
Distance attenuation (-6 dB per doubling of distance)	-51			
Refrigeration unit truck directivity / screening	0			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	33	30	34	35
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	22	26	27	

TRUCK AIRBRAKES	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	90	88	98	102
Duration of single event	2			
Number of events in the measurement period	3	9		
Total time duration of combined events	6.0	18.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	68	67	N/A	N/A
Tonality / Impulsiveness correction	0	3		
Minimum distance to receiver	369			
Distance attenuation (-6 dB per doubling of distance)	-51			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	19	23	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	16	N/A	N/A	

TRUCK AIRBRAKES at loading bay	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	90	88	98	102
Duration of single event	2			
Number of events in the measurement period	2	4		
Total time duration of combined events	4.0	8.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	66	63	N/A	N/A
Tonality / Impulsiveness correction	0	3		
Minimum distance to receiver	350			
Distance attenuation (-6 dB per doubling of distance)	-51			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	18	20	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	13	N/A	N/A	

TRUCK UNLOADING at loading bay	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	75	80	82
Duration of single event	900			
Number of events in the measurement period	1	4		
Total time duration of combined events	900.0	3600.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	75	75	80	82
Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver	350			
Distance attenuation (-6 dB per doubling of distance)	-51			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	27	32	37	39
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	24	29	31	

PEOPLE TALKING OUTSIDE	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	62	60	70	73
Duration of single event	600			
Number of events in the measurement period	1	4		
Total time duration of combined events	600.0	2400.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	60	60	70	73
Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver	350			
Distance attenuation (-6 dB per doubling of distance)	-51			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	12	12	22	25
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	4	14	17	

R4 Future dwellings: to the immediate east

TRUCKS WITH REFRIGERATION UNIT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	81	78	82	83
Duration of single event	900			
Number of events in the measurement period	1	2		
Total time duration of combined events	900.0	1800.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	81	78	82	83
Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver	110			
Distance attenuation (-6 dB per doubling of distance)	-41			
Refrigeration unit truck directivity / screening	0			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	43	40	44	45
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	32	36	37	

TRUCK AIRBRAKES	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	90	88	98	102
Duration of single event	2			
Number of events in the measurement period	3	9		
Total time duration of combined events	6.0	18.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	68	67	N/A	N/A
Tonality / Impulsiveness correction	0	3		
Minimum distance to receiver	110			
Distance attenuation (-6 dB per doubling of distance)	-41			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	20	34	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	26	N/A	N/A	

TRUCK AIRBRAKES at loading bay	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	90	88	98	102
Duration of single event	2			
Number of events in the measurement period	2	4		
Total time duration of combined events	4.0	8.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	66	63	N/A	N/A
Tonality / Impulsiveness correction	0	3		
Minimum distance to receiver	110			
Distance attenuation (-6 dB per doubling of distance)	-41			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	28	30	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	23	N/A	N/A	

TRUCK UNLOADING at loading bay	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	75	80	82
Duration of single event	900			
Number of events in the measurement period	1	4		
Total time duration of combined events	900.0	3600.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	75	75	80	82
Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver	110			
Distance attenuation (-6 dB per doubling of distance)	-41			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	37	42	47	49
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	34	39	41	

PEOPLE TALKING OUTSIDE	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	62	60	70	73
Duration of single event	600			
Number of events in the measurement period	1	4		
Total time duration of combined events	600.0	2400.0		
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	60	60	70	73
Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver	90			
Distance attenuation (-6 dB per doubling of distance)	-39			
Barrier screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	24	24	33	36
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	16	26	29	



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{A10} and L_{A01} levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east					R4 Future dwellings: to the immediate east						
WASTE COLLECTION INDUSTRIAL BIN - Service	Creep	Acoustic Quality Objectives			dB(A)	WASTE COLLECTION INDUSTRIAL BIN - Service	Creep	Acoustic Quality Objectives			dB(A)
	L _{Aeq}	L _{Aeq}	LA10	LA01			L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	92		97	102	dB(A)	Noise source level for single event	92		97	102	dB(A)
Duration of single event		180			Seconds	Duration of single event		180			Seconds
Number of events in the measurement period	1	1			Events	Number of events in the measurement period	1	1			Events
Total time duration of combined events	180.0	180.0			Seconds	Total time duration of combined events	180.0	180.0			Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr			L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	85	79	N/A	102	dB(A)	Noise source level for assessment time period	85	79	N/A	102	dB(A)
Tonality / Impulsiveness correction	0	5			dB	Tonality / Impulsiveness correction	0	5			dB
Minimum distance to receiver		350			m	Minimum distance to receiver		110			m
Distance attenuation (-6 dB per doubling of distance)		-51			dB	Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0			dB	Barrier screening		0			dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	37	36	N/A	59	dB(A)	Impact at nearest facade	47	46	N/A	69	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	28	N/A	51		dB(A)	Impact inside open window	38	N/A	61		dB(A)
ALFRES CO DINING					ALFRES CO DINING						
Noise source level for single event	Creep	Acoustic Quality Objectives			dB(A)	Noise source level for single event	Creep	Acoustic Quality Objectives			dB(A)
	L _{Aeq}	L _{Aeq}	LA10	LA01			L _{Aeq}	L _{Aeq}	LA10	LA01	
Duration of single event		720			Seconds	Duration of single event		720			Seconds
Number of events in the measurement period	1	4			Events	Number of events in the measurement period	1	4			Events
Total time duration of combined events	720.0	2880.0			Seconds	Total time duration of combined events	720.0	2880.0			Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr			L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	74	74	78	82	dB(A)	Noise source level for assessment time period	74	74	78	82	dB(A)
Tonality / Impulsiveness correction	0	5			dB	Tonality / Impulsiveness correction	0	5			dB
Minimum distance to receiver		350			m	Minimum distance to receiver		95			m
Distance attenuation (-6 dB per doubling of distance)		-51			dB	Distance attenuation (-6 dB per doubling of distance)		-40			dB
Barrier screening		0.0			dB	Barrier screening		0.0			dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	26	31	36	39	dB(A)	Impact at nearest facade	37	42	46	50	dB(A)
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	23	27	31		dB(A)	Impact inside open window	34	38	42		dB(A)



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀hr and L₅₀hr levels are represented as

R5 Existing dwellings: to the south across Rifle Range Road

CAR DOOR CLOSURE near building DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	77	80	80
Duration of single event	1.5			
Number of events in the measurement period	15			
Total time duration of combined events	22.5			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	59	59	N/A	80
Tonality / Impulsiveness correction	0	0	5	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-72			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	24	29	N/A	80
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	22	N/A	43	80

CAR DOOR CLOSURE at bowers DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	77	80	80
Duration of single event	1.5			
Number of events in the measurement period	28			
Total time duration of combined events	41.3			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	62	62	N/A	80
Tonality / Impulsiveness correction	0	0	5	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-38			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	26	31	N/A	49
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	24	N/A	42	80

CAR DOOR CLOSURE near building NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	77	80	80
Duration of single event	1.5			
Number of events in the measurement period	5			
Total time duration of combined events	7.5			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	54	53	N/A	N/A
Tonality / Impulsiveness correction	0	0	5	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-72			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	20	23	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	16	N/A	N/A	80

CAR DOOR CLOSURE at bowers NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	75	77	80	80
Duration of single event	1.5			
Number of events in the measurement period	7			
Total time duration of combined events	10.5			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	56	54	N/A	N/A
Tonality / Impulsiveness correction	0	0	5	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-38			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	20	24	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	16	N/A	N/A	80

CAR ENGINE STARTS at building DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	75
Duration of single event	3			
Number of events in the measurement period	10			
Total time duration of combined events	30.0			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	58	57	N/A	75
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-37			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	24	22	N/A	40
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	16	N/A	33	80

STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀hr and L₅₀hr levels are represented as

R5 Existing dwellings: to the south across Rifle Range Road

CAR ENGINE STARTS at bowers DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	75
Duration of single event	3			
Number of events in the measurement period	18			
Total time duration of combined events	55.0			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	61	60	N/A	75
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-80			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	26	24	N/A	39
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	17	N/A	32	80

CAR ENGINE STARTS at building NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	75
Duration of single event	3			
Number of events in the measurement period	3			
Total time duration of combined events	9.0			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	53	52	N/A	N/A
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-37			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	18	17	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	10	N/A	N/A	80

CAR ENGINE STARTS at bowers NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	75
Duration of single event	3			
Number of events in the measurement period	3			
Total time duration of combined events	9.0			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	53	52	N/A	N/A
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-35			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	17	16	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	9	N/A	N/A	80

CARMOVEMENT TO DAY	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	68	70	73	73
Duration of single event	22			
Number of events in the measurement period	16			
Total time duration of combined events	357.5			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	64	64	70	73
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-25			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	31	31	37	40
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	24	30	33	80

CARMOVEMENT FROM DAY	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10	LA01
Noise source level for single event	68	70	73	73
Duration of single event	22			
Number of events in the measurement period	16			
Total time duration of combined events	300			
	LAeq	LAeq lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	64	64	70	73
Tonality / Impulsiveness correction	0	0	0	0
Minimum distance to receiver	0			
Distance attenuation (-6 dB per doubling of distance)	-100			
Onsite building screening	0.0			
Facade reflection	2.5			
Impact at nearest facade	26	26	33	36
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	19	26	28	80



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{eq1hr} and L_{eq1hr} levels are represented as

R5 Existing dwellings; to the south across Rifle Range Road	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
CAR MOVEMENT TO NIGHT					
Noise source level for single event	68		70	73	dB(A)
Duration of single event		22			Seconds
Number of events in the measurement period	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		58			m
Distance attenuation (-6 dB per doubling of distance)		-35			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	26	26	N/A	40	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	17	N/A	33		dB(A)

CARMOVEMENT FROM NIGHT	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	66		70	73	dB(A)
Duration of single event		22			Seconds
Number of events in the measurement period	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		100			m
Distance attenuation (-6 dB per doubling of distance)		-40			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	21	20	N/A	36	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	13	N/A	28		dB(A)

TRUCK ENGINE STARTS Loading bay	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	78		81	83	dB(A)
Duration of single event		3			Seconds
Number of events in the measurement period	1		2		Events
Total time duration of combined events	3.0		6.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	53	50	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		107			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	18	17	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	10	N/A	N/A		dB(A)

TRUCK MOVEMENT TO SITE	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	87		89	90	dB(A)
Duration of single event		45			Seconds
Number of events in the measurement period	3		4		Events
Total time duration of combined events	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		58			m
Distance attenuation (-6 dB per doubling of distance)		-35			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	44	41	N/A	57	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	34	N/A	50		dB(A)

TRUCK MOVEMENT FROM SITE	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	87		89	90	dB(A)
Duration of single event		45			Seconds
Number of events in the measurement period	3		4		Events
Total time duration of combined events	90.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	77	74	N/A	90	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		100			m
Distance attenuation (-6 dB per doubling of distance)		-40			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	40	36	N/A	53	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	29	N/A	45		dB(A)

STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{eq1hr} and L_{eq1hr} levels are represented as

R5 Existing dwellings; to the south across Rifle Range Road	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
TRUCKS WITH REFRIGERATION UNIT					
Noise source level for single event	81		82	83	dB(A)
Duration of single event		900			Seconds
Number of events in the measurement period	1		2		Events
Total time duration of combined events	900.0		1800.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	81	78	82	83	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		107			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Refrigeration unit truck directivity / screening		0			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	43	40	44	45	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	32	36	37		dB(A)

TRUCK AIRBRAKES	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	90		98	102	dB(A)
Duration of single event		2			Seconds
Number of events in the measurement period	3		6		Events
Total time duration of combined events	6.0		12.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	68	67	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		58			m
Distance attenuation (-6 dB per doubling of distance)		-35			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	38	39	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	32	N/A	N/A		dB(A)

TRUCK AIRBRAKES at loading bay	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	90		98	102	dB(A)
Duration of single event		2			Seconds
Number of events in the measurement period	2		4		Events
Total time duration of combined events	4.0		8.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	66	63	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		107			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	28	30	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	23	N/A	N/A		dB(A)

TRUCK UNLOADING at loading bay	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	75		80	82	dB(A)
Duration of single event		900			Seconds
Number of events in the measurement period	1		4		Events
Total time duration of combined events	900.0		3600.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	75	75	80	82	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		107			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	37	42	47	49	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	34	39	41		dB(A)

PEOPLE TALKING OUTSIDE	Creep		Acoustic Quality Objectives		dB(A)
	L _{Aeq}	L _{Aeq}	LA10 1hr	LA01 1hr	
Noise source level for single event	62		70	73	dB(A)
Duration of single event		600			Seconds
Number of events in the measurement period	1		4		Events
Total time duration of combined events	600.0		2400.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	60	60	70	73	dB(A)
Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		60			m
Distance attenuation (-6 dB per doubling of distance)		-36			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	27	27	37	40	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	-7.5	dB
Impact inside open window	20	29	32		dB(A)



STAGE 1 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{A10} the and L_{A01} the levels are represented as

R5: Existing dwellings: to the south across Rifle Range Road					
WASTE COLLECTION INDUSTRIAL BIN - Service	Creep		Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	92		97	102	dB(A)
Duration of single event		180			Seconds
Number of events in the measurement period	1		1		Events
Total time duration of combined events	180.0		180.0		Seconds
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr	
Noise source level for assessment time period	85	79	N/A	102	dB(A)
Tonality / Impulsiveness correction	0		5		dB
Minimum distance to receiver		107			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0			dB
Façade reflection		2.5			dB
Impact at nearest façade	47	46	N/A	69	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB
Impact inside open window	38		N/A	61	dB(A)

ALFRESCO DINING					
	Creep		Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	75		78	83	dB(A)
Duration of single event		720			Seconds
Number of events in the measurement period	1		4		Events
Total time duration of combined events	720.0		2880.0		Seconds
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr	
Noise source level for assessment time period	74	74	78	82	dB(A)
Tonality / Impulsiveness correction	0		5		dB
Minimum distance to receiver		75			m
Distance attenuation (-6 dB per doubling of distance)		-38			dB
Barrier screening		0.0			dB
Façade reflection		2.5			dB
Impact at nearest façade	39	44	48	52	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB
Impact inside open window	37	40	44		dB(A)

STAGE 1 MECH PLANT NOISE PREDICTION CALCULATIONS:

R1: Existing Single-storey dwellings: to the north			R2: Future dwellings to the immediate north		
Kitchen exhaust fan units	62	dB(A) @ 3m	Kitchen exhaust fan units	62	dB(A) @ 3m
Number of units	2	units	Number of units	2	units
Toilet Exhaust Units	52	dB(A) @ 3m	Toilet Exhaust Units	52	dB(A) @ 3m
Number of units	4	units	Number of units	4	units
Total noise level	66	dB(A) @ 3m	Total noise level	66	dB(A) @ 3m
Distance to receiver	135	m	Distance to receiver	78	m
Distance attenuation (-6 dB per doubling of distance)	-33	dB(A)	Distance attenuation (-6 dB per doubling of distance)	-28	dB(A)
Acoustic attenuator	-12	dB(A)	Acoustic attenuator	-12	dB(A)
Roof screening	0	dB(A)	Roof screening	0	dB(A)
Façade reflection	2.5	dB(A)	Façade reflection	2.5	dB(A)
Impact at façade	23	dB(A)	Impact at façade	28	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	16	dB(A)	Impact inside open window	21	dB(A)

A/C Units	60	dB(A) @ 3m	A/C Units	60	dB(A) @ 3m
Number of units	2	units	Number of units	2	units
Refriger Units	62	dB(A) @ 3m	Refriger Units	62	dB(A) @ 3m
Number of units	1	units	Number of units	1	units
Total noise level	66	dB(A) @ 3m	Total noise level	66	dB(A) @ 3m
Distance to receiver	130	m	Distance to receiver	73	m
Distance attenuation (-6 dB per doubling of distance)	-33	dB(A)	Distance attenuation (-6 dB per doubling of distance)	-28	dB(A)
Acoustic barrier / enclosure	-12	dB(A)	Acoustic barrier / enclosure	-12	dB(A)
Barrier screening	0.0	dB(A)	Barrier screening	0.0	dB(A)
Façade reflection	2.5	dB(A)	Façade reflection	2.5	dB(A)
Impact at façade	23	dB(A)	Impact at façade	28	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	16	dB(A)	Impact inside open window	21	dB(A)

Combined impact at façade	26	dB(A)	Combined impact at façade	31	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	19	dB(A)	Impact inside open window	24	dB(A)



STAGE 1 MECH PLANT NOISE PREDICTION CALCULATIONS:			STAGE 1 MECH PLANT NOISE PREDICTION CALCULATIONS:		
R3: Existing dwellings to the east			R4: Future dwellings to the immediate east		
Kitchen exhaust fan units	62	dB(A) @ 3m	Kitchen exhaust fan units	62	dB(A) @ 3m
Number of units	2	units	Number of units	2	units
Toilet Exhaust Units	52	dB(A) @ 3m	Toilet Exhaust Units	52	dB(A) @ 3m
Number of units	4	units	Number of units	4	units
Total noise level	66	dB(A) @ 3m	Total noise level	66	dB(A) @ 3m
Distance to receiver	345	m	Distance to receiver	95	m
Distance attenuation (-6 dB per doubling of distance)	-41	dB(A)	Distance attenuation (-6 dB per doubling of distance)	-30	dB(A)
Acoustic attenuator	-12	dB(A)	Acoustic attenuator	-12	dB(A)
Roof screening	0	dB(A)	Roof screening	0	dB(A)
Façade reflection	2.5	dB(A)	Façade reflection	2.5	dB(A)
Impact at façade	15	dB(A)	Impact at façade	26	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	8	dB(A)	Impact inside open window	19	dB(A)
A/C Units	60	dB(A) @ 3m	A/C Units	60	dB(A) @ 3m
Number of units	2	units	Number of units	2	units
Refrig Units	62	dB(A) @ 3m	Refrig Units	62	dB(A) @ 3m
Number of units	1	units	Number of units	1	units
Total noise level	66	dB(A) @ 3m	Total noise level	66	dB(A) @ 3m
Distance to receiver	345	m	Distance to receiver	100	m
Distance attenuation (-6 dB per doubling of distance)	-41	dB(A)	Distance attenuation (-6 dB per doubling of distance)	-30	dB(A)
Acoustic barrier / enclosure	-12	dB(A)	Acoustic barrier / enclosure	-12	dB(A)
Barrier screening	0.0	dB(A)	Barrier screening	0.0	dB(A)
Façade reflection	2.5	dB(A)	Façade reflection	2.5	dB(A)
Impact at façade	15	dB(A)	Impact at façade	26	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	7	dB(A)	Impact inside open window	18	dB(A)
Combined impact at façade	18	dB(A)	Combined impact at façade	29	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	10	dB(A)	Impact inside open window	21	dB(A)

STAGE 1 MECH PLANT NOISE PREDICTION CALCULATIONS:		
R5: Existing dwellings to the south across Rifle Range Road		
Kitchen exhaust fan units	62	dB(A) @ 3m
Number of units	2	units
Toilet Exhaust Units	52	dB(A) @ 3m
Number of units	4	units
Total noise level	66	dB(A) @ 3m
Distance to receiver	85	m
Distance attenuation (-6 dB per doubling of distance)	-29	dB(A)
Acoustic attenuator	-12	dB(A)
Roof screening	0	dB(A)
Façade reflection	2.5	dB(A)
Impact at façade	27	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	20	dB(A)
A/C Units	60	dB(A) @ 3m
Number of units	2	units
Refrig Units	62	dB(A) @ 3m
Number of units	1	units
Total noise level	66	dB(A) @ 3m
Distance to receiver	95	m
Distance attenuation (-6 dB per doubling of distance)	-30	dB(A)
Acoustic barrier / enclosure	-12	dB(A)
Barrier screening	0.0	dB(A)
Façade reflection	2.5	dB(A)
Impact at façade	26	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	19	dB(A)
Combined impact at façade	30	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	22	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north										R2: Future dwellings to the immediate north													
CAR DOOR CLOSURE near carpark DAY / EVEN										CAR DOOR CLOSURE near carpark DAY / EVEN													
Creep		Acoustic Quality Objectives				Creep		Acoustic Quality Objectives				Creep		Acoustic Quality Objectives									
L _{Aeq}	L _{Aeq}	L _{A10}	L _{A50}	L _{A90}	L _{A01}	L _{Aeq}	L _{Aeq}	L _{A10}	L _{A50}	L _{A90}	L _{A01}	L _{Aeq}	L _{Aeq}	L _{A10}	L _{A50}	L _{A90}	L _{A01}						
Noise source level for single event										Noise source level for single event													
Duration of single event										Duration of single event													
Number of events in the measurement period										Number of events in the measurement period													
Total time duration of combined events										Total time duration of combined events													
L _{Aeq}		L _{Aeq} 1hr		L _{A10} 1hr		L _{A50} 1hr		L _{A90} 1hr		L _{A01} 1hr		L _{Aeq}		L _{Aeq} 1hr		L _{A10} 1hr		L _{A50} 1hr		L _{A90} 1hr		L _{A01} 1hr	
Noise source level for assessment time period										Noise source level for assessment time period													
Tonality / Impulsiveness correction										Tonality / Impulsiveness correction													
Minimum distance to receiver										Minimum distance to receiver													
Distance attenuation (-6 dB per doubling of distance)										Distance attenuation (-6 dB per doubling of distance)													
Barrier screening										Barrier screening													
Façade reflection										Façade reflection													
Impact at nearest façade										Impact at nearest façade													
Reduction through open window (also minus 2.5 dB façade)										Reduction through open window (also minus 2.5 dB façade)													
Impact inside open window										Impact inside open window													
CAR DOOR CLOSURE far carpark DAY / EVEN										CAR DOOR CLOSURE far carpark DAY / EVEN													
CAR DOOR CLOSURE near carpark NIGHT										CAR DOOR CLOSURE near carpark NIGHT													
CAR DOOR CLOSURE far carpark NIGHT										CAR DOOR CLOSURE far carpark NIGHT													
CAR ENGINE STARTS near carpark DAY / EVEN										CAR ENGINE STARTS near carpark DAY / EVEN													



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north						
CAR ENGINE STARTS far carpark DAY / EVEN					CAR ENGINE STARTS far carpark DAY / EVEN						
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3			Seconds	Duration of single event	3			Seconds		
Number of events in the measurement period	10			Events	Number of events in the measurement period	10			Events		
Total time duration of combined events	30.0		30.0	Seconds	Total time duration of combined events	30.0		30.0	Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	58	57	N/A	75	dB(A)	Noise source level for assessment time period	58	57	N/A	75	dB(A)
Tonality / Impulsiveness correction	0			dB	Tonality / Impulsiveness correction	0			dB		
Minimum distance to receiver		130		m	Minimum distance to receiver		73		m		
Distance attenuation (-6 dB per doubling of distance)		-42		dB	Distance attenuation (-6 dB per doubling of distance)		-37		dB		
Barrier screening		0.0		dB	Barrier screening		0.0		dB		
Facade reflection		2.5		dB	Facade reflection		2.5		dB		
Impact at nearest facade	18	17	N/A	38	dB(A)	Impact at nearest facade	23	22	N/A	40	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	10	N/A	N/A	28	dB(A)	Impact inside open window	15	N/A	33	dB(A)	
CAR ENGINE STARTS near carpark NIGHT					CAR ENGINE STARTS near carpark NIGHT						
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3			Seconds	Duration of single event	3			Seconds		
Number of events in the measurement period	5		15	Events	Number of events in the measurement period	5		15	Events		
Total time duration of combined events	15.0		45.0	Seconds	Total time duration of combined events	15.0		45.0	Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	55	54	N/A	75	dB(A)	Noise source level for assessment time period	55	54	N/A	75	dB(A)
Tonality / Impulsiveness correction	0			dB	Tonality / Impulsiveness correction	0			dB		
Minimum distance to receiver		88		m	Minimum distance to receiver		41		m		
Distance attenuation (-6 dB per doubling of distance)		-40		dB	Distance attenuation (-6 dB per doubling of distance)		-32		dB		
Barrier screening		0.0		dB	Barrier screening		0.0		dB		
Facade reflection		2.5		dB	Facade reflection		2.5		dB		
Impact at nearest facade	18	17	N/A	38	dB(A)	Impact at nearest facade	25	24	N/A	45	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	9	N/A	N/A	30	dB(A)	Impact inside open window	17	N/A	38	dB(A)	
CAR ENGINE STARTS far carpark NIGHT					CAR ENGINE STARTS far carpark NIGHT						
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)		
Duration of single event	3			Seconds	Duration of single event	3			Seconds		
Number of events in the measurement period	5		15	Events	Number of events in the measurement period	5		15	Events		
Total time duration of combined events	15.0		45.0	Seconds	Total time duration of combined events	15.0		45.0	Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	55	54	N/A	75	dB(A)	Noise source level for assessment time period	55	54	N/A	75	dB(A)
Tonality / Impulsiveness correction	0			dB	Tonality / Impulsiveness correction	0			dB		
Minimum distance to receiver		130		m	Minimum distance to receiver		73		m		
Distance attenuation (-6 dB per doubling of distance)		-42		dB	Distance attenuation (-6 dB per doubling of distance)		-37		dB		
Barrier screening		0.0		dB	Barrier screening		0.0		dB		
Facade reflection		2.5		dB	Facade reflection		2.5		dB		
Impact at nearest facade	18	14	N/A	38	dB(A)	Impact at nearest facade	20	19	N/A	40	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	9	N/A	N/A	28	dB(A)	Impact inside open window	12	N/A	33	dB(A)	
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY						
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)		
Duration of single event	22			Seconds	Duration of single event	22			Seconds		
Number of events in the measurement period	10		40	Events	Number of events in the measurement period	10		40	Events		
Total time duration of combined events	220.0		880.0	Seconds	Total time duration of combined events	220.0		880.0	Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	62	62	70	73	dB(A)	Noise source level for assessment time period	62	62	70	73	dB(A)
Tonality / Impulsiveness correction	0			dB	Tonality / Impulsiveness correction	0			dB		
Minimum distance to receiver		103		m	Minimum distance to receiver		46		m		
Distance attenuation (-6 dB per doubling of distance)		-40		dB	Distance attenuation (-6 dB per doubling of distance)		-33		dB		
Barrier screening		0.0		dB	Barrier screening		0.0		dB		
Facade reflection		2.5		dB	Facade reflection		2.5		dB		
Impact at nearest facade	24	24	32	38	dB(A)	Impact at nearest facade	31	31	39	42	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	17	25	28	35	dB(A)	Impact inside open window	24	32	38	45	dB(A)
CAR MOVEMENT FROM DAY					CAR MOVEMENT FROM DAY						
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)		
Duration of single event	22			Seconds	Duration of single event	22			Seconds		
Number of events in the measurement period	10		40	Events	Number of events in the measurement period	10		40	Events		
Total time duration of combined events	220.0		880.0	Seconds	Total time duration of combined events	220.0		880.0	Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		
Noise source level for assessment time period	62	62	70	73	dB(A)	Noise source level for assessment time period	62	62	70	73	dB(A)
Tonality / Impulsiveness correction	0			dB	Tonality / Impulsiveness correction	0			dB		
Minimum distance to receiver		135		m	Minimum distance to receiver		78		m		
Distance attenuation (-6 dB per doubling of distance)		-43		dB	Distance attenuation (-6 dB per doubling of distance)		-38		dB		
Barrier screening		0.0		dB	Barrier screening		0.0		dB		
Facade reflection		2.5		dB	Facade reflection		2.5		dB		
Impact at nearest facade	22	22	30	33	dB(A)	Impact at nearest facade	27	27	35	38	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	14	22	25	30	dB(A)	Impact inside open window	19	27	30	35	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
CAR MOVEMENT TO NIGHT					CAR MOVEMENT TO NIGHT				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	65		70	73	Noise source level for single event	65		70	73
Duration of single event		22			Duration of single event		22		
Number of events in the measurement period	5		15		Number of events in the measurement period	5		15	
Total time duration of combined events	110.0		330.0		Total time duration of combined events	110.0		330.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	59	58	N/A	73	Noise source level for assessment time period	59	58	N/A	73
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		103			Minimum distance to receiver		46		
Distance attenuation (-6 dB per doubling of distance)			-40		Distance attenuation (-6 dB per doubling of distance)			-33	
Barrier screening		0.0			Barrier screening		0.0		
Facade reflection			2.5		Facade reflection			2.5	
Impact at nearest facade	21	20	N/A	35	Impact at nearest facade	28	27	N/A	42
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	12	N/A	28		Impact inside open window	19	N/A	35	
CAR MOVEMENT FROM NIGHT					CAR MOVEMENT FROM NIGHT				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	65		70	73	Noise source level for single event	65		70	73
Duration of single event		22			Duration of single event		22		
Number of events in the measurement period	5		15		Number of events in the measurement period	5		15	
Total time duration of combined events	110.0		330.0		Total time duration of combined events	110.0		330.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	59	58	N/A	73	Noise source level for assessment time period	59	58	N/A	73
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		135			Minimum distance to receiver		78		
Distance attenuation (-6 dB per doubling of distance)			-43		Distance attenuation (-6 dB per doubling of distance)			-38	
Barrier screening		0.0			Barrier screening		0.0		
Facade reflection			2.5		Facade reflection			2.5	
Impact at nearest facade	19	18	N/A	33	Impact at nearest facade	24	22	N/A	38
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	10	N/A	28		Impact inside open window	15	N/A	30	
TRUCK ENGINE STARTS Loading bay					TRUCK ENGINE STARTS Loading bay				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	78		81	83	Noise source level for single event	78		81	83
Duration of single event		3			Duration of single event		3		
Number of events in the measurement period	1		3		Number of events in the measurement period	1		3	
Total time duration of combined events	3.0		6.0		Total time duration of combined events	3.0		6.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	53	50	N/A	N/A	Noise source level for assessment time period	53	50	N/A	N/A
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		105			Minimum distance to receiver		48		
Distance attenuation (-6 dB per doubling of distance)			-40		Distance attenuation (-6 dB per doubling of distance)			-34	
Barrier screening		0.0			Barrier screening		0.0		
Facade reflection			2.5		Facade reflection			2.5	
Impact at nearest facade	15	17	N/A	N/A	Impact at nearest facade	22	24	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	10	N/A	N/A		Impact inside open window	17	N/A	N/A	
TRUCK MOVEMENT TO SITE					TRUCK MOVEMENT TO SITE				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90	Noise source level for single event	87		89	90
Duration of single event		80			Duration of single event		80		
Number of events in the measurement period	2		4		Number of events in the measurement period	2		4	
Total time duration of combined events	160.0		320.0		Total time duration of combined events	160.0		320.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	79	76	N/A	90	Noise source level for assessment time period	79	76	N/A	90
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		115		115	Minimum distance to receiver		58		58
Distance attenuation (-6 dB per doubling of distance)		-41		-41	Distance attenuation (-6 dB per doubling of distance)		-35		-35
Barrier screening		0.0		0.0	Barrier screening		0.0		0.0
Facade reflection			2.5		Facade reflection			2.5	
Impact at nearest facade	41	38	N/A	51	Impact at nearest facade	47	44	N/A	57
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	30	N/A	44		Impact inside open window	36	N/A	50	
TRUCK MOVEMENT FROM SITE					TRUCK MOVEMENT FROM SITE				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90	Noise source level for single event	87		89	90
Duration of single event		80			Duration of single event		80		
Number of events in the measurement period	2		4		Number of events in the measurement period	2		4	
Total time duration of combined events	160.0		320.0		Total time duration of combined events	160.0		320.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	79	73	N/A	90	Noise source level for assessment time period	79	73	N/A	90
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		115		115	Minimum distance to receiver		58		58
Distance attenuation (-6 dB per doubling of distance)		-41		-41	Distance attenuation (-6 dB per doubling of distance)		-35		-35
Barrier screening		0.0		0.0	Barrier screening		0.0		0.0
Facade reflection			2.5		Facade reflection			2.5	
Impact at nearest facade	41	35	N/A	51	Impact at nearest facade	47	41	N/A	57
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	27	N/A	44		Impact inside open window	33	N/A	50	



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{A10} and L_{A01} levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
TRUCKS WITH REFRIGERATION UNIT	Creep	Acoustic Quality Objectives			TRUCKS WITH REFRIGERATION UNIT	Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	81	78	82	83	Noise source level for single event	81	78	82	83
Duration of single event	900				Duration of single event	900			
Number of events in the measurement period	1	2			Number of events in the measurement period	1	2		
Total time duration of combined events	900.0	1800.0			Total time duration of combined events	900.0	1800.0		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	81	78	82	83	Noise source level for assessment time period	81	78	82	83
Tonality / Impulsiveness correction	0	0			Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver	105				Minimum distance to receiver	48			
Distance attenuation (-6 dB per doubling of distance)	-40				Distance attenuation (-6 dB per doubling of distance)	-34			
Refrigeration unit truck directivity / screening	0				Refrigeration unit truck directivity / screening	0			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	43	40	44	45	Impact at nearest facade	50	47	51	52
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	33	37	38	38	Impact inside open window	39	43	44	44
WASTE COLLECTION INDUSTRIAL BIN - Service					WASTE COLLECTION INDUSTRIAL BIN - Service				
Noise source level for single event	92	87	102		Noise source level for single event	92	87	102	
Duration of single event	180				Duration of single event	180			
Number of events in the measurement period	1	1			Number of events in the measurement period	1	1		
Total time duration of combined events	180.0	180.0			Total time duration of combined events	180.0	180.0		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	85	79	N/A	102	Noise source level for assessment time period	85	79	N/A	102
Tonality / Impulsiveness correction	0	3			Tonality / Impulsiveness correction	0	3		
Minimum distance to receiver	105				Minimum distance to receiver	48			
Distance attenuation (-6 dB per doubling of distance)	-40				Distance attenuation (-6 dB per doubling of distance)	-34			
Barrier screening	0				Barrier screening	0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	47	46	N/A	69	Impact at nearest facade	54	53	N/A	76
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	39	N/A	62		Impact inside open window	45	N/A	68	
ALFRES CO DINING					ALFRES CO DINING				
Noise source level for single event	75	78	82		Noise source level for single event	75	78	82	
Duration of single event	720				Duration of single event	720			
Number of events in the measurement period	1	4			Number of events in the measurement period	1	4		
Total time duration of combined events	720.0	2880.0			Total time duration of combined events	720.0	2880.0		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	74	74	78	82	Noise source level for assessment time period	74	74	78	82
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	11.5		
Minimum distance to receiver	180				Minimum distance to receiver	115			
Distance attenuation (-6 dB per doubling of distance)	-45				Distance attenuation (-6 dB per doubling of distance)	-41			
Barrier screening	0.0				Barrier screening	0.0			
Facade reflection	2.5				Facade reflection	2.5			
Impact at nearest facade	31	36	40	44	Impact at nearest facade	35	40	44	48
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5
Impact inside open window	29	33	37	37	Impact inside open window	33	37	41	41



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east										R4 Future dwellings: to the immediate east									
CAR DOOR CLOSURE near carpark DAY / EVEN					CAR DOOR CLOSURE near carpark DAY / EVEN					CAR DOOR CLOSURE far carpark DAY / EVEN					CAR DOOR CLOSURE far carpark DAY / EVEN				
Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01
Noise source level for single event										Noise source level for single event									
Duration of single event										Duration of single event									
Number of events in the measurement period										Number of events in the measurement period									
Total time duration of combined events										Total time duration of combined events									
Noise source level for assessment time period										Noise source level for assessment time period									
Tonality / Impulsiveness correction										Tonality / Impulsiveness correction									
Minimum distance to receiver										Minimum distance to receiver									
Distance attenuation (-6 dB per doubling of distance)										Distance attenuation (-6 dB per doubling of distance)									
Barrier screening										Barrier screening									
Façade reflection										Façade reflection									
Impact at nearest façade										Impact at nearest façade									
Reduction through open window (also minus 2.5 dB façade)										Reduction through open window (also minus 2.5 dB façade)									
Impact inside open window										Impact inside open window									
CAR DOOR CLOSURE far carpark DAY / EVEN										CAR DOOR CLOSURE near carpark NIGHT									
CAR DOOR CLOSURE near carpark NIGHT										CAR DOOR CLOSURE far carpark NIGHT									
CAR DOOR CLOSURE far carpark NIGHT										CAR DOOR CLOSURE near carpark NIGHT									
CAR DOOR CLOSURE near carpark NIGHT										CAR DOOR CLOSURE far carpark NIGHT									
CAR ENGINE STARTS near carpark DAY / EVEN										CAR ENGINE STARTS near carpark DAY / EVEN									
CAR ENGINE STARTS near carpark DAY / EVEN										CAR ENGINE STARTS near carpark DAY / EVEN									



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east					R4 Future dwellings: to the immediate east				
CAR ENGINE STARTS far carpark DAY / EVEN					CAR ENGINE STARTS far carpark DAY / EVEN				
	Creep LAeq	Acoustic Quality Objectives				Creep LAeq	Acoustic Quality Objectives		
	LAeq	LAeq	LA10	LA01		LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 seconds				Duration of single event	3 seconds			
Number of events in the measurement period	10 events				Number of events in the measurement period	10 events			
Total time duration of combined events	30.0 seconds				Total time duration of combined events	30.0 seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	58	57	N/A	75	Noise source level for assessment time period	58	57	N/A	75
Tonality / Impulsiveness correction	0 dB				Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	300 m				Minimum distance to receiver	300 m			
Distance attenuation (-6 dB per doubling of distance)	-50 dB				Distance attenuation (-6 dB per doubling of distance)	-57 dB			
Barrier screening	-9.3 dB				Barrier screening	-15.5 dB			
Facade reflection	2.5 dB				Facade reflection	2.5 dB			
Impact at nearest facade	2	1	N/A	19	Impact at nearest facade	10	9	N/A	27
Reduction through open window (also minus 2.5 dB facade)	-7.5 dB				Reduction through open window (also minus 2.5 dB facade)	-7.5 dB			
Impact inside open window	-7	N/A	11	dB(A)	Impact inside open window	1	N/A	19	dB(A)
CAR ENGINE STARTS near carpark NIGHT					CAR ENGINE STARTS near carpark NIGHT				
	Creep LAeq	Acoustic Quality Objectives				Creep LAeq	Acoustic Quality Objectives		
	LAeq	LAeq	LA10	LA01		LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 seconds				Duration of single event	3 seconds			
Number of events in the measurement period	5 events				Number of events in the measurement period	5 events			
Total time duration of combined events	15.0 seconds				Total time duration of combined events	15.0 seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	55	54	N/A	75	Noise source level for assessment time period	55	54	N/A	75
Tonality / Impulsiveness correction	0 dB				Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	300 m				Minimum distance to receiver	300 m			
Distance attenuation (-6 dB per doubling of distance)	-48 dB				Distance attenuation (-6 dB per doubling of distance)	-55 dB			
Barrier screening	-14.1 dB				Barrier screening	-17.1 dB			
Facade reflection	2.5 dB				Facade reflection	2.5 dB			
Impact at nearest facade	-4	-6	N/A	18	Impact at nearest facade	23	22	N/A	43
Reduction through open window (also minus 2.5 dB facade)	-7.5 dB				Reduction through open window (also minus 2.5 dB facade)	-7.5 dB			
Impact inside open window	-13	N/A	8	dB(A)	Impact inside open window	14	N/A	38	dB(A)
CAR ENGINE STARTS far carpark NIGHT					CAR ENGINE STARTS far carpark NIGHT				
	Creep LAeq	Acoustic Quality Objectives				Creep LAeq	Acoustic Quality Objectives		
	LAeq	LAeq	LA10	LA01		LAeq	LAeq	LA10	LA01
Noise source level for single event	73	74	75	dB(A)	Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 seconds				Duration of single event	3 seconds			
Number of events in the measurement period	5 events				Number of events in the measurement period	5 events			
Total time duration of combined events	15.0 seconds				Total time duration of combined events	15.0 seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	55	54	N/A	75	Noise source level for assessment time period	55	54	N/A	75
Tonality / Impulsiveness correction	0 dB				Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	300 m				Minimum distance to receiver	300 m			
Distance attenuation (-6 dB per doubling of distance)	-48 dB				Distance attenuation (-6 dB per doubling of distance)	-55 dB			
Barrier screening	-9.3 dB				Barrier screening	-15.5 dB			
Facade reflection	2.5 dB				Facade reflection	2.5 dB			
Impact at nearest facade	-1	-2	N/A	19	Impact at nearest facade	7	6	N/A	27
Reduction through open window (also minus 2.5 dB facade)	-7.5 dB				Reduction through open window (also minus 2.5 dB facade)	-7.5 dB			
Impact inside open window	-10	N/A	11	dB(A)	Impact inside open window	-2	N/A	19	dB(A)
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY				
	Creep LAeq	Acoustic Quality Objectives				Creep LAeq	Acoustic Quality Objectives		
	LAeq	LAeq	LA10	LA01		LAeq	LAeq	LA10	LA01
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 seconds				Duration of single event	22 seconds			
Number of events in the measurement period	10 events				Number of events in the measurement period	10 events			
Total time duration of combined events	220.0 seconds				Total time duration of combined events	220.0 seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	70	73	Noise source level for assessment time period	62	62	70	73
Tonality / Impulsiveness correction	0 dB				Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	255 m				Minimum distance to receiver	33 m			
Distance attenuation (-6 dB per doubling of distance)	-48 dB				Distance attenuation (-6 dB per doubling of distance)	-30 dB			
Barrier screening	-13.4 dB				Barrier screening	-16.7 dB			
Facade reflection	2.5 dB				Facade reflection	2.5 dB			
Impact at nearest facade	3	3	11	14	Impact at nearest facade	17	17	28	28
Reduction through open window (also minus 2.5 dB facade)	-7.5 dB				Reduction through open window (also minus 2.5 dB facade)	-7.5 dB			
Impact inside open window	-8	3	6	dB(A)	Impact inside open window	10	18	21	dB(A)
CAR MOVEMENT FROM DAY					CAR MOVEMENT FROM DAY				
	Creep LAeq	Acoustic Quality Objectives				Creep LAeq	Acoustic Quality Objectives		
	LAeq	LAeq	LA10	LA01		LAeq	LAeq	LA10	LA01
Noise source level for single event	68	70	73	dB(A)	Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 seconds				Duration of single event	22 seconds			
Number of events in the measurement period	10 events				Number of events in the measurement period	10 events			
Total time duration of combined events	220.0 seconds				Total time duration of combined events	220.0 seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr		LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	70	73	Noise source level for assessment time period	62	62	70	73
Tonality / Impulsiveness correction	0 dB				Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	280 m				Minimum distance to receiver	65 m			
Distance attenuation (-6 dB per doubling of distance)	-49 dB				Distance attenuation (-6 dB per doubling of distance)	-36 dB			
Barrier screening	-13.4 dB				Barrier screening	-16.7 dB			
Facade reflection	2.5 dB				Facade reflection	2.5 dB			
Impact at nearest facade	2	2	10	13	Impact at nearest facade	11	11	20	23
Reduction through open window (also minus 2.5 dB facade)	-7.5 dB				Reduction through open window (also minus 2.5 dB facade)	-7.5 dB			
Impact inside open window	-6	2	5	dB(A)	Impact inside open window	4	12	15	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ are represented as N/A if the duration of events do not occur for 10% or 5% of the 1 hour period)

R3 Existing dwellings: to the east						R4 Future dwellings: to the immediate east					
CAR MOVEMENT TO NIGHT						CAR MOVEMENT TO NIGHT					
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	65		70	73	dB(A)	Noise source level for single event	65		70	73	dB(A)
Duration of single event		22			Seconds	Duration of single event		22			Seconds
Number of events in the measurement period	5		15		Events	Number of events in the measurement period	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds	Total time duration of combined events	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)	Noise source level for assessment time period	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0				dB	Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		255			m	Minimum distance to receiver		33			m
Distance attenuation (-6 dB per doubling of distance)		-48			dB	Distance attenuation (-6 dB per doubling of distance)		-30			dB
Barrier screening		-13.4			dB	Barrier screening		-16.7			dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	0	-1	N/A	14	dB(A)	Impact at nearest facade	14	13	N/A	28	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window		-9	N/A	6	dB(A)	Impact inside open window		6	N/A	21	dB(A)
CAR MOVEMENT FROM NIGHT						CAR MOVEMENT FROM NIGHT					
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	65		70	73	dB(A)	Noise source level for single event	65		70	73	dB(A)
Duration of single event		22			Seconds	Duration of single event		22			Seconds
Number of events in the measurement period	5		15		Events	Number of events in the measurement period	5		15		Events
Total time duration of combined events	110.0		330.0		Seconds	Total time duration of combined events	110.0		330.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	59	58	N/A	73	dB(A)	Noise source level for assessment time period	59	58	N/A	73	dB(A)
Tonality / Impulsiveness correction	0				dB	Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		290			m	Minimum distance to receiver		65			m
Distance attenuation (-6 dB per doubling of distance)		-49			dB	Distance attenuation (-6 dB per doubling of distance)		-38			dB
Barrier screening		-13.4			dB	Barrier screening		-16.7			dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	-1	-3	N/A	13	dB(A)	Impact at nearest facade	8	7	N/A	23	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window		-10	N/A	8	dB(A)	Impact inside open window		0	N/A	18	dB(A)
TRUCK ENGINE STARTS Loading bay						TRUCK ENGINE STARTS Loading bay					
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	78		81	83	dB(A)	Noise source level for single event	78		81	83	dB(A)
Duration of single event		3			Seconds	Duration of single event		3			Seconds
Number of events in the measurement period	1		3		Events	Number of events in the measurement period	1		3		Events
Total time duration of combined events	3.0		6.0		Seconds	Total time duration of combined events	3.0		6.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	53	50	N/A	N/A	dB(A)	Noise source level for assessment time period	53	50	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB	Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		255			m	Minimum distance to receiver		12			m
Distance attenuation (-6 dB per doubling of distance)		-48			dB	Distance attenuation (-6 dB per doubling of distance)		-23			dB
Barrier screening		-11.6			dB	Barrier screening		-16.1			dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	-4	-2	N/A	N/A	dB(A)	Impact at nearest facade	18	20	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window		-9	N/A	N/A	dB(A)	Impact inside open window		13	N/A	N/A	dB(A)
TRUCK MOVEMENT TO SITE						TRUCK MOVEMENT TO SITE					
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	87		89	90	dB(A)	Noise source level for single event	87		89	90	dB(A)
Duration of single event		80			Seconds	Duration of single event		80			Seconds
Number of events in the measurement period	2		4		Events	Number of events in the measurement period	2		4		Events
Total time duration of combined events	160.0		320.0		Seconds	Total time duration of combined events	160.0		320.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	79	76	N/A	90	dB(A)	Noise source level for assessment time period	79	76	N/A	90	dB(A)
Tonality / Impulsiveness correction	0				dB	Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		255		255	m	Minimum distance to receiver		12		12	m
Distance attenuation (-6 dB per doubling of distance)		-48		-48	dB	Distance attenuation (-6 dB per doubling of distance)		-23		-23	dB
Barrier screening		-11.6		-11.6	dB	Barrier screening		-16.1		-16.1	dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	22	19	N/A	33	dB(A)	Impact at nearest facade	44	41	N/A	58	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window		12	N/A	28	dB(A)	Impact inside open window		34	N/A	47	dB(A)
TRUCK MOVEMENT FROM SITE						TRUCK MOVEMENT FROM SITE					
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01		
Noise source level for single event	87		89	90	dB(A)	Noise source level for single event	87		89	90	dB(A)
Duration of single event		80			Seconds	Duration of single event		80			Seconds
Number of events in the measurement period	2		4		Events	Number of events in the measurement period	2		4		Events
Total time duration of combined events	160.0		320.0		Seconds	Total time duration of combined events	160.0		320.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	79	73	N/A	90	dB(A)	Noise source level for assessment time period	79	73	N/A	90	dB(A)
Tonality / Impulsiveness correction	0				dB	Tonality / Impulsiveness correction	0				dB
Minimum distance to receiver		255		255	m	Minimum distance to receiver		12		12	m
Distance attenuation (-6 dB per doubling of distance)		-48		-48	dB	Distance attenuation (-6 dB per doubling of distance)		-23		-23	dB
Barrier screening		-11.6		-11.6	dB	Barrier screening		-16.1		-16.1	dB
Facade reflection		2.5			dB	Facade reflection		2.5			dB
Impact at nearest facade	22	16	N/A	33	dB(A)	Impact at nearest facade	44	38	N/A	58	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window		9	N/A	28	dB(A)	Impact inside open window		31	N/A	47	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east						R4 Future dwellings: to the immediate east							
TRUCK AIRBRAKES						TRUCK AIRBRAKES							
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		
Noise source level for single event	90		98	102	dB(A)	Noise source level for single event	90		98	102	dB(A)		
Duration of single event		2			Seconds	Duration of single event		2			Seconds		
Number of events in the measurement period	3		9		Events	Number of events in the measurement period	3		9		Events		
Total time duration of combined events	6.0		18.0		Seconds	Total time duration of combined events	6.0		18.0		Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		
Noise source level for assessment time period	68	67	N/A	N/A	dB(A)	Noise source level for assessment time period	68	67	N/A	N/A	dB(A)		
Tonality / Impulsiveness correction	0		5		dB	Tonality / Impulsiveness correction	0		5		dB		
Minimum distance to receiver			255		m	Minimum distance to receiver			12		m		
Distance attenuation (-6 dB per doubling of distance)			-48		dB	Distance attenuation (-6 dB per doubling of distance)			-22		dB		
Barrier screening			-11.6		dB	Barrier screening			-16.1		dB		
Facade reflection			2.5		dB	Facade reflection			2.5		dB		
Impact at nearest facade	11	15	N/A	N/A	dB(A)	Impact at nearest facade	33	37	N/A	N/A	dB(A)		
Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB		
Impact inside open window			7	N/A	dB(A)	Impact inside open window			29	N/A	dB(A)		
TRUCK AIRBRAKES at loading bay						TRUCK AIRBRAKES at loading bay							
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		
Noise source level for single event	90		98	102	dB(A)	Noise source level for single event	90		98	102	dB(A)		
Duration of single event		2			Seconds	Duration of single event		2			Seconds		
Number of events in the measurement period	3		4		Events	Number of events in the measurement period	2		4		Events		
Total time duration of combined events	4.0		8.0		Seconds	Total time duration of combined events	4.0		8.0		Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		
Noise source level for assessment time period	66	63	N/A	N/A	dB(A)	Noise source level for assessment time period	66	63	N/A	N/A	dB(A)		
Tonality / Impulsiveness correction	0		5		dB	Tonality / Impulsiveness correction	0		5		dB		
Minimum distance to receiver			255		m	Minimum distance to receiver			12		m		
Distance attenuation (-6 dB per doubling of distance)			-48		dB	Distance attenuation (-6 dB per doubling of distance)			-22		dB		
Barrier screening			-11.6		dB	Barrier screening			-16.1		dB		
Facade reflection			2.5		dB	Facade reflection			2.5		dB		
Impact at nearest facade	9	11	N/A	N/A	dB(A)	Impact at nearest facade	31	33	N/A	N/A	dB(A)		
Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB		
Impact inside open window			4	N/A	dB(A)	Impact inside open window			26	N/A	dB(A)		
TRUCK UNLOADING at loading bay						TRUCK UNLOADING at loading bay							
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		
Noise source level for single event	75		80	82	dB(A)	Noise source level for single event	75		80	82	dB(A)		
Duration of single event		900			Seconds	Duration of single event		900			Seconds		
Number of events in the measurement period	1		4		Events	Number of events in the measurement period	1		4		Events		
Total time duration of combined events	900.0		3600.0		Seconds	Total time duration of combined events	900.0		3600.0		Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		
Noise source level for assessment time period	75	75	80	82	dB(A)	Noise source level for assessment time period	75	75	80	82	dB(A)		
Tonality / Impulsiveness correction	0		5		dB	Tonality / Impulsiveness correction	0		5		dB		
Minimum distance to receiver			255		m	Minimum distance to receiver			12		m		
Distance attenuation (-6 dB per doubling of distance)			-48		dB	Distance attenuation (-6 dB per doubling of distance)			-22		dB		
Barrier screening			-11.6		dB	Barrier screening			-16.1		dB		
Facade reflection			2.5		dB	Facade reflection			2.5		dB		
Impact at nearest facade	18	23	28	30	dB(A)	Impact at nearest facade	40	46	50	52	dB(A)		
Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB		
Impact inside open window			15	20	22	dB(A)	Impact inside open window			37	42	44	dB(A)
PEOPLE TALKING OUTSIDE						PEOPLE TALKING OUTSIDE							
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		L _{Aeq}	L _{Aeq}	LA10	LA01	dB(A)		
Noise source level for single event	62		70	73	dB(A)	Noise source level for single event	62		70	73	dB(A)		
Duration of single event		600			Seconds	Duration of single event		600			Seconds		
Number of events in the measurement period	1		4		Events	Number of events in the measurement period	1		4		Events		
Total time duration of combined events	600.0		2400.0		Seconds	Total time duration of combined events	600.0		2400.0		Seconds		
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	dB(A)		
Noise source level for assessment time period	60	60	70	73	dB(A)	Noise source level for assessment time period	60	60	70	73	dB(A)		
Tonality / Impulsiveness correction	0		0		dB	Tonality / Impulsiveness correction	0		0		dB		
Minimum distance to receiver			265		m	Minimum distance to receiver			25		m		
Distance attenuation (-6 dB per doubling of distance)			-48		dB	Distance attenuation (-6 dB per doubling of distance)			-28		dB		
Barrier screening			-10.1		dB	Barrier screening			-15.7		dB		
Facade reflection			2.5		dB	Facade reflection			2.5		dB		
Impact at nearest facade	4	4	14	17	dB(A)	Impact at nearest facade	19	19	29	32	dB(A)		
Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)			-7.5	-7.5	dB		
Impact inside open window			-3	6	9	dB(A)	Impact inside open window			12	21	24	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{A10} and L_{A01} levels are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3 Existing dwellings: to the east						R4 Future dwellings: to the immediate east							
TRUCKS WITH REFRIGERATION UNIT						TRUCKS WITH REFRIGERATION UNIT							
	Creep	Acoustic Quality Objectives					Creep	Acoustic Quality Objectives					
	L _{Aeq}	L _{Aeq}	LA10	LA01	L _{Aeq}		L _{Aeq}	LA10	LA01				
Noise source level for single event	81	78	82	83	dB(A)	Noise source level for single event	81	78	82	83	dB(A)		
Duration of single event	900					Seconds	Duration of single event	900					Seconds
Number of events in the measurement period	1	2				Events	Number of events in the measurement period	1	2				Events
Total time duration of combined events	900.0	1800.0				Seconds	Total time duration of combined events	900.0	1800.0				Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			
Noise source level for assessment time period	81	78	82	83	dB(A)	Noise source level for assessment time period	81	78	82	83	dB(A)		
Tonality / Impulsiveness correction	0	0				dB	Tonality / Impulsiveness correction	0	0				dB
Minimum distance to receiver	255					m	Minimum distance to receiver	12					m
Distance attenuation (-6 dB per doubling of distance)	-48					dB	Distance attenuation (-6 dB per doubling of distance)	-23					dB
Refrigeration unit truck directivity / screening	0					dB	Refrigeration unit truck directivity / screening	0					dB
Barrier screening	-10.9					dB	Barrier screening	-15.9					dB
Facade reflection	2.5					dB	Facade reflection	2.5					dB
Impact at nearest facade	24	21	26	26	dB(A)	Impact at nearest facade	46	43	47	48	dB(A)		
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB		
Impact inside open window	14	18	19		dB(A)	Impact inside open window	38	40	41		dB(A)		
WASTE COLLECTION INDUSTRIAL BIN - Service						WASTE COLLECTION INDUSTRIAL BIN - Service							
Noise source level for single event	92	87	102		dB(A)	Noise source level for single event	92	87	102		dB(A)		
Duration of single event	180					Seconds	Duration of single event	180					Seconds
Number of events in the measurement period	1	1				Events	Number of events in the measurement period	1	1				Events
Total time duration of combined events	180.0	180.0				Seconds	Total time duration of combined events	180.0	180.0				Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			
Noise source level for assessment time period	85	79	N/A	102	dB(A)	Noise source level for assessment time period	85	79	N/A	102	dB(A)		
Tonality / Impulsiveness correction	0	3				dB	Tonality / Impulsiveness correction	0	3				dB
Minimum distance to receiver	255					m	Minimum distance to receiver	12					m
Distance attenuation (-6 dB per doubling of distance)	-48					dB	Distance attenuation (-6 dB per doubling of distance)	-23					dB
Barrier screening	0					dB	Barrier screening	0					dB
Facade reflection	2.5					dB	Facade reflection	2.5					dB
Impact at nearest facade	39	38	N/A	61	dB(A)	Impact at nearest facade	66	66	N/A	88	dB(A)		
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB		
Impact inside open window	31	N/A	54		dB(A)	Impact inside open window	57	N/A	80		dB(A)		
ALFRES CO DINING						ALFRES CO DINING							
Noise source level for single event	75	78	82		dB(A)	Noise source level for single event	75	78	82		dB(A)		
Duration of single event	720					Seconds	Duration of single event	720					Seconds
Number of events in the measurement period	1	4				Events	Number of events in the measurement period	1	4				Events
Total time duration of combined events	720.0	2880.0				Seconds	Total time duration of combined events	720.0	2880.0				Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr			
Noise source level for assessment time period	74	74	78	82	dB(A)	Noise source level for assessment time period	74	74	78	82	dB(A)		
Tonality / Impulsiveness correction	0	3				dB	Tonality / Impulsiveness correction	0	3				dB
Minimum distance to receiver	330					m	Minimum distance to receiver	68					m
Distance attenuation (-6 dB per doubling of distance)	-50					dB	Distance attenuation (-6 dB per doubling of distance)	-37					dB
Onsite building screening	-15.0					dB	Onsite building screening	-15.0					dB
Facade reflection	2.5					dB	Facade reflection	2.5					dB
Impact at nearest facade	11	16	20	24	dB(A)	Impact at nearest facade	28	30	34	38	dB(A)		
Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB	Reduction through open window (also minus 2.5 dB facade)	-7.5	-7.5	-7.5	-7.5	dB		
Impact inside open window	9	13	17		dB(A)	Impact inside open window	22	26	30		dB(A)		



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{Aeq 1hr} and L_{A01 1hr} levels are represented as

R5 - Existing dwelling; to the south across Rifle Range Road CAR DOOR CLOSURE near carpark DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	75	77	80	dB(A)
Duration of single event	1.5 Seconds			
Number of events in the measurement period	23 Events			
Total time duration of combined events	33.8 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	61	61	N/A	80
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	47 m			
Distance attenuation (-6 dB per doubling of distance)	-33 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	30	36	N/A	54
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	27	N/A	47	dB(A)

CAR DOOR CLOSURE far carpark DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	75	77	80	dB(A)
Duration of single event	1.5 Seconds			
Number of events in the measurement period	23 Events			
Total time duration of combined events	33.8 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	61	61	N/A	80
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	84 m			
Distance attenuation (-6 dB per doubling of distance)	-38 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	28	30	N/A	49
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	22	N/A	42	dB(A)

CAR DOOR CLOSURE near carpark NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	75	77	80	dB(A)
Duration of single event	1.5 Seconds			
Number of events in the measurement period	7 Events			
Total time duration of combined events	10.5 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	56	54	N/A	N/A
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	47 m			
Distance attenuation (-6 dB per doubling of distance)	-33 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	28	28	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	21	N/A	N/A	dB(A)

CAR DOOR CLOSURE far carpark NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	75	77	80	dB(A)
Duration of single event	1.5 Seconds			
Number of events in the measurement period	7 Events			
Total time duration of combined events	10.5 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	56	54	N/A	N/A
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	84 m			
Distance attenuation (-6 dB per doubling of distance)	-38 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	30	33	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	16	N/A	N/A	dB(A)

CAR ENGINE STARTS near carpark DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds			
Number of events in the measurement period	10 Events			
Total time duration of combined events	30.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	58	57	N/A	75
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	47 m			
Distance attenuation (-6 dB per doubling of distance)	-33 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	27	26	N/A	44
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	19	N/A	37	dB(A)

STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{Aeq 1hr} and L_{A01 1hr} levels are represented as

R5 - Existing dwelling; to the south across Rifle Range Road CAR ENGINE STARTS far carpark DAY / EVEN	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds			
Number of events in the measurement period	10 Events			
Total time duration of combined events	30.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	58	57	N/A	75
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	84 m			
Distance attenuation (-6 dB per doubling of distance)	-38 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	22	21	N/A	39
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	13	N/A	32	dB(A)

CAR ENGINE STARTS near carpark NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds			
Number of events in the measurement period	5 Events			
Total time duration of combined events	15.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	55	54	N/A	75
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	47 m			
Distance attenuation (-6 dB per doubling of distance)	-33 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	24	23	N/A	44
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	16	N/A	37	dB(A)

CAR ENGINE STARTS far carpark NIGHT	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	73	74	75	dB(A)
Duration of single event	3 Seconds			
Number of events in the measurement period	5 Events			
Total time duration of combined events	15.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	55	54	N/A	75
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	84 m			
Distance attenuation (-6 dB per doubling of distance)	-38 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	19	18	N/A	39
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	10	N/A	32	dB(A)

CAR MOVEMENT TO DAY	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 Seconds			
Number of events in the measurement period	10 Events			
Total time duration of combined events	220.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	70	73
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	43 m			
Distance attenuation (-6 dB per doubling of distance)	-33 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	32	32	40	43
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	24	32	38	dB(A)

CAR MOVEMENT FROM DAY	Acoustic Quality Objectives			
	Creep LAeq	LAeq	LA10 1hr	LA01 1hr
Noise source level for single event	68	70	73	dB(A)
Duration of single event	22 Seconds			
Number of events in the measurement period	10 Events			
Total time duration of combined events	220.0 Seconds			
	LAeq	LAeq 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	70	73
Tonality / Impulsiveness correction	0 dB			
Minimum distance to receiver	84 m			
Distance attenuation (-6 dB per doubling of distance)	-38 dB			
Barrier screening	0.0 dB			
Facade reflection	2.5 dB			
Impact at nearest facade	26	26	34	37
Reduction through open window (also minus 2.5 dB facade)	-7.5 -7.5 -7.5			
Impact inside open window	18	27	30	dB(A)



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as

R5 Existing dwellings to the south across Rifle Range Road	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
CAR MOVEMENT TO NIGHT				
Noise source level for single event	68		70	73
Duration of single event		22		
Number of events in the measurement period	5		15	
Total time duration of combined events	110.0		330.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	59	58	N/A	73
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		43		
Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	29	27	N/A	43
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	20	N/A	36	

CAR MOVEMENT FROM NIGHT	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	68		70	73
Duration of single event		22		
Number of events in the measurement period	5		15	
Total time duration of combined events	110.0		330.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	59	58	N/A	73
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		64		
Distance attenuation (-6 dB per doubling of distance)		-38		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	23	22	N/A	37
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	14	N/A	30	

TRUCK ENGINE STARTS Loading bay	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	78		81	83
Duration of single event		3		
Number of events in the measurement period	1		3	
Total time duration of combined events	3.0		6.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	53	50	N/A	N/A
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		125		
Distance attenuation (-6 dB per doubling of distance)		-42		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	14	16	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	8	N/A	N/A	

TRUCK MOVEMENT TO SITE	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90
Duration of single event		80		
Number of events in the measurement period	2		4	
Total time duration of combined events	160.0		320.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	79	76	N/A	90
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		43		
Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	49	46	N/A	60
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	39	N/A	52	

TRUCK MOVEMENT FROM SITE	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90
Duration of single event		80		
Number of events in the measurement period	2		4	
Total time duration of combined events	160.0		320.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	79	73	N/A	90
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		43		
Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	49	43	N/A	60
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	36	N/A	52	

STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ levels are represented as

R5 Existing dwellings to the south across Rifle Range Road	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
TRUCK AIRBRAKES				
Noise source level for single event	90		98	102
Duration of single event		2		
Number of events in the measurement period	3		9	
Total time duration of combined events	6.0		18.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	68	67	N/A	N/A
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		43		
Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	38	42	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	34	N/A	N/A	

TRUCK AIRBRAKES at loading bay	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	90		98	102
Duration of single event		2		
Number of events in the measurement period	2		4	
Total time duration of combined events	4.0		8.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	66	63	N/A	N/A
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		125		
Distance attenuation (-6 dB per doubling of distance)		-42		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	27	29	N/A	N/A
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	22	N/A	N/A	

TRUCK UNLOADING at loading bay	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	75		80	82
Duration of single event		900		
Number of events in the measurement period	1		4	
Total time duration of combined events	900.0		3600.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	75	75	80	82
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		125		
Distance attenuation (-6 dB per doubling of distance)		-42		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	36	41	46	48
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	33	38	40	

PEOPLE TALKING OUTSIDE	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	62		70	73
Duration of single event		600		
Number of events in the measurement period	1		4	
Total time duration of combined events	600.0		2400.0	
	L _{Aeq}	L _{Aeq} lhr	LA10 lhr	LA01 lhr
Noise source level for assessment time period	60	60	70	73
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		50		
Distance attenuation (-6 dB per doubling of distance)		-34		
Barrier screening		0.0		
Facade reflection		2.5		
Impact at nearest facade	29	29	39	42
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5
Impact inside open window	21	31	34	



STAGE 2 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{A10} and L_{A01} levels are represented as

R5: Existing dwellings to the south across Rifle Range Road	Creep				Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01				
TRUCKS WITH REFRIGERATION UNIT								
Noise source level for single event	81		82	83				dB(A)
Duration of single event		900						Seconds
Number of events in the measurement period	1		2					Events
Total time duration of combined events	900.0		1800.0					Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr				
Noise source level for assessment time period	81	78	82	83				dB(A)
Tonality / Impulsiveness correction	0		0					dB
Minimum distance to receiver		125						m
Distance attenuation (-6 dB per doubling of distance)		-42						dB
Refrigeration unit truck directivity / screening		0						dB
Barrier screening		0.0						dB
Façade reflection		2.5						dB
Impact at nearest façade	42	39	43	44				dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5				dB
Impact inside open window	31	36	36	36				dB(A)

WASTE COLLECTION INDUSTRIAL BIN - Service	Creep				Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01				
Noise source level for single event	92		97	102				dB(A)
Duration of single event		180						Seconds
Number of events in the measurement period	1		1					Events
Total time duration of combined events	180.0		180.0					Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr				
Noise source level for assessment time period	85	79	N/A	102				dB(A)
Tonality / Impulsiveness correction	0		5					dB
Minimum distance to receiver		125						m
Distance attenuation (-6 dB per doubling of distance)		-42						dB
Barrier screening		0						dB
Façade reflection		2.5						dB
Impact at nearest façade	46	45	N/A	68				dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5				dB
Impact inside open window	37	N/A	60	60				dB(A)

ALFRESCO DINING	Creep				Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01				
Noise source level for single event	75		78	82				dB(A)
Duration of single event		720						Seconds
Number of events in the measurement period	1		4					Events
Total time duration of combined events	720.0		2880.0					Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr				
Noise source level for assessment time period	74	74	78	82				dB(A)
Tonality / Impulsiveness correction	0		5					dB
Minimum distance to receiver		50						m
Distance attenuation (-6 dB per doubling of distance)		-34						dB
Barrier screening		0.0						dB
Façade reflection		2.5						dB
Impact at nearest façade	43	48	52	56				dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5				dB
Impact inside open window	40	44	48	48				dB(A)

STAGE 2 MECH PLANT NOISE PREDICTION CALCULATIONS:

R1: Existing Single-storey dwellings to the north			
Kitchen exhaust fan units	62	dB(A) @ 3m	
Number of units	2	units	
Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	165	m	
Distance attenuation (-6 dB per doubling of distance)	-35	dB(A)	
Acoustic attenuator	-12	dB(A)	
Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	21	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	14	dB(A)	
A/C Units	60	dB(A) @ 3m	
Number of units	2	units	
Refrig Units	62	dB(A) @ 3m	
Number of units	1	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	120	m	
Distance attenuation (-6 dB per doubling of distance)	-32	dB(A)	
Acoustic barrier / enclosure	-12	dB(A)	
Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	24	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	17	dB(A)	
Combined impact at façade	26	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	18	dB(A)	

R2: Future dwellings to the immediate north			
Kitchen exhaust fan units	62	dB(A) @ 3m	
Number of units	2	units	
Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	108	m	
Distance attenuation (-6 dB per doubling of distance)	-31	dB(A)	
Acoustic attenuator	-12	dB(A)	
Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	25	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	18	dB(A)	
A/C Units	60	dB(A) @ 3m	
Number of units	2	units	
Refrig Units	62	dB(A) @ 3m	
Number of units	1	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	63	m	
Distance attenuation (-6 dB per doubling of distance)	-26	dB(A)	
Acoustic barrier / enclosure	-12	dB(A)	
Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	30	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	22	dB(A)	
Combined impact at façade	31	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	23	dB(A)	



STAGE 2 MECH PLANT NOISE PREDICTION CALCULATIONS:			
R3: Existing dwellings to the east			
Kitchen exhaust fan units	62	dB(A) @ 3m	
Number of units	2	units	
Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	335	m	
Distance attenuation (-6 dB per doubling of distance)	-41	dB(A)	
Acoustic attenuator	-12	dB(A)	
Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	15	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	8	dB(A)	
A/C Units	60	dB(A) @ 3m	
Number of units	2	units	
Refrig Units	62	dB(A) @ 3m	
Number of units	1	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	255	m	
Distance attenuation (-6 dB per doubling of distance)	-39	dB(A)	
Acoustic barrier / enclosure	-12	dB(A)	
Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	17	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	10	dB(A)	
Combined impact at façade	20	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	12	dB(A)	
R4: Future dwellings to the immediate east			
Kitchen exhaust fan units	62	dB(A) @ 3m	
Number of units	2	units	
Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	75	m	
Distance attenuation (-6 dB per doubling of distance)	-28	dB(A)	
Acoustic attenuator	-20	dB(A)	
Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	20	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	13	dB(A)	
A/C Units	60	dB(A) @ 3m	
Number of units	2	units	
Refrig Units	62	dB(A) @ 3m	
Number of units	1	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	15	m	
Distance attenuation (-6 dB per doubling of distance)	-14	dB(A)	
Acoustic barrier / enclosure	-20	dB(A)	
Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	34	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	27	dB(A)	
Combined impact at façade	34	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	27	dB(A)	

STAGE 2 MECH PLANT NOISE PREDICTION CALCULATIONS:			
R5: Existing dwellings to the south across Rifle Range Road			
Kitchen exhaust fan units	62	dB(A) @ 3m	
Number of units	2	units	
Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	65	m	
Distance attenuation (-6 dB per doubling of distance)	-27	dB(A)	
Acoustic attenuator	-12	dB(A)	
Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	30	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	22	dB(A)	
A/C Units	60	dB(A) @ 3m	
Number of units	2	units	
Refrig Units	62	dB(A) @ 3m	
Number of units	1	units	
Total noise level	66	dB(A) @ 3m	
Distance to receiver	65	m	
Distance attenuation (-6 dB per doubling of distance)	-27	dB(A)	
Acoustic barrier / enclosure	-12	dB(A)	
Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)	
Impact at façade	29	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	22	dB(A)	
Combined impact at façade	32	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	25	dB(A)	



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{eq} and L_{max} for the noise are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north					
CAR DOOR CLOSURE near carpark DAY / EVEN					CAR DOOR CLOSURE near carpark DAY / EVEN					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	75		77	80	dB(A)	75		77	80	dB(A)
Duration of single event		1.5			Seconds		1.5			Seconds
Number of events in the measurement period	45		180		Events	45		180		Events
Total time duration of combined events	67.5		270.0		Seconds	67.5		270.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	64	64	N/A	80	dB(A)	64	64	N/A	80	dB(A)
Tonality / Impulsiveness correction	0		5		dB	0		5		dB
Minimum distance to receiver			79		m			22		m
Distance attenuation (-6 dB per doubling of distance)			-38		dB			-27		dB
Barrier screening			-10.7		dB			-17.1		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	18	23	N/A	39	dB(A)	22	27	N/A	44	dB(A)
Reduction through open window (also minus 2.5 dB façade)			-7.5	-7.5	dB			-7.5	-7.5	dB
Impact inside open window	15	N/A	31		dB(A)	20	N/A	36		dB(A)
CAR DOOR CLOSURE far carpark DAY / EVEN					CAR DOOR CLOSURE far carpark DAY / EVEN					
Noise source level for single event	75		77	80	dB(A)	75		77	80	dB(A)
Duration of single event		1.5			Seconds		1.5			Seconds
Number of events in the measurement period	45		180		Events	45		180		Events
Total time duration of combined events	67.5		270.0		Seconds	67.5		270.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	64	64	N/A	80	dB(A)	64	64	N/A	80	dB(A)
Tonality / Impulsiveness correction	0		5		dB	0		5		dB
Minimum distance to receiver			97		m			40		m
Distance attenuation (-6 dB per doubling of distance)			-40		dB			-32		dB
Barrier screening			-10.7		dB			-17.1		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	16	21	N/A	37	dB(A)	17	22	N/A	38	dB(A)
Reduction through open window (also minus 2.5 dB façade)			-7.5	-7.5	dB			-7.5	-7.5	dB
Impact inside open window	13	N/A	30		dB(A)	15	N/A	31		dB(A)
CAR ENGINE STARTS near carpark DAY / EVEN					CAR ENGINE STARTS near carpark DAY / EVEN					
Noise source level for single event	73		74	75	dB(A)	73		74	75	dB(A)
Duration of single event		3			Seconds		3			Seconds
Number of events in the measurement period	23		90		Events	23		90		Events
Total time duration of combined events	67.5		270.0		Seconds	67.5		270.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	62	62	N/A	75	dB(A)	62	62	N/A	75	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver			79		m			22		m
Distance attenuation (-6 dB per doubling of distance)			-38		dB			-27		dB
Barrier screening			-10.7		dB			-17.1		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	16	16	N/A	29	dB(A)	20	20	N/A	34	dB(A)
Reduction through open window (also minus 2.5 dB façade)			-7.5	-7.5	dB			-7.5	-7.5	dB
Impact inside open window	8	N/A	21		dB(A)	13	N/A	26		dB(A)
CAR ENGINE STARTS far carpark DAY / EVEN					CAR ENGINE STARTS far carpark DAY / EVEN					
Noise source level for single event	73		74	75	dB(A)	73		74	75	dB(A)
Duration of single event		3			Seconds		3			Seconds
Number of events in the measurement period	23		90		Events	23		90		Events
Total time duration of combined events	67.5		270.0		Seconds	67.5		270.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	62	62	N/A	75	dB(A)	62	62	N/A	75	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver			97		m			40		m
Distance attenuation (-6 dB per doubling of distance)			-40		dB			-32		dB
Barrier screening			-10.7		dB			-17.1		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	14	14	N/A	27	dB(A)	15	15	N/A	28	dB(A)
Reduction through open window (also minus 2.5 dB façade)			-7.5	-7.5	dB			-7.5	-7.5	dB
Impact inside open window	6	N/A	20		dB(A)	8	N/A	21		dB(A)
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY					
Noise source level for single event	68		70	73	dB(A)	68		70	73	dB(A)
Duration of single event		28			Seconds		28			Seconds
Number of events in the measurement period	32		129		Events	32		129		Events
Total time duration of combined events	903.0		3612.0		Seconds	903.0		3612.0		Seconds
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	68	68	70	73	dB(A)	68	68	70	73	dB(A)
Tonality / Impulsiveness correction	0		0		dB	0		0		dB
Minimum distance to receiver			86		m			29		m
Distance attenuation (-6 dB per doubling of distance)			-39		dB			-29		dB
Barrier screening			-10.7		dB			-17.1		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	21	21	23	26	dB(A)	24	24	26	29	dB(A)
Reduction through open window (also minus 2.5 dB façade)			-7.5	-7.5	dB			-7.5	-7.5	dB
Impact inside open window	14	16	19		dB(A)	17	19	22		dB(A)



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{50dB} hr and L_{10dB} hr are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
CAR MOVEMENT FROM DAY	Creep	Acoustic Quality Objectives			Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	68		70	73	68		70	73	
Duration of single event		32	28	139		32	28	139	
Number of events in the measurement period		903.0		3013.0		903.0		3013.0	
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr	L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	68	68	70	73	68	68	70	73	
Tonality / Impulsiveness correction	0				0				
Minimum distance to receiver			110				53		
Distance attenuation (-6 dB per doubling of distance)			-41				-34		
Barrier screening			-10.7				-17.1		
Façade reflection			2.5				2.5		
Impact at nearest façade	19	19	21	24	19	19	21	24	
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5		-7.5	-7.5	-7.5	
Impact inside open window		11	13	16		11	13	16	
TRUCK ENGINE STARTS Loading bay					TRUCK ENGINE STARTS Loading bay				
Noise source level for single event	75		81	83	75		81	83	
Duration of single event		3	4	13.0		3	4	13.0	
Number of events in the measurement period		6.0		13.0		6.0		13.0	
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr	L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	55	55	N/A	N/A	55	55	N/A	N/A	
Tonality / Impulsiveness correction	0		5		0		5		
Minimum distance to receiver			65				8		
Distance attenuation (-6 dB per doubling of distance)			-36				-18		
Barrier screening			-15.0				-16.9		
Façade reflection			2.5				2.5		
Impact at nearest façade	8	10	N/A	N/A	21	23	N/A	N/A	
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5		-7.5	-7.5	-7.5	
Impact inside open window		2	N/A	N/A		15	N/A	N/A	
TRUCK MOVEMENT TO SITE					TRUCK MOVEMENT TO SITE				
Noise source level for single event	87		89	90	87		89	90	
Duration of single event		2	4	170.0		2	4	170.0	
Number of events in the measurement period		170.0		340.0		170.0		340.0	
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr	L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	80	80	77	N/A	90	80	77	N/A	90
Tonality / Impulsiveness correction	0		0		0		0		
Minimum distance to receiver			70				13		
Distance attenuation (-6 dB per doubling of distance)			-37				-23		
Barrier screening			-12.0				-17.6		
Façade reflection			2.5				2.5		
Impact at nearest façade	33	30	N/A	44	42	39	N/A	53	
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5		-7.5	-7.5	-7.5	
Impact inside open window		23	N/A	36		32	N/A	45	
TRUCK MOVEMENT FROM SITE					TRUCK MOVEMENT FROM SITE				
Noise source level for single event	87		89	90	87		89	90	
Duration of single event		2	4	170.0		2	4	170.0	
Number of events in the measurement period		170.0		340.0		170.0		340.0	
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr	L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	80	80	77	N/A	90	80	77	N/A	90
Tonality / Impulsiveness correction	0		0		0		0		
Minimum distance to receiver			70				13		
Distance attenuation (-6 dB per doubling of distance)			-37				-23		
Barrier screening			-12.0				-17.6		
Façade reflection			2.5				2.5		
Impact at nearest façade	33	30	N/A	44	42	39	N/A	53	
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5		-7.5	-7.5	-7.5	
Impact inside open window		23	N/A	36		32	N/A	45	
TRUCK AIRBRAKES					TRUCK AIRBRAKES				
Noise source level for single event	90		98	102	90		98	102	
Duration of single event		4	16	8.0		4	16	8.0	
Number of events in the measurement period		8.0		32.0		8.0		32.0	
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr	L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	69	69	69	N/A	N/A	69	69	N/A	N/A
Tonality / Impulsiveness correction	0		70		0		13		
Minimum distance to receiver			-37				-22		
Distance attenuation (-6 dB per doubling of distance)			-12.0				-17.6		
Barrier screening			2.5				2.5		
Impact at nearest façade	23	28	N/A	N/A	32	37	N/A	N/A	
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5		-7.5	-7.5	-7.5	
Impact inside open window		21	N/A	N/A		30	N/A	N/A	



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₉₀ and L₁₀ for the noise are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R1: Existing Single-storey dwellings to the north					R2: Future dwellings to the immediate north				
TRUCK AIRBRAKES at loading bay	Creep	Acoustic Quality Objectives			TRUCK AIRBRAKES at loading bay	Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	90		98	102	Noise source level for single event	90		98	102
Duration of single event	4	2			Duration of single event	4	2		
Number of events in the measurement period	18	18			Number of events in the measurement period	18	18		
Total time duration of combined events	72	36			Total time duration of combined events	72	36		
Noise source level for assessment time period	69	69	N/A	N/A	Noise source level for assessment time period	69	69	N/A	N/A
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver		65			Minimum distance to receiver		8		
Distance attenuation (-6 dB per doubling of distance)		-36			Distance attenuation (-6 dB per doubling of distance)		-18		
Barrier screening		-15.0			Barrier screening		-19.9		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	21	26	N/A	N/A	Impact at nearest façade	34	39	N/A	N/A
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		18	N/A	N/A	Impact inside open window		31	N/A	N/A
TRUCK UNLOADING at loading bay					TRUCK UNLOADING at loading bay				
Noise source level for single event	75	80			Noise source level for single event	75	80		
Duration of single event	1	900			Duration of single event	1	900		
Number of events in the measurement period	900	900			Number of events in the measurement period	900	900		
Total time duration of combined events	3600	3600			Total time duration of combined events	3600	3600		
Noise source level for assessment time period	75	75	80	82	Noise source level for assessment time period	75	75	80	82
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver		65			Minimum distance to receiver		8		
Distance attenuation (-6 dB per doubling of distance)		-36			Distance attenuation (-6 dB per doubling of distance)		-18		
Barrier screening		-15.0			Barrier screening		-19.9		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	26	31	36	38	Impact at nearest façade	40	45	50	52
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		24	29	31	Impact inside open window		37	42	44
PEOPLE TALKING OUTSIDE					PEOPLE TALKING OUTSIDE				
Noise source level for single event	62	70			Noise source level for single event	62	70		
Duration of single event	1	600			Duration of single event	1	600		
Number of events in the measurement period	600	600			Number of events in the measurement period	600	600		
Total time duration of combined events	2400	2400			Total time duration of combined events	2400	2400		
Noise source level for assessment time period	60	60	70	73	Noise source level for assessment time period	60	60	70	73
Tonality / Impulsiveness correction	0	0			Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver		78			Minimum distance to receiver		21		
Distance attenuation (-6 dB per doubling of distance)		-38			Distance attenuation (-6 dB per doubling of distance)		-26		
Barrier screening		-10.7			Barrier screening		-17.1		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	14	14	24	27	Impact at nearest façade	19	19	29	32
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		7	16	19	Impact inside open window		12	21	24
TRUCKS WITH REFRIGERATION UNIT					TRUCKS WITH REFRIGERATION UNIT				
Noise source level for single event	81	82			Noise source level for single event	81	82		
Duration of single event	1	900			Duration of single event	1	900		
Number of events in the measurement period	900	900			Number of events in the measurement period	900	900		
Total time duration of combined events	3600	3600			Total time duration of combined events	3600	3600		
Noise source level for assessment time period	81	78	82	83	Noise source level for assessment time period	81	78	82	83
Tonality / Impulsiveness correction	0	0			Tonality / Impulsiveness correction	0	0		
Minimum distance to receiver		65			Minimum distance to receiver		8		
Distance attenuation (-6 dB per doubling of distance)		-36			Distance attenuation (-6 dB per doubling of distance)		-18		
Refrigeration unit truck directivity / screening		0			Refrigeration unit truck directivity / screening		0		
Barrier screening		-13.8			Barrier screening		-19.4		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	33	30	34	35	Impact at nearest façade	46	43	47	48
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		23	27	28	Impact inside open window		35	39	40
WASTE COLLECTION INDUSTRIAL BIN - Service					WASTE COLLECTION INDUSTRIAL BIN - Service				
Noise source level for single event	92	97			Noise source level for single event	92	97		
Duration of single event	1	180			Duration of single event	1	180		
Number of events in the measurement period	180	180			Number of events in the measurement period	180	180		
Total time duration of combined events	720	720			Total time duration of combined events	720	720		
Noise source level for assessment time period	85	82	97	102	Noise source level for assessment time period	85	82	97	102
Tonality / Impulsiveness correction	0	5			Tonality / Impulsiveness correction	0	5		
Minimum distance to receiver		65			Minimum distance to receiver		8		
Distance attenuation (-6 dB per doubling of distance)		-36			Distance attenuation (-6 dB per doubling of distance)		-18		
Barrier screening		-5			Barrier screening		-12		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	46	48	63	68	Impact at nearest façade	57	59	74	79
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		41	56	61	Impact inside open window		52	67	72



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{50dB} and L_{10dB} are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3: Existing dwellings: to the east					R4: Future dwellings: to the immediate east				
CAR DOOR CLOSURE near carpark DAY / EVEN					CAR DOOR CLOSURE near carpark DAY / EVEN				
Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
L _{Aeq}	L _{Aeq}	LA10	LA01	LA01	L _{Aeq}	L _{Aeq}	LA10	LA01	LA01
Noise source level for single event	75		77	80	Noise source level for single event	75		77	80
Duration of single event		1.5			Duration of single event		1.5		
Number of events in the measurement period	45		180		Number of events in the measurement period	45		180	
Total time duration of combined events	87.5		270.0		Total time duration of combined events	87.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	N/A	80	Noise source level for assessment time period	64	64	N/A	80
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		287			Minimum distance to receiver		45		
Distance attenuation (-6 dB per doubling of distance)		-49			Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		-9.7			Barrier screening		-15.5		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	7	12	N/A	29	Impact at nearest façade	18	23	N/A	39
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		5	N/A	21	Impact inside open window		18	N/A	31
CAR DOOR CLOSURE far carpark DAY / EVEN					CAR DOOR CLOSURE far carpark DAY / EVEN				
Noise source level for single event	75		77	80	Noise source level for single event	75		77	80
Duration of single event		1.5			Duration of single event		1.5		
Number of events in the measurement period	45		180		Number of events in the measurement period	45		180	
Total time duration of combined events	87.5		270.0		Total time duration of combined events	87.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	N/A	80	Noise source level for assessment time period	64	64	N/A	80
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver		330			Minimum distance to receiver		88		
Distance attenuation (-6 dB per doubling of distance)		-50			Distance attenuation (-6 dB per doubling of distance)		-39		
Barrier screening		-8.9			Barrier screening		-15.4		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	7	12	N/A	28	Impact at nearest façade	12	17	N/A	33
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		5	N/A	21	Impact inside open window		9	N/A	26
CAR ENGINE STARTS near carpark DAY / EVEN					CAR ENGINE STARTS near carpark DAY / EVEN				
Noise source level for single event	73		74	75	Noise source level for single event	73		74	75
Duration of single event		3			Duration of single event		3		
Number of events in the measurement period	23		90		Number of events in the measurement period	23		90	
Total time duration of combined events	87.5		270.0		Total time duration of combined events	87.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	N/A	75	Noise source level for assessment time period	62	62	N/A	75
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		287			Minimum distance to receiver		45		
Distance attenuation (-6 dB per doubling of distance)		-49			Distance attenuation (-6 dB per doubling of distance)		-33		
Barrier screening		-9.7			Barrier screening		-15.5		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	8	8	N/A	19	Impact at nearest façade	16	16	N/A	29
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		2	N/A	11	Impact inside open window		8	N/A	21
CAR ENGINE STARTS far carpark DAY / EVEN					CAR ENGINE STARTS far carpark DAY / EVEN				
Noise source level for single event	73		74	75	Noise source level for single event	73		74	75
Duration of single event		3			Duration of single event		3		
Number of events in the measurement period	23		90		Number of events in the measurement period	23		90	
Total time duration of combined events	87.5		270.0		Total time duration of combined events	87.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	N/A	75	Noise source level for assessment time period	62	62	N/A	75
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		330			Minimum distance to receiver		88		
Distance attenuation (-6 dB per doubling of distance)		-50			Distance attenuation (-6 dB per doubling of distance)		-39		
Barrier screening		-8.9			Barrier screening		-15.4		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	8	8	N/A	18	Impact at nearest façade	10	10	N/A	23
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		2	N/A	11	Impact inside open window		2	N/A	16
CAR MOVEMENT TO DAY					CAR MOVEMENT TO DAY				
Noise source level for single event	68		70	73	Noise source level for single event	68		70	73
Duration of single event		28			Duration of single event		28		
Number of events in the measurement period	32		129		Number of events in the measurement period	32		129	
Total time duration of combined events	903.0		3612.0		Total time duration of combined events	903.0		3612.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	68	68	70	73	Noise source level for assessment time period	68	68	70	73
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver		392			Minimum distance to receiver		50		
Distance attenuation (-6 dB per doubling of distance)		-49			Distance attenuation (-6 dB per doubling of distance)		-34		
Barrier screening		-10.0			Barrier screening		-15.6		
Façade reflection		2.5			Façade reflection		2.5		
Impact at nearest façade	11	11	13	16	Impact at nearest façade	21	21	23	26
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		4	6	9	Impact inside open window		13	15	18



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{50dB} hr and L_{90dB} hr are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3: Existing dwellings: to the east					R4: Future dwellings: to the immediate east					
CAR MOVEMENT FROM DAY					CAR MOVEMENT FROM DAY					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	68		70	73	dB(A)	68		70	73	dB(A)
Duration of single event		32	139		Seconds		32	139		Seconds
Number of events in the measurement period		903.0	3612.0		Events		903.0	3612.0		Events
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	68	68	70	73	dB(A)	68	68	70	73	dB(A)
Tonality / Impulsiveness correction	0				dB	0				dB
Minimum distance to receiver			323		m			81		m
Distance attenuation (-6 dB per doubling of distance)			-50		dB			-38		dB
Barrier screening			-10.0		dB			-15.6		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	10	10	12	15	dB(A)	17	17	19	22	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB		-7.5	-7.5	-7.5	dB
Impact inside open window		3	5	8	dB(A)		9	11	14	dB(A)
TRUCK ENGINE STARTS Loading bay					TRUCK ENGINE STARTS Loading bay					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	75		81	83	dB(A)	75		81	83	dB(A)
Duration of single event		3	4		Seconds		3	4		Seconds
Number of events in the measurement period		6.0	13.0		Events		6.0	13.0		Events
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	55	55	N/A	N/A	dB(A)	55	55	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB	0				dB
Minimum distance to receiver			308		m			66		m
Distance attenuation (-6 dB per doubling of distance)			-50		dB			-36		dB
Onsite building screening			-15.0		dB			-15.0		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	-6	-4	N/A	N/A	dB(A)	7	9	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB		-7.5	-7.5	-7.5	dB
Impact inside open window		-12	N/A	N/A	dB(A)		2	N/A	N/A	dB(A)
TRUCK MOVEMENT TO SITE					TRUCK MOVEMENT TO SITE					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		2	4		Seconds		2	4		Seconds
Number of events in the measurement period		170.0	340.0		Events		170.0	340.0		Events
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	80	80	77	N/A	90	80	80	77	N/A	90
Tonality / Impulsiveness correction	0				dB	0				dB
Minimum distance to receiver		327		327	m		85		85	m
Distance attenuation (-6 dB per doubling of distance)		-50		-50	dB		-39		-39	dB
Barrier screening		-8.5		-8.5	dB		-15.4		-15.4	dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	23	20	N/A	34	dB(A)	28	25	N/A	39	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB		-7.5	-7.5	-7.5	dB
Impact inside open window		13	N/A	26	dB(A)		18	N/A	31	dB(A)
TRUCK MOVEMENT FROM SITE					TRUCK MOVEMENT FROM SITE					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	87		89	90	dB(A)	87		89	90	dB(A)
Duration of single event		2	4		Seconds		2	4		Seconds
Number of events in the measurement period		170.0	340.0		Events		170.0	340.0		Events
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	80	80	77	N/A	90	80	80	77	N/A	90
Tonality / Impulsiveness correction	0				dB	0				dB
Minimum distance to receiver		327		327	m		85		85	m
Distance attenuation (-6 dB per doubling of distance)		-50		-50	dB		-39		-39	dB
Barrier screening		-8.5		-8.5	dB		-15.4		-15.4	dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	23	20	N/A	34	dB(A)	28	25	N/A	39	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB		-7.5	-7.5	-7.5	dB
Impact inside open window		13	N/A	26	dB(A)		18	N/A	31	dB(A)
TRUCK AIRBRAKES					TRUCK AIRBRAKES					
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives			
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01	
Noise source level for single event	90		98	102	dB(A)	90		98	102	dB(A)
Duration of single event		4	16		Seconds		4	16		Seconds
Number of events in the measurement period		8.0	32.0		Events		8.0	32.0		Events
Total time duration of combined events		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr		L _{Aeq}	L _{Aeq} hr	LA10 hr	LA01 hr
Noise source level for assessment time period	69	69	N/A	N/A	dB(A)	69	69	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0				dB	0				dB
Minimum distance to receiver			327		m			85		m
Distance attenuation (-6 dB per doubling of distance)			-50		dB			-39		dB
Barrier screening			-8.5		dB			-15.4		dB
Façade reflection			2.5		dB			2.5		dB
Impact at nearest façade	13	18	N/A	N/A	dB(A)	18	23	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	dB		-7.5	-7.5	-7.5	dB
Impact inside open window		11	N/A	N/A	dB(A)		16	N/A	N/A	dB(A)



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{Aeq,1hr} and L_{Aeq,1hr,95%} are represented as N/A if the duration of events do not occur for 10% or 1% of the 1 hour period)

R3: Existing dwellings: to the east					R4: Future dwellings: to the immediate east				
TRUCK AIRBRAKES at loading bay					TRUCK AIRBRAKES at loading bay				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	90		98	102	Noise source level for single event	90		98	102
Duration of single event		4	2	18	Duration of single event		4	2	18
Number of events in the measurement period		8.0		32.0	Number of events in the measurement period		8.0		32.0
Total time duration of combined events					Total time duration of combined events				
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	69	69	N/A	N/A	Noise source level for assessment time period	69	69	N/A	N/A
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			308		Minimum distance to receiver			66	
Distance attenuation (-6 dB per doubling of distance)			-50		Distance attenuation (-6 dB per doubling of distance)			-36	
Onsite building screening			-15.0		Onsite building screening			-15.0	
Façade reflection			2.5		Façade reflection			2.5	
Impact at nearest façade	7	12	N/A	N/A	Impact at nearest façade	21	26	N/A	N/A
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		8	N/A	N/A	Impact inside open window		18	N/A	N/A
TRUCK UNLOADING at loading bay					TRUCK UNLOADING at loading bay				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	75		80	82	Noise source level for single event	75		80	82
Duration of single event		1	4	900	Duration of single event		1	4	900
Number of events in the measurement period		900.0		3600.0	Number of events in the measurement period		900.0		3600.0
Total time duration of combined events					Total time duration of combined events				
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	75	75	80	82	Noise source level for assessment time period	75	75	80	82
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			308		Minimum distance to receiver			66	
Distance attenuation (-6 dB per doubling of distance)			-50		Distance attenuation (-6 dB per doubling of distance)			-36	
Onsite building screening			-15.0		Onsite building screening			-15.0	
Façade reflection			2.5		Façade reflection			2.5	
Impact at nearest façade	13	18	23	28	Impact at nearest façade	26	31	36	38
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		10	18	17	Impact inside open window		24	29	31
PEOPLE TALKING OUTSIDE					PEOPLE TALKING OUTSIDE				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	62		70	73	Noise source level for single event	62		70	73
Duration of single event		1	4	600	Duration of single event		1	4	600
Number of events in the measurement period		600.0		2400.0	Number of events in the measurement period		600.0		2400.0
Total time duration of combined events					Total time duration of combined events				
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	60	60	70	73	Noise source level for assessment time period	60	60	70	73
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver			250		Minimum distance to receiver			8	
Distance attenuation (-6 dB per doubling of distance)			-48		Distance attenuation (-6 dB per doubling of distance)			-18	
Barrier screening			-13.0		Barrier screening			-16.7	
Façade reflection			2.5		Façade reflection			2.5	
Impact at nearest façade	2	2	12	16	Impact at nearest façade	28	28	38	41
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		-6	4	7	Impact inside open window		21	30	33
TRUCKS WITH REFRIGERATION UNIT					TRUCKS WITH REFRIGERATION UNIT				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	81		82	83	Noise source level for single event	81		82	83
Duration of single event		1	2	900	Duration of single event		1	2	900
Number of events in the measurement period		900.0		1800.0	Number of events in the measurement period		900.0		1800.0
Total time duration of combined events					Total time duration of combined events				
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	81	81	82	83	Noise source level for assessment time period	81	81	82	83
Tonality / Impulsiveness correction	0		0		Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver			308		Minimum distance to receiver			66	
Distance attenuation (-6 dB per doubling of distance)			-50		Distance attenuation (-6 dB per doubling of distance)			-36	
Refrigeration unit truck directivity / screening			0		Refrigeration unit truck directivity / screening			0	
Onsite building screening			-15.0		Onsite building screening			-15.0	
Façade reflection			2.5		Façade reflection			2.5	
Impact at nearest façade	19	16	20	21	Impact at nearest façade	32	29	33	34
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		8	12	13	Impact inside open window		22	26	27
WASTE COLLECTION INDUSTRIAL BIN - Service					WASTE COLLECTION INDUSTRIAL BIN - Service				
	Creep	Acoustic Quality Objectives				Creep	Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01		L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	92		97	102	Noise source level for single event	92		97	102
Duration of single event		1	2	180	Duration of single event		1	2	180
Number of events in the measurement period		180.0		360.0	Number of events in the measurement period		180.0		360.0
Total time duration of combined events					Total time duration of combined events				
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr		L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	85	85	97	102	Noise source level for assessment time period	85	85	97	102
Tonality / Impulsiveness correction	0		5		Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			305		Minimum distance to receiver			63	
Distance attenuation (-6 dB per doubling of distance)			-50		Distance attenuation (-6 dB per doubling of distance)			-36	
Onsite building screening			-8.0		Onsite building screening			-8.0	
Façade reflection			2.5		Façade reflection			2.5	
Impact at nearest façade	30	32	47	52	Impact at nearest façade	44	46	61	66
Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5	Reduction through open window (also minus 2.5 dB façade)		-7.5	-7.5	-7.5
Impact inside open window		24	39	44	Impact inside open window		38	53	58



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{50dB} and L_{90dB} levels are represented as

R5: Existing dwelling: to the south across Rifle Range Road				
CAR DOOR CLOSURE near carpark DAY / EVEN	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	75		77	80
Duration of single event		1.5		
Number of events in the measurement period	45		180	
Total time duration of combined events	67.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	N/A	80
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			116	
Distance attenuation (-6 dB per doubling of distance)			-41	
Barrier screening			0.0	
Façade reflection			2.5	
Impact at nearest façade	78	80	N/A	46
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	22	N/A	39	

CAR DOOR CLOSURE far carpark DAY / EVEN				
CAR DOOR CLOSURE far carpark DAY / EVEN	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	75		77	80
Duration of single event		1.5		
Number of events in the measurement period	45		180	
Total time duration of combined events	67.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	64	64	N/A	80
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			138	
Distance attenuation (-6 dB per doubling of distance)			-43	
Barrier screening			0.0	
Façade reflection			2.5	
Impact at nearest façade	23	28	N/A	48
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	21	N/A	37	

CAR ENGINE STARTS near carpark DAY / EVEN				
CAR ENGINE STARTS near carpark DAY / EVEN	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	73		74	75
Duration of single event		3		
Number of events in the measurement period	23		90	
Total time duration of combined events	67.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	N/A	75
Tonality / Impulsiveness correction	0		0	
Minimum distance to receiver			116	
Distance attenuation (-6 dB per doubling of distance)			-41	
Barrier screening			0.0	
Façade reflection			2.5	
Impact at nearest façade	23	23	N/A	36
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	18	N/A	29	

CAR ENGINE STARTS far carpark DAY / EVEN				
CAR ENGINE STARTS far carpark DAY / EVEN	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	73		74	75
Duration of single event		3		
Number of events in the measurement period	23		90	
Total time duration of combined events	67.5		270.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	62	62	N/A	75
Tonality / Impulsiveness correction	0		138	
Minimum distance to receiver			-43	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			0.0	
Façade reflection			2.5	
Impact at nearest façade	21	21	N/A	36
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	14	N/A	27	

CAR MOVEMENT TO DAY				
CAR MOVEMENT TO DAY	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	68		70	73
Duration of single event		28		
Number of events in the measurement period	32		129	
Total time duration of combined events	903.0		3612.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	68	68	70	73
Tonality / Impulsiveness correction	0		115	
Minimum distance to receiver			-41	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			2.5	
Façade reflection			2.5	
Impact at nearest façade	29	29	31	34
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	22	24	27	

STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L_{50dB} and L_{90dB} levels are represented as

R5: Existing dwelling: to the south across Rifle Range Road				
CAR MOVEMENT FROM DAY	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	68		70	73
Duration of single event		28		
Number of events in the measurement period	32		129	
Total time duration of combined events	903.0		3612.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	68	68	70	73
Tonality / Impulsiveness correction	0		140	
Minimum distance to receiver			-43	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			2.5	
Façade reflection			2.5	
Impact at nearest façade	28	28	30	33
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	20	22	28	

TRUCK ENGINE STARTS Loading bay				
TRUCK ENGINE STARTS Loading bay	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	78		81	83
Duration of single event		3		
Number of events in the measurement period	2		4	
Total time duration of combined events	6.0		12.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	56	53	N/A	N/A
Tonality / Impulsiveness correction	0		5	
Minimum distance to receiver			160	
Distance attenuation (-6 dB per doubling of distance)			-44	
Barrier screening			0.0	
Façade reflection			2.5	
Impact at nearest façade	15	17	N/A	N/A
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	9	N/A	N/A	

TRUCK MOVEMENT TO SITE				
TRUCK MOVEMENT TO SITE	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90
Duration of single event		85		
Number of events in the measurement period	2		4	
Total time duration of combined events	170.0		340.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	80	77	N/A	90
Tonality / Impulsiveness correction	0		137	
Minimum distance to receiver			-43	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			2.5	
Façade reflection			2.5	
Impact at nearest façade	40	37	N/A	50
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	29	N/A	42	

TRUCK MOVEMENT FROM SITE				
TRUCK MOVEMENT FROM SITE	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	87		89	90
Duration of single event		85		
Number of events in the measurement period	2		4	
Total time duration of combined events	170.0		340.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	80	77	N/A	90
Tonality / Impulsiveness correction	0		137	
Minimum distance to receiver			-43	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			2.5	
Façade reflection			2.5	
Impact at nearest façade	40	37	N/A	50
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	29	N/A	42	

TRUCK AIRBRAKES				
TRUCK AIRBRAKES	Creep		Acoustic Quality Objectives	
	L _{Aeq}	L _{Aeq}	LA10	LA01
Noise source level for single event	90		93	102
Duration of single event		2		
Number of events in the measurement period	4		16	
Total time duration of combined events	8.0		32.0	
	L _{Aeq}	L _{Aeq} 1hr	LA10 1hr	LA01 1hr
Noise source level for assessment time period	69	69	N/A	N/A
Tonality / Impulsiveness correction	0		137	
Minimum distance to receiver			-43	
Distance attenuation (-6 dB per doubling of distance)			0.0	
Barrier screening			2.5	
Façade reflection			2.5	
Impact at nearest façade	29	34	N/A	N/A
Reduction through open window (also minus 2.5 dB façade)	-7.5	-7.5	-7.5	
Impact inside open window	27	N/A	N/A	



STAGE 3 ACTIVITY NOISE PREDICTION CALCULATIONS: (L₁₀ and L₅₀ are represented as

R5: Existing dwelling: to the south across Rifle Range Road	Creep		Acoustic Quality Objectives		
	L _{Aeq}	L _{Aeq}	LA10	LA01	
TRUCK AIRBRAKES at loading bay					
Noise source level for single event	90		98	102	dB(A)
Duration of single event		2			Seconds
Number of events in the measurement period	4		16		Events
Total time duration of combined events	8.0		32.0		Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	69	69	N/A	N/A	dB(A)
Tonality / Impulsiveness correction	0		5		dB
Minimum distance to receiver		160			m
Distance attenuation (-6 dB per doubling of distance)		-44			dB
Barrier screening		0.0			dB
Facade reflection		2.5			dB
Impact at nearest facade	78	33	N/A	N/A	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	78	N/A	N/A	N/A	dB(A)
TRUCK UNLOADING at loading bay					
Noise source level for single event	75		80	82	dB(A)
Duration of single event		900			Seconds
Number of events in the measurement period	1		4		Events
Total time duration of combined events	900.0		3600.0		Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	75	75	80	82	dB(A)
Tonality / Impulsiveness correction	0		5		dB
Minimum distance to receiver		160			m
Distance attenuation (-6 dB per doubling of distance)		-44			dB
Barrier screening		0.0			dB
Facade reflection		2.5			dB
Impact at nearest facade	33	38	43	46	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	31	36	38	38	dB(A)
PEOPLE TALKING OUTSIDE					
Noise source level for single event	62		70	73	dB(A)
Duration of single event		600			Seconds
Number of events in the measurement period	1		4		Events
Total time duration of combined events	600.0		2400.0		Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	60	60	70	73	dB(A)
Tonality / Impulsiveness correction	0		0		dB
Minimum distance to receiver		115			m
Distance attenuation (-6 dB per doubling of distance)		-41			dB
Barrier screening		0.0			dB
Facade reflection		2.5			dB
Impact at nearest facade	22	22	31	34	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	14	24	27	27	dB(A)
TRUCKS WITH REFRIGERATION UNIT					
Noise source level for single event	81		82	83	dB(A)
Duration of single event		900			Seconds
Number of events in the measurement period	1		2		Events
Total time duration of combined events	900.0		1800.0		Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	81	78	82	83	dB(A)
Tonality / Impulsiveness correction	0		0		dB
Minimum distance to receiver		160			m
Distance attenuation (-6 dB per doubling of distance)		-44			dB
Refrigeration unit track directivity / screening		0			dB
Barrier screening		0.0			dB
Facade reflection		2.5			dB
Impact at nearest facade	39	36	40	41	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	29	33	34	34	dB(A)
WASTE COLLECTION INDUSTRIAL BIN - Service					
Noise source level for single event	92		97	102	dB(A)
Duration of single event		180			Seconds
Number of events in the measurement period	1		2		Events
Total time duration of combined events	180.0		360.0		Seconds
	L_{Aeq}	L_{Aeq} 1hr	LA10 1hr	LA01 1hr	
Noise source level for assessment time period	85	82	97	102	dB(A)
Tonality / Impulsiveness correction	0		5		dB
Minimum distance to receiver		155			m
Distance attenuation (-6 dB per doubling of distance)		-44			dB
Barrier screening		0			dB
Facade reflection		2.5			dB
Impact at nearest facade	44	46	61	66	dB(A)
Reduction through open window (also minus 2.5 dB facade)		-7.5	-7.5	-7.5	dB
Impact inside open window	38	53	58	58	dB(A)



STAGE 3 MECH PLANT NOISE PREDICTION CALCULATIONS:				STAGE 3 MECH PLANT NOISE PREDICTION CALCULATIONS:			
R1: Existing Single-storey dwellings to the north				R2: Future dwellings to the immediate north			
Toilet Exhaust Units	52	dB(A) @ 3m		Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units		Number of units	4	units	
Total noise level	58	dB(A) @ 3m		Total noise level	58	dB(A) @ 3m	
Distance to receiver	77	m		Distance to receiver	20	m	
Distance attenuation (-6 dB per doubling of distance)	-28	dB(A)		Distance attenuation (-6 dB per doubling of distance)	-16	dB(A)	
Acoustic attenuator	-10	dB(A)		Acoustic attenuator	-10	dB(A)	
Roof screening	0	dB(A)		Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)		Façade reflection	2.5	dB(A)	
Impact at façade	22	dB(A)		Impact at façade	34	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	15	dB(A)		Impact inside open window	27	dB(A)	
A/C Units	60	dB(A) @ 3m		A/C Units	60	dB(A) @ 3m	
Number of units	2	units		Number of units	2	units	
Refrig Units	62	dB(A) @ 3m		Refrig Units	62	dB(A) @ 3m	
Number of units	2	units		Number of units	2	units	
Total noise level	67	dB(A) @ 3m		Total noise level	67	dB(A) @ 3m	
Distance to receiver	77	m		Distance to receiver	20	m	
Distance attenuation (-6 dB per doubling of distance)	-28	dB(A)		Distance attenuation (-6 dB per doubling of distance)	-16	dB(A)	
Acoustic barrier / enclosure	-20	dB(A)		Acoustic barrier / enclosure	-20	dB(A)	
Barrier screening	0.0	dB(A)		Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)		Façade reflection	2.5	dB(A)	
Impact at façade	21	dB(A)		Impact at façade	33	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	14	dB(A)		Impact inside open window	26	dB(A)	
Combined impact at façade	25	dB(A)		Combined impact at façade	37	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	17	dB(A)		Impact inside open window	29	dB(A)	

STAGE 3 MECH PLANT NOISE PREDICTION CALCULATIONS:				STAGE 3 MECH PLANT NOISE PREDICTION CALCULATIONS:			
R3: Existing dwellings to the east				R4: Future dwellings to the immediate east			
Toilet Exhaust Units	52	dB(A) @ 3m		Toilet Exhaust Units	52	dB(A) @ 3m	
Number of units	4	units		Number of units	4	units	
Total noise level	58	dB(A) @ 3m		Total noise level	58	dB(A) @ 3m	
Distance to receiver	265	m		Distance to receiver	20	m	
Distance attenuation (-6 dB per doubling of distance)	-39	dB(A)		Distance attenuation (-6 dB per doubling of distance)	-16	dB(A)	
Acoustic attenuator	-10	dB(A)		Acoustic attenuator	-10	dB(A)	
Roof screening	0	dB(A)		Roof screening	0	dB(A)	
Façade reflection	2.5	dB(A)		Façade reflection	2.5	dB(A)	
Impact at façade	12	dB(A)		Impact at façade	34	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	4	dB(A)		Impact inside open window	27	dB(A)	
A/C Units	60	dB(A) @ 3m		A/C Units	60	dB(A) @ 3m	
Number of units	2	units		Number of units	2	units	
Refrig Units	62	dB(A) @ 3m		Refrig Units	62	dB(A) @ 3m	
Number of units	2	units		Number of units	2	units	
Total noise level	67	dB(A) @ 3m		Total noise level	67	dB(A) @ 3m	
Distance to receiver	265	m		Distance to receiver	20	m	
Distance attenuation (-6 dB per doubling of distance)	-39	dB(A)		Distance attenuation (-6 dB per doubling of distance)	-16	dB(A)	
Acoustic barrier / enclosure	-20	dB(A)		Acoustic barrier / enclosure	-20	dB(A)	
Barrier screening	0.0	dB(A)		Barrier screening	0.0	dB(A)	
Façade reflection	2.5	dB(A)		Façade reflection	2.5	dB(A)	
Impact at façade	11	dB(A)		Impact at façade	33	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	3	dB(A)		Impact inside open window	26	dB(A)	
Combined impact at façade	14	dB(A)		Combined impact at façade	37	dB(A)	
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)		Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)	
Impact inside open window	7	dB(A)		Impact inside open window	29	dB(A)	

STAGE 3 MECH PLANT NOISE PREDICTION CALCULATIONS:		
RS: Existing dwellings to the south across Rifle Range Road		
Toilet Exhaust Units	52	dB(A) @ 3m
Number of units	4	units
Total noise level	58	dB(A) @ 3m
Distance to receiver	165	m
Distance attenuation (-6 dB per doubling of distance)	-35	dB(A)
Acoustic attenuator	-10	dB(A)
Roof screening	0	dB(A)
Façade reflection	2.5	dB(A)
Impact at façade	16	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	8	dB(A)
A/C Units		
A/C Units	60	dB(A) @ 3m
Number of units	2	units
Refrig Units	62	dB(A) @ 3m
Number of units	2	units
Total noise level	67	dB(A) @ 3m
Distance to receiver	165	m
Distance attenuation (-6 dB per doubling of distance)	-35	dB(A)
Acoustic barrier / enclosure	-20	dB(A)
Barrier screening	0.0	dB(A)
Façade reflection	2.5	dB(A)
Impact at façade	15	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	7	dB(A)
Combined impact at façade		
Combined impact at façade	18	dB(A)
Reduction through open window (also minus 2.5 dB façade)	-7.5	dB(A)
Impact inside open window	11	dB(A)



STORMWATER MANAGEMENT PLAN

**60 RIFLE RANGE ROAD,
BARGARA**

8 October 2021

STORM
Water Consulting Pty Ltd

ACN 105 078 377
5/541 Old Cleveland Rd, CAMP HILL QLD 4152
Ph (07) 3398 4992 Fax (07) 3398 4993
www.stormw.com.au

J8670 v1.0

Job No: J8670 v1.0**Job Name:** 60 Rifle Range Road, Barga

Report Name	Date	Report No.
Stormwater Management Plan	8 October 2021	J8670 v1.0

Project Engineer: Jack Hu
BE Civil (Hons), MIE Aust
jack@stormw.com.au

Reviewed By: Darren Rogers
BE Civil (Hons), MIE Aust, RPEQ 5016
Director
E darren@stormw.com.au

J8670 v1.0

Table of Contents

1.0	Introduction.....	1
2.0	Site Conditions	2
2.1	Existing Site.....	2
2.2	Developed Site.....	3
3.0	Rational Method Calculations.....	4
4.0	Hydrologic Modelling	6
4.1	Existing URBS Model.....	6
4.2	Developed (Unmitigated) URBS Model	7
4.3	Developed (Mitigated) URBS Model.....	9
4.4	Developed (Mitigated) URBS Model – Pump Failure Event	12
4.5	Pump Maintenance	13
5.0	Conclusions.....	14
	List of Appendices	16

1.0 INTRODUCTION

Storm Water Consulting Pty Ltd was commissioned by Bargara Village Pty Ltd to prepare a Stormwater Management Plan for the development on 60 Rifle Range Road, Bargara .

This report has been prepared to address the Further Advice letter dated 9 July 2021. The Further Advice items are presented below. A response to these items is presented in Section 5.0. The updated stormwater quantity management strategy presented in this report incorporates a single detention basin (as opposed to 3 separate detention tanks proposed previously), located toward the rear of the site within Stage 3b land. The captured stormwater will be pumped out to Rifle Range Road.

Unsupported Elements in Stormwater Management Plan

While Council acknowledges the updated Stormwater Management Plan submitted in response to the Information Request dated 10 February 2021, a number of concerns are raised as below:

1. The design does not consider the effects of climate change (1% AEP + climate change design storm event).
2. Unless free draining (no permanent storage for water reuse), Council does not support the use of rainwater tanks for detention storage.
3. Council does not support the use of underground onsite detention tanks that rely on a pumping system.
4. The Triangular Hydrograph Method is not appropriate for detention storage analysis. The ARR2016 temporal pattern ensembles cannot be used with this method and the hydrograph produced is oversimplified and inappropriate for volume based analysis. Pre-burst rainfall should also be considered when sizing detention storage in accordance with the current ARR.
5. Detention storage should be designed to ensure post-development flows are less than or equal to pre-development flows for a range of design storm events (i.e. 63%, 39%, 18%, 10%, 5%, 2%, 1% and 1% AEP + CC) and not just the 1% AEP event.
6. Velocities > 6 m/s in small pipes is not appropriate. These types of velocities (if realised) will likely cause significant damage to other infrastructure.

J8670 v1.0

2.0 SITE CONDITIONS

2.1 Existing Site

The site is a vacant lot with sparse grass cover. The site is bound by Rifle Range Road to the south, Hughes Road to the west and by a private property to the north and east. A locality plan is presented below.



Figure 2.1 – Locality Plan (Google Maps Overlay)

J8670 v1.0

2.2 Developed Site

A commercial development is proposed on the site. Concept plans are presented in Appendix A. The lawful point of discharge is the existing table drain on Rifle Range Road (as confirmed with Council officers). The development is proposed to be delivered in 3 stages, as shown in Figure 2.2 below.



Figure 2.2 – Development Stages

It is proposed to construct an above-ground detention basin at the rear of the site (on Stage 3b land) to mitigate the peak discharge from the development. Pumps are proposed to be located within the detention basin to pump the captured stormwater toward the Rifle Range Road table drain. A temporary overflow basin is also proposed to capture the stormwater runoff during unlikely events when the pumps fail to operate. This report presents the recommended detention basin volume, temporary overflow basin volume and pump sizes.

3.0 RATIONAL METHOD CALCULATIONS

The site is 1.94 hectares in area. Rational Method calculations were undertaken for the existing and developed site conditions (utilising ARR2016 rainfall intensities). These calculations have been completed in accordance with the parameters recommended in the Queensland Urban Drainage Manual (QUDM, 2016). The IFD data were based on Bundaberg data obtained from BoM. The 1% AEP + climate change (CC) event adopts an additional 20% rainfall intensity above the 1% AEP rainfall intensities.

Under existing site conditions, approximately 30% of the site flows toward Rifle Range Road (Point-1). The remaining approximately 70% of the site flows toward the northern boundary (Point-2). A catchment plan of the existing site condition is presented below.

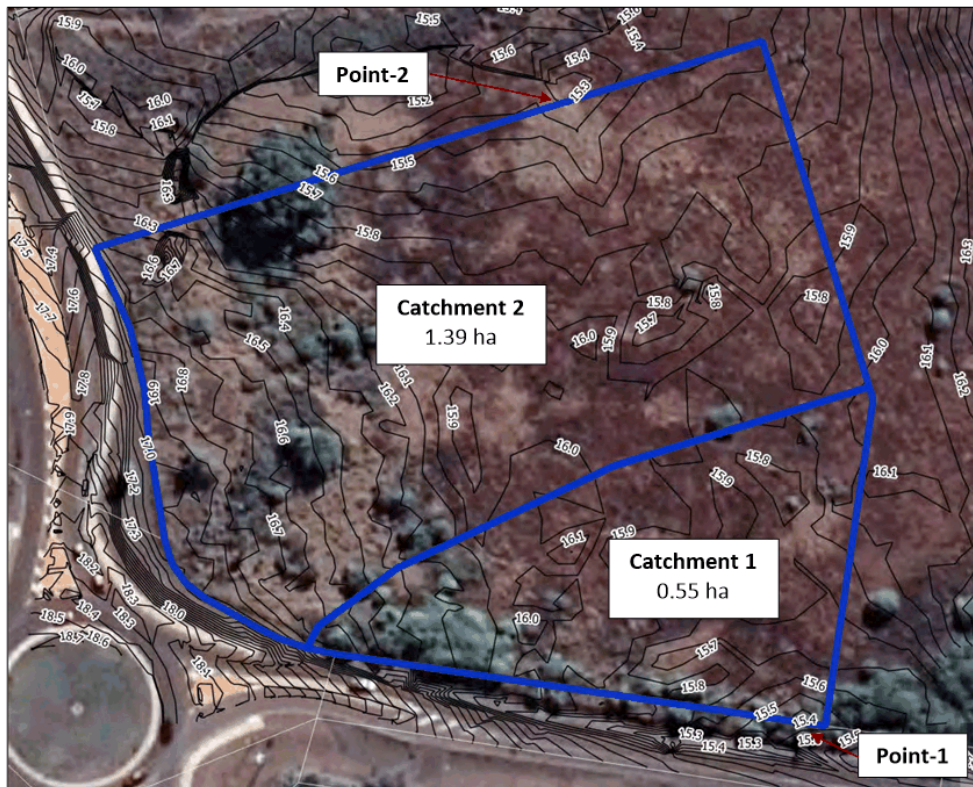


Figure 3.1 – Existing Catchment Plan

Under developed site conditions, the entire site is proposed to be discharged to the northern boundary (Point-2). A small portion of captured flows will be pumped out to Rifle Range Road (Point-1). A summary of the resulting flows is presented in Tables 3.1 and 3.2 on the following page. Detailed Rational Method calculations are presented in Appendix C.

J8670 v1.0

Table 3.1 – Flows at Point-1 (Rifle Range Road)

AEP %	Existing Site m ³ /s
63%	0.11
39%	0.13
18%	0.19
10%	0.23
5%	0.28
2%	0.35
1%	0.40
1% + CC	0.49

Table 3.2 – Flows at Point-2 (Northern Boundary)

AEP %	Rational Method m ³ /s	URBS m ³ /s	Difference m ³ /s	Difference %
63%	0.26	0.49	0.23	88%
39%	0.30	0.57	0.27	90%
18%	0.44	0.82	0.38	86%
10%	0.53	1.00	0.47	89%
5%	0.63	1.18	0.55	87%
2%	0.79	1.49	0.7	89%
1%	0.91	1.65	0.74	81%
1% + CC	1.09	1.98	0.89	82%

J8670 v1.0

4.0 HYDROLOGIC MODELLING

URBS hydrologic modelling was undertaken for the existing and developed site condition to determine an appropriate stormwater quantity management solution for the proposed development. The URBS hydrologic model adopts ten ARR2016 ensemble patterns and includes pre-burst rainfall considerations.

4.1 Existing URBS Model

A schematic of the existing URBS model is presented below.

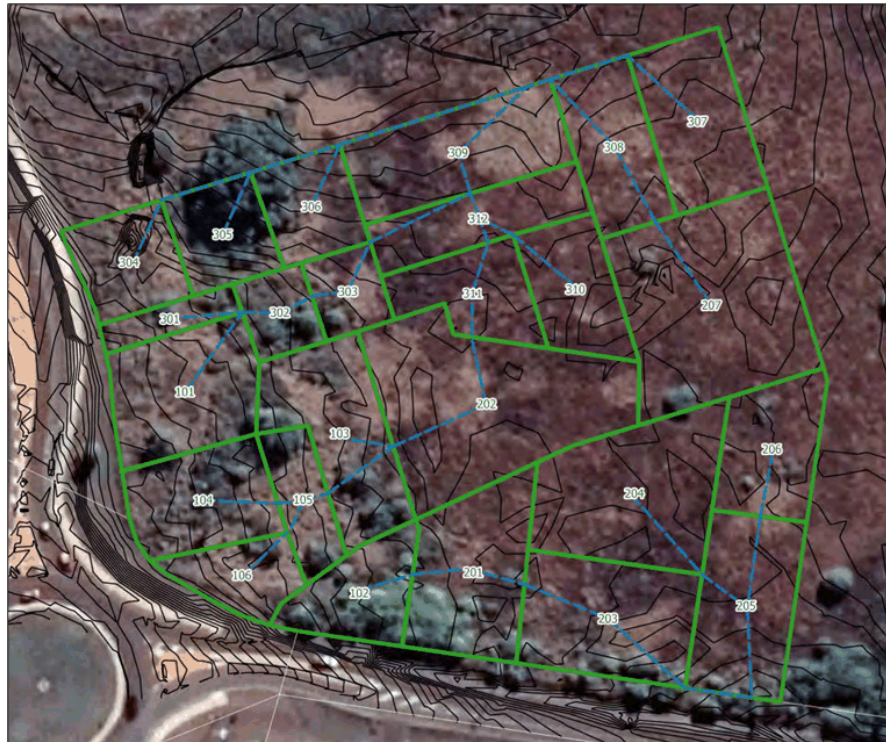


Figure 4.1 – Existing URBS Model Schematic

The existing model incorporated regionally-accepted alpha and beta values of 1.2 and 0.8 respectively. The existing sub-areas were modelled with a fraction impervious of 10%. An initial loss of 0 mm and a continuing loss of 2.5 mm/hr was adopted for all storm events.

A comparison of the existing Rational Method flows and the existing URBS flows at Point-1 and Point-2 is presented in Tables 4.1 and 4.2 on the following page respectively. The results show that the URBS flows compare favourably with the Rational Method calculated flows at Point-1 and Point-2.

J8670 v1.0

4.2 Developed (Unmitigated) URBS Model

The existing URBS model was modified to include an increase in fraction impervious to between a minimum of 50% and maximum of 100% for various sub-areas (refer Appendix D). A schematic of the developed (unmitigated) URBS model is presented below.



Figure 4.2 – Developed (Unmitigated) URBS Model Schematic

A comparison of the existing URBS flows and the developed (unmitigated) URBS flows at Point-2 is presented in Table 4.1 on the following page.

J8670 v1.0

Table 4.1 – Comparison of URBS Flows (Ex v Dev)

AEP %	Existing URBS m ³ /s	Developed URBS unmitigated m ³ /s	Increase m ³ /s	Increase %
63%	0.36	0.66	0.30	83%
39%	0.40	0.74	0.34	85%
18%	0.52	0.97	0.45	87%
10%	0.61	1.11	0.50	82%
5%	0.70	1.27	0.57	81%
2%	0.81	1.48	0.67	83%
1%	0.91	1.64	0.73	80%
1% + CC	1.11	2.00	0.89	80%

The above results indicate that the development would result in increases to peak discharges flowing downstream, across the northern boundary. The observed increases in peak flows are also comparable to the Rational Method calculated flow increases.

An above-ground detention basin is proposed to mitigate the increase in peak flows. Captured flows would be pumped toward the table drain on Rifle Range Road (Point-1). The detention basin would need to ensure that the peak flows at Point-1 and Point-2 are not increased as a result of development (when compared with existing peak flows at these locations). The following section presents the specifications of the proposed detention basin and the associated hydrologic modelling results.

4.3 Developed (Mitigated) URBS Model

The developed URBS model was modified to include an above-ground detention basin, located toward the northern portion of the development. Table 4.2 below presents a summary of the modelled detention volume and pump. All runoff from the development is proposed to be directed and captured by the detention basin.

Table 4.2 – On-Site Detention Specification

Detail	Specification
Volume	1,600 m ³
Depth	3 m
Pump	Total pump rate 160 litres/second Can be provided via multiple pump systems
Overflow Weir	3 m width at basin invert + 2.7 m, widening to 6.6m at basin invert + 3.0 m (weir adopts 1 in 6 side slope) Weir height 0.3 m Refer schematic in Figure 4.3 below

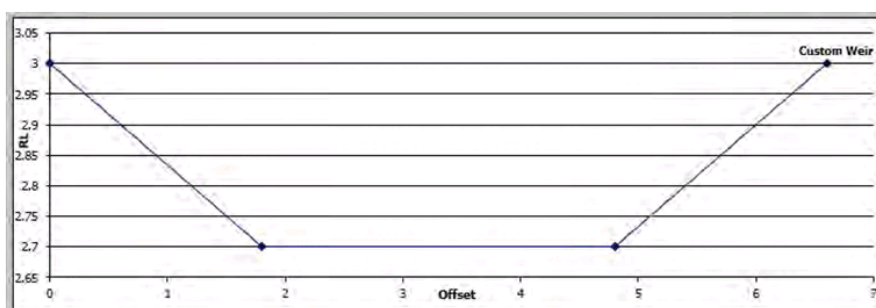


Figure 4.3 – Overflow Weir Schematic

The detention volume has been modelled to capture and attenuate flows up to and including the 1% AEP + CC event. The overflow weir activates during events equal to and greater than the 2% AEP storm. A comparison of the existing URBS flows and the developed (mitigated) URBS flows at Point-1 and Point-2 is presented in Tables 4.3 and 4.4 on the following page respectively.

J8670 v1.0

Table 4.3 – Comparison of URBS Flows at Point-1 (Ex v Dev1)

AEP %	Existing URBS m ³ /s	Developed URBS mitigated m ³ /s	Increase m ³ /s	Increase %
63%	0.16	0.16	0.00	0%
39%	0.18	0.16	-0.02	-11%
18%	0.24	0.16	-0.08	-33%
10%	0.28	0.16	-0.12	-43%
5%	0.32	0.16	-0.16	-50%
2%	0.37	0.16	-0.21	-57%
1%	0.41	0.16	-0.25	-61%
1% + CC	0.50	0.16	-0.34	-68%

Table 4.4 – Comparison of URBS Flows at Point-2 (Ex v Dev1)

AEP %	Existing URBS m ³ /s	Developed URBS mitigated m ³ /s	Increase m ³ /s	Increase %
63%	0.36	0.00	-0.36	-100%
39%	0.40	0.00	-0.40	-100%
18%	0.52	0.00	-0.52	-100%
10%	0.61	0.00	-0.61	-100%
5%	0.70	0.00	-0.70	-100%
2%	0.81	0.21	-0.60	-74%
1%	0.91	0.55	-0.36	-40%
1% + CC	1.11	1.09	-0.02	-2%

The results presented above indicate that the proposed detention basin effectively mitigates all AEP events (up to and including the 1% AEP + CC event) down to the existing flow rate at Point-1 and Point-2. The proposed development is therefore not anticipated to result in any material worsening on downstream properties.

Details of the URBS modelling are presented in Appendix D. A potential location for the basin is shown in Figure 4.4 on the following page. The proposed pump and its details are presented in Appendix E. Three (3) of the proposed pumps would be required to sufficiently achieve a total pump rate of 160 litres/second. Final detention basin location, size, levels and pump details will be determined during the detailed design stage of the project.

J8670 v1.0



Figure 4.4 – Potential Location of Stormwater Basins

J8670 v1.0

4.4 Developed (Mitigated) URBS Model – Pump Failure Event

The developed (mitigated) URBS model was modified to assess potential downstream impacts due to the unlikely event of pumps failing to operate as intended (e.g. due to potential power outages).

The detention basin pump was reduced to close to 0 litres/second. A temporary overflow basin was modelled in URBS to capture and contain sufficient stormwater runoff to mitigate downstream stormwater impacts. The temporary overflow basin was modelled with a volume of 1,000 m³. A potential location of the overflow basin is presented in Figure 4.4.

A comparison of the existing URBS flows and the developed (mitigated) URBS flows at Point-2 (during a pump failure) is presented in Table 4.5 below.

Table 4.5 – Comparison of URBS Flows at Point-2 – Pump Failure Event (Ex v Dev1)

AEP %	Existing URBS m ³ /s	Developed URBS mitigated m ³ /s	Increase m ³ /s	Increase %
63%	0.36	0.05	-0.31	-86%
39%	0.40	0.09	-0.31	-78%
18%	0.52	0.32	-0.20	-38%
10%	0.61	0.30	-0.31	-51%
5%	0.70	0.52	-0.18	-26%
2%	0.81	0.62	-0.19	-23%
1%	0.91	0.76	-0.15	-16%
1% + CC	1.11	1.09	-0.02	-2%

The results presented above indicate that the proposed detention basin, together with the temporary overflow basin, effectively mitigates all AEP events (up to and including the 1% AEP + CC event) down to the existing flow rate, in the event of a pump failure. Final temporary basin location, size and level details will be determined during the detailed design stage of the project.

A detailed comparison of all AEP events, storm durations and the ten ARR2016 temporal patterns between the existing URBS results and the developed (mitigated) URBS results (pump failure event) is presented in Appendix D. The detailed comparisons show that the proposed basins would mitigate the majority of short-duration storms for all AEP events (i.e. storm durations less than 3 hours), the sort of storm events which detention basins would typically be designed for. The proposed basins are therefore considered adequate to attenuate downstream impacts in the event of a pump failure.

J8670 v1.0

4.5 Pump Maintenance

The proposed pump details and its maintenance manual are presented in Appendix E. Regular maintenance and inspections are necessary for continued efficient functioning of the pump. The necessary steps and inspection/maintenance frequency is described below.

Inspection of Pump

- **Prior to inspection:** Detach power cable from terminals after making certain the power supply (circuit breaker, etc.) is turned off.
- **Wash the pump:** Remove accumulated matter from the surface of the pump and wash it with clean water. Take special care to remove any debris from the impeller.
- **Inspect the pump exterior:** Look for any peeling or chipped paint and make sure the nuts and bolts are fastened tightly. Repair any surface cracks by first cleaning and drying the area, followed by applying touch-up coating.
- **Oil inspection:** Remove the oil plug and tilt the pump to drain a small amount of oil. If the oil is milk white or has water mixed with it, the mechanical seal may be faulty. In this case, the pump will need to be dismantled and repaired. When replacing the oil, remove the oil plug and drain all the oil, then replace it with the specified amount.

Inspection / Maintenance Frequency

Frequency	Inspection Items
MONTHLY	<p>Measure insulation resistance – Reference resistance 1Ω or greater</p> <p><i>NOTE: if the insulation resistance has become notably lower than previous inspection, an inspection of the motor will be necessary.</i></p> <ul style="list-style-type: none"> • Measure operating current - Compare with rated current. • Measure supply voltage - Compare with allowable range (within ±5% of rated voltage) • Pump inspection. • A noticeable drop in performance may indicate wear in the impeller, etc., or else clogging of the strainer stand, etc. Remove clogged debris, and replace any worn parts.
BI-ANNUALLY	<ul style="list-style-type: none"> • Oil inspection. • Check the oil every six months or after 1,000 hours of use, whichever comes first.
ANNUALLY	<ul style="list-style-type: none"> • Change Oil. • Change oil every 12 months or after 2,000 hours of use, whichever comes first. • Designated Oil: Turbine oil VG32 - Caltex – or similar. • Change mechanical seal. <p><i>NOTE: Trained personnel are required for inspecting and replacing the mechanical seal. Consult with your nearest dealer or representative.</i></p>
2 TO 5 YEARS	<ul style="list-style-type: none"> • Overhaul – This should be carried out even if there are no problems with the pump. The frequency depends on how continuously the pump is in use. <p><i>NOTE: Consult with your nearest dealer</i></p>

J8670 v1.0

5.0 CONCLUSIONS

This Stormwater Management Plan was prepared to address the Further Advice letter dated 9 July 2021 for the proposed commercial development on 60 Rifle Range Road, Bargara. A response to each item is presented below.

Unsupported Elements in Stormwater Management Plan

While Council acknowledges the updated Stormwater Management Plan submitted in response to the Information Request dated 10 February 2021, a number of concerns are raised as below:

1. The design does not consider the effects of climate change (1% AEP + climate change design storm event).

SWC Response: The effects of climate change, specifically the 1% AEP + climate change design event, has been considered as part of this assessment. The 1% AEP + climate change event adopts an additional 20% rainfall intensity above the 1% AEP rainfall intensities.

2. Unless free draining (no permanent storage for water reuse), Council does not support the use of rainwater tanks for detention storage.

SWC Response: Rainwater tanks are not proposed as part of the development for use as detention storage.

3. Council does not support the use of underground onsite detention tanks that rely on a pumping system.

SWC Response: It is understood that, since the issue of this Further Advice letter, an agreement was reached regarding the use of on-site detention that relies on a pumping system. Although not ideal, the elevations on the site essentially required any on-site detention to be discharged via a pumping system. A lawful point of discharge currently does not exist for the development that can be reached via a gravity-drained solution. As such, and as confirmed with Council officers, the lawful point of discharge is the existing table drain on Rifle Range Road.

The proposed on-site detention basin and pump ensures that peak discharges would not be increased on Rifle Range Road, as well as across the northern downstream boundary. The on-site detention basin and the temporary overflow basin ensures that, in the unlikely event of pump failure, the peak discharges flowing across the northern downstream boundary would not be increased. The proposed stormwater quantity management solution is considered adequate in attenuating peak discharges running off the development and minimises the potential for adverse impacts downstream.

J8670 v1.0

4. The Triangular Hydrograph Method is not appropriate for detention storage analysis. The ARR2016 temporal pattern ensembles cannot be used with this method and the hydrograph produced is oversimplified and inappropriate for volume based analysis. Pre-burst rainfall should also be considered when sizing detention storage in accordance with the current ARR.

SWC Response: The URBS hydrologic analysis undertaken in this report (for sizing on-site detention) adopted the ten ARR2016 temporal pattern ensembles and also include pre-burst rainfall considerations.

5. Detention storage should be designed to ensure post-development flows are less than or equal to pre-development flows for a range of design storm events (i.e. 63%, 39%, 18%, 10%, 5%, 2%, 1% and 1% AEP + CC) and not just the 1% AEP event.

SWC Response: The detention storages presented in this report have been designed to ensure post-development flows are less than or equal to the pre-development flows for a range of design storm events (i.e. 63%, 39%, 18%, 10%, 5%, 2%, 1% and 1% AEP + CC). The assessment included the scenario when the pump operates as intended, as well as when the pump fails to operate as intended (e.g. due to potential power outages).

6. Velocities > 6 m/s in small pipes is not appropriate. These types of velocities (if realised) will likely cause significant damage to other infrastructure.

SWC Response: Pipe outlets were not proposed as part of the current stormwater quantity management system. Pipe outlets may be introduced as part of the stormwater quantity management system in the future, when a pipe connection is provided on the northern (downstream) property for connection to the existing drainage system on the Palm Lake development further downstream. The flow velocities within the future pipe network would need to be assessed accordingly.



Darren Rogers
BE Civil (Hons), MIE Aust, RPEQ 5016
Director

LIST OF APPENDICIES

APPENDIX A – Development Plans

APPENDIX B – Photographs

APPENDIX C – Rational Method Calculations

APPENDIX D – URBS Model Files and Results

APPENDIX E – Pump Details and Maintenance Instructions



APPENDIX A

Development Plans





APPENDIX B

Photographs



J8670 v1.0



Photograph 1 – Existing table drain on Rifle Range Road (source: Google Earth)



Photograph 2 – Existing site, viewed from south-west site corner (source: Google Earth)


J8670 v1.0



APPENDIX C

Rational Method Calculations



 RATIONAL METHOD CALCULATIONS		Table C 2 a
Project: 60 Rifle Range Road, Barga Location: Point 2 - Northern Boundary		J8670
Comments: Existing Site		

Time of Concentration		Rainfall Data: Rainfall Intensity Frequency Duration data for Bundaberg
Time of Concentration 10.0 min		


Sub-Areas and Runoff Coefficients													
Catchment	Area			Areas included in Calculations				Separate c100 > 1.0 and c100 < 1.0					
	ha	Exist	Dev	Condition	Area	C10	C10 x A	C10	C10	C10 x A	C10 x A	Area	Area
Catchment 1	0.55	0.72	0.87										
Catchment 2	1.39	0.72	0.87	Existing	1.39	0.72	1.00	0.72		1.00		1.39	
					1.39								
					Sum				1.00	0.00		1.39	0.00
					Total			0.720			1.000		1.389
					Individual	0.720	0.000	1.000	0.000			1.389	0.000

Discharge Calculations			
tc	10.0		
C100>1	Average c10	0.000	
	Area (ha)	0.00	
C100<1	c10 - 2	Average 0.720	
	Area (ha)	1.39	

Total Catchment
1.39 ha

Depth mm	AEP %	Fy	Runoff Coefficients		Rainfall (mm/hr)	Discharge m ³ /s		
			C100>1	C100<1		1	2	Total
20	63	0.80	0.00	0.58	117.00	0.00	0.26	0.26
22	39	0.85	0.00	0.61	129.00	0.00	0.30	0.30
28	18	0.95	0.00	0.68	166.00	0.00	0.44	0.44
32	10	1.00	0.00	0.72	191.00	0.00	0.53	0.53
36	5	1.05	0.00	0.76	216.00	0.00	0.63	0.63
41	2	1.15	0.00	0.83	248.00	0.00	0.79	0.79
46	1	1.20	0.00	0.86	273.00	0.00	0.91	0.91
55	1 + CC	1.20	0.00	0.86	327.60	0.00	1.09	1.09

Frequent ARI's	Discharge m ³ /s	% of Qi
1mth	0.065	25%
2mth	0.104	40%
3mth	0.130	50%
4mth	0.156	60%
6mth	0.195	75%
9mth	0.234	90%
12mth	0.260	100%

 RATIONAL METHOD CALCULATIONS		Table C 2 b
Project: 60 Rifle Range Road, Barga Location: Point 2 - Northern Boundary		J8670
Comments: Developed Site		

Time of Concentration		Rainfall Data: Rainfall Intensity Frequency Duration data for Bundaberg
Time of Concentration 7.0 min		

Sub-Areas and Runoff Coefficients													
Catchment	Area			Areas included in Calculations				Separate c100 > 1.0 and c100 < 1.0					
	ha	Exist	Dev	Condition	Area	C10	C10 x A	C10	C10	C10 x A	C10 x A	Area	Area
Catchment 1	0.55	0.72	0.87	Developed	0.55	0.87	0.48	0.87		0.48		0.55	
Catchment 2	1.39	0.72	0.87	Developed	1.39	0.87	1.21	0.87		1.21		1.39	
					1.94								
					Sum				0.00	1.69	0.00	1.94	
					Total			0.870		1.689		1.942	
					Individual	0.000	0.870	0.000	1.689	0.000		1.942	

Discharge Calculations			
tc	7.0		
C100>1	Average c10	0.870	
	Area (ha)	1.94	
C100<1	c10 - 2	Average 0.000	
	Area (ha)	0.00	

Total Catchment
1.94 ha

Depth mm	AEP %	Fy	Runoff Coefficients		Rainfall (mm/hr)	Discharge m ³ /s		
			C100>1	C100<1		1	2	Total
15	63	0.80	0.70	0.00	129.73	0.49	0.00	0.49
17	39	0.85	0.74	0.00	143.19	0.57	0.00	0.57
22	18	0.95	0.83	0.00	184.58	0.82	0.00	0.82
25	10	1.00	0.87	0.00	212.50	1.00	0.00	1.00
28	5	1.05	0.91	0.00	240.43	1.18	0.00	1.18
32	2	1.15	1.00	0.00	276.79	1.49	0.00	1.49
36	1	1.20	1.00	0.00	305.18	1.65	0.00	1.65
43	1 + CC	1.25	1.00	0.00	366.21	1.98	0.00	1.98

Frequent ARI's	Discharge m ³ /s	% of Qi
1mth	0.122	25%
2mth	0.195	40%
3mth	0.244	50%
4mth	0.292	60%
6mth	0.365	75%
9mth	0.438	90%
12mth	0.487	100%



APPENDIX D

URBS Model Files and Results



J8670 v1.0

8670 Ex.DAT

```

"Index", "Area", "UR", "UH", "I"
#101,0.00093,1.00,0.00,0.10
#102,0.00056,1.00,0.00,0.10
#103,0.00097,1.00,0.00,0.10
#104,0.00076,1.00,0.00,0.10
#105,0.00040,1.00,0.00,0.10
#106,0.00042,1.00,0.00,0.10
#201,0.00100,1.00,0.00,0.10
#202,0.00184,1.00,0.00,0.10
#203,0.00106,1.00,0.00,0.10
#204,0.00130,1.00,0.00,0.10
#205,0.00093,1.00,0.00,0.10
#206,0.00069,1.00,0.00,0.10
#207,0.00179,1.00,0.00,0.10
#301,0.00023,1.00,0.00,0.10
#302,0.00031,1.00,0.00,0.10
#303,0.00031,1.00,0.00,0.10
#304,0.00055,1.00,0.00,0.10
#305,0.00051,1.00,0.00,0.10
#306,0.00050,1.00,0.00,0.10
#307,0.00085,1.00,0.00,0.10
#308,0.00072,1.00,0.00,0.10
#309,0.00100,1.00,0.00,0.10
#310,0.00061,1.00,0.00,0.10
#311,0.00058,1.00,0.00,0.10
#312,0.00063,1.00,0.00,0.10

```

8670 Ex.U

```

Bargara - Existing
MODEL: Basic
USES: L, U
Default Parameters: alpha=1.20 m=0.8
Catchment File=8670_Ex.dat

Rain #102 L=0.013
Route thru #201 L=0.013
Add Rain #201 L=0.014
Route thru #203 L=0.021
Add Rain #203 L=0.024
Route thru #205 L=0.016
Store.
Rain #204 L=0.025
Route thru #205 L=0.013
Store.
Rain #206 L=0.015
Route thru #205 L=0.021
Get.
Add Rain #205 L=0.021
Get.
Print. POINT-1
Store.
Rain #104 L=0.018
Route thru #105 L=0.006
Store.
Rain #106 L=0.014
Route thru #105 L=0.007
Get.
Add Rain #105 L=0.006
Route thru #103 L=0.019
Store.
Rain #103 L=0.014
Get.
Route thru #202 L=0.024
Add Rain #202 L=0.016
Route thru #311 L=0.010
Add Rain #311 L=0.012
Route thru #312 L=0.006
Store.
Rain #310 L=0.019
Route thru #312 L=0.009
Get.
Add Rain #312 L=0.006
Store.

```


J8670 v1.0

```
Rain #101 L=0.023
Store.
Rain #301 L=0.018
Get.
Route thru #302 L=0.009
Add Rain #302 L=0.008
Route thru #303 L=0.008
Add Rain #303 L=0.013
Route thru #312 L=0.026
Get.
Route thru #309 L=0.010
Add Rain #309 L=0.022
Store.
Rain #304 L=0.016
Route thru #305 L=0.022
Store.
Rain #305 L=0.016
Get.
Route thru #306 L=0.022
Store.
Rain #306 L=0.015
Get.
Route thru #309 L=0.045
Get.
Route thru #309 L=0.006
Store.
Rain #207 L=0.023
Route thru #308 L=0.020
Add Rain #308 L=0.021
Store.
Rain #307 L=0.022
Route thru #308 L=0.019
Get.
Get.
Print. POINT-2
Get.
Print. TOTAL
end of catchment details.
```

J8670 v1.0

8670 Dev.DAT

```

"Index","Area","UL","UM","I"
#101,0.00093,0.50,0.50,0.70
#102,0.00056,0.50,0.50,0.50
#103,0.00097,0.50,0.50,0.70
#104,0.00076,0.50,0.50,0.80
#105,0.00040,0.50,0.50,1.00
#106,0.00042,0.50,0.50,0.70
#201,0.00100,0.50,0.50,0.80
#202,0.00184,0.50,0.50,0.70
#203,0.00106,0.50,0.50,0.85
#204,0.00130,0.50,0.50,0.90
#205,0.00093,0.50,0.50,0.85
#206,0.00069,0.50,0.50,0.95
#207,0.00179,0.50,0.50,0.80
#301,0.00023,0.50,0.50,0.95
#302,0.00031,0.50,0.50,1.00
#303,0.00031,0.50,0.50,1.00
#304,0.00055,0.50,0.50,0.80
#305,0.00051,0.50,0.50,0.95
#306,0.00050,0.50,0.50,0.95
#307,0.00085,0.50,0.50,0.95
#308,0.00072,0.50,0.50,0.95
#309,0.00100,0.50,0.50,0.95
#310,0.00061,0.50,0.50,0.90
#311,0.00058,0.50,0.50,0.90
#312,0.00063,0.50,0.50,0.90

```

8670 Dev.U

```

Bargara - Development
MODEL: Basic
USES: L, U
Default Parameters: alpha=1.20 m=0.8
Catchment File=8670_Dev.dat

Rain #101 L=0.019
Store.
Rain #103 L=0.020
Get.
Route thru #105 L=0.024
Store.
Rain #105 L=0.009
Store.
Rain #104 L=0.021
Store.
Rain #106 L=0.014
Store.
Rain #102 L=0.013
Route thru #105 L=0.013
Get.
Get.
Get.
Print. TANK1
Route thru #302 L=0.090
Store.
Rain #301 L=0.017
Route thru #302 L=0.009
Add Rain #302 L=0.008
Route thru #303 L=0.008
Add Rain #303 L=0.008
Route thru #303 L=0.007
Store.
Rain #311 L=0.016
Get.
Route thru #312 L=0.012
Store.
Rain #310 L=0.016
Route thru #312 L=0.017
Add Rain #312 L=0.019
Get.
Route thru #309 L=0.021
Store.
Rain #304 L=0.016

```

J8670 v1.0

```
Route thru #305 L=0.012
Store.
Rain #305 L=0.012
Get.
Route thru #305 L=0.009
Route thru #306 L=0.022
Store.
Rain #306 L=0.016
Store.
Rain #307 L=0.022
Route thru #308 L=0.019
Store.
Rain #308 L=0.022
Get.
Route thru #309 L=0.051
Store.
Rain #309 L=0.028
Get.
Get.
Get.
Print. TANK3
Store.
Rain #201 L=0.020
Route thru #202 L=0.019
Add Rain #202 L=0.037
Store.
Rain #203 L=0.013
Route thru #204 L=0.016
Add Rain #204 L=0.016
Route thru #202 L=0.015
Store.
Rain #205 L=0.020
Route thru #206 L=0.016
Add Rain #206 L=0.015
Route thru #207 L=0.023
Add Rain #207 L=0.021
Get.
Get.
Print. TANK2
Route thru #302 L=0.090
Get.
Get.
Print. TOTAL
end of catchment details.
```

J8670 v1.0

8670 Dev1.DAT

```

"Index", "Area", "UL", "UM", "I"
#101,0.00093,0.50,0.50,0.70
#102,0.00056,0.50,0.50,0.50
#103,0.00097,0.50,0.50,0.70
#104,0.00076,0.50,0.50,0.80
#105,0.00040,0.50,0.50,1.00
#106,0.00042,0.50,0.50,0.70
#201,0.00100,0.50,0.50,0.80
#202,0.00184,0.50,0.50,0.70
#203,0.00106,0.50,0.50,0.85
#204,0.00130,0.50,0.50,0.90
#205,0.00093,0.50,0.50,0.85
#206,0.00069,0.50,0.50,0.95
#207,0.00179,0.50,0.50,0.80
#301,0.00023,0.50,0.50,0.95
#302,0.00031,0.50,0.50,1.00
#303,0.00031,0.50,0.50,1.00
#304,0.00055,0.50,0.50,0.80
#305,0.00051,0.50,0.50,0.95
#306,0.00050,0.50,0.50,0.95
#307,0.00085,0.50,0.50,0.95
#308,0.00072,0.50,0.50,0.95
#309,0.00100,0.50,0.50,0.95
#310,0.00061,0.50,0.50,0.90
#311,0.00058,0.50,0.50,0.90
#312,0.00063,0.50,0.50,0.90

```

8670 Dev1.U

```

Bargara - Development1
MODEL: Basic
USES: L, U
Default Parameters: alpha=1.20 m=0.8
Catchment File=8670_Dev1.dat

Rain #101 L=0.019
Store.
Rain #103 L=0.020
Get.
Route thru #105 L=0.024
Store.
Rain #105 L=0.009
Store.
Rain #104 L=0.021
Store.
Rain #106 L=0.014
Store.
Rain #102 L=0.013
Route thru #105 L=0.013
Get.
Get.
Get.
Print. TANK1
Route thru #302 L=0.090
Store.
Rain #301 L=0.017
Route thru #302 L=0.009
Add Rain #302 L=0.008
Route thru #303 L=0.008
Add Rain #303 L=0.008
Route thru #303 L=0.007
Store.
Rain #311 L=0.016
Get.
Route thru #312 L=0.012
Store.
Rain #310 L=0.016
Route thru #312 L=0.017
Add Rain #312 L=0.019
Get.
Route thru #309 L=0.021
Store.
Rain #304 L=0.016

```

J8670 v1.0

```

Route thru    #305    L=0.012
Store.
Rain    #305    L=0.012
Get.
Route thru    #305    L=0.009
Route thru    #306    L=0.022
Store.
Rain    #306    L=0.016
Store.
Rain    #307    L=0.022
Route thru    #308    L=0.019
Store.
Rain    #308    L=0.022
Get.
Route thru    #309    L=0.051
Store.
Rain    #309    L=0.028
Get.
Get.
Get.
Print. TANK3
Store.
Rain    #201    L=0.020
Route thru    #202    L=0.019
Add Rain    #202    L=0.037
Store.
Rain    #203    L=0.013
Route thru    #204    L=0.016
Add Rain    #204    L=0.016
Route thru    #202    L=0.015
Store.
Rain    #205    L=0.020
Route thru    #206    L=0.016
Add Rain    #206    L=0.015
Route thru    #207    L=0.023
Add Rain    #207    L=0.021
Get.
Get.
Print. TANK2
Route thru    #302    L=0.090
Get.
Get.
Print. B4-IN
DAM ROUTE VBF=0 NUMBER=30
0.000000 0.000000
0.005333 0.159900
1.440000 0.160000
1.600000 1.327932
1.629333 1.400087
1.658667 1.474211
1.688000 1.550196
1.717333 1.627965
1.746667 1.707456
1.776000 1.788616
1.805333 1.871399
1.834667 1.955765
1.864000 2.041676
1.893333 2.129099
1.922667 2.218003
1.952000 2.308358
1.981333 2.400138
2.010667 2.493317
2.040000 2.587873
2.069333 2.683782
2.098667 2.781024
2.128000 2.879578
2.157333 2.979426
2.186667 3.080549
2.216000 3.182930
2.245333 3.286552
2.274667 3.391400
2.304000 3.497459
2.333333 3.604713
2.362667 3.713149
Print. B4-OUT
Loss C= F=1 Q=0.16 BYPASS=LOSS4

```

J8670 Report 1.0.docx
8 October 2021

Appendix D – Page 6

J8670 v1.0

```

Print. POINT-1
Store.
Input. LOSS4
Print. POINT-2
Get.
Print. TOTAL
end of catchment details.

```

On-site Detention Basin Results

AEP	URBS Basin				Discharge		Inundation	
	Inflow m3/s	Outflow m3/s	Level m AHD	Depth m	Pump m3/s	Weir m3/s	Area m2	Volume m3
63%	0.66	0.16	0.01	0.01	0.16	0.00	533.3	5.3
39%	0.74	0.16	0.01	0.01	0.16	0.00	533.3	5.3
18%	0.97	0.16	0.01	0.01	0.16	0.00	533.3	5.3
10%	1.11	0.16	0.01	0.01	0.16	0.00	533.3	5.3
5%	1.27	0.16	0.01	0.01	0.16	0.00	533.3	5.3
2%	1.48	0.37	2.75	2.75	0.16	0.21	533.3	1469.2
1%	1.64	0.71	2.84	2.84	0.16	0.55	533.3	1516.0
1% + CC	2.00	1.25	2.98	2.98	0.16	1.09	533.3	1589.7

J8670 v1.0

8670 Dev1.DAT – Pump Failure Event

"Index", "Area", "UL", "UM", "I"
#101,0.00093,0.50,0.50,0.70
#102,0.00056,0.50,0.50,0.50
#103,0.00097,0.50,0.50,0.70
#104,0.00076,0.50,0.50,0.80
#105,0.00040,0.50,0.50,1.00
#106,0.00042,0.50,0.50,0.70
#201,0.00100,0.50,0.50,0.80
#202,0.00184,0.50,0.50,0.70
#203,0.00106,0.50,0.50,0.85
#204,0.00130,0.50,0.50,0.90
#205,0.00093,0.50,0.50,0.85
#206,0.00069,0.50,0.50,0.95
#207,0.00179,0.50,0.50,0.80
#301,0.00023,0.50,0.50,0.95
#302,0.00031,0.50,0.50,1.00
#303,0.00031,0.50,0.50,1.00
#304,0.00055,0.50,0.50,0.80
#305,0.00051,0.50,0.50,0.95
#306,0.00050,0.50,0.50,0.95
#307,0.00085,0.50,0.50,0.95
#308,0.00072,0.50,0.50,0.95
#309,0.00100,0.50,0.50,0.95
#310,0.00061,0.50,0.50,0.90
#311,0.00058,0.50,0.50,0.90
#312,0.00063,0.50,0.50,0.90

8670 Dev1.U – Pump Failure Event

Bargara - Development1			
MODEL: Basic			
USES: L, U			
Default Parameters: alpha=1.20 m=0.8			
Catchment File=8670_Dev1.dat			
Rain	#101	L=0.019	
Store.			
Rain	#103	L=0.020	
Get.			
Route thru	#105	L=0.024	
Store.			
Rain	#105	L=0.009	
Store.			
Rain	#104	L=0.021	
Store.			
Rain	#106	L=0.014	
Store.			
Rain	#102	L=0.013	
Route thru	#105	L=0.013	
Get.			
Get.			
Get.			
Route thru	#302	L=0.090	
Store.			
Rain	#301	L=0.017	
Route thru	#302	L=0.009	
Add Rain	#302	L=0.008	
Route thru	#303	L=0.008	
Add Rain	#303	L=0.008	
Route thru	#303	L=0.007	
Store.			
Rain	#311	L=0.016	
Get.			
Route thru	#312	L=0.012	
Store.			
Rain	#310	L=0.016	
Route thru	#312	L=0.017	
Add Rain	#312	L=0.019	
Get.			
Route thru	#309	L=0.021	
Store.			
Rain	#304	L=0.016	
Route thru	#305	L=0.012	

J8670 v1.0

```

Store.
Rain #305 L=0.012
Get.
Route thru #305 L=0.009
Route thru #306 L=0.022
Store.
Rain #306 L=0.016
Store.
Rain #307 L=0.022
Route thru #308 L=0.019
Store.
Rain #308 L=0.022
Get.
Route thru #309 L=0.051
Store.
Rain #309 L=0.028
Get.
Get.
Get.
Store.
Rain #201 L=0.020
Route thru #202 L=0.019
Add Rain #202 L=0.037
Store.
Rain #203 L=0.013
Route thru #204 L=0.016
Add Rain #204 L=0.016
Route thru #202 L=0.015
Store.
Rain #205 L=0.020
Route thru #206 L=0.016
Add Rain #206 L=0.015
Route thru #207 L=0.023
Add Rain #207 L=0.021
Get.
Get.
Route thru #302 L=0.090
Get.
Get.
Print. B4-IN
DAM ROUTE VBF=0 NUMBER=30
0.000000 0.000000
0.005333 0.000990
1.440000 0.001000
1.600000 1.168932
1.629333 1.241087
1.682667 1.331211
1.736000 1.436451
1.789333 1.552103
1.842667 1.676456
1.896000 1.808501
1.949333 1.947550
2.002667 2.093089
2.056000 2.244715
2.109333 2.402099
2.162667 2.564967
2.216000 2.733084
2.269333 2.906245
2.322667 3.084272
2.376000 3.267004
2.429333 3.454298
2.482667 3.646024
2.536000 3.842063
2.589333 4.042306
2.642667 4.246654
2.696000 4.455013
2.749333 4.667298
2.802667 4.883427
2.856000 5.103325
2.909333 5.326921
2.962667 5.554149
Print. B4-OUT
Print. B3-IN
DAM ROUTE VBF=1 NUMBER=30
0.000000 0.000000
0.000100 3000000

```

J8670 v1.0

```
0.000200 3.500000
0.000300 4.000000
0.000400 4.500000
0.000500 5.000000
0.000600 5.500000
0.000700 6.000000
0.000800 6.500000
0.000900 7.000000
0.001000 7.500000
0.001100 8.000000
0.001200 8.500000
0.001300 9.000000
0.001400 9.500000
0.001500 10.000000
0.001600 10.500000
0.001700 11.000000
0.001800 11.500000
0.001900 12.000000
0.002000 12.500000
0.002100 13.000000
0.002200 13.500000
0.002300 14.000000
0.002400 14.500000
0.002500 15.000000
0.002600 15.500000
0.002700 16.000000
0.002800 16.500000
0.002900 17.000000
Print. B3-OUT
Print. POINT-2
end of catchment details.
```

Existing

Table A: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table B: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table C: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table D: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table E: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table F: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table G: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table H: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table I: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Table J: Data grid with columns 10, 15, 20, 25, 30, 45, 60, 90, 2 hrs, 3 hrs, 4.5 hrs, 6 hrs, 9 hrs, 12 hrs, 18 hrs, 24 hrs, 30 hrs, 36 hrs, 48 hrs, 72 hrs. Includes rows for POINT-2, 65%, 39%, 18%, 10%, 5%, 2%, 1%, and 1%+ CC.

Devi1

A	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs	
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.001	0.046	
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.0647	0.0222	0.0361	0.0544	
18%	0	0	0	0	0	0	0	0	0	0	0	0	0.1451	0.0807	0.0715	0.2113	0.1296	0.0665	0.0647	0.082	
10%	0	0	0	0	0	0	0	0	0	0	0.1379	0.0909	0.2168	0.1668	0.111	0.2859	0.079	0.0631	0.0663	0.0474	
5%	0	0	0	0	0	0	0	0	0	0.089	0.3587	0.1258	0.3141	0.198	0.1333	0.3581	0.1073	0.0761	0.1218	0.0604	
2%	0	0	0	0	0	0	0	0	0.3751	0.5161	0.4291	0.4701	0.3832	0.2401	0.1907	0.4367	0.1311	0.0938	0.1574	0.0751	
1%	0	0	0	0	0	0	0	0	0.2992	0.707	0.7629	0.486	0.6099	0.4363	0.2746	0.2379	0.4984	0.1503	0.1114	0.1754	0.0865
1%+CC	0	0	0	0	0	0	0.557	0.5223	1.0889	0.92	0.5845	0.9292	0.5243	0.35	0.2867	0.5991	0.181	0.1296	0.2206	0.1049	

B	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0285
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0285
18%	0	0	0	0	0	0	0	0	0	0	0	0	0.1052	0.077	0.2119	0.0965	0.0966	0.0429	0.0515	0.1116
10%	0	0	0	0	0	0	0	0	0	0	0.274	0.2328	0.2137	0.2909	0.1833	0.2603	0.0613	0.1378	0.1793	0.0879
5%	0	0	0	0	0	0	0	0	0.1488	0.358	0.2934	0.2528	0.3591	0.2201	0.3107	0.1343	0.1645	0.2135	0.1064	0.064
2%	0	0	0	0	0	0	0	0.3332	0.2701	0.4282	0.4613	0.4356	0.4365	0.2682	0.3811	0.319	0.2017	0.2617	0.1316	0.0645
1%	0	0	0	0	0	0	0.4672	0.5961	0.3043	0.4349	0.5259	0.5254	0.4899	0.3683	0.4354	0.3079	0.2305	0.3003	0.1513	0.0865
1%+CC	0	0	0	0	0	0.4509	0.8521	0.7446	0.6453	0.5832	0.6334	0.6077	0.5992	0.3711	0.5238	0.3686	0.2778	0.3622	0.1832	0.1049

C	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0285
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0285
18%	0	0	0	0	0	0	0	0	0	0	0	0	0.3058	0.2099	0.3229	0.1259	0.18	0.0518	0.1384	0.0746
10%	0	0	0	0	0	0	0	0	0	0.0738	0.1089	0.2539	0.1969	0.2462	0.1425	0.0819	0.1108	0.1267	0.0499	0.0499
5%	0	0	0	0	0	0	0	0	0.1067	0.1042	0.2104	0.3001	0.2344	0.3243	0.1794	0.0979	0.1328	0.1513	0.1052	0.0544
2%	0	0	0	0	0	0	0	0.8831	0.2119	0.171	0.3214	0.3628	0.2548	0.3938	0.2333	0.1598	0.1637	0.1847	0.1281	0.0645
1%	0	0	0	0	0	0	0.3358	0.7458	0.4646	0.2268	0.3656	0.1188	0.1131	0.3262	0.1657	0.2666	0.1377	0.1869	0.2114	0.1537
1%+CC	0	0	0	0	0	0.3808	0.9233	0.9418	0.6234	0.6318	0.4398	0.4966	0.3926	0.5435	0.3209	0.1655	0.2258	0.2548	0.1846	0.1049

D	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs	
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0285	
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.0124	0.0347	0.0656
18%	0	0	0	0	0	0	0	0	0	0	0.0544	0.1552	0.0828	0.1135	0.0838	0.1044	0.0961	0.0702	0.0645	0.0544	
10%	0	0	0	0	0	0	0	0	0	0.1532	0.2364	0.2469	0.103	0.139	0.1092	0.0732	0.0897	0.0958	0.0951	0.0951	
5%	0	0	0	0	0	0	0	0	0.1858	0.2348	0.2897	0.2911	0.1236	0.1849	0.1306	0.0674	0.1457	0.1145	0.1263	0.0645	
2%	0	0	0	0	0	0	0	0.2207	0.3545	0.2703	0.3519	0.3531	0.1771	0.2253	0.1604	0.1102	0.1833	0.1398	0.1493	0.0645	
1%	0	0	0	0	0	0	0.253	0.5489	0.3995	0.5629	0.4	0.4022	0.2556	0.259	0.1834	0.1279	0.2091	0.1596	0.1701	0.0645	
1%+CC	0	0	0	0	0	0.5278	0.5158	0.6693	1.0269	0.7565	0.4805	0.4836	0.3438	0.3124	0.221	0.1532	0.2518	0.1911	0.2021	0.1049	

E	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs	
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0126	
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.0178	0.0124	0.021
18%	0	0	0	0	0	0	0	0	0	0	0	0.1303	0.1467	0.0776	0.159	0.0552	0.0947	0.0509	0.0812	0.0812	
10%	0	0	0	0	0	0	0	0	0	0.1768	0.1897	0.1739	0.1128	0.1498	0.109	0.0638	0.1575	0.0635	0.1069	0.0645	
5%	0	0	0	0	0	0	0	0.2913	0.208	0.3211	0.2715	0.2458	0.1814	0.131	0.1334	0.1889	0.0981	0.2241	0.2241	0.0645	
2%	0	0	0	0	0	0	0.2426	0.4903	0.2615	0.4315	0.3279	0.3022	0.2327	0.1619	0.1623	0.2329	0.122	0.2749	0.2749	0.0645	
1%	0	0	0	0	0	0.3884	0.2866	0.3529	0.2961	0.4906	0.4173	0.3461	0.2671	0.1857	0.1871	0.2658	0.1402	0.3149	0.3149	0.0645	
1%+CC	0	0	0	0	0	0.4376	0.5793	0.9255	0.666	0.356	0.5899	0.703	0.4482	0.3217	0.2247	0.2266	0.32	0.1856	0.3796	0.0645	

F	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72 hrs
POINT-2	D01	D02	D03	D04	D05	D06	D07	D08	D09	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20
65%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.001	0.0104
39%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.0409	0.0405
18%	0	0	0	0	0	0	0	0	0	0	0.0896	0.1488	0.1579	0.1038	0.1662	0.1484	0.1872	0.1084	0.2762	0.1306
10%	0	0	0	0	0	0	0	0	0	0.1634	0.1245	0.1757	0.1871	0.1559	0.2001	0.1775	0.2223	0.1332	0.3301	0.1503
5%	0	0	0	0	0	0	0	0.2475	0.3467	0.4641	0.2312	0.2567	0.2061	0.2444	0.2181	0.2726	0.1621	0.4047	0.1817	0.0645
2%	0	0	0	0	0	0	0.3384	0.3356	0.4569	0.5995	0.2629	0.2843	0.2359	0.2814	0.2495	0.3141	0.185	0.4653	0.2066	0.0645
1%	0	0	0	0	0	0.5523	0.5388	0.5813	0.9127	0.3314	0.354	0.4841	0.3401	0.5006	0.3788	0.3093	0.5573	0.2472	0.2472	0.0645

G	10	15	20	25	30	45	60	90	2 hrs	3 hrs	4.5 hrs	6 hrs	9hrs	12 hrs	18 hrs	24 hrs	30 hrs	36 hrs	48 hrs	72
---	----	----	----	----	----	----	----	----	-------	-------	---------	-------	------	--------	--------	--------	--------	--------	--------	----

Comparisons

Table A: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table B: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table C: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table D: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table E: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table F: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table G: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table H: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table I: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 63%, 39%, 18%, 10%, 5%, 2%, 1%, and 1% + CC.

Table J: Comparison matrix for points A, B, C, D, E, F, G, H, I, J. Columns include POINT-2, D01, D02, D03, D04, D05, D06, D07, D08, D09, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20. Rows include 0.63, 0.39, 0.18, 0.1, 0.05, 0.02, 0.01, and 1% + CC.



APPENDIX E

Pump Details and Maintenance Instructions



18



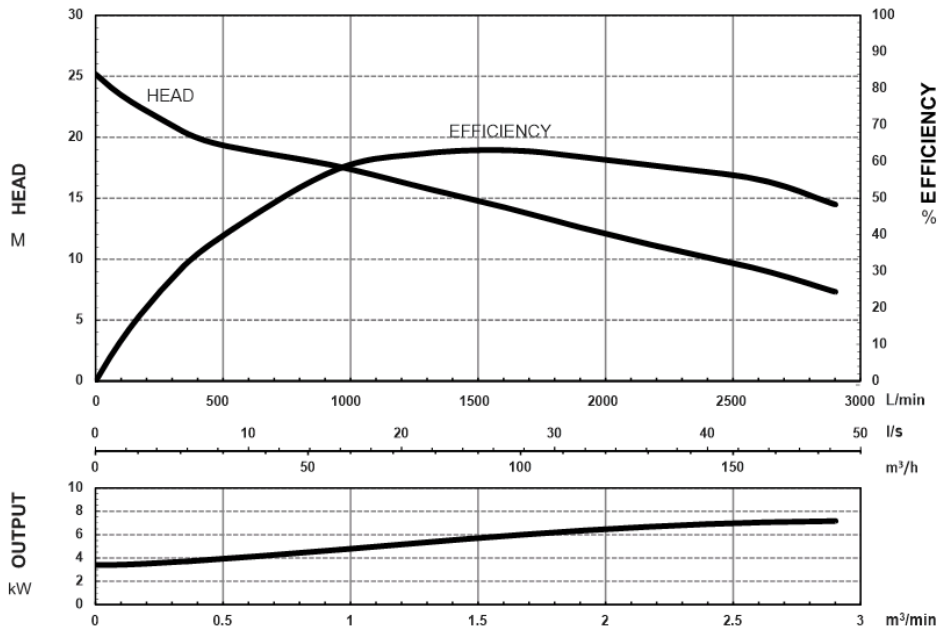
Models: **UMDZHF7500/100/3**



SPECIFICATIONS	
Power	7.5kW / 10HP
Frequency	50Hz
Discharge	100mm / 4 Inch BSP
Weight (Excl cable)	125Kg
Solid Passage	76 mm
Phase	3ø
Voltage	415
Full Load Amps	16.0
Maximum Liquid Temperature	0-40° C
Maximum Submersion Depth	10m (33 feet)
Motor type	Dry motor
Motor Speed	4 Pole (1440 rpm)
Motor Insulation	Class F
Motor Protection	IP68
Protector	Auto-Cut
Motor Bearings	Ball Type
Seal Method	Dual Mechanical seal
	Upper: Carbon/Ceramic Lower: Silicon/Silicon
Impeller Type	Enclosed-channel
Motor Cover Construction	FC-200 Cast Iron
Motor Casing Construction	FC-200 Cast Iron
Motor Shaft Construction	420J2 Stainless Steel
Pump Casing Construction	FC-200 Cast Iron
Impeller Construction	FC-200 Cast Iron
Cable Material	H07RN-F

MODEL NUMBER STRUCTURE	
U	Ultraflow
M	'M' indicates Manual, without floats witch
D	'D' indicates 'Drainage' series
Z	'Z' indicates New series
HF	'HF' indicates High Flow series
7500	Power consumption in 'Watts'
100	Outlet size
3	'3' indicates 415 volt three phase

PERFORMANCE CURVES



Information subject to change without notice.

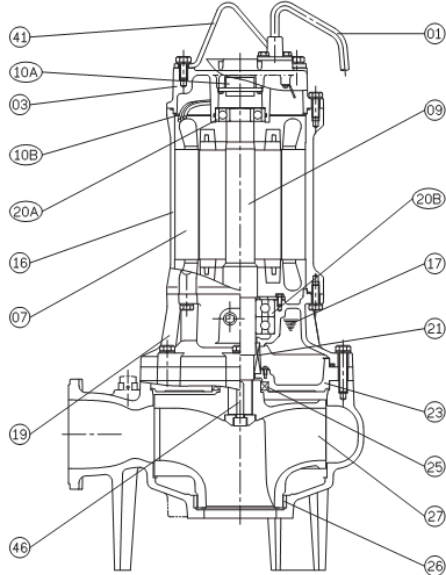


T 1300 662 787 | F 1300 662 717
 22-24 Somerville Circuit, Emu Plains NSW 2750
 E sales@generalpumps.com.au www.generalpumps.com.au

Models: **UMDZHF7500/100/3**



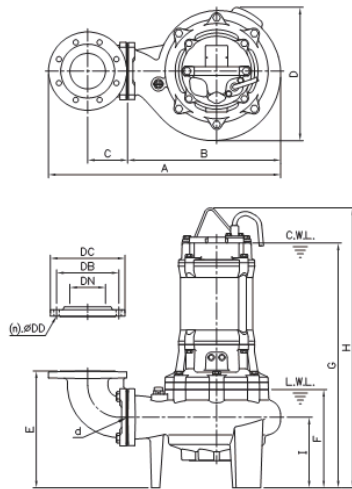
SECTIONAL DRAWING & MATERIALS LIST



PART NUMBER	DESCRIPTION	MATERIAL
01	Cable	HO7RN-F
03	Upper Motor Cap/ Bearing Housing	Cast Iron FC-200
07	Motor Stator	
09	Shaft (With Rotor)	(Shaft) Stainless Steel 420
10A	Auto Cut Out Overload	
10B	Auto Cut Out Overload	
16	Motor Casing	Cast Iron FC-200
17	Lubricant	Turbine Oil
19	Lower Bearing Housing	Cast Iron FC-200
20A	Upper Bearing	
20B	Lower Bearing	
21	Mechanical Seal	Upper: Carbon/Ceramic Lower: Silicon/Silicon
23	Mechanical Seal Housing	Cast Iron FC-200
25	Oil Seal	Nitrile
26	Pump Casing	Cast Iron FC-200
	Wear ring	BC6 Bronze
27	Impeller	Cast Iron FC-200
41	Handle	Steel
46	Impeller Key	304 Stainless Steel
47	O'rings	
55	Oil Plug	304 Stainless Steel

When ordering spare parts as above, simply add the pump model number to the part number from the list above. For example, a power lead (part '01'), the complete spare part name would be written as '01-UMDZHF7500/100/3'.

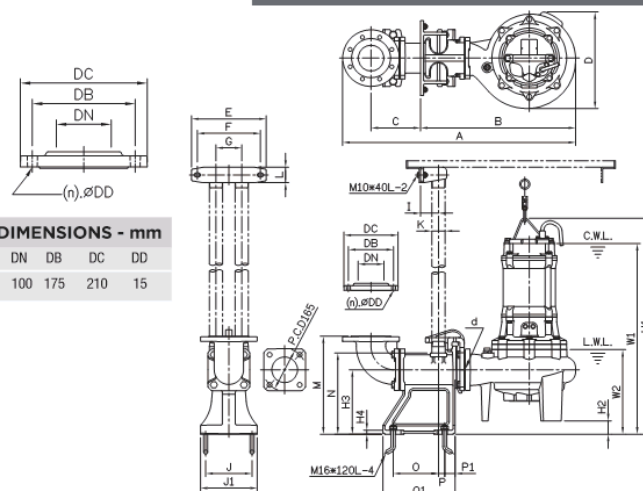
DIMENSIONAL DRAWING



DIMENSIONS - UMDZHF7500/100/3

d	A	B	C	D	E	F	G	H	I
100	653	430	113	374	328	276	727	826	198

GUIDE RAIL SYSTEM DIMENSIONS USING GR100EB GUIDE RAIL KIT



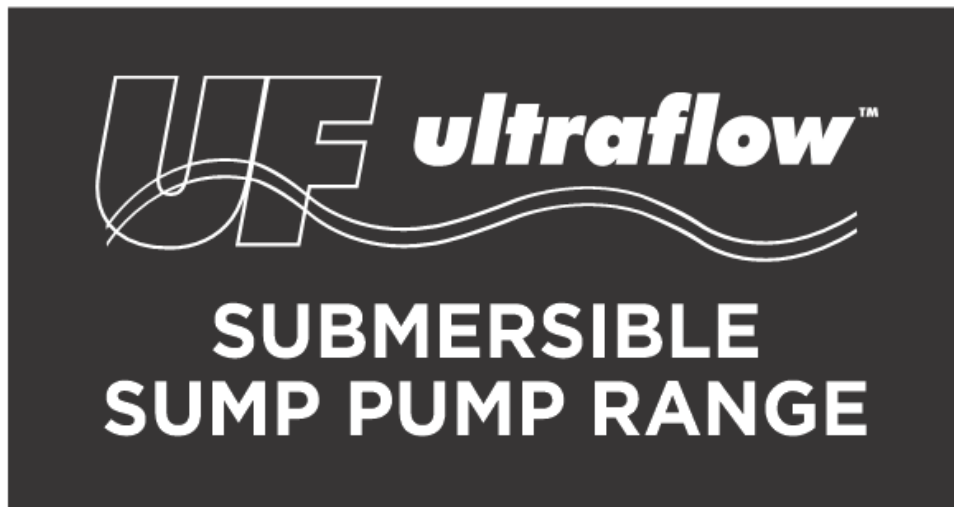
DIMENSIONS - UMDZHF7500/100/3

d	A	B	C	D	E	F	G	I	J	J1	K	L	M	N	O	O1	P	P1	W1	W2	H	H2	H3	H4
100	907	605	192	374	290	245	100	70	180	220	50	60	380	315	176	280	24	40	779	328	878	52	250	16

Information subject to change without notice.



T 1300 662 787 | F 1300 662 717
 22-24 Somerville Circuit, Emu Plains NSW 2750
 E sales@generalpumps.com.au www.generalpumps.com.au



Installation Operating Maintenance Instructions & Warranty Conditions

IMPORTANT

This instruction manual must be read and adhered to prior to installing and/or operating the pump/s.

For safety reasons, persons who have not read these instructions should not be authorised to use the pump.

The Installer must provide a copy of this manual to the Operator of the pump/s.

While this booklet is comprehensive, it is not exhaustive. Therefore, if you need clarification of any of the information contained herein, please contact us.



Revision 1.2015. This information is subject to change without notice. Please contact General Pump Company to ensure you have the most up to date information.

PRIOR TO INSTALLATION & OPERATION

The Installer must consult a WHS supervisor and/or adhere to all relevant criteria and regulations. The installer should consult an engineer for site assessment and correct installation methods.

When the pump is delivered, first perform the following checks.

INSPECTION

While unpacking, inspect the product for damage during shipment, and make sure all the fasteners, clamps, etc. are tightened properly.

SPECIFICATION CHECK

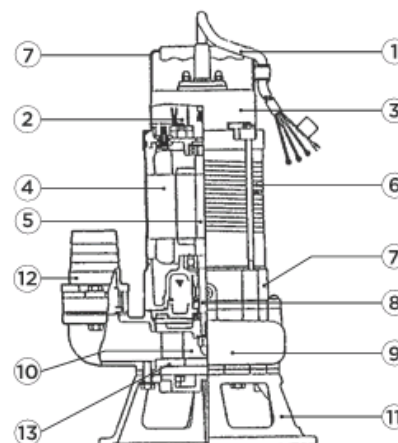
Check the model number to make sure it is the product that was ordered. Be certain it is the correct voltage and frequency.

PRODUCT SPECIFICATIONS



CAUTION:

- Do not operate this product under any conditions other than those for which it is specified.
- Failure to observe this precaution can lead to electrical shock, electrical leakage, fire, water leakage, damage to property, injury and death.



1. Cable	6. Motor Frame	10. Impeller
2. Protector	7. Oil Chamber	11. Stand/Strainer
3. Motor Cover	8. Mechanical Seal	12. Discharge
4. Motor	9. Casing	13. Wear Plate
5. Shaft		

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'



INSTALLATION



CAUTION:

- Do not use pump in liquids other than water, sewage, or chemically stable wastewater. Do not use pump in oil, salt water, flammable liquids, or organic solvents.
- Use with a power supply voltage within $\pm 5\%$ of the rated voltage.
- Do not use in water temperatures outside the range of 0-35°C. This can lead to failure, electrical leakage, shock or fire.
- Do not use in the vicinity of explosive or flammable materials, or areas classified as hazardous.
- Use only in fully assembled state.

NOTE: Consult your dealer or representative before using with any liquids others than those indicated in this document.

PREPARING FOR INSTALLATION

Before installing the pump at a work site, you will need to have the following tools and instruments ready.

- Insulation resistance tester
- AC Voltmeter
- AC ammeter (clamp on type)
- Bolt and nut tighteners
- Power supply connection tools
- Ensure adequate power supply is available

NOTE: Please read also the instructions that come with each of the test instruments.

CHECKS TO MAKE BEFORE INSTALLATION

When a three pin plug is used:

Use the megohmmeter to measure the insulation resistance between the cable plug tips and ground.

When connection leads are used:

With the megohmmeter, measure the insulation resistance between each core lead and the ground lead (Green/Yellow).

*Reference insulation resistance:
20Ω or greater.*

NOTE: The reference insulation resistance (20Ω or greater) is the value when the pump is new or has been repaired.



P: 1300 662 787 F: 1300 662 717
E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'

**WARNING:**

- When installing the pump, pay close attention to its centre of gravity and weight. If it is not lowered into place correctly, it may fall and be damaged or cause injury.
- When transporting the pump by hand, be sure to employ manpower commensurate with the weight of the pump. To avoid back injury when lifting the pump, bend the knees to pick it up rather than bending your back.

**CAUTION:**

- Do not under any circumstances install or move the pump by suspending it from the power cable. The cable may be damaged, causing electrical leakage, shock, fire, injury or death.

- 1 Attach the hose to the hose coupling as far as it will go, then fasten it securely with the hose band.
- 2 Avoid dropping the pump or other strong impact. Lift the pump by holding it firmly with both hands or by attaching a rope or chain to the handle.
- 3 Install the pump in an upright position on a secure base. Ensure that the inlet to the pump is not blocked by sludge, mud, solids, plastic bags, rubbish.

- 4 Where a float switch is attached to the pump, ensure the float switch is free to operate without interfering with tank walls, pipe work etc.
- 5 A swing check non-return valve and isolating valve should be fitted to discharge pipe close to the pump but accessible so that it can be replaced.
- 6 The pump must not be used in or at swimming pools, garden ponds or where there are people in the water.

**CAUTION:**

- Avoid dry operation, which will not only lower performance but can cause the pump to malfunction, leading to electrical leakage and shock.
- 7 Install the pump in a location with sufficient water level, where water collects readily.

NOTE: Please refer to "Operating Water Level" (page 10) for the water level necessary for operation.

NOTE: The discharge end should be located higher than the water surface. If the end of the hose or pipe is submerged, water may flow back to the pump when the pump is stopped; and if the hose end is lower than the water surface, water may overflow when the pump is turned off.

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'



**CAUTION:**

- If large quantities of earth are sucked up, damage resulting from erosion in the pump can lead to electrical leakage and shock.

- 8 To prevent the pump strainer stand from becoming submerged in mud, causing it to suck in debris, mount it on a block or firm base.

ELECTRICAL WIRING

PERFORMING ELECTRICAL WIRING

**WARNING:**

- Electrical Wiring should be performed by a qualified/licenced person in accord with all applicable regulations. Failure to observe this precaution not only risks breaking the law but is extremely dangerous.
- Incorrect wiring can lead to electrical leakage, electrical shock, fire, property damage, injury or death.
- Always make sure the pump is equipped with the specified overload protectors and fuses or breakers, as required by law, so as to prevent electrical shock from an electrical leak or pump malfunction.
- The voltage, frequency and current rating are displayed on the name plate, please ensure that the power supply meets the requirements.

GROUNDING

**WARNING:**

- Do not use the pump without first earthing it properly. Failure to earth it can lead to electrical shock from an electrical leak or pump malfunction.

**CAUTION:**

- Do not attach the earth wire to a gas pipe, water pipe, lightning arrestor or telephone earth wire. Improper earthing can result in electrical shock.

CONNECTING THE POWER SUPPLY

**WARNING:**

- Before connecting leads to the terminal, make certain the power supply is turned off (circuit breaker, etc), to avoid electrical shock, shorting,



P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'

or unexpected starting of the pump, leading to injury or death.



WARNING:

- Before inserting the power supply plug make certain the power supply is turned off (circuit breaker etc), to avoid electrical shock, shorting, or unexpected starting of the pump, leading to injury or death.



CAUTION:

- Do not use the pump with the power cable or plug connected loosely, which can result in electric shock, shorting, fire, injury or death.



CAUTION:

- Draw power from a dedicated power outlet. Sharing the outlet with other equipment may overheat the branch outlet and could result in a fire.
 - When using a three pin plug, connect as described in the manufacturer's instructions.
 - When a single-phase power source is used, connect the leads to the control panel terminals as shown in the diagram, making sure they do not become twisted together.



CAUTION:

- Be sure to use a dedicated power supply with a ground/earth leakage circuit breaker.

POWER CABLE



CAUTION:

- If it is necessary to extend the power cable, use a core size equal to or larger than the original. This is necessary not only for avoiding a voltage drop, but to prevent cable overheating which can result in fire, electrical leakage, electrical shock, injury and death. Refer to AS3000
- If a cable with cut insulation or other

damage is submerged in the water, there is a danger of water seeping into the motor causing a short. This may result in damage to pump, electrical leakage, electrical shock, fire, injury or death.

- Be careful not to let the power cable be cut or become twisted. This may result in damage to the pump, electrical leakage, electrical shock, fire, injury or death.

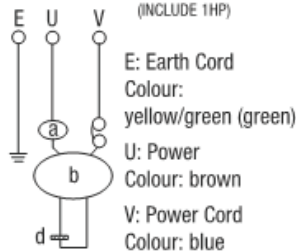
P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'



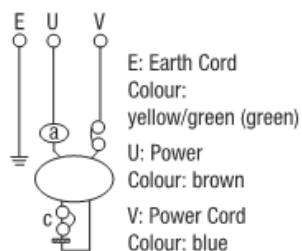
- If it is necessary to submerge the connection leads of the power cable in water, first seal the leads completely in a molded sleeve, to prevent electrical leakage, electrical shock, fire, injury or death.
- Do not allow power cable leads or power supply plug to become wet.
- Make sure that the cable does not become excessively bent or twisted, and does not rub against a structure in a way that might damage it.

ELECTRICAL CIRCUIT DIAGRAMS

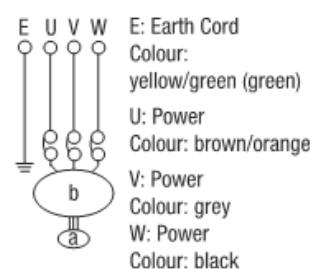
SINGLE PHASE BELOW 1HP (INCLUDE 1HP)



SINGLE PHASE ABOVE 1HP



THREE PHASE



- THREE PHASE PUMPS must be connected to a external motor starter fitted with a contactor and overload. The nominal current of the motor starter must correspond to the electrical data marked on the pump nameplate.

CHECKING OF DIRECTION OF ROTATION (THREE PHASE PUMPS ONLY)

The direction of rotation should be checked every time the pump is connected to a new installation.

Check the direction of rotation as follows:

At all times keep fingers and hands away from impeller.

- 1 Position the pump so that the impeller can be observed.
- 2 Start the pump momentarily, pump will jerk – be careful.
- 3 Observe the rotation of the impeller. The correct direction of the rotation is indicated by an arrow on the top of the motor (anticlockwise when seen from the bottom). If the impeller rotates in the wrong direction, reverse the direction of rotation by interchanging two phases of the motor.



P: 1300 662 787 F: 1300 662 717
E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'

If the pump is connected to a piping system, the direction of rotation can be checked as follows:

- 1 Start the pump and check the quantity of water or the discharge pressure.
- 2 Stop the pump and interchange two of the phases to the motor.
- 3 Start the pump and check the quantity of water or the discharge pressure.
- 4 Stop the pump.
- 5 Compare the results taken under point 1 and 3. The connection which gives the larger quantity of water or the higher pressure is the correct direction of rotation.

OPERATION

BEFORE STARTING

- 1 Make sure once again that the product is of the correct voltage and frequency rating.



CAUTION:

- Using the product with a voltage and frequency other than the rated voltage frequency will not only lower its performance but damage the product.

NOTE: Confirm the rated voltage and frequency on the model name plate.

- 2 Confirm the wiring, supply voltage, circuit breaker capacity, and motor insulation resistance.

Reference insulation resistance: 20Ω or greater.

NOTE: The reference insulation resistance (20Ω or greater) is the value when the pump is new or has been repaired.

- 3 The setting on the circuit breaker or other overload protector should be made in accord with the rated current of the pump.

NOTE: See the model name plate on the pump for its rated current.

TEST OPERATION



WARNING:

- Never operate the pump while it is suspended in the air. The recoil will result in injury, property damage or death.
- 1 Run the pump for a short time (3–10 minutes) and confirm the following:
 - Using an ammeter (clamp-on type), measure the operating current at the L1, and L2 phase leads on the terminal.

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'



Countermeasure: If the operating current exceeds the rated value, pump motor overload may be a cause, or there may be insufficient back pressure. Make sure the pump has been installed under proper conditions as described in Installation (page 5).

- Using an AC voltmeter (tester), measure voltage at the terminals.

Supply voltage tolerance: within $\pm 5\%$ of rated voltage.

Countermeasure: If the supply voltage is outside the tolerance, possible causes are the power supply capacity or an inadequate extension cable. Look again at Electrical Wiring (page 8) and make sure the conditions are proper.



CAUTION:

- In case of very excessive vibration, unusual noise or odour, turn off the power immediately and consult with your nearest dealer or representative. Continuing to operate the pump under abnormal conditions may result in electrical shock, fire, property damage, injury or death.

- 2 If the test operation reveals no problems, continue operating the pump.

OPERATION



WARNING:

- Do not operate the pump in dry pit, well, trench etc.
 - The pump may become very hot during operation. To avoid being burned, be careful not to contact the pump accidentally.
 - Make sure no extraneous objects such as pins, nails or other metal objects, cloth, wipes, rocks, wood, napkins or sanitary items or products of this nature are sucked into the pump. These can damage the pump or cause it to malfunction, and can result in electrical shock or electrical leakage.
 - In case of a power outage, turn off the power to the pump to avoid having it start unexpectedly when the power is restored, presenting serious danger to people in the vicinity.
 - Pay careful attention to the water level while the pump is operating. Dry operation may cause the pump to malfunction.
- NOTE:** See page 10, "Operating water level" for the water level necessary for operation.
- Sharp bends in the hose, especially near its base, may cause air pockets to form resulting in idle operation. Lessen the degree of bending while continuing to operate the pump.



P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'

OPERATING WATER LEVEL



CAUTION:

- Do not operate the pump below the C.W.L. (continuous running water level). Failure to observe this condition may result in damage to pump, electrical leakage or electrical shock.



MOTOR PROTECTION SYSTEM (Autocut Protector)

Some single phase pumps have a built-in motor protection system (Autocut Protector). If an excessive current is detected or the motor overheats, for reasons such as the following, the pump will automatically stop operating regardless of the water level, to protect the motor.

- Change in supply voltage polarity
- Overload
- Open-phase operation or operation under constraint

NOTE: Always determine the cause of the problem and resolve it before resuming operation. Simply repeating cycles of stopping

and restarting will result in damage to the pump. Do not continue operation at a very low lift, low water level, or while the strainer stand is clogged with debris. Not only will performance suffer, but such conditions may cause noise, heavy vibration, and malfunctioning.

MAINTENANCE AND INSPECTION

Regular maintenance and inspections are necessary for continued efficient functioning of the pump. If any abnormal conditions are noticed, refer to the section on Troubleshooting (pages 12-13) and take corrective measures immediately.

It is highly recommended that a spare pump be kept ready in case of any problems.

PRIOR TO INSPECTION



WARNING:

- Consult WHS supervisor for correct procedures.



WARNING:

- Detach the power cable from the receptacle or terminals, after making certain the power supply (circuit breaker, etc) is turned off. Failure to follow this precaution will result in a serious accident or death from electrical shock or unexpected starting of the pump motor.

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'



- 1 Washing the Pump: Remove accumulated matter from the surface of the pump and wash it with clean water. Take special care to remove any debris from the impeller.
- 2 When inspecting the pump exterior look for any peeling or chipped paint, and make sure the nuts and bolts are fastened tightly. Any cracks in the

surface should be repaired by cleaning up that area, drying it and then applying touchup coating.

NOTE: touchup is not supplied. Note that some kinds of damage or looseness may require that the unit be dismantled for repairs. Please consult with your nearest dealer.

Frequency	Inspection Items
MONTHLY	<p>Measure insulation resistance – Reference resistance 1Ω or greater</p> <p>NOTE: if the insulation resistance has become notably lower than previous inspection, an inspection of the motor will be necessary.</p> <ul style="list-style-type: none"> • Measure operating current - Compare with rated current. • Measure supply voltage - Compare with allowable range (within ±5% of rated voltage) • Pump inspection. • A noticable drop in performance may indicate wear in the impeller, etc., or else clogging of the strainer stand, etc. Remove clogged debris, and replace any worn parts.
BI-ANNUALLY	<ul style="list-style-type: none"> • Oil inspection. • Check the oil every six months or after 1,000 hours of use, whichever comes first.
ANNUALLY	<ul style="list-style-type: none"> • Change Oil. • Change oil every 12 months or after 2,000 hours of use, whichever comes first. • Designated Oil: Turbine oil VG32 - Caltex – or similar. • Change mechanical seal. <p>NOTE: Trained personnel are required for inspecting and replacing the mechanical seal. Consult with your nearest dealer or representative.</p>
2 TO 5 YEARS	<ul style="list-style-type: none"> • Overhaul – This should be carried out even if there are no problems with the pump. The frequency depends on how continuously the pump is in use. <p>NOTE: Consult with your nearest dealer</p>



P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'

STORAGE

When the pump is out of use for an extended period, wash it and dry it thoroughly, then store it indoors.

NOTE: Always run a test operation before putting the pump back into service.

When the pump is left installed in the water, it should be run at regular intervals (about once a week).

OIL INSPECTION & CHANGE

- Inspecting Oil

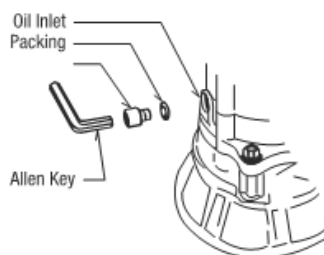
Remove the Oil Plug (Hex. Bolt) and tilt the pump to drain a small amount of oil. If the oil is milk white or has water mixed with it, the Mechanical seal maybe faulty. In this

case the pump will need to be dismantled and repaired.

- Replacing the Oil

Remove the Oil Plug and drain all the oil, then replace it with the specified amount.

NOTE: Used oil and other waste products should be disposed of by a qualified agent, in accord with applicable laws. The Oil Plug packing and O-Ring should be replaced each time the oil is inspected or changed.



TROUBLESHOOTING

Trouble	Cause	Remedy
Does not start. Starts, but immediately stops.	<ol style="list-style-type: none"> 1. Power Failure 2. Large discrepancy between power source and voltage 3. Significant drop in voltage 4. Motor phase malfunction 5. Electric circuit connection faulty 6. Faulty connection of control circuit 7. Fuse blown 8. Faulty magnetic switch 9. Water is not at level indicated by float 10. Float is not at appropriate level 11. Float defective 12. Short circuit breaker is functioning 13. Foreign matter clogging pump 14. Motor burned out 15. Motor bearing failure 	<ol style="list-style-type: none"> 1.- 3. Contact electric power company and devise counter measures 4. Inspect connections and magnetic switch 5. Inspect electric circuit 6. Correct wiring 7. Replace with correct type of fuse 8. Replace correct type of magnetic switch 9. Raise water level 10. Move float to appropriate starting level 11. Repair or replace 12. Repair location of short circuit 13. Remove foreign matter 14. Repair or replace 15. Repair or replace

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'



TROUBLESHOOTING

Trouble	Cause	Remedy
Operates, but stops after a while.	<ol style="list-style-type: none"> 1. Prolonged dry operation has activated motor protector and caused the pump to stop 2. High liquid temperature has activated motor protector and caused the pump to stop. 	<ol style="list-style-type: none"> 1. Raise stop water level 2. Lower liquid temperature
Does not pump. Inadequate volume.	<ol style="list-style-type: none"> 1. Reverse rotation 2. Significant drop in voltage 3. Operating a 60Hz pump on 50Hz 4. Discharge head is high 5. Large piping loss 6. Low operating water level causes air suction 7. Leaking from discharge piping 8. Clogging of discharge piping 9. Foreign matter in suction inlet 10. Foreign matter clogging pump 11. Worn impeller 	<ol style="list-style-type: none"> 1. Correct rotation (operation 2, 3) 2. Contact electric power company and devise counter measures 3. Check nameplate 4. Recalculate and adjust 5. Recalculate and adjust 6. Raise water level or lower pump. 7. Inspect, repair 8. Remove foreign matter 9. Remove foreign matter 10. Disassemble and remove foreign matter 11. Replace impeller
Over current.	<ol style="list-style-type: none"> 1. Unbalanced current and voltage 2. Significant voltage drop 3. Motor phase malfunction 4. Operating 50Hz pump on 60Hz 5. Reverse rotation 6. Low head, Excessive volume of water 7. Foreign matter clogging pump 8. Motor bearing is worn or damaged 	<ol style="list-style-type: none"> 1. Contact electric power company and devise counter measure 2. Contact electric power company and devise counter measure 3. Inspect connections and magnetic switch 4. Check nameplate 5. Correct rotation (see page 7) 6. Replace pump with low head pump 7. Disassemble and remove foreign matter 8. Replace bearing
Pump vibrates; excessive operating noise.	<ol style="list-style-type: none"> 1. Shut off valve closed too far 2. Piping resonates 3. Reverse rotation 	<ol style="list-style-type: none"> 1. Open shut off (valve) 2. Improve pipe mounting 3. Correct rotation (see page 7)



P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
 www.generalpumps.com.au
 'We simply know pumps better...'

WARRANTY CONDITIONS

GENERAL PUMP COMPANY warrants to the original user that its products are free from defects in materials and workmanship at the time of shipment and will make good, by repair or at its option by replacement, faults and/or defects which appear during the warranty period of twelve (12) months after the purchase date, provided that:

1. the equipment was correctly installed and under proper use in accordance with the 'Installation, Operation and Maintenance Instructions' issued by GENERAL PUMP COMPANY and also accepted codes of good practice, relevant Australian Standards and Government regulations.
2. the claim for goods under warranty arises solely from alleged faulty and/or defective materials and/or workmanship.
3. the company is notified in writing within twenty four (24) hours, after the discovery of any alleged faults and/or defects stating the date, place of purchase and invoice number.
4. the repair is carried out by GENERAL PUMP COMPANY or its agent who has been specifically authorised in writing to carry out the repair under warranty.
5. the faulty and/or defective goods are returned freight paid and at the purchaser's risk to the company or its authorised agent as required.
6. pumps returned for service/warranty which have been used for other than clean water must be clearly marked with details of the pumped liquid or application involved.
7. it is the customers responsibility to advise the company when any product returned for service/warranty has been in contact or used with hazardous liquids.
8. goods are maintained and serviced according to instructions set by GENERAL PUMP COMPANY.

GENERAL PUMP COMPANY'S warranty does not cover the failure or defect of any product, process, system, part or component:-

- due to advice, directions or instructions provided by GENERAL PUMP COMPANY, it's Staff and/or contractors.
- that is determined by GENERAL PUMP COMPANY to be fair, normal wear and tear, misuse and abuse
- the Supplier shall not be under any liability for any injury, including loss of life, damage, loss including consequential damage or loss including physical, financial, mental damage or loss, disease resulting from the use of its products or resulting from any faults and/or defects therein. This includes the cost of taking up and reinstalling the equipment and the tradesperson's time and material costs.
- damage caused by abnormal operating conditions, tampering, war, violence, storm, cataclysm or any other force majeure.
- damage caused by pumps jamming on metal objects, wood, wet wipes, sanitary napkins, cloth, non-degradable toweling.
- damage caused by the equipment being used for an application for which it is not manufactured or recommended for.
- damage caused by sand or abrasive materials, corrosion due to saline water,

P: 1300 662 787 F: 1300 662 717
 E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'



WARRANTY CONDITIONS

hazardous liquids, electrolytic action, liquid temperature beyond the recommended range, cavitation, improper supply voltage, or insufficient liquid to enable the pump to perform to specification.

- damage caused by inadequate power supply, under voltage, power surge or spike, and generator power supply.
- damage caused by the lack of maintenance of installation including but not limited to regular cleaning of pits, pumpwells and float switches
- damage caused by incorrect installation including, but not limited to, incorrect valves, incorrect installation of valves and incorrect electrical termination
- unless an appropriate consulting engineer and WHS officer has agreed to and given written consent to the installation and operating instructions, guidelines, operations, maintenance, service and repairs.
- if the alleged fault or defect would have been detectable prior to installation.

This warranty does not exclude any condition or warranty implied by the Trade Practices Act or separate state laws and is in addition to any right that the original purchaser or any subsequent purchase may have at law.

In the case of equipment or components which are not manufactured, repaired or installed by GENERAL PUMP COMPANY but are supplied by the company, the warranty is limited to that extended by the manufacturer, supplier, repairer or installer of such equipment or components.

GENERAL PUMP COMPANY has made a diligent effort to accurately illustrate and describe its products in all its literature and quotations. However, such illustrations and descriptions are not a warranty.

The above express warranty is in lieu of and excludes all other warranties, express or implied including without limitation, merchantability or fitness for a particular purpose.



P: 1300 662 787 F: 1300 662 717
E: sales@generalpumps.com.au
www.generalpumps.com.au
'We simply know pumps better...'



P: 1300 662 787

F: 1300 662 717

E: sales@generalpumps.com.au

www.generalpumps.com.au

22-24 Sommerville Circuit

PO Box 314

Emu Plains NSW 2750

'We simply know pumps better...'

The information contained in this booklet may contain errors and omissions, and is subject to change without notice. General Pump Company, its staff and related entities will not accept responsibility or liability in any form for claims or damages or consequential loss, injury, death, failure, etc.



Waste Management Plan

Commercial - 60 Rifle Range Road | Bargara

Date 14 December 2020

Project Number 15908



REPORT CONTROL SHEET

Report Details	
RMA ref. no:	15908
Project name:	Commercial - 60 Rifle Range Road Bargara
Report title:	Waste Management Plan
Report author:	Angel Baker

Document control				
Revision	Author	Reviewer	Approved for issue	
			Name	Date
0	A Baker	A Gwatking	Adam Gwatking	14/12/2020

Copyright © 2020 by RMA Engineers

All rights reserved. This report or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of RMA Engineers Pty Ltd.

Disclaimer:

RMA Engineers has undertaken this report based on accepted traffic engineering practices, standards, and information available at the time of writing. It is not intended as a quote, guarantee or warranty and does not cover any latent defects. RMA Engineers do not accept any responsibility for the authentication of accuracy of supplied information or validation of data that is outside the scope of works. RMA Engineers are not accountable for any changes to the standards, physical infrastructure conditions or planning impacts that occur after the completion date of the assessment.

The conclusions in this report should not be read in isolation. We recommend that its contents be reviewed in person with the author so that the assumptions and available information can be discussed in detail to enable the reader to make their own risk assessment in conjunction with information from other sources.

The document is produced by RMA Engineers for the sole benefit and use by the client in accordance with the contracted terms. RMA Engineers does not assume responsibility or liability to any third party arising from any use or reliance on the content of this document.



Table of Contents

1. Introduction	1
1.1 Objectives and scope	1
2. Proposed development	2
2.1 Locations and descriptions	2
2.2 Development details	3
3. General waste procedures	5
3.1 Construction and development waste	5
3.2 Waste caretaker/s	5
3.3 Reporting	5
3.4 Reducing waste with better practice waste management strategies	6
3.5 Education	6
4. Development waste procedures	7
4.1 Waste handling and collection	7
4.1.1 Kitchen and food preparation areas	7
4.1.2 Service station	8
4.1.3 Supermarket	8
4.1.4 Retail (including retail, specialty shops & bulky goods development components)	9
4.1.5 Common areas	9
4.1.6 Washrooms	9
4.2 Other waste streams	9
4.2.1 Bulky items	9
4.2.2 Electronic and chemical items	9
4.2.3 Cardboard Items	9
4.3 Development waste generation	10
4.3.1 General waste generation	11
4.3.2 Recycle waste generation	12
4.3.3 Number of bins required	13
4.4 Bin store areas	14
4.4.1 Proposed layout of bin store areas	14
4.4.2 Physical design considerations for the bin store areas	16
4.4.3 Amenity and operational design considerations for the bin store areas	17
4.5 Waste collection	19
4.5.1 Frequency	19
4.5.2 Time of collection	19
4.5.3 RCV servicing swept path review	19
5. Conclusion	20
Appendix A Development layout plans	21
Appendix B Detailed waste storage requirements (no. of bins)	22
Appendix C Swept path assessment	24



1. Introduction

RMA Engineers has been engaged by Bargara Village Pty Ltd to provide a Waste Management Plan in relation to a proposed mixed-use commercial development located at 60 Rifle Range Road, in Bargara, within the Bundaberg Regional Council local government area.

1.1 Objectives and scope

This waste management plan addresses the waste associated with the mixed-use commercial development. Considerations of detailed management, operation and design with respect to the waste storage and collection are envisaged to be undertaken during future detailed design stages of the development.

This waste management plan outlines measures to achieve the following objectives:

- Avoid and minimise generation of waste using the Waste Hierarchical principles
- Provide a safe and efficient means to collect and dispose of waste
- Provide procedural measures for the disposal of waste
- Review waste generation and storage requirements for the site
- Review refuse collection requirements for the site

Where required, this report makes recommendations for the mitigation of development impacts.

This plan details only the management of standard waste streams and not handling, storage and removal of special, chemical or hazardous waste.



2. Proposed development

2.1 Locations and descriptions

The development is located on Lot 7 on SP228667, within the Bundaberg Regional Council local government area. The site is situated approximately 12 km to the east of Bundaberg CBD.

The site land is currently classified as local centre in the Planning Scheme. It is bounded by land classified as low density residential to the northeast, emerging community to the west, low density to the southeast and community facilities / rural land to the southwest.

The subject site and its environs are illustrated on the locality plan in **Figure 2-1**.



Figure 2-1: Locality Plan



2.2 Development details

The proposed development comprises the following:

Stage 1

- Service Station (207 m² GFA)
- Café / Restaurant (170.67 m² GFA)

Stage 2

- Café / Restaurant (216.58 m² GFA)
- Retail 1 (128.42 m² GFA)
- Retail 2 (119.52 m² GFA)
- Retail 3 (119.52 m² GFA)
- Retail 4 (84.52 m² GFA)
- Retail 5 (84.52 m² GFA)
- Retail 6 (84.52 m² GFA)
- Specialty Shop 1 (255.23 m² GFA)
- Specialty Shop 2 (214.14 m² GFA)
- Specialty Shop 3 (233.55 m² GFA)
- Specialty Shop 4 (282.2 m² GFA)
- Gymnasium (282.68 m² GFA)

Stage 3

- Supermarket including storeroom area (1510.74 m² GFA)
- Bulky Goods 1 (309.16 m² GFA)
- Bulky Goods 2 (305.98 m² GFA)
- Bulky Goods 3 (305.98 m² GFA)
- Bulky Goods 4 (309.16 m² GFA)

The proposed layout is shown in **Figure 2-2** and **Appendix A**.



Figure 2-2: Development layout



3. General waste procedures

This assessment of waste volumes is an estimate which will ultimately be influenced by the site management and commitment towards waste disposal and recycling.

3.1 Construction and development waste

It will be the responsibility of the lead contractor to remove all construction related waste offsite, in a manner that satisfies authority requirements. A separate waste management plan should be undertaken for the construction (or demolition) activities prior to commencement of the development operational works stage.

3.2 Waste caretaker/s

Completion of the development will see the appointment of a waste caretaker/s, who will be responsible for staffing and managing all waste generated by the development.

Note: Staff working at the service station, cafés, retail, specialty and bulky goods stores may also be appointed waste duties or may be expected to handle (or move) waste as part of their position. The waste handling, management and training for these staff are to be coordinated by the waste caretaker/s.

All equipment movements in each component of the development are to be managed by the appointed waste caretaker/s at all times. Other staff or visitors will not be permitted to transport waste or recycling to the bin store areas. Waste bins will be available throughout the site for disposal of both general waste and recycling.

Duties allocated to the waste caretaker/s may include (not limited to) the following:

- Organising, maintaining, and cleaning the allocated general and recycled waste storage areas (frequency to the discrepancy of management and operation of development)
- Organising both garbage and recycled waste collection as required
- Operating machinery (such as the waste tug or the baling machine for compaction of paper and cardboard waste – if applicable for the development).
- Monitoring the use of the waste facilities, and ensuring that bins are exchanged and cleaned.
- Educating and training of staff of the correct waste management procedures for the site.
- Coordination of waste between the different uses of the development.

It should be noted it is the responsibility of the site manager to monitor the number of bins required for the development. Recycling, bin numbers and sizes may be altered to suit the development, as waste volumes may change due to the developments management and operation.

3.3 Reporting

It is recommended that management ensure that all waste service providers submit monthly reports detailing the movements and weights of any waste and recycling removed from the site. Regular reviews of servicing are suggested to assist with sustainability reporting, and ensure the sustainability of operational and economic performance of the developments waste procedures.



3.4 Reducing waste with better practice waste management strategies

It is recommended that management provide an effective waste management strategy that includes all of the elements of the Waste Hierarchy, by identifying what waste generation should be avoided, through to ensuring that waste generated is appropriately disposed of. Some examples of approaches can include:

- **Reduce/avoid:** double sided printing, electronic filing procedures, reusable cups
- **Reuse:** return packaging to supplies, donate unwanted items to charities, fix broken items
- **Recycling:** having separate bins that separate recycling
- **Recovery:** composting organic materials
- **Disposal:** dispose of some materials at suitably licenced landfills (i.e. paint, asbestos, batteries etc)

3.5 Education

Signage and identification should be provided within the bin store areas and on bins to minimise incorrect waste disposal.

Regular communication should also be undertaken to ensure the relevant staff have knowledge of any system upgrades, other efficiencies, or procedural changes that need to occur.

4. Development waste procedures

A review of the proposed bin store areas was undertaken to facilitate the most safe and effective method of collection.

4.1 Waste handling and collection

Bulk bins are proposed to be provided in the bin store areas, to allow staff to dispose of general and recycled waste in a location appropriate for collection twice a week.

The bin store areas are located adjacent to each building group within the development, as shown in **Figure 4-1**. These locations are considered appropriate as they minimise the distance for the movement of waste from the buildings to the bin store areas.



Figure 4-1: Bin store areas locations

4.1.1 Kitchen and food preparation areas

The following waste procedures are recommended for kitchen and food preparation areas within the café / restaurant components of this development:

- Kitchen and food preparation areas will be supplied with appropriate waste and recycle bins to be transported by management to the bin store areas.
- All waste bins should be bagged or plastic lined.



- Management will consider provision and servicing of grease interceptors and basket arresters, the design of which will be considered further in the detailed design stage of the development.
- Café / restaurant tenants will make arrangements for storing used cooking oil and organising its collection by the appropriate servicing. An oil storage container is suggested to be located in either the relevant bin store areas or food preparation areas for development use.
- All flattened cardboard will be collected and transported to the bin store areas and, if applicable, compacted/baled using a cardboard and plastic baler machine.

4.1.2 Service station

The following waste procedures are recommended for the service station component of the development:

- The service station is supplied with appropriate waste and recycle bins to be transported by management to bin store area 1.
- Bin sizes and quantities are interchangeable, and frequency of collections are determined to reduce the number of bins required on site.
- All waste bins should be bagged or plastic lined.
- Individual recycling programs are utilised to ensure comingled recycling is separated correctly.
- All flattened cardboard will be collected and transported to the bin store areas and, if applicable, compacted/baled using a cardboard and plastic baler machine.

4.1.3 Supermarket

The following waste procedures are recommended for the supermarket component of this development:

- Supermarket tenant is supplied with appropriate waste and recycle bins to be transported by supermarket staff to bin store area 4, for disposal into the appropriate bulk bins.
- Bin sizes and quantities are interchangeable, and frequency of collections are determined to reduce the number of bins required on site
- All waste bins should be bagged or plastic lined
- Individual recycling programs are utilised by tenant to ensure comingled recycling is separated correctly
- If applicable, separate organic bins should be provided for organic waste. These bins shall be collected by a specialist contractor for off-site composting.
- Comingled Recycling: all plastics (PET, HDPE and PVC) will be disposed into the recycling bin located in the bin store area. Where appropriate, provision of a baler is recommended for plastic.

All paper, newspaper and magazine waste generated by the supermarket tenant will be disposed into the designated recycling bin located in the bin store area.



4.1.4 Retail (including retail, specialty shops & bulky goods development components)

The following waste procedures are recommended for the retail, specialty shops and bulky goods components of this development:

- Building tenants are supplied with appropriate waste and recycle bins to be transported by management of the development to the relevant bin store area (bin store areas adjacent to each building group).
- Bin sizes and quantities are interchangeable, and frequency of collections are determined to reduce the number of bins required on site.
- All waste bins should be bagged or plastic lined.
- Individual recycling programs are utilised by retailers to ensure recycle waste is separated correctly.
- All flattened cardboard will be collected and transported to the relevant bin store area and compacted / baled using the proposed cardboard and plastic baler machine.

4.1.5 Common areas

Any common areas throughout the development should be supplied with appropriate waste and recycle bins. It is recommended that management of the development be responsible for monitoring the use of the waste facilities, and ensuring that bins are exchanged and cleaned.

It is also recommended that management of the development is responsible for ensuring all common areas (including bin store areas) are kept clear of litter, and any waste is removed from these areas on a regular basis.

4.1.6 Washrooms

If applicable, washrooms should be provided with collection bins for disposal of paper towel and any other associated waste.

4.2 Other waste streams

4.2.1 Bulky items

A designated area must be allocated for the waste storage of bulky items, and should be incorporated with the waste and recycling areas of the development (i.e. the bin store areas). It is assumed that the disposal of bulky items will be managed appropriately by the appointed waste caretaker/s.

4.2.2 Electronic and chemical items

Electronic and chemical waste items could include but not limited to batteries, computers, televisions and paint. The disposal of electronic and chemical waste items should be organized in accordance with the development waste caretaker/s.

4.2.3 Cardboard Items

All cardboard waste items associated with the development should be disposed of in accordance with development management preferred operation. It is suggested that this will include the baling of cardboard by management or the appointed waste caretaker/s, which is recommended to be collected with the recycle waste. The recycling services provider are to be arranged by the development waste caretaker/s prior to commencement of development operation.



4.3 Development waste generation

It was found that there is a lack of published information regarding waste generation rates for the Bundaberg Regional Council area. Therefore, specified waste and recycle generation rates were obtained from the *City of Melbourne Waste Generation Rates*, *City of Perth Waste Guidelines for All Development*, *Randwick City Council Waste Management Guidelines* and *Toowoomba Regional Council Technical Guideline for New Developments: General Waste and Recyclable Waste Storage and Collections*.

The rates in all of these references propose similar generation values for shop (non-food), café / restaurant and supermarket premises. The rates proposed in these waste guidelines (see **Table 4-1** and **Table 4-2**) were considered appropriate for estimating the amount of waste generated by the different uses within the development.

It should be noted that this is a general provision, however, it is identified that the actual waste generated is subject to the operational procedures and site usage.



4.3.1 General waste generation

The estimated general waste generation of the development is shown below in **Table 4-1**.

Table 4-1: General waste generation

Bin Store Area	Use	Yield	Waste generation rate	Waste (L/day)	
STAGE 1					
1	Service Station	207 m ²	50L per 100m ² floor area / day	104	
	Café / Restaurant	170.67 m ²	660L per 100m ² floor area / day	1,126	
Stage 1 (bin store area 1) general waste:				L per day	1,230
				L per week	8,609
STAGE 2					
2	Café / Restaurant	216.58 m ²	660L per 100m ² floor area / day	1,429	
	Retail 1	128.42 m ²	50L per 100m ² floor area / day	64	
	Retail 2	119.52 m ²	50L per 100m ² floor area / day	60	
	Retail 3	119.52 m ²	50L per 100m ² floor area / day	60	
	Retail 4	84.52 m ²	50L per 100m ² floor area / day	42	
	Retail 5	84.52 m ²	50L per 100m ² floor area / day	42	
	Retail 6	84.52 m ²	50L per 100m ² floor area / day	42	
Stage 2 (bin store area 2) general waste				L per day	1,740
				L per week	12,180
3	Specialty Shop 1	255.23 m ²	50L per 100m ² floor area / day	128	
	Specialty Shop 2	214.14 m ²	50L per 100m ² floor area / day	107	
	Specialty Shop 3	233.55 m ²	50L per 100m ² floor area / day	117	
	Specialty Shop 4	282.2 m ²	50L per 100m ² floor area / day	141	
	Gymnasium	282.68 m ²	10L per 100m ² floor area / day	28	
Stage 2 (bin store area 3) general waste				L per day	521
				L per week	3,646
STAGE 3					
4	Supermarket (including Store Room)	1510.74	660L per 100m ² floor area / day	9,971	
Stage 3 (bin store area 4) general waste				L per day	9,971
				L per week	69,796
5	Bulky Goods 1	309.16	50L per 100m ² floor area / day	155	
	Bulky Goods 2	305.98	50L per 100m ² floor area / day	153	
	Bulky Goods 3	305.98	50L per 100m ² floor area / day	153	
	Bulky Goods 4	309.16	50L per 100m ² floor area / day	155	
Stage 3 (bin store area 5) general waste				L per day	615
				L per week	4,306
Total general waste:				L per day	14,077
				L per week	98,537



4.3.2 Recycle waste generation

The estimated recycle waste generation of the development is shown below in **Table 4-2**.

Table 4-2: Recycled waste generation

Bin Store Area	Use	Yield	Waste generation rate	Waste (L/day)	
STAGE 1					
1	Service Station	207 m ²	50L per 100m ² floor area / day	104	
	Café / Restaurant	170.67 m ²	130L per 100m ² floor area / day	222	
Stage 1 (bin store area 1) recycle waste:				L per day	325
				L per week	2,278
STAGE 2					
2	Café / Restaurant	216.58 m ²	130L per 100m ² floor area / day	282	
	Retail 1	128.42 m ²	50L per 100m ² floor area / day	64	
	Retail 2	119.52 m ²	50L per 100m ² floor area / day	60	
	Retail 3	119.52 m ²	50L per 100m ² floor area / day	60	
	Retail 4	84.52 m ²	50L per 100m ² floor area / day	42	
	Retail 5	84.52 m ²	50L per 100m ² floor area / day	42	
	Retail 6	84.52 m ²	50L per 100m ² floor area / day	42	
Stage 2 (bin store area 2) recycle waste				L per day	592
				L per week	4,144
3	Specialty Shop 1	255.23 m ²	50L per 100m ² floor area / day	128	
	Specialty Shop 2	214.14 m ²	50L per 100m ² floor area / day	107	
	Specialty Shop 3	233.55 m ²	50L per 100m ² floor area / day	117	
	Specialty Shop 4	282.2 m ²	50L per 100m ² floor area / day	141	
	Gymnasium	282.68 m ²	10L per 100m ² floor area / day	28	
Stage 2 (bin store area 3) recycle waste				L per day	521
				L per week	3,646
STAGE 3					
4	Supermarket (including Store Room)	1510.74	240L per 100m ² floor area / day	3,626	
Stage 3 (bin store area 4) recycle waste				L per day	3,626
				L per week	25,380
5	Bulky Goods 1	309.16	50L per 100m ² floor area / day	155	
	Bulky Goods 2	305.98	50L per 100m ² floor area / day	153	
	Bulky Goods 3	305.98	50L per 100m ² floor area / day	153	
	Bulky Goods 4	309.16	50L per 100m ² floor area / day	155	
Stage 3 (bin store area 5) recycle waste				L per day	615
				L per week	4,306
Total recycle waste:				L per day	5,679
				L per week	39,754



4.3.3 Number of bins required

The number of bins required to store the waste associated with this development is detailed in **Table 4-3** below. *Note: refer to **Appendix B** for a more detailed breakdown of waste storage requirements (i.e. no. of bins per bin type required for each bin store area).*

Table 4-3: No. of bins required for waste collection

Bin Store Area	Type of waste	Bin Qty	Bin size	Collection frequency (no. per week)
1	General	2	3,000L	2
	Recycle	1	2,000L	2
2	General	2	4,000L	2
	Recycle	1	3,000L	2
3	General	1	2,000L	2
	Recycle	1	2,000L	2
4	General	6	4,000L	3
	Recycle	3	3,000L	3
5	General	1	3,000L	2
	Recycle	1	3,000L	2

It should be noted that the proposed bin arrangements for the development will allow for additional waste storage if needed (as values within the tables in **Appendix B** are rounded up).

Waste oil storage is proposed as part of the development, as discussed in **Section 4.1.1**.

It is recommended that a baling machine be installed within each of the bin store areas, to help provide compaction of recyclable waste (such as cardboards and plastics).

4.4 Bin store areas

4.4.1 Proposed layout of bin store areas

From an initial review of the development plans shown at **Appendix A** (052-2019- Drawings TP01 to TP10, dated 8 December 2020), it was identified that the bin store areas are deemed sufficient for the proposed bulk bin storage. All bin store areas have capacity to the number of bulk bins required for the expected waste generated, as discussed above in **Section 4.3.3** (refer to figures below).

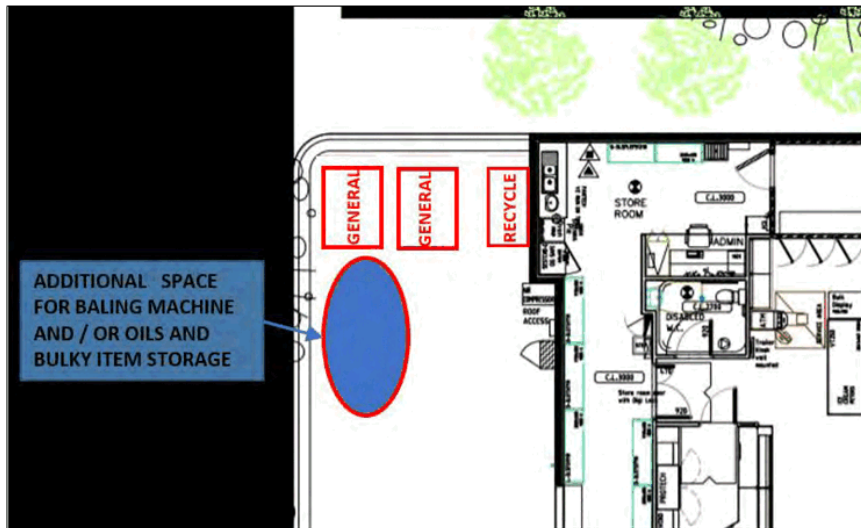


Figure 4-2: bin store area 1 layout



Figure 4-3: bin store area 2 layout

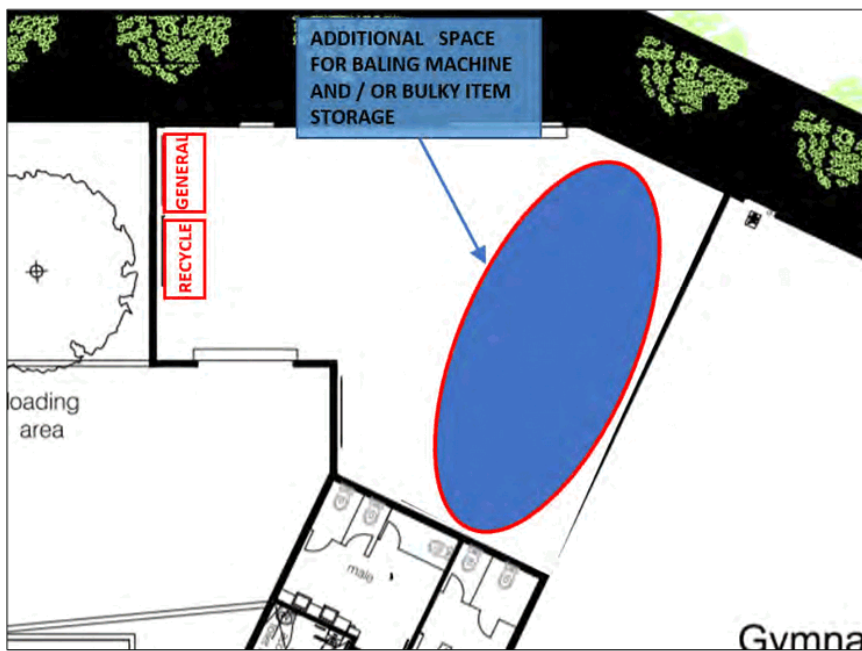


Figure 4-4: bin store area 3 layout

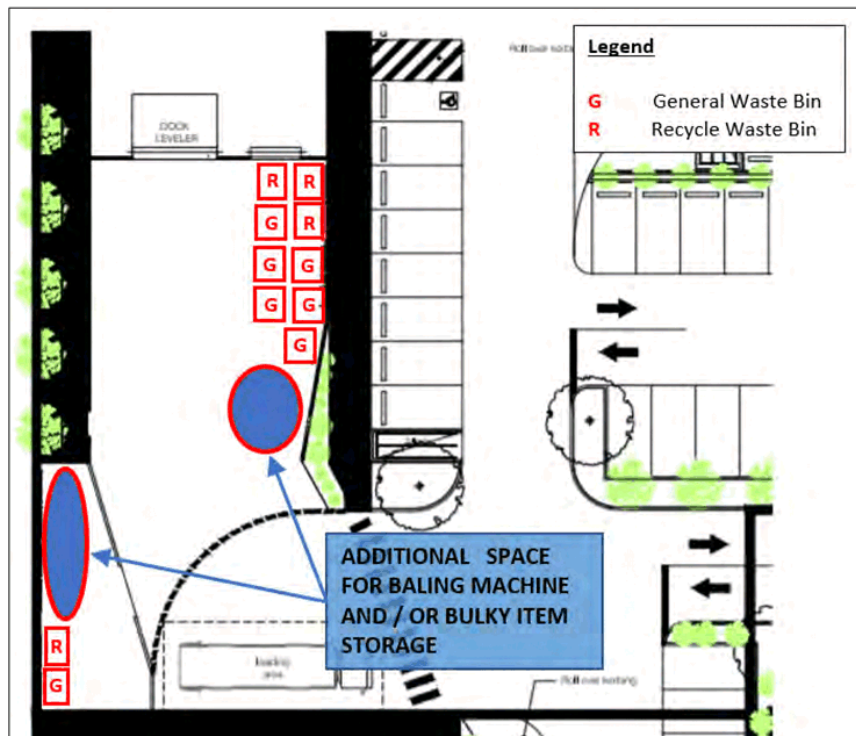


Figure 4-5: bin store area 4 & 5 layouts

4.4.2 Physical design considerations for the bin store areas

Frequency

All bin store areas excluding bin store area 1 have room to cater for weekly collection frequencies. A collection frequency of twice a week is proposed to minimise odour and vermin.

Bin store area 1 has room to cater for a collection frequency of two collections per week, however a collection frequency of three collections per week is proposed, to maximise available operational space for the loading area and to minimise odour and vermin. It is noted that the other bin store areas within the development (particularly bin store area 3) have ample space to cater for overflow bins from bin store area 1, if needed.

Bin storage

The bin store areas have adequate room to accommodate the proposed bulk bin arrangements i.e. a total of eight 4,000L bins (2,040mm L x 1,631mm W x 1,990mm H), eight 3,000L bins (2,040mm L x 1,441mm W x 1,620mm H) and three 2,000L bins (2,040mm L x 1,041mm W x 1,570mm H).

The layout allows adequate area for independent manoeuvring of bulk bins to the service vehicle bay for servicing by a refuse collection vehicle. It is recommended that the bulk bins be provided on wheels to assist with manoeuvring. A bin tug can also be used to assist with manoeuvring, if required.

Bulky items and miscellaneous

The concept design of the bin store areas provides adequate spare area to store miscellaneous and bulky waste items for collection. These may include items such as pallets, electronic equipment and containers.

Cardboard and plastic baler/compactor

If space permits, a cardboard and plastic baler/compactor is recommended for each area of the site. The type and size of machines will be dependent on the waste generation of each area, and are expected to be similar to the Mil-tek 305 baling machine illustrated in **Figure 4 6**.



Figure 4-6: Mil-tek 305 baling machine specifications

Oil bin

It is recommended that an oil bin also be provided to collect used cooking oils. Collection services for this type of waste are usually free of charge and specialised collection containers are usually provided.

4.4.3 Amenity and operational design considerations for the bin store areas

Accessibility

It is recommended that the bin store areas be accessible for management and relevant operational staff. If screening is used, provision of a gate should be designed for use by appropriate staff.



Restriction measures to prevent unauthorised entry should also be considered for the bin store areas (for security and safety purposes).

Noise

The bin store areas do not include a compactor or any similar noise generating equipment. Therefore, the acoustic design of the areas is not required. If a baler is installed, then the operating hours of the machine should be considered to minimise noise impacts.

Ventilation

The bin store areas are located outside and therefore no ventilation systems are required.

Fire safety

Given the number of flammable materials stored within the bin store areas, appropriate fire safety, procedures and education should be provided for users.

Handling of bulk bins

Bin movements and transportation of waste require minimal manual handling. It is recommended that the operator must individually assess manual handling risks and provide any relevant documentation to site management.

It is recommended that the bulk bins be provided on wheels to assist with manoeuvring. A tug can be used if required, at the waste caretaker/s discretion, to assist with handling and moving the bulk bins around the bin store areas and to the servicing location.

Hygiene and vermin

It is recommended that all general waste collected be sealed in bags before transferring to the bin store areas, to maximise hygiene and minimise attracting vermin.

The proposed bin store areas, as shown in **Figure 4-2** to **Figure 4-5**, will require wash down provisions (hose tap located adjacent to the bin store areas, and area drained to sewer) to clean the hardstand and bins. It is recommended that this be provided in the detailed design stage of the development.

General bins and waste collection areas should also be periodically inspected and any clutter and rubbish removed.

Health and safety

Safe practices should be undertaken when handling, collecting and disposing of waste. Management should provide appropriate waste policies and procedures to help prevent the potential risk of injury and illness with the operation. Such risks may include:

- Manual handling injury from moving bulk bins.
- Cuts and lacerations, or contact with unknown substances.
- Exposure to malodorous materials.
- Potential conflict with collection vehicles.
- Injury from using stored bins and equipment (i.e. manoeuvring bulk bins, lifting heavy objects, etc).
- Reporting any damage to equipment, buildings, structures, and landscaping.
- Environmental damage caused by accidental spills/releases.



First aid kits with the appropriate contents should also be conveniently located within each of the tenancies.

Given that the height of the proposed bulk bins will most likely require overhead handling for waste transfer, it is suggested that the waste caretaker/s regularly monitor manual handling practices for the bulk bins to ensure no workplace health and safety issues arise. If any issues arise as part of this ongoing monitoring, the waste caretaker/s will need to determine a more suitable bulk bin arrangement for the bin store areas, to include bulk bins more appropriate in height.

4.5 Waste collection

4.5.1 Frequency

For all bin store areas excluding bin store area 1, two collections per week for both general and recycled waste is considered to be sufficient in catering for the number of bins stored in the bin store areas, vermin and odour associated with bulk bin waste storage. Three collections per week for both general and recycled waste is considered sufficient for bin store area 1.

4.5.2 Time of collection

The collection will be undertaken outside peak operational hours, where activity on site is at a minimum, and outside the applicable noise restriction hours, to minimise any noise complaints regarding the collection.

4.5.3 RCV servicing swept path review

The bin store area swept paths shown in **Appendix C** have been undertaken in accordance with Australian Standards AS2890.1 and AS2890.2. The swept paths illustrate sufficient refuse vehicle manoeuvrability and clearance for bin servicing.

The development layout is satisfactory for refuse collection as per the following considerations:

- Servicing will be undertaken wholly on-site with the RCV entering and exiting in a forward gear.
- The internal layout connecting to the refuse collection area allows for unimpeded movements for vehicles to pass each other, where possible.
- There is no height obstruction within the refuse collection area for the RCV.



5. Conclusion

RMA Engineers has been engaged by Bargara Village Pty Ltd to provide a Waste Management Plan in relation to a proposed mixed-use commercial development located at 60 Rifle Range Road, Bargara.

The findings of the report identified several waste management considerations and operational procedures that can be considered with ongoing design and future operation of the site.

A review of the layout found that the proposed waste storage and collection procedures can be adequately accommodated in accordance with Council and relevant waste management requirements.

A review of the design found that the location of the bin store areas is adequate in terms of vehicle servicing and amenity.

From the above, no adverse waste management issues were identified.



Appendix A Development layout plans

PROPOSED DEVELOPMENT

Stage 3b

2383.72sq.m

Stage 2

8581.95sq.m



- LANDSCAPING**
Landscaping to be in accordance with the Design Guidelines & to the requirements of Local City Council. Refer to Landscape consultant's drawings and specifications for full details.
- LIGHTING**
External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land to the satisfaction of the Responsible Authority.
- DISABLED ACCESS**
Ramped entrances are in accordance with the Australian Standard AS 2890 - Design Rule for Access by the Disabled.
- CAR PARKING**
Disabled car parking spaces to be 4900mm long x 2400mm wide and be in accordance with A.S. 2890.1 (2004).
Car parking spaces to be 4900mm long x 2000mm wide and be in accordance with A.S. 2890.1 (2004).
All car parking bays to be line marked in 80mm wide white weatherproof paint in accordance with A.S. 2890.1 (2004).
- VEHICLE CROSSINGS**
All new crossings shall be to the requirements of the relevant Statutory Authority.
- LOADING BAYS**
All loading bays to be 7000mm long x 3000mm wide and line marked in accordance with A.S. 2890.1 (2004).

SECURITY EXTERNAL LIGHTING
Luminaire pole mounted at 6m height.

Stage 3a

2383.72sq.m

Stage 1

4079.77sq.m

01 SITE PLAN
SCALE 1: 300

FLOOR PLAN

AT:- 60 Rifle Range Road, BARGARA

A1 sheet

SHEET No: 1902 JOB No: 922-2019
DATE: Aug 2020 SCALE: AS SHOWN @ A1 SIZE

COPYRIGHT
All rights reserved. These drawings are the property of CADDCO. No part of these drawings may be reproduced or transmitted in any form or by any means without the prior written authority of CADDCO. Landmarked and marked in accordance with A.S. 2890.1 (2004).



Appendix B Detailed waste storage requirements (no. of bins)

Table B.1: No. of bins required for waste collection (BIN STORE AREA 1)

Bin type	Bin size	1 times per week		2 times per week	
		General	Recycle	General	Recycle
Wheellie bin	240L	36	10	18	5
1,100L	1,100L	8	3	4	2
2	1,500L	6	2	3	1
3	2,000L	5	2	3	1
4	3,000L	3	1	2	1
6	4,000L	3	1	2	1

Table B.2: No. of bins required for waste collection (BIN STORE AREA 2)

Bin type	Bin size	1 times per week		2 times per week	
		General	Recycle	General	Recycle
Wheellie bin	240L	51	18	26	9
1,100L	1,100L	12	4	6	2
2	1,500L	9	3	5	2
3	2,000L	7	3	4	2
4	3,000L	5	2	3	1
6	4,000L	4	2	2	1

Table B.3: No. of bins required for waste collection (BIN STORE AREA 3)

Bin type	Bin size	1 times per week		2 times per week	
		General	Recycle	General	Recycle
Wheellie bin	240L	16	16	8	8
1,100L	1,100L	4	4	2	2
2	1,500L	3	3	2	2
3	2,000L	2	2	1	1
4	3,000L	2	2	1	1
6	4,000L	1	1	1	1

Table B.4: No. of bins required for waste collection (BIN STORE AREA 4)

Bin type	Bin size	2 times per week		3 times per week	
		General	Recycle	General	Recycle
Wheellie bin	240L	146	53	97	36
1,100L	1,100L	32	12	22	8
2	1,500L	24	9	16	6
3	2,000L	18	7	12	5
4	3,000L	12	5	8	3
6	4,000L	9	4	6	3



Table B.5: No. of bins required for waste collection (BIN STORE AREA 5)

Bin type	Bin size	1 times per week		2 times per week	
		General	Recycle	General	Recycle
Wheelie bin	240L	18	18	9	9
1,100L	1,100L	4	4	2	2
2	1,500L	3	3	2	2
3	2,000L	3	3	2	2
4	3,000L	2	2	1	1
6	4,000L	2	2	1	1



Appendix C Swept path assessment





**Item****21 December 2021****Item Number:**

L4

File Number:

521.2021.239.1

Part:

DEVELOPMENT ASSESSMENT

Portfolio:

Planning & Development Services

Subject:

67 Harbour Esplanade, Burnett Heads - Reconfiguring a Lot for Subdivision (One Lots into Four Lots)

Report Author:

Sarah Watts, Principal Planner

Authorised by:

Michael Ellery, Group Manager Development

Link to Corporate Plan:

Our infrastructure and development - 2.3 Sustainable development - 2.3.3 Review and consistently enforce the planning scheme to ensure sustainable environmental practices.

Summary:

APPLICATION NO	521.2021.239.1
PROPOSAL	Reconfiguring a Lot for Subdivision (One Lots into Four Lots)
APPLICANT	Gladstone Ports Corporation Limited
OWNER	Gladstone Ports Corporation Limited
PROPERTY DESCRIPTION	Lot 1 on SP157913
ADDRESS	67 Harbour Esplanade, Burnett Heads
PLANNING SCHEME	Bundaberg Regional Council Planning Scheme 2015
ZONING	Community Facilities Zone
OVERLAYS	Acid Sulfate Soils Flood Hazard Steep Land Coastal Management
LEVEL OF ASSESSMENT	Code
SITE AREA	14.6087 ha
CURRENT USE	Chandlery, VMR and Marine berths currently under construction
PROPERLY MADE DATE	17 September 2021
STATUS	The 35 business day decision period ends on 6 January 2022

REFERRAL AGENCIES	Department of State Development, Manufacturing, Infrastructure and Planning
NO OF SUBMITTERS	Not Applicable
PREVIOUS APPROVALS	Development approval number 325.2012.36591.001 originally approved on 13 May 2013 for 273 wet berth Marina and associated facilities, café/restaurant, administration, marine based commercial/retail and office uses) and Caretakers dwelling and associated Prescribed Tidal Works. The applicant has started undertaking the works associated with the wet Marina berths
	Extension to Relevant Period for 4 years application number 325.2012.36591.002 approved on 16 May 2017 extending the relevant period of the above application until 16 May 2021.
	Application for a Minor change to development approval (325.2012.36591.001) application number 526.2020.219.1 approved on 2 November 2020 for Material Change of Use for General Business (318 wet berth Marina and associated facilities, café/restaurant, administration, marine based commercial/retail and office uses) and Caretakers dwelling and associated Prescribed Tidal Works
	Material Change of Use for Mixed Use Development (Burnett Harbour Marina Village) - Office, Shop, Food and Drink Outlet, Indoor Sport and Recreation, Short Term Accommodation and Multiple Dwellings which was approved by Council on 24 November 2020.
	Preliminary Approval for Material Change of Use (Preliminary Approval (Mixed Use Development - Burnett Harbour Marina Village) - Resort Complex (including: ancillary shop, restaurant, bar, recreation and conference facilities), Short Term Accommodation and Multiple Dwellings which was approved by Council on 15 December 2020
SITE INSPECTION CONDUCTED	Desktop analysis as site inspections have been undertaken by the assessing officer for the previous approvals
LEVEL OF DELEGATION	C2

1. INTRODUCTION

1.1 Proposal

The proposal seeks a development permit for a reconfiguration of a lot to subdivide the subject site into 4 lots. The 4 proposed lot sizes are as follows:

- Lot 1 – 7.3917 ha
- Lot 11 – 1.118 ha
- Lot 12 - 1.284 ha
- Lot 13 – 4.862 ha

The objective of the proposed development is to create three development project lots generally consistent with the earlier Council approvals given in 2020, and a balance lot. The three development lots are necessary to allow sale of the land to the developer and achieve the plan of development approved through decisions in applications 522.2018.89.1 and 522.2018.90.1.

1.2 Site Description

The subject land includes parts of Lot 1, 2 and 3 on SP157913 and is identified as 'Mixed Use – Boat Harbour' in the Burnett Heads Harbour Precinct of the Bundaberg Port Authority Land Use Plan. Lot 1 has an area of 14.6 ha and, except for the public car park/boat ramp area located on 4 on SP157913 which does not form part of the submitted application, all but encompasses the landward edge of the boat harbour (and open space where the existing public amenities building is located). The development permit application is proposed over an area of 24,140 m².

The subject site is improved with a two-storey masonry building and workshop that was formerly part of the Burnett Heads Marina. The workshop is no longer in use, the ground floor chandlery has been abandoned but the upstairs caretaker's residence remains in use. The adjoining hard stand yard has most vessels removed and the marina per se has been dismantled.

Also on the site are a number of unused accommodation 'dongas', the Bundaberg Volunteer Marine Rescue (VMR), the now abandoned Blue Water Club (under Lease 709722713) and a secure boat storage area (under Lease 709722690). The site has an existing boat hardstand (for 27 boats) and an associated slip, ramp and service pontoon.

The subject land is flat, ground level hovers around RL3.0 mAHD and the site is void of vegetation. The site is not mapped as containing State Planning Policy biodiversity wetland values or vegetation and habitat values or conservation area values. The site is within a coastal management district and much, of the land is within an erosion prone area.

Part of the site is located within the Flood hazard area—Level 1 Queensland floodplain and as identified in the Planning Scheme, the site is affected by the coastal management district, erosion prone area and medium and high storm tide inundation areas

The land is zoned Community Facilities Zone within the Bundaberg Regional Council Planning Scheme 2015.

To the north and west of the commercial precinct of the Burnett Harbour Marina Village is Lot 4 on SP190481. This is a Crown Reserve for recreation purposes under the trustee of Gladstone Ports Corporation and contains a road, public parking, trailer parking and boat ramp. The northern face for the balance residential component of the development permit area is the boat harbour.

To the east of the development permit area is, for all practical purposes, unimproved land (and the preliminary approval land). On the southern side of Harbour Esplanade are detached dwellings from Finucane Street to Moss Street. These properties are included in the Medium Density Residential zone.

The subject site is located approximately 400 metres west of the existing Burnett Heads Town centre to which Council has recently undertaken substantial streetscape works as a result of detailed local area planning. In conjunction with these streetscape works Council has recently constructed a multi modal pathway along Harbour Esplanade to the Burnett Heads central business district to connect the site to the CBD and to the Port area across Wallace Creek to the west of the site.

In February 2017 the Queensland Government declared the Bundaberg State Development Area (SDA), which is located at the Port of Bundaberg. The Port of Bundaberg is expected to play a significant role as a catalyst for the future growth of the Wide Bay Burnett region. The SDA is expected to provide a location for regionally significant economic activities and preserve strategic port land for the long term.

2. Background

On 16 May 2013, Council granted a development permit for-

- (1) Material change of use for General Business (273 wet berth marina and associated facilities, café/restaurant, administration, marine based commercial, retail and office uses) and Caretaker's Dwelling; and
- (2) Material change of use for Environmentally Relevant Activity (ERA 63 – Sewerage Treatment); and
- (3) Lot reconfiguration for Subdivision by Lease; and
- (4) Operational work for Prescribed Tidal Work (ramp, pontoon, piles, rock revetment, dredging, demolition and reclamation).

On 16 May 2017, Council extended the relevant period of this approval to 16 May 2021. Dredging for the marina berth has commenced.

In conjunction with the assessment of the subject application, the applicant lodged a change to the existing approval to introduce staging, with the view that only stage 1 would be completed under the existing approval. The changes approved on 3 November 2020 incorporated the following:

1. **Deliver land-based facilities in a two-stage process rather than as a single stage as follows;**

First Stage:

Retain the existing buildings (commercial building and amenities building) and re-purpose the commercial building. Increasing and improving landscaping.

Second Stage

Demolish the re-purposed buildings and develop the land as approved under Development Permit No.325.2012.36591.1.

2. Change the marina by-

- (1) Increasing the number of berths to three hundred and eighteen (318).
- (2) Modifying the layout of the marina (but not increasing the marina footprint).
- (3) Introducing five (5) substages of stage 1 stages viz Stage 1 – 38 berths, Stage 2 – 58 berths (cumulative), Stage 3 – 102 berths, Stage 4 – 140 berths, Stage 5 – 318 berths.

2. Change the two wet lease areas

The minor change seeks an expansion of Lease BU to 3.689 hectares and Lease BV to 3.9 hectares.

On 24 November 2020 Council approved a development application for a Material Change of Use for Mixed Use Development (Burnett Harbour Marina Village) - Office, Shop, Food and Drink Outlet, Indoor Sport and Recreation, Short Term Accommodation and Multiple Dwellings (Stage 1 of the Burnett Head Marina Village).

On 15 December 2020 Council approved a development application for a Preliminary Approval for Material Change of Use (Preliminary Approval (Mixed Use Development - Burnett Harbour Marina Village) - Resort Complex (including: ancillary shop, restaurant, bar, recreation and conference facilities), Short Term Accommodation and Multiple Dwellings (Stage 2 of the Burnett Heads Marina Village).

The subject reconfiguration of a lot application is to facilitate the development of the approved Marina Village.

3. ASSESSMENT PROVISIONS

3.1. Assessment Benchmarks

The following are the benchmarks applying for this development:

Benchmarks applying for the development	Benchmark reference
Zone Code: Community Facilities Zone	Bundaberg Regional Council Planning Scheme 2015
Local Plan : Central Costal Urban Growth Area Structure Plan	Bundaberg Regional Council Planning Scheme 2015
Overlay Code <ul style="list-style-type: none"> • Acid sulfate soils overlay code • Biodiversity areas overlay code • Coastal protection overlay code • Flood hazard overlay code • Steep land (slopes > 15%) overlay code 	Bundaberg Regional Council Planning Scheme 2015

Benchmarks applying for the development	Benchmark reference
Other Development Code <ul style="list-style-type: none"> • Landscaping code • Nuisance code • Reconfiguring a lot code • Transport and parking code • Works, services and infrastructure code 	Bundaberg Regional Council Planning Scheme 2015
Planning Scheme Policy/ies <ul style="list-style-type: none"> • Planning scheme policy for development works • Planning scheme policy for waste management 	Bundaberg Regional Council Planning Scheme 2015
<ul style="list-style-type: none"> • Development Assessment Requirements 	State Planning Policy

4. ISSUES RELEVANT TO THE APPLICATION

The following significant issues have been identified in the assessment of the application:

Lot size and configuration

The purpose of the Reconfiguring a lot code is to ensure that new lots are configured in a manner which:

- *Is consistent with the intended use*
- *Is responsive to local character and site constraints;*
- *Provides appropriate access (including access for services); and*
- *Supports high quality urban design outcomes.*

The overall outcomes of the code state that this will be achieved by

(a) development provides for lots that are of a size and have dimensions that:-

- (i) are appropriate for their intended use;
- (ii) promote a range of housing types in the case of residential development;
- (iii) are compatible with the prevailing character and density of development within the local area; and
- (iv) sensitively respond to site constraints;

(d) development provides for subdivisions that result in the creation of safe, healthy and prosperous communities by:-

- (vii) providing timely, efficient and appropriate infrastructure including reticulated water supply and sewerage (where available), sealed roads, pedestrian and bicycle paths, open space and community facilities in urban areas.

The proposed Reconfiguration is to facilitate subdivision of the land for the purpose of enacting the 2 most recent development approvals over the site being the:

- Material Change of Use for Mixed Use Development (Burnett Harbour Marina Village) - Office, Shop, Food and Drink Outlet, Indoor Sport and Recreation,

Short Term Accommodation and Multiple Dwellings which was approved by Council on 24 November 2020; and

- Preliminary Approval for Material Change of Use (Preliminary Approval (Mixed Use Development - Burnett Harbour Marina Village) - Resort Complex (including: ancillary shop, restaurant, bar, recreation and conference facilities), Short Term Accommodation and Multiple Dwellings which was approved by Council on 15 December 2020

Table 9.3.4.3.2 Minimum Lot size and dimensions does not specify a minimum lot size of dimensions for land located within the Community facilities zone. Therefore the higher order objective of the code should be used as guidance on appropriate lot size and dimensions. Within the submitted application material, the applicant submitted a plan demonstrating that the proposed lot boundaries align with the buildings approved under the two above approvals.

In regards to site constraints, these were dealt with within the higher order approval with the site constraints including the land locating within the sea turtle sensitive overlay area, within the storm tide inundation area and acid sulfate soils.

All of the proposed lots have road frontage to either Harbour Esplanade, Kelly Street or Lighthouse Street.

In regards to appropriate infrastructure and services, these matters are discussed in detail below. Standard conditions relating to urban services are recommended to be applied as part of the recommended conditions of approval.

It is considered that the proposal complies and/or can be conditioned to comply with the Reconfiguration of a Lot Code.

Servicing

Water and Sewer

The applicant states within the application material that servicing of the site is adequately addressed through the two most recent development approval over the site being stage 1 and stage of the Burnett Heads Boat Harbour. The conditions imposed under these approvals were imposed to allow for community title subdivision. The conditions under these approval were not imposed to allow for standard format subdivision. The Performance outcome PO2 of the Works services and infrastructure code requires that Development is provided with Infrastructure, services, and utilities that:

- (a) are appropriate to its location and setting;*
- (b) are commensurate with the needs of the development and its users; and*
- (c) maintain acceptable public health and environmental standards.*

Although located within the Community facilities zone, the development approvals over the site are for urban development and the site is surrounded by urban development. Therefore, the required level of services and utilities to be provided to each lot. Conditions of approval for water supply reflect this requirement including requiring the extension of water main to proposed lot 1 (both 1.349 ha part and 1,010 m² part) without partial services to proposed lots 11, 12 & 13 since their load will likely be in excess of a standard residential partial service.

The subdivision will need to provide a sewerage connection to each lot, specifically, Lot 1 (VMR). The development is outside the PIA and sewerage service areas but inside the fully serviced infrastructure charge area. Conditions requiring the extension of sewer main to proposed lot 1 (both 1.349 ha part and 1,010 m² part) with points of connection also to proposed lots 11, 12 & 13 are recommended to be imposed to comply with the above performance outcome.

However, it is recommended that the timing of the provision of this infrastructure be prior to the first new use commencing on any of the created lots; or at the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled, whichever is the sooner. Property notes to this affect are also recommended to be placed on each of the created lots alerting purchasers to this requirement.

5. REFERRALS

4.1 Internal Referrals

Advice was received from the following internal departments:

Internal department	Referral Comments Received
Development Assessment - Engineering	23 November 2021

Any significant issues raised in the referrals have been included in section 3 of this report.

4.2 Referral Agency/ies

Referral Agency responses were received from the following State agencies:

Agency	Concurrence/ Advice	Date Received	Conditions Yes/No
Department of State Development, Manufacturing, Infrastructure and Planning	Concurrence	12 November 2021	Yes

Any significant issues raised have been included in section 3 of this report.

6. PUBLIC NOTIFICATION

Not Applicable.

7. DRAFT CONDITIONS

Draft conditions were issued to the Applicant on 2 December 2021.

The Applicant submitted representations to Council on 13 December 2021 relating to the following draft conditions:

- 6 - Water
- 7 - Water
- 8 – Sewerage
- 9 – Sewerage

- 10 - Electricity, Street Lighting, Telecommunications
- 11 - Electricity, Street Lighting, Telecommunications

After a review of the submitted representations, the following conditions have been amended:

- 6 - Water
- 7 - Water
- 8 – Sewerage
- 9 – Sewerage
- 10 - Electricity, Street Lighting, Telecommunications
- 11 - Electricity, Street Lighting, Telecommunications

8. REASONS FOR DECISION

The reasons for this decision are:

- The development complies with, or can be conditioned to comply with, the relevant applicable planning matters including the Planning Scheme and the Burnett Heads Local Area Plan;
- The site located within the Community facilities zone and the proposed lots comply with the requirements of the Reconfiguring a lot code applicable for the intended purpose of the zone
- The development provides for lots that are of a size and dimension appropriate for their intended use.
- The proposed development can be adequately serviced by an appropriate level of infrastructure.
- The proposed development is consistent with and facilitates delivery of earlier development approvals still applicable to the site;
- The development complies with or can be conditioned to comply with the relevant benchmarks of the Bundaberg Regional Council Planning Scheme 2015.

Communication Strategy:

Communications Team consulted. A Communication Strategy is:

- Not required
- Required

Attachments:

- ↓1 Locality Plan
- ↓2 Site Plan
- ↓3 Proposal Plans
- ↓4 Referral Agency Response

Recommendation:

That the Development Application 521.2021.239.1 detailed below be decided as follows:

1. Location details

Street address: 67 Harbour Esplanade, Burnett Heads
 Real property description: Lot 1 on SP157913
 Local government area: Bundaberg Regional Council

2. Details of the proposed development

Development Permit for Reconfiguring a Lot (Subdivision (One Lots into Four Lots))

3. Decision

Decision details: Approved in full with conditions. These conditions are set out in Schedule 1 and are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

The following approvals are given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval		<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Approved plans and specifications

Copies of the following plans, specifications and/or drawings are enclosed.

Drawing/report title	Prepared by	Date	Reference no.	Version /issue
Aspect of development: All				
Plan of Proposed Lot Reconfiguration	Insite SJC	18/08/2021	GC21-311-P2 Sheet 1 of 4	-

Plan of Proposed Lot Reconfiguration	Insite SJC	18/08/2021	GC21-311-P2 Sheet 2 of 4	-
Plan of Proposed Lot Reconfiguration	Insite SJC	18/08/2021	GC21-311-P2 Sheet 3 of 4	-
Plan of Proposed Lot Reconfiguration	Insite SJC	18/08/2021	GC21-311-P2 Sheet 4 of 4	-

5. Conditions

This approval is subject to the conditions in Schedule 1. These conditions are clearly identified to indicate whether the assessment manager or concurrence agency imposed them.

6. Further development permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- All Plumbing and Drainage Work
- All Operational Work

7. Properly made submissions

Not applicable — No part of the application required public notification.

8. Referral agencies for the application

The referral agencies for this application are:

For an application involving	Name of referral agency	Advice agency or concurrence agency	Address
Schedule 10, Part 17, Division 3, Table 5, Item 1 of the Planning Regulation 2017 - Development application for reconfiguring a lot in a coastal management district, involving creating a lot within an erosion prone area	Department of State Development, Manufacturing, Infrastructure and Planning	Concurrence Agency	State Assessment and Referral Agency (SARA) E: WBBSARA@dilg.p.qld.gov.au P: PO Box 979 Bundaberg Qld 4670

9. Currency period for the approval

This development approval will lapse at the end of the period set out in section 85 of *Planning Act 2016*.

10. Agreements under Section 49(4)(b) or 66(2)(b) or (c) of the *Planning Act 2016*

There are no agreements about these matters.

11. Conditions about infrastructure

The following conditions about infrastructure have been imposed under Chapter 4 of the *Planning Act 2016*:

Condition/s	Provision under which the condition was imposed
6, 7, 8, 9, 10 & 11	Section 145 – Non-trunk Infrastructure
NA	Section 128 – Trunk Infrastructure

12. Rights of appeal

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in Chapter 6, Part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see Chapter 6, Part 2 of the *Planning Act 2016*).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval

- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see Schedule 1 of the *Planning Act 2016*.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in Section 229 of the *Planning Act 2016*.

Schedule 2 is an extract from the *Planning Act 2016* that sets down the applicant’s appeal rights and the appeal rights of a submitter.

SCHEDULE 1 CONDITIONS AND ADVICES IMPOSED BY THE ASSESSMENT MANAGER

PART 1A – CONDITIONS IMPOSED BY THE ASSESSMENT MANAGER

NO.	CONDITION	TIMING
GENERAL		
1.	Comply with all conditions of this development approval and maintain compliance whilst the development.	At all times unless otherwise stated
2.	Where there is any conflict between the conditions of this Development approval and details shown on the Approved plans, the conditions prevail.	At all times
3.	The full cost of all work and any other requirements associated with this development must be met by the developer, unless specified in a particular condition or Infrastructure agreement.	At all times
OPERATIONAL WORK ASSOCIATED WITH THE ROL		
4.	Ensure all Operational work that is Accepted development complies with the nominated assessment benchmarks or a Development application for Operational work is submitted.	Prior to the commencement of work

CONSTRUCTION MANAGEMENT		
5.	<p>Unless otherwise approved in writing by the Assessment Manager, ensure no audible noise from work is made:</p> <ul style="list-style-type: none"> a. on a business day or Saturday, before 6.30 am or after 6.30 pm b. on any other day, at any time. 	At all times during construction
	WATER	
6.	<p>Provide a reticulated water supply service to each lot by supplying all necessary materials, including structures and equipment, and performing all necessary works.</p>	<ul style="list-style-type: none"> a. Prior to the first new use commencing on any of the created lots; or b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled. <p>Whichever is the sooner.</p>
7.	<p>Extend Council’s water main WP.04441 (100 mm AC main terminating at the existing jetty within lot 4 on SP190481) to service proposed lot 1 (1,010 m² part north of existing lot 4 on SP190481). Details to be determined through code assessable development application for Operational Work.</p>	<ul style="list-style-type: none"> a. Prior to the first new use commencing on any of the created lots; or b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled. <p>Whichever is the sooner.</p>
	SEWERAGE	
8.	<p>Provide a reticulated sewerage service to each proposed lot by supplying all necessary materials,</p>	<ul style="list-style-type: none"> a. Prior to the first new use commencing on

	including structures and equipment, and performing all necessary works.	any of the created lots; or b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled. Whichever is the sooner.
9.	Extend Council's gravity sewer main from SMH.13681 (control manhole east of the Harbour Esplanade Sewerage Pump Station (SE.2008) to service proposed lots 1 (1,010 m ² part north of existing lot 4 on SP190481), 11, 12 & 13. Details to be determined though code assessable development application for operational work.	a. Prior to the first new use commencing on any of the created lots; or b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled. Whichever is the sooner.
	ELECTRICITY, STREET LIGHTING, TELECOMMUNICATIONS	
10.	Provide for telecommunications in accordance with the Planning scheme policy for development works. Note: <i>Submission of the detail design must form part of an Operational works application.</i>	a. Prior to the first new use commencing on any of the created lots; or b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled. Whichever is the sooner.

11.	<p>Provide for electrical reticulation in accordance with the Planning scheme policy for development works.</p> <p>Note: <i>Submission of the detail design must form part of an Operational works application. No additional street lighting is required in association with this subdivision – considered open space lighting per SC6.3.8.4.5.</i></p>	<p>a. Prior to the first new use commencing on any of the created lots; or</p> <p>b. At the time that either Development approval 522.2018.89 or 522.2018.90 lapses or is cancelled.</p> <p>Whichever is the sooner.</p>
EASEMENTS		
12.	<p>Lodge to the State (Titles office) for registration the following easements:</p> <p>a. a minimum 3 m wide sewerage easement in gross over any sewerage main existing or proposed traversing the land</p> <p>b. a minimum 3 m wide water supply easement in gross over any water mains existing or proposed traversing the land</p>	When the survey plan is endorsed
13.	Submit all draft easement documentation to the Assessment Manager with the lodgement of the survey plans for endorsement.	When the survey plan is endorsed
14.	All works must be clear of any existing or proposed easements on the subject land, unless agreed in writing by the Grantee.	At all times

PART 1B – ADVICE NOTES

NO.	ADVICE	TIMING
GENERAL		
1.	An audit check of the Operational Works drawings has been undertaken in relation to the proposed works. A detailed check of the calculations and drawings has not been undertaken, as they have been certified by a Registered Professional Engineer of Queensland (RPEQ).	At all times

	The RPEQ bears full responsibility for all aspects of the engineering design, including the identification and resolution of any design faults that may arise throughout the course of the Operational works. The Assessment Manager reserves the right to require further amendments and/or additions at a later date should design errors become apparent.	
2.	Inspections by Council are independent of, and do not negate, the Registered Professional Engineer of Queensland (RPEQ) inspections that ensure compliance with the Operational works approval.	At all times
GENERAL AMENITY		
3.	Ensure the development does not cause environmental nuisance or environmental harm as per the <i>Environmental Protection Act 1994</i> .	At all times
RATES AND CHARGES		
4.	In accordance with the <i>Planning Act 2016</i> , all rates, charges, or any expenses being a charge over the subject land under any Act must be paid prior to the Plan of Subdivision being endorsed by the Assessment Manager.	Prior to the endorsement of the survey plan
INFRASTRUCTURE CHARGES		
5.	Infrastructure charges notice (331.2021.1368.1) applicable to the development is attached to this Development approval.	At all times
ENVIRONMENTAL HARM		
6.	The <i>Environmental Protection Act 1994</i> states that a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm. Environmental harm includes environmental nuisance. In this regard persons and entities, involved in the civil, earthworks, construction, and operational phases of this development, are to adhere to their 'general environmental duty' to minimise the risk of causing environmental harm. Environmental harm is defined by the Act as any adverse effect, or potential adverse effect whether temporary or permanent and of whatever magnitude, duration or frequency on an environmental value and includes environmental nuisance. Therefore, no person should cause any interference with the environment or amenity of the	At all times

	area by reason of the emission of noise, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, wastewater, waste products, grit, sediment, oil, or otherwise, or cause hazards likely in the opinion of the administering authority to cause undue disturbance or annoyance to persons or affect property not connected with the use.	
ABORIGINAL CULTURAL HERITAGE		
7.	All development should proceed in accordance with the Duty of care guidelines under the <i>Aboriginal Cultural Heritage Act 2003</i> . Penalties may apply where duty of care under that act has been breached.	At all times

PART 1C – PROPERTY NOTES

NO.	ADVICE	
PROPERTY NOTES		
1.	Development approval 521.2021.239.1 – Water Prior to the first new use commencing on any of the created lots or at the time that Development approval 522.2018.89 or 522.2018.90 lapses or are cancelled, provide a reticulated water supply service to each lot by supplying all necessary materials, including structures and equipment, and performing all necessary works in accordance with conditions 6 and 7 of Development approval 521.2021.239.1.	
2.	Development approval 521.2021.239.1 – Sewerage Prior to the first new use commencing on any of the created lots or at the time that Development approval 522.2018.89 or 522.2018.90 lapses or are cancelled, provide a reticulated sewerage service to each proposed lot by supplying all necessary materials, including structures and equipment, and performing all necessary works in accordance with conditions 8 and 9 of Development approval 521.2021.239.1.	
3.	Development approval 521.2021.239.1 – Sewerage The following notation applies to the approved lot 1: The 1,010 m ² part of approved lot 1 is not serviced by Council’s gravity reticulated sewerage network. Any future development must be provided with a low-	

	<p>pressure sewer (LPS) system having capacity sufficient for the use.</p> <p>The 1.349 ha part of approved lot 1 is not fully serviced by Council’s gravity reticulated sewerage network. Any future development must be provided with a low-pressure sewer (LPS) system having capacity sufficient for the use if it cannot reach of the nearby gravity main servicing approved lot 11.</p>	
4.	<p>Development approval 521.2021.239.1 – Telecommunications</p> <p>Prior to the first new use commencing on any of the created lots or at the time that Development approval 522.2018.89 or 522.2018.90 lapses or are cancelled, provide telecommunications infrastructure to each proposed lot by supplying all necessary materials, including structures and equipment, and performing all necessary works in accordance with conditions 10 of Development approval 521.2021.239.1.</p>	
5.	<p>Development approval 521.2021.239.1 – Electricity Reticulation</p> <p>Prior to the first new use commencing on any of the created lots or at the time that Development approval 522.2018.89 or 522.2018.90 lapses or are cancelled, provide electrical reticulation to each proposed lot by supplying all necessary materials, including structures and equipment, and performing all necessary works in accordance with conditions 11 of Development approval 521.2021.239.1.</p>	

PART 2—CONCURRENCE AGENCY CONDITIONS

Department of State Development, Manufacturing, Infrastructure and Planning, by letter dated 12 November 2021 (copy letter attached for information).





Projection: GDA_1994_MGA_Zone_56

Date: 13/11/2020 2:47 PM

Scale 1:8,000.00

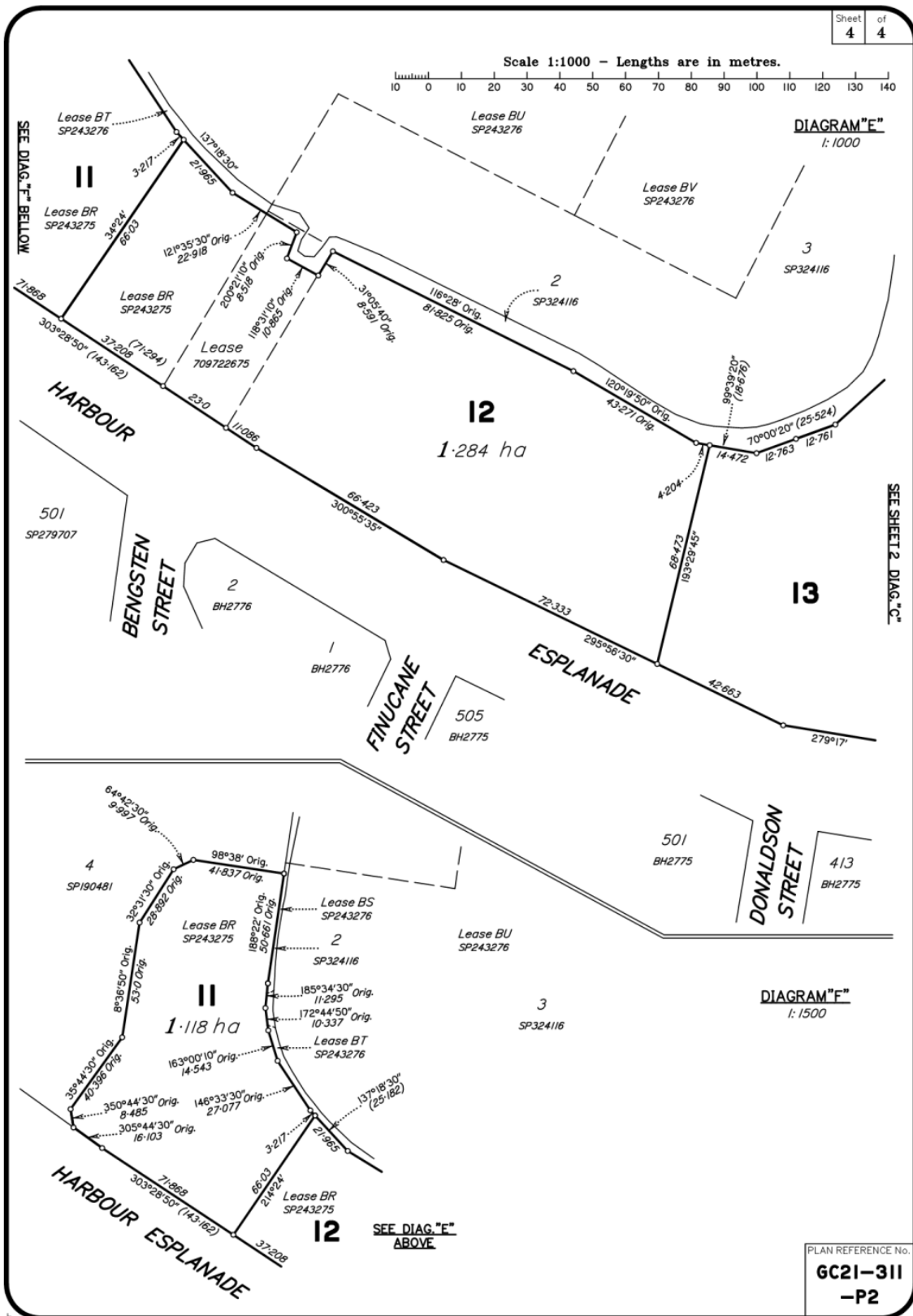
on A4 Sheet

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.



Author: -Author-



RA6-N



SARA reference: 2109-24976 SRA
 Council reference: 521.2021.239.1

12 November 2021

Chief Executive Officer
 Bundaberg Regional Council
 PO Box 3130
 BUNDABERG QLD 4670
 development@bundaberg.qld.gov.au

Attention: Sarah Watts

Dear Ms Watts

SARA Response—67 Harbour Esplanade, Burnett Heads

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency on 8 October 2021.

Response

Outcome:	Referral agency response – with conditions.
Date of Response:	12 November 2021
Conditions:	The conditions in Attachment 1 must be attached to any development approval.
Advice:	Advice to the applicant is in Attachment 2 .
Reasons:	The reasons for the referral agency response are in Attachment 3 .

Development Details

Description:	Development Permit	Reconfiguring a Lot for Subdivision (One Lot into Four Lots)
SARA Role:	Referral Agency	
SARA Trigger:	Schedule 10, Part 17, Division 3, Table 5, Item 1 of the Planning Regulation 2017	
	Development application for reconfiguring a lot in a coastal management district, involving creating a lot within an erosion prone area	

Page 1 of 7

Wide Bay Burnett regional office
 Level 1, 7 Takalvan Street, Bundaberg
 PO Box 979, Bundaberg QLD 4670

2109-24976 SRA

SARA Reference: 2109-24976 SRA
Assessment Manager: Bundaberg Regional Council
Street Address: 67 Harbour Esplanade, Burnett Heads
Real Property Description: Lot 1 on SP324116
Applicant Name: Gladstone Ports Corporation Limited
Applicant Contact Details: PO Box 1688
BUNDABERG QLD 4670
chris@insitesjc.com.au

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules) Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Cavannah Deller, Planning Officer, on (07) 4331 5614 or via email WBBSARA@dasilgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Luke Lankowski
Manager, Planning – Wide Bay Burnett

cc Gladstone Ports Corporation Limited, chris@insitesjc.com.au
enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Representations provisions
Attachment 5 - Approved plans and specifications

2109-24976 SRA

Attachment 1—Referral Agency Conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the plans and specifications referenced below are found at Attachment 5)

No.	Conditions	Condition Timing
Reconfiguring a Lot		
Schedule 10, Part 17, Division 3, Table 5, Item 1—Tidal Works or Work in a Coastal Management District—The chief executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Environment and Science to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	The reconfiguration must be carried out generally in accordance with the following plans: <ul style="list-style-type: none"> • Plan of Proposed Lot Reconfiguration – Proposed Lots 1, 11-12 Cancelling Lot 1 on SP157913(Lot 1 on SP327583), prepared by InsiteSJC, dated 18 August 2021, reference GC21-311-P2 Sheet 1 of 4 	Prior to submitting the Plan of Survey to the local government for approval

2109-24976 SRA

Attachment 2—Advice to the Applicant

General Advice	
-----------------------	--

- | | |
|----|--|
| 1. | Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> its regulation or the State Development Assessment Provisions (SDAP) version 2.6. If a word remains undefined it has its ordinary meaning. |
|----|--|

2109-24976 SRA

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for the department's decision are:

- The development application is for reconfiguring a lot for subdivision (one lot into four lots).
- The purpose of the proposed development is to facilitate delivery of the Burnett Heads Marina Village development (subject to separate approvals for material change of use; development permit for Stage 1 and preliminary approval for Stage 2).
- The proposed development is located within the erosion prone area however, no operational work is required to facilitate the proposed reconfiguration and therefore the proposed development will not impact on coastal erosion and process or water quality.
- The proposed development avoids impacts on Matters of State Environment Significance.

Material used in the assessment of the application:

- The development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- The *State Development Assessment Provisions* (version 2.6), as published by the department
- The Development Assessment Rules
- SARA DA Mapping system
- State Planning Policy mapping system

2109-24976 SRA

Attachment 4—Change representation provisions

(page left intentionally blank)

2109-24976 SRA

Attachment 5—Approved plans and specifications

(page left intentionally blank)

Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules¹ regarding **representations about a referral agency response**

Part 6: Changes to the application and referral agency responses

28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
- (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
 - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
 - (c) the applicant has given written agreement to the change to the referral agency response.²
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
- (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and
 - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

¹ Pursuant to Section 68 of the *Planning Act 2016*

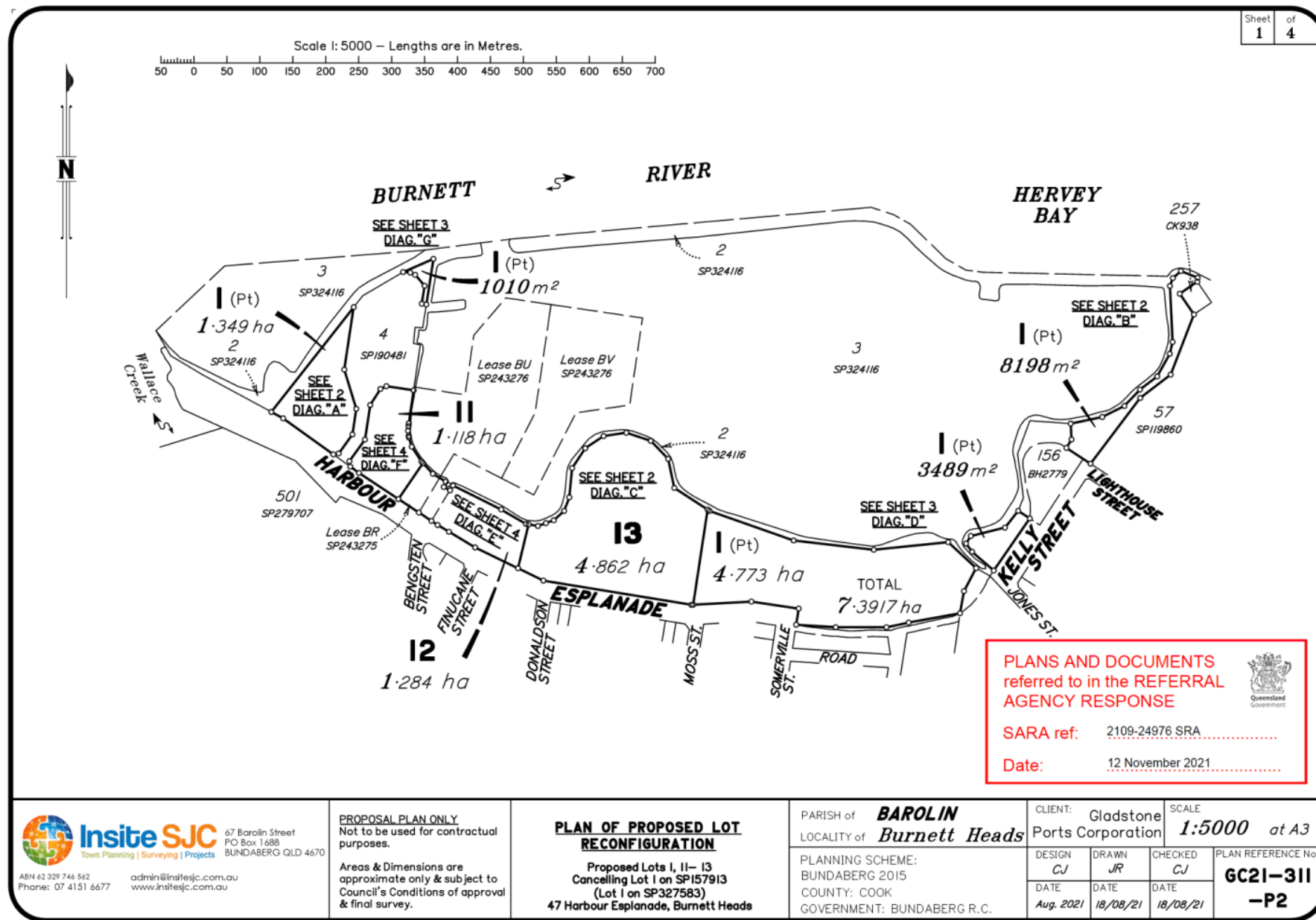
² In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

Part 7: Miscellaneous

30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.³

³ An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.



Insite SJC
 Town Planning | Surveying | Projects
 67 Barolin Street
 PO Box 1688
 BUNDABERG QLD 4670
 ABN 62 329 746 562
 Phone: 07 4151 6677
 admin@insitesjc.com.au
 www.insitesjc.com.au

PROPOSAL PLAN ONLY
 Not to be used for contractual purposes.
 Areas & Dimensions are approximate only & subject to Council's Conditions of approval & final survey.

PLAN OF PROPOSED LOT RECONFIGURATION
 Proposed Lots 1, 11- 13
 Cancelling Lot 1 on SP157913
 (Lot 1 on SP327583)
 47 Harbour Esplanade, Burnett Heads

PARISH of **BAROLIN**
 LOCALITY of **Burnett Heads**
 PLANNING SCHEME:
 BUNDABERG 2015
 COUNTY: COOK
 GOVERNMENT: BUNDABERG R.C.

CLIENT: Gladstone Ports Corporation
 SCALE: **1:5000** at A3

DESIGN CJ	DRAWN JR	CHECKED CJ	PLAN REFERENCE No. GC21-311 -P2
DATE Aug. 2021	DATE 18/08/21	DATE 18/08/21	

**Item****21 December 2021**

Item Number:	File Number:	Part:
L5	322.2013.38453.1	DEVELOPMENT ASSESSMENT

Portfolio:

Planning & Development Services

Subject:

DA 322.2013.38453.1 - Request for Extended Completion Date Building Bundaberg Region 2020 Incentives

Report Author:

Michael Ellery, Group Manager Development

Authorised by:

Stephen Johnston, Chief Executive Officer

Link to Corporate Plan:

Our community and environment - 1.1 Economic growth and prosperity - 1.1.4 Develop a sustainable pipeline of strategic projects that support organisational and economic development objectives, including procuring external grant funding.

Background:

Council is in receipt of a request to extend the completion date for a development to be eligible for incentives under the Building Bundaberg Region 2020 incentives scheme.

The request relates to DA 322.2013.38453.1 being a development permit for Multiple Dwelling Units and Aged care/retirement accommodation. The incentives approved on 13 November 2020 apply to proposed units 11-16 and provide for a 50% discount. Under the Infrastructure agreement (IA) executed on 20 November 2020, to receive the incentives the development was required to be completed by 18 November 2021.

The owner of the subject site has requested that the completion date be extended for a period of two years. Although the IA provides for the ability to make an Extension Request to the Chief Executive Officer, it is a precondition of such requests that the development achieve substantial commencement (ie the slabs for the units are constructed) prior to making that request. As such the request has been reported to Council for determination.

In seeking the request the owner has advised that the extension is needed given the difficulty they are having with engaging builders to complete the development. A copy of the owner's request is included as Attachment 2.

Associated Person/Organization:

Emtom Pty Ltd – owner

Consultation:

No consultation has been undertaken regarding this matter.

Chief Legal Officer's Comments:

As noted previously, the discounts and performance of the developer are secured by an Infrastructure Agreement. If Council agrees to the extended completion date, a Deed of Variation will be required to amend the Completion Date in the IA.

Policy Implications:

The Building Bundaberg Region 2020 incentives scheme closed for new application on 30 June 2021. Accordingly, it was originally envisaged that the last of the incentivised developments would be finalized in the second half of 2022 barring any extensions as allowed for under each IA.

It is also noted that the infrastructure contributions for this development were imposed as conditions on the original approval in 2007 under the policies of the former Isis Shire Council. These contributions are \$8,883.59 per two bedroom unit, or \$53,301.54 for the 6 units the subject of this request. Under the current Charges Resolution, if approved today the applicable Infrastructure charge for this development would be \$19,196.72 per 2 bedroom unit or \$115,180.50 for the 6 units.

Given the intended end date for this incentives scheme, the already substantial reduced amount payable for the development and the modest scale of the development proposed, it is considered that an extension of only 12 months is warranted.

Financial and Resource Implications:

The discounts available for the development based on the current IA are outlined in the table below:

Infrastructure Amount	Applicable Discount	Reduced Infrastructure Amount
Units 11- 16 (part stage one) - \$53,301.54	50%	\$26,650.77

Risk Management Implications:

There appears to be no risk management implications.

Human Rights:

There appears to be no human rights implications.

Indigenous Land Use Agreement (ILUA) Implications:

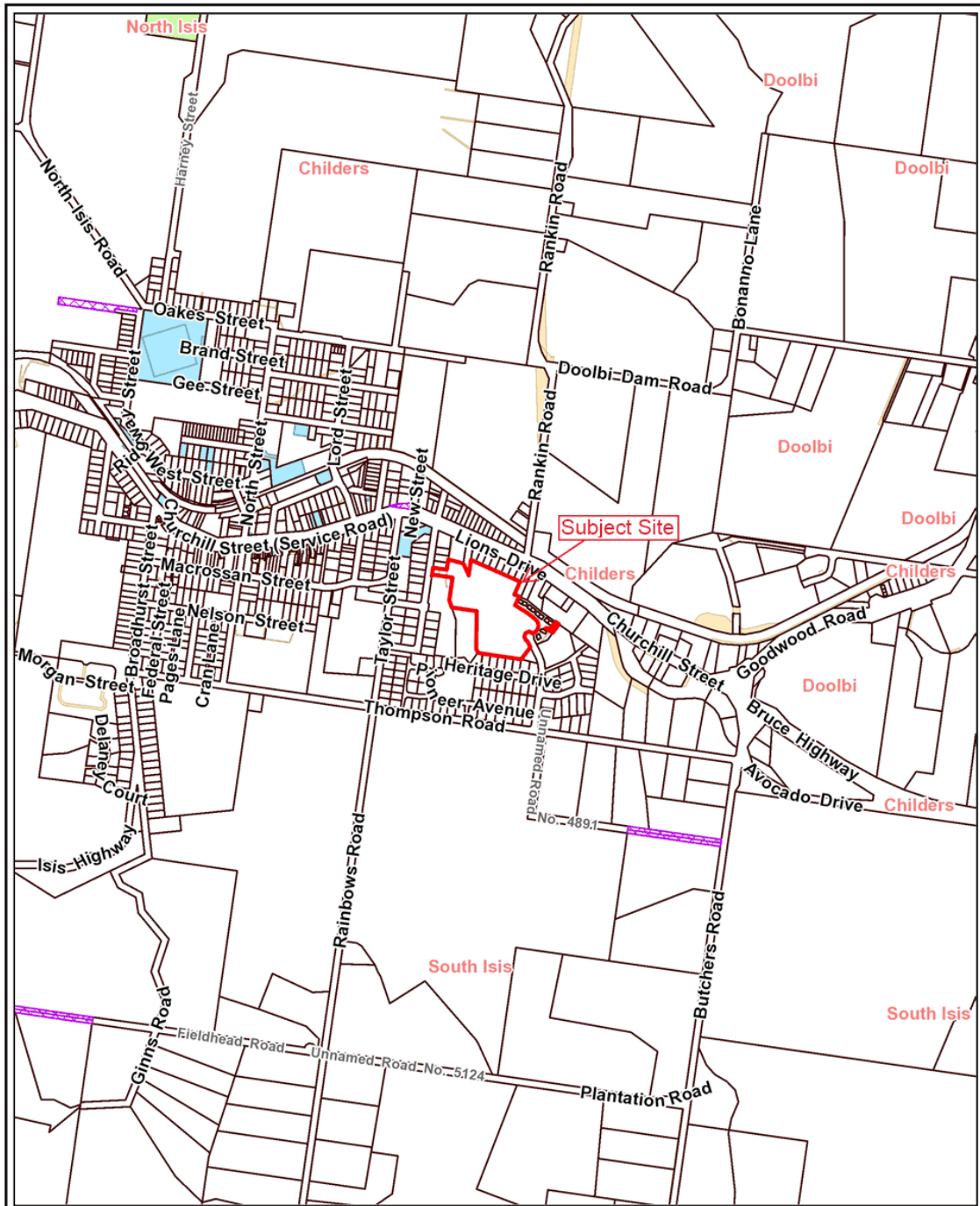
There appears to be no ILUA implications.

Attachments:

- ↓1 Locality Plan
- ↓2 Site Plan
- ↓3 Owner's Request
- ↓4 Infrastructure Agreement

Recommendation:

That Council agree to an extension of the Completion Date in the Building Bundaberg Region 2020 infrastructure agreement for DA 322.2013.38453.1 to 18 November 2022.



LOCALITY PLAN
9 Elizabeth Street, Childers

Projection: WGS_1984_Web_Mercator_Auxiliary_Spheroid Date: 8/12/2021 11:44 AM

Scale 1 : 16,000.00 on A4 Sheet

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contractors and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

Author: -Author-



Subject Site



SITE PLAN
9 Elizabeth Street, Childers

Projection: WGS_1984_Web_Mercator_Auxiliary_Spheroid Date: 8/12/2021 11:44 AM Scale 1 : 3,000.00 on A4 Sheet

© The State of Queensland (Department of Natural Resources and Mines) 2020. Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines 2020. The information contained within this document is given without acceptance of responsibility for its accuracy. The Bundaberg Regional Council (and its officers, servants and agents), contract and agree to supply information only on that basis.

While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and the Bundaberg Regional Council makes no representation or warranties about its accuracy, reliability, completeness or stability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

0 10 20 30 METERS Author: -Author-

From: [Daniel Gorza](#)
To: [BRC CEO Incoming](#)
Subject: RE: 9 Elizabeth St request an extension to this infrastructure charges due to Covid19
Date: Sunday, 21 November 2021 7:27:06 PM
Attachments: [image001.jpg](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image008.jpg](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)
[image013.png](#)
Importance: High

To whom it may concern

Emtom Pty Ltd requests that
it is seeking an extension to our incentive discount
due to to Covid19
we are unable to substantially commence with the development of
3 duplexes at 9 Elizabeth St Childers
as we are finding difficulty in sourcing and contracting builders for the project

We would be please for Council to grant an extension to the project and incentive discounts.

kind regards
John Gorza
Director
Emtom Pty Ltd

From: Daniel Gorza <gorza2000@hotmail.com>
Sent: Sunday, 7 November 2021 8:19 PM
To: Judy Jackson <Judy.Jackson@bundaberg.qld.gov.au>
Subject: 9 Elizabeth St
Importance: High

Hi Judy

Can we respectfully request an extension to this infrastructure charges due to Covid19 and availability of Builders.

regards

Daniel

Re: "Building Bundaberg Region 2020" Infrastructure Charges Incentive Scheme
Thank you for your application for the "Building Bundaberg Region 2020" Infrastructure Charges Incentive Scheme. Your application relates to Development Permit for 3 x 2 Bedroom duplex units 11 - 16 (Council reference 322.2013.38453.1) at 9 Elizabeth St, Childers; land described as Lot: 0 SP: 202712 - Lot: 8 SP: 202712 & Lot: 101 SP: 271530, which was received by Council on 10 November 2020.

Please be advised your request has been accepted by Council. It is requested that you complete the attached document (infrastructure agreement) and post Two original hardcopies for endorsement by Council which will allow us to finalise your request.

If you require any assistance in completing the infrastructure agreement or have any questions about the process, please contact me, on telephone 1300 883 699.

Yours sincerely

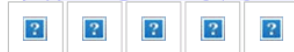


JUDY JACKSON

Senior Administration Officer

T 07 4130 4027

E judy.jackson@bundaberg.qld.gov.au



This email and/or associated attachments and links may contain confidential, privileged or personal information. If you are not an intended recipient, you must not deal with or rely on any information herein and please advise the sender or call Council on 1300 883 699. Council undertakes virus protection but excludes all liability for transmission any potential viruses (or similar). Council may collect your personal information which will be used for the purposes outlined in this communication. This information will only be accessed by authorised Council officers and will be handled in accordance with Council's Privacy Statement governed by the Information Privacy Act 2009. Visit <https://www.bundaberg.qld.gov.au/privacy> for further information.

This email and/or associated attachments and links may contain confidential, privileged or personal information. If you are not an intended recipient, you must not deal with or rely on any information herein and please advise the sender or call Council on 1300 883 699. Council undertakes virus protection but excludes all liability for transmission any potential viruses (or similar). Council may collect your personal information which will be used for

the purposes outlined in this communication. This information will only be accessed by authorised Council officers and will be handled in accordance with Council's Privacy Statement governed by the Information Privacy Act 2009. Visit <https://www.bundaberg.qld.gov.au/privacy> for further information.



Virus-free. www.avg.com

Infrastructure Agreement

Planning Act 2016

Building Bundaberg Region 2020 Infrastructure Agreement

Bundaberg Regional Council
Council

Eptom Pty Ltd
Owner

Contents

Part 1. Preliminary	5
1. Introduction	5
1.1 Short title	5
1.2 Deed	5
1.3 Date	5
1.4 Parties	5
1.5 Recitals	5
Part 2. Terms agreed by the parties	6
2. Interpretation	6
2.1 Definitions	6
2.2 Undefined word	9
2.3 References	9
3. Infrastructure Agreement	11
3.1 Infrastructure Agreement under the Planning Act	11
3.2 Application of the Infrastructure Agreement	11
3.3 Owner	11
3.4 Relationship to an Approval	11
3.5 Relationship to an Infrastructure Charging Instrument	12
4. Operation of the Infrastructure Agreement	12
4.1 Commencement of the Infrastructure Agreement	12
4.2 Termination of the Infrastructure Agreement	12
5. Deed of agreement	12
5.1 Continuing effect as a deed of agreement if not an Infrastructure Agreement	12
6. Development Obligations	12
6.1 The Council's and Owner's obligations	12
6.2 The Owner's obligations	12
7. Application	13
7.1 Application of Applicable Discount	13
7.2 Early payment	13
8. Assignment	14
8.1 Assignment of interests, rights or obligations under document	14
9. Novation of document upon sale	14
9.1 Reconfiguring of the Development Land	14
9.2 Dealing with the Development Land	14
10. Right of access	14
10.1 Access to Development Land	14
10.2 Exercise of a right of access	14
11. Dispute resolution generally	15
11.1 Dispute	15
11.2 Notice as bar	15
11.3 Identity of expert	15

	11.4	Experience and expertise	15
	11.5	Non arbitrator	15
	11.6	Submissions	15
	11.7	Costs	15
	11.8	Co-operation	16
	11.9	Determination	16
12.		Force Majeure	16
	12.1	Notice of Force Majeure	16
	12.2	Suspension of an obligation	16
	12.3	Removal or amelioration of Force Majeure	16
	12.4	Dispute resolution process to apply	16
13.		Time	17
	13.1	Time of the essence	17
	13.2	Extension of time	17
14.		Counterparts	17
	14.1	Agreement may consist of counterparts	17
	14.2	Exchange of a counterpart	17
15.		Further action	17
	15.1	Action to give effect to this document	17
	15.2	Further action if a clause is invalid, illegal or unenforceable	17
16.		Severance	17
	16.1	Removal from this document	17
	16.2	Effect of removal on this document	17
	16.3	Further action on removal	18
17.		Notice	18
	17.1	Form of a Notice	18
	17.2	Giving of a Notice	18
	17.3	Change of the details of a party	19
18.		Further agreement	19
	18.1	Agreement to change	19
	18.2	Form of the change	19
	18.3	Further agreement	19
19.		Costs and outlays	19
	19.1	Each party pay its own costs	19
20.		Governing law and jurisdiction	19
	20.1	Queensland law to apply	19
	20.2	Queensland courts to have jurisdiction	20
21.		GST	20
	21.1	Construction of this clause	20
	21.2	Payment of GST	20
	21.3	Reimbursable cost	21
	21.4	Indemnified cost	21
	21.5	Stated amount	21
	21.6	No merger on termination	21

4

Schedule 1 Reference Schedule	22
Schedule 2 Discount Schedule	24
Schedule 3 Incentives Application Form	25
Part 3. Execution by the parties	33

Dated this day of 2020

PARTIES

Council: **BUNDABERG REGIONAL COUNCIL** of 190 Bourbong Street,
Bundaberg in the State of Queensland

Owner: **EMTOM PTY LTD** of 4551 Goodwood Road, Alloway in the State of
Queensland

Part 1 Preliminary

1. Introduction

1.1 Short title

This document may be referred to as the Building Bundaberg Region 2020 Infrastructure Agreement.

1.2 Deed

This document is a deed which comprises the following:

- (a) **Part 1** which recites the following:
 - (i) the date of this document;
 - (ii) the names of the parties to this document;
 - (iii) the purpose for which the parties have entered into this document;
- (b) **Part 2** which witnesses the terms agreed upon by the parties;
- (c) **Part 3** which provides for the execution of this document by the parties.

1.3 Date

This document is made on the date when the last party executes this document.

1.4 Parties

This document is made between the parties in Schedule 1.

1.5 Recitals

This document has been entered into for the following purposes:

- (a) On 30 June 2020, the Council launched the "Building Bundaberg Region 2020" infrastructure charges incentives policy with the

- objective of stimulating new construction activity and employment in the region;
- (b) The “Building Bundaberg Region 2020” infrastructure charges incentives scheme commenced on 1 July 2020 and it seeks to offer discounts for infrastructure charges or infrastructure contributions required under a condition of approval, for certain development;
 - (c) The parties have agreed that discounts will apply for the Eligible Development in accordance with the terms of this document.

Part 2 Terms agreed by the parties

2. Interpretation

2.1 Definitions

In this document, unless the context or subject matter otherwise indicates or requires a word which is capitalised has the following meaning:

Applicable Discount means.

- (a) 100% of the Infrastructure Amount if the Eligible Development is for:
 - (i) CBD/Town Centre Development; or
 - (ii) Rural Sector Development where:
 - (1) intensive horticulture;
 - (2) rural industry;
 - (3) intensive animal industry
 - (4) aquaculture; or
 - (5) winery (where in a rural zone),

and is Completed by the Completion Date but limited to a maximum monetary discount of one million dollars; or

- (b) 50% of the Infrastructure Amount if the Eligible Development is any other development and is Completed by the Completion Date but limited to a maximum monetary discount of one million dollars.

Approval means a development permit or compliance permit for a material change of use or reconfiguring a lot.

Authority means a government, semi-government, local government, statutory, public, ministerial, civil, administrative, fiscal or judicial body or other entity or body with relevant power or authority.

Business Day has the meaning in the *Acts Interpretation Act 1954* (Qld).

Calendar Day means from one midnight to the following one.

CBD/Town Centre Development has the meaning specified for “CBD/Town Centre development” in Attachment B of the Incentives Application Form.

Charges Notice means:

- (a) an infrastructure charges notice as defined in the Planning Act;
- (b) a notice equivalent to an infrastructure charges notice which is given under legislation which repeals and replaces the Planning Act.

Chief Executive Officer means the chief executive officer of the Council.

Commencement Date means the date on which this document commences as stated in **clause 1.3**.

Completed means:

- (a) for a material change of use:
 - (i) where involving building works, a certificate of classification or the final inspection certificate (for a single detached class 1a building or structure) has been issued and the Council is satisfied that all applicable conditions for the material change of use have been complied with; or
 - (ii) where not involving building work, the whole of the approved use is established and the Council is satisfied that all applicable conditions for the material change of use have been complied with; or
- (b) for building work, a certificate of classification or the final inspection certificate (for a single detached class 1a building or structure) has been issued; or
- (c) where the Eligible Development relates to one or more stages of development, achievement of (a) or (b) for the stage or stages.

Completion Date means:

- (a) **18 November 2021** or
- (b) if the Chief Executive Officer extends the date under **clause 6.1(c)**, the extended date.

Council means the Local Government identified in Item 1 of Schedule 1.

Owner means the party identified in Item 2A of Schedule 1.

Development Land means the land identified in Item 3 of Schedule 1.

Development Obligation means an obligation under this document to be performed and fulfilled by a party.

Dispute Notice means a Notice given under **clause 11.1**.

Due Date means the last date by which the Reduced Infrastructure Amount must be paid to the Council and identified in Item 6 of Schedule 1.

Eligible Development means the development identified in Item 4 of Schedule 1 which is:

- (a) CBD/Town Centre Development; or
- (b) Rural Sector Development; or
- (c) Other Eligible Development.

Expert means an expert appointed under **clause 11.3**.

Extension Request means a request made in writing to the Chief Executive Officer before the Completion Date sought to be extended, for an extension to the Completion Date which includes information demonstrating that:

- (a) the Eligible Development has achieved Substantial Commencement by the Completion Date sought to be extended; and
- (b) there is a sufficient explanation for why the Eligible Development cannot be completed by the Completion Date sought to be extended.

Force Majeure means an event:

- (a) being a Commonwealth or State government decree, an act of God, industrial disturbance, act of public enemy, war, international blockade, public riot, lightning, flood, earthquake, fire, storm or other physical or material restraint;
- (b) which is not within the reasonable control of the party claiming Force Majeure; and
- (c) which could not have been prevented by that party exercising a standard of knowledge, foresight, care and diligence consistent with that of a prudent and competent person under the circumstances.

GST has the meaning in the GST Act.

GST Act means *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

Incentives Application Form means the document in Schedule 3.

Infrastructure Agreement means an agreement under Chapter 4, Part 4 of the Planning Act.

Infrastructure Amount means the amount identified in Column 1 of Schedule 2.

Infrastructure Charging Instrument means a law or statutory instrument for the levying of a charge for infrastructure.

Local Government has the meaning in the Local Government Act.

Notice means a document to be given by a party or a person under this document.

Other Eligible Development has the meaning specified for "Other eligible development" in Attachment B of the Incentives Application Form.

Owner means:

- (a) the party identified in Item 2 of Schedule 1;
- (b) otherwise, for land the following:
 - (i) the person for the time being entitled to receive the rent for the land;
 - (ii) the person who would be entitled to receive the rent for the land if the land were let to a tenant at a rent.

Planning Act means the *Planning Act 2016* (Qld).

Reconfigured Lot means a lot created upon the reconfiguration of the Development Land.

Reduced Infrastructure Amount means the Infrastructure Amount discounted by the Applicable Discount and is the amount identified in Column 3 of Schedule 2.

Rural Sector Development has the meaning specified for "Rural sector development" in Attachment B of the Incentives Application Form.

Substantial Commencement:

- (a) means the commencement of construction of either slab or footings (whichever is required for the development) proportionate to the size of the development proposed; and
- (b) does not include preliminary site works such as tree clearing or bulk earth works.

2.2 Undefined word

If a word is not defined in this document, unless the context or subject matter otherwise indicates or requires, the word is to have a meaning given to it by the following:

- (a) the Planning Act;
- (b) a relevant local planning instrument if the word is not defined in the Planning Act;
- (c) the Macquarie Dictionary if the word is not defined in the Planning Act or a relevant local planning instrument.

2.3 References

In this document unless the context or subject matter otherwise indicates or requires:

- (a) a reference to a document, includes a consolidation, amendment, notation, supplement, replacement or variation of the document;

- (b) a reference to a law or a provision of a law, includes the following:
 - (i) the law and the common law including the principles of equity of the Commonwealth, a State or a Territory;
 - (ii) a statutory instrument made or in effect under the law or the provision;
 - (iii) a consolidation, amendment, extension, re-enactment or replacement of the law or the provision;
- (c) a reference to a word in:
 - (i) the singular includes the plural; and
 - (ii) the plural includes the singular;
- (d) a reference to the word dollar or \$, is a reference to a dollar of Australian currency and an amount payable is payable in Australian dollars;
- (e) a reference to writing, includes a mode of representing or reproducing a word in tangible and permanently visible form and includes a facsimile transmission;
- (f) a reference to the word includes, or to an example or particularisation of a clause, does not limit the meaning of a word to which the clause relates to a matter of a similar kind;
- (g) a reference to a word which is defined in this document, includes another part of speech or grammatical form of the word which is to have a corresponding meaning;
- (h) a reference to a party made up of more than one person, is a reference to all of those persons separately so that:
 - (i) an obligation of a party binds them jointly and each of them individually; and
 - (ii) a right of a party benefits them jointly and each of them individually;
- (i) a reference to a day is a Calendar Day;
- (j) a reference to a date on or by which an act is to be done is to be taken to be the next Business Day if:
 - (i) the date is not a Business Day; or
 - (ii) the act is done after 5.00pm on the day by which the act is to be done;
- (k) a reference to a period of time which is to be calculated by regard to a day or an event, is to exclude the day or the day of the event;
- (l) a reference to the word land, includes the following:
 - (i) an interest or estate in, on, over or under the land;

- (ii) the airspace above the surface of the land and an estate or interest in the land;
- (iii) the subsoil of the land and an estate or interest in the subsoil;
- (iv) a part or parts of the land;
- (v) an estate or interest created for any of the above matters;
- (m) a reference to the word sell, includes transfer, dispose of and alienate but excludes a mortgage, licence, grant of an easement and a lease other than a lease for a term including an option exceeding 5 years;
- (n) a reference to a successor in title of land, includes the following:
 - (i) a person deriving title to the land through or under the Owner of the land;
 - (ii) a mortgagee which takes possession of the land;
- (o) a reference to the address of a party is a reference to the physical or postal address of that party stated in Schedule 1 or as changed under this document, as indicated by the context or subject matter.

3. Infrastructure Agreement

3.1 Infrastructure Agreement under the Planning Act

This document constitutes an Infrastructure Agreement under the Planning Act.

3.2 Application of the Infrastructure Agreement

This document applies to all development comprising the Eligible Development described in Item 4 of Schedule 1.

3.3 Owner

- (a) The Owner consents to the Development Obligations of the Owner attaching to the Land under the Planning Act .
- (b) A Development Obligation is binding on the Owner of the Development Land and the Owner's successor in title of the Development Land under the Planning Act.
- (c) A Development Obligation is not affected by a change in the ownership of the Development Land or a part of the Development Land.

3.4 Relationship to an Approval

If a Development Obligation is inconsistent with an Approval for the Development Land, the Development Obligation is to prevail to the extent of the inconsistency.

3.5 Relationship to an Infrastructure Charging Instrument

- (a) This document is not intended to limit the nature or type of an Infrastructure Charging Instrument which an Authority may lawfully make for the development of the Development Land.
- (b) If a Development Obligation is inconsistent with an Infrastructure Charging Instrument, the Development Obligation is to prevail to the extent of the inconsistency.

4. Operation of the Infrastructure Agreement**4.1 Commencement of the Infrastructure Agreement**

This document is to be of no effect until the Commencement Date.

4.2 Termination of the Infrastructure Agreement

This document is terminated if:

- (a) the parties agree as follows:
 - (i) that the performance and fulfilment of this document has been frustrated by an event outside of the control of the parties; or
 - (ii) to terminate this document; or
- (b) the Eligible Development is not Completed by the Completion Date or an extended Completion Date allowed for under clause 6.1(c); or
- (c) clause 7.1(d) operates.

5. Deed of agreement**5.1 Continuing effect as a deed of agreement if not an Infrastructure Agreement**

In the event that this document is declared not to be an Infrastructure Agreement, as defined by the Planning Act, the parties agree to be bound by the terms of this document as though it were a deed of agreement.

6. Development Obligations**6.1 The Council's and Owner's obligations**

- (a) If:
 - (i) the Eligible Development is Completed by the Completion Date; and
 - (ii) the Reduced Infrastructure Amount is paid by the Due Date,
- the Council agrees to accept the payment of the Reduced Infrastructure Amount in full and final satisfaction of the Infrastructure Amount.

- (b) If:
 - (i) the Eligible Development is not Completed by the Completion Date; or
 - (ii) the Reduced Infrastructure Amount is not paid by the Due Date,the Owner will pay the Infrastructure Amount forthwith.
- (c) The Chief Executive Officer may, in his absolute discretion, extend the Completion Date upon the making of an Extension Request.

6.2 The Owner's obligations

Upon acceptance by the Council of the payment of a Reduced Infrastructure Amount in accordance with the terms of this document, the Owner is released from any further obligation to pay the Infrastructure Amount under the Charges Notice or the condition identified in Item 5 of Schedule 1.

7. Application

7.1 Application of Applicable Discount

- (a) An Applicable Discount applies to the net amount of an Infrastructure Amount before credits and offsets have been deducted.
- (b) An Applicable Discount may only be applied in the manner stated in this document.
- (c) An Applicable Discount may only be applied once for the Eligible Development.
- (d) Development which is subject to a refund by operation of section 137 or section 139 of the Planning Act is not eligible for a discount. If by operation of section 137 or section 139 of the Planning Act development, which is otherwise Eligible Development, is subject to a refund, this agreement terminates and each party is released from all obligations under this agreement.

7.2 Early payment

This document does not preclude the Owner from making early payment of a Reduced Infrastructure Amount. However, early payment does not guarantee eligibility for an Applicable Discount and the terms of this document must be satisfied to secure an Applicable Discount. The early payment of a Reduced Infrastructure Amount does not release the Owner from an obligation to pay the Infrastructure Amount until the Council has accepted the payment of the Reduced Infrastructure Amount in accordance with **clause 6.1(a)**.

8. Assignment

8.1 Assignment of interests, rights or obligations under document

The Owner may not, either absolutely or by way of security, assign its interests, rights or obligations under this document:

- (a) without the written consent of the Council; and
- (b) in a manner which is inconsistent with the provisions of this document.

9. Novation of document upon sale

9.1 Reconfiguring of the Development Land

If the Development Land is subject to reconfiguring of a lot to create a Reconfigured Lot, then a Development Obligation:

- (a) remains attached to the Reconfigured Lot; and
- (b) binds the Owner of the Reconfigured Lot.

9.2 Dealing with the Development Land

The Owner and the Owner's successors in title are not to sell the Development Land or a Reconfigured Lot prior to the performance and fulfilment of the Development Obligations under this document except subject to the condition that the purchaser is to enter into a deed of novation of this document with each other party, on terms reasonably acceptable to each other party, whereby the purchaser becomes contractually bound to each other party to perform and fulfil the provisions of this document or such of them as remain unperformed or unfulfilled by the Owner at the time of the sale.

10. Right of access

10.1 Access to Development Land

The Owner is to, upon the receipt of a Notice given by the Council to the Owner which states that access is requested, permit the Council to have access to the Development Land for the purposes of determining whether:

- (a) Substantial Commencement has been achieved; or
- (b) the Eligible Development has been Completed.

10.2 Exercise of a right of access

In exercising a right of access, the Council is:

- (a) to exercise reasonable care so as not to cause damage or injury to property or a person;

- (b) taken to be an invitee of the Owner and the occupier of the relevant land; and
- (c) to promptly rectify any damage caused to property.

11. Dispute resolution generally

11.1 Dispute

If there is a dispute between the parties, a party may give a Dispute Notice referring the dispute for determination by the Expert.

11.2 Notice as bar

The giving of a Dispute Notice operates as a complete and unconditional bar and waiver to the commencement of a proceeding or any litigation in respect of a dispute until after the actions in this **clause 11** have been taken and followed.

11.3 Identity of expert

If within 14 Calendar Days from the giving of a Dispute Notice the parties are not able to agree on the identity of the Expert, the Expert is to be appointed at the request of any party by the President for the time being of the Queensland Law Society Incorporated.

11.4 Experience and expertise

The Expert is to be a qualified civil engineer with extensive experience in dispute resolution and construction practices.

11.5 Non arbitrator

The Expert is to determine the procedure to be adopted to determine the dispute and is to act as an expert and not as an arbitrator.

11.6 Submissions

- (a) A party may make a submission to the Expert in respect of the dispute within 14 Calendar Days after the appointment of the Expert.
- (b) A party making a submission to the Expert in respect of the dispute is to give a copy of the submission to each other party within 7 Calendar Days after the submission is given to the Expert.
- (c) The Expert is to take account of any submission received in respect of the dispute under **paragraph 11.6(a)**.

11.7 Costs

The parties are to pay the Expert's costs (including the cost of engaging and consulting advisers) equally.

11.8 Co-operation

- (a) The parties are to at all times do all things which the Expert requires of them in respect of the Expert's determination of the dispute and are to co-operate and assist the Expert in every reasonable way.
- (b) A party is not to wilfully do or cause to be done any act to delay or prevent the determination of the dispute by the Expert.

11.9 Determination

The Expert's determination:

- (a) is to be made within 14 Calendar Days after the earlier of:
 - (i) each party has made a submission to the Expert in respect of the dispute;
 - (ii) the expiry of the time for a party to make a submission to the Expert in respect of the dispute;
- (b) is to be given in writing as soon as possible;
- (c) is to contain the reasons for the making of the determination;
- (d) is final and binding on the parties.

12. Force Majeure**12.1 Notice of Force Majeure**

If a party is unable by reason of Force Majeure to perform and fulfil an obligation, the party is to, as soon as is reasonably practicable after the Force Majeure, give to each other party a Notice which states the following:

- (a) that Force Majeure is in existence; and
- (b) full particulars of the Force Majeure.

12.2 Suspension of an obligation

An obligation of a party so far as it is affected by Force Majeure is suspended during the following:

- (a) the continuance of Force Majeure; and
- (b) a further period which is reasonable in the circumstances.

12.3 Removal or amelioration of Force Majeure

The party giving a Notice of Force Majeure is to, as soon as is reasonably practicable, use its best endeavours to remove the Force Majeure or ameliorate its effect.

12.4 Dispute resolution process to apply

If the parties are unable to agree on the existence of a party's Force Majeure or the period during which an obligation is suspended during the continuance of Force Majeure the dispute is to be resolved under **clause 11**.

13. Time**13.1 Time of the essence**

Time is, in all cases, of the essence.

13.2 Extension of time

The parties may agree to extend a time stated in this document by giving to each other a Notice which states the extended time.

14. Counterparts**14.1 Document may consist of counterparts**

This document may consist of a number of counterparts, each of which when executed shall be an original and all the counterparts together shall constitute one and the same instrument.

14.2 Exchange of a counterpart

A party who has executed a counterpart of this document may exchange that counterpart with another party by faxing it or emailing it to the other party and, if that other party requests it, promptly delivering that executed counterpart by hand or post to the other party. However, the validity of this document is not affected if the party who has faxed or emailed the counterpart delays in delivering or does not deliver it by hand or by post.

15. Further action**15.1 Action to give effect to this document**

A party is to do at its cost everything reasonably necessary to effect, perfect or complete this document and a transaction incidental to this document.

15.2 Further action if a clause is invalid, illegal or unenforceable

The parties are to use their best endeavours including the preparation, negotiation and execution of a further document to ensure that the object of a clause or part of a clause which is held by a court to be invalid, illegal or unenforceable is substantially achieved.

16. Severance**16.1 Removal from this document**

A clause or part of a clause which is held by a court to be invalid, illegal or unenforceable is to be treated as removed from this document.

16.2 Effect of removal on this document

The remaining clauses are not affected by:

- (a) the invalidity, illegality or unenforceability of a clause or part of a clause; or
- (b) the removal of a clause or part of a clause from this document.

16.3 Further action on removal

The parties are to use their best endeavours to satisfy the intent of this document as stated in **clause 1.5**, for a clause or part of a clause which is held by a court to be invalid, illegal or unenforceable, to the extent that it is possible having regard to the relevant court judgment.

17. Notice

17.1 Form of a Notice

- (a) A Notice given by a party is to be:
 - (i) in writing;
 - (ii) signed by the party; and
 - (iii) marked for the attention of the relevant person.
- (b) A party receiving a Notice is not obliged to enquire as to the authority of the person signing the Notice.

17.2 Giving of a Notice

- (a) A party may give to any other party a Notice by sending the Notice in one of the following ways:
 - (i) delivering the Notice to the other party at the physical address of the party;
 - (ii) sending the Notice to the other party by electronic mail;
 - (iii) posting the Notice by prepaid post to the other party at the postal address of the party;
 - (iv) faxing the Notice to the other party at its facsimile number.
- (b) A Notice is to be treated as given in the following circumstances:
 - (i) if it is delivered, when it is left at the physical address of the other party;
 - (ii) if it is sent by electronic mail and no electronic error notification is received by the sender, the date and time the electronic mail indicates it was sent;
 - (iii) if it is sent by post, 3 Calendar Days after it is posted or 7 Calendar Days after it is posted if sent to or from a place outside Australia;
 - (iv) if it is sent by facsimile, as soon as the sender receives from the sender's facsimile machine a report of an error-free transmission to the correct facsimile number.

17.3 Change of the details of a party

A party may change the address, facsimile number and the person to whose attention a Notice is to be brought by giving to each other party a Notice which states the following:

- (a) the changed details;
- (b) that the change is to take effect from a date which is at least 7 Calendar Days after the Notice is given to each other party.

18. Further agreement**18.1 Agreement to change**

- (a) The parties may at any time agree to change, review or replace this document.
- (b) The parties may agree the circumstances and the manner in which a change, review or replacement of this document is to be conducted.

18.2 Form of the change

A change, review or replacement of this document only has effect if the change:

- (a) is in the form of a deed executed by the parties; and
- (b) complies with the Planning Act and any other relevant law.

18.3 Further agreement

- (a) The parties may at any time enter into an agreement or arrangement for a matter the subject of this document that the parties consider is necessary or desirable in order to give effect to this document.
- (b) An agreement or arrangement entered into under **paragraph (a)** is not to be inconsistent with this document.

19. Costs and outlays**19.1 Each party pay its own costs**

Each party must pay its own costs and outlays connected with the negotiation, preparation and execution of this document.

20. Governing law and jurisdiction**20.1 Queensland law to apply**

This document is governed by the laws which apply in the State of Queensland.

20.2 Queensland courts to have jurisdiction

- (a) The parties irrevocably and unconditionally submit to the exclusive jurisdiction of the courts of the State of Queensland and a court which has jurisdiction to hear an appeal from those courts.
- (b) The parties are not to object and waive their right to object to the following:
 - (i) a legal proceeding brought in those courts;
 - (ii) the exercise of the jurisdiction by those courts on any basis;
 - (iii) the exercise or non-exercise of a right, including for the actual or contemplated enforcement or preservation of a right, waiver, release, indemnity, discharge or charge under this document.

21. GST**21.1 Construction of this clause**

In this clause 21:

- (a) a word has the meaning in the GST Act; and
- (b) a reference to GST payable and an input tax credit entitlement include the GST payable by, and the input tax credit entitlement of, the representative member for a GST group of which the entity is a member.

21.2 Payment of GST

- (a) If a party or an entity through which that party acts (**Supplier**) is liable to pay GST on a supply made under or in connection with this document, the recipient is to pay to the Supplier an amount equal to the GST payable by the Supplier.
- (b) The recipient is to pay the amount stated in **paragraph (a)** in addition to and at the same time that the consideration for the supply is to be provided under this document.
- (c) The Supplier is to deliver a tax invoice or an adjustment note to the recipient before the Supplier is entitled to the payment of the amount stated in **paragraph (a)**.
- (d) The recipient may withhold the payment of the amount stated in **paragraph (a)** until the Supplier provides a tax invoice or an adjustment note, as appropriate.
- (e) If an adjustment event arises in respect of a taxable supply made by a Supplier under this document, the amount payable by the recipient is to be recalculated to reflect the adjustment event and a payment is to be made by the recipient to the Supplier or by the Supplier to the recipient as the case requires.

- (f) The parties are to do all things including producing a tax invoice and other documents which may be necessary or desirable to enable or help the other party to claim an input tax credit, set-off, rebate or refund for an amount of GST for a supply under this document.

21.3 Reimbursable cost

If a party is required to pay for a cost of another party (**Reimbursable Cost**), the amount to be paid is the amount of the Reimbursable Cost net of an input tax credit or reduced input tax credit to which the other party is entitled for the Reimbursable Cost.

21.4 Indemnified cost

If a party has the benefit of an indemnity for a cost (**Indemnified Cost**), the indemnity is for the Indemnified Cost net of an input tax credit or reduced input tax credit to which that party is entitled for the Indemnified Cost.

21.5 Stated amount

An amount stated in this document is exclusive of GST unless otherwise expressly stated.

21.6 No merger on termination

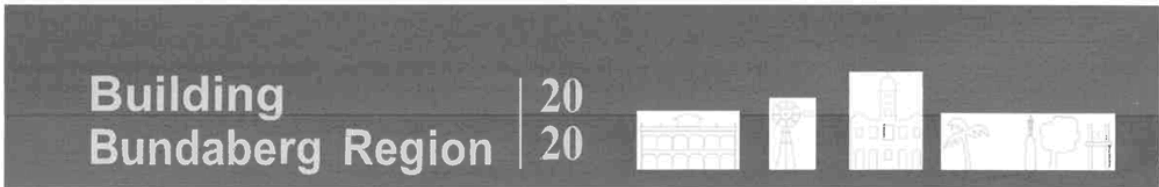
Clause 21 does not merge on the termination of this document and continues to have effect until each party gives to each other party a Notice waiving the benefit of the clause.

SCHEDULE 1**Reference schedule**

ITEM 1	Council	
	Name of Council	Bundaberg Regional Council
	Address	190 Bourbong Street, Bundaberg, 4670 in the State of Queensland
	Facsimile No.	(07) 4150 5410
	Email address:	ceo@bundaberg.qld.gov.au
	Person to whose attention a Notice is to be brought:	Chief Executive Officer
ITEM 2	Owner	
	Name	Eptom Pty Ltd
	Address (or registered office if a corporation)	4551 Goodwood Road, Alloway in the State of Queensland
	Email address:	gorza2000@hotmail.com
	Person to whose attention a Notice is to be brought:	John Gorza
ITEM 3	Development Land	
		9 Elizabeth Street, Childers in the State of Queensland; land described as Lot 100 on SP202712
ITEM 4	Eligible Development	
		322.2013.38453.1 (being 3x Duplex units 11-16)
ITEM 5	Charges Notice or condition under which Infrastructure Amount is payable	
		331.2014.673.1
ITEM 6	Due Date for payment of Reduced Infrastructure Amount	
		Before the Change of Use happens

SCHEDULE 2
Discount Schedule

Column 1	Column 2	Column 3
Infrastructure Amount	Applicable Discount	Reduced Infrastructure Amount
\$53301.54	50%	\$26,650.77



Infrastructure charges incentives

Application Form

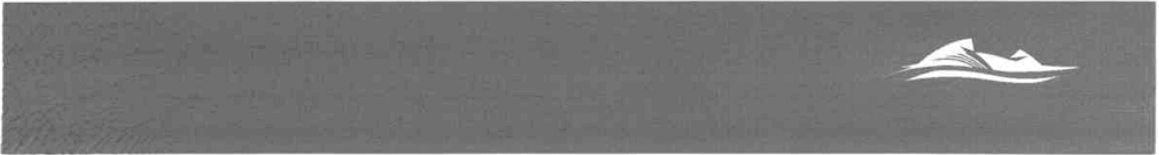
Council is offering infrastructure charges incentives to encourage increased development activity and job creation to assist with the economic recovery from the Covid-19 pandemic.

To see if your development is eligible for infrastructure charges incentives, please refer to Attachment A.

To apply, please complete this form and return to Council prior to 1 July 2021.

Please email directly to development@bundaberg.qld.gov.au

Developers details			
Name/s (individual or company name in full)			
Contact name			
Postal address			
Suburb		State	Postcode
Phone		Mobile	
Email address			
Owner details			
Name/s (individual or company name in full)			
Postal address			
Suburb		State	Postcode
Phone		Mobile	
Description of land			
Property address			
Property description	Lot		Plan type and No.
	Lot		Plan type and No.
	Lot		Plan type and No.
Declaration			
<p>In lodging this request for an infrastructure charge discount I/We _____ declare that the owners of the property have consented to enter into an infrastructure agreement subject to the terms of the Rules and Regulations of the Building Bundaberg 2020 initiative. Council is collecting your personal information to assist in the assessment of your application for infrastructure charges incentives. Your information will be handled in accordance with the <i>Information Privacy Act (Old) 2009</i> and may be accessed by employees of Council.</p> <p>We will not provide your information to any other person or agency unless authorised or required by law.</p> <p>For more information, see bundaberg.qld.gov.au/privacy</p>			
Signature/s _____		Date _____	



Building Bundaberg Region | 20 20



Application details

Which of the following categories of incentivised development are you applying for (*please see definitions*).

- Rural sector development
- CBD/town centre development
- Other eligible development

NOTE: if the proposed development does not fit within a category listed, the development may not be eligible for this program but may be eligible for other incentives offered by Council. Please contact Council's Development Assessment team on 1300 883 699 for further information about how we can assist with your development. Please see definitions in attachment B for assistance in determining what category your development may fit within.

Details of the development permit or compliance permit

Application No: _____

Type of approval: _____

Date approval took effect: _____

Have the adopted infrastructure changes or infrastructure contribution/s been paid?

Yes No

Proposal details

What is the proposed value of works for the development? \$ _____

What is the anticipated number of jobs to be created by this development? (*if known/applicable*) _____

If the development is for residential development please provide the following:

Number of dwelling units: _____

Number of lots: _____

If the development is for commercial or industrial uses please provide the following:

Gross floor area (GFA) _____

Staged development

Is the development a staged development?

Yes No

Is it proposed that a discount apply to certain stages of the development and not the whole of the development?

Yes No

Note: if development is to be staged, the application needs to be accompanied by a staging plan.

If it is proposed that a discount apply to certain stages of the development, provide details of:

- the total number of stages in the development and the site area of the total development.
- the stages to which a discount is sought to be applied.



Attachment A: Rules and procedures

1. Background

On 30 June 2020 Council launched the "Building Bundaberg Region 2020" incentives scheme with the objective of stimulating increased development activity to counter the economic impacts caused by the Covid-19 pandemic. As part of this initiative, Council is offering a range of discounts for infrastructure charges on certain developments.

Council has resolved to develop these rules and procedures to guide its decision-making in assessing applications for the infrastructure charges incentives.

Building Bundaberg Region 2020 will commence on 1 July 2020 and applies to eligible development. A development that has been completed prior 1 July 2020 is not eligible for the infrastructure charges incentives.

2. Eligibility for infrastructure charges incentives

2.1 A development approval exists for the development.

2.2 The Council has either:

- issued a charges notice in relation to the development approval; or
- imposed an infrastructure contribution condition in the development approval;

AND The development is not subject to an existing infrastructure agreement that varies the amount of infrastructure charges payable (except where the infrastructure agreement relates to an extension of the relevant period for the development approval or a recalculation of the charges under a new charges resolution).

2.3 The development is for rural sector, CBD/town centre or other eligible development as defined in attachment B.

2.4 The development was not completed before 1 July 2020. For staged development, the stage being applied for was not completed before 1 July 2020.

2.5 The development is not eligible for a refund for the provision of trunk infrastructure pursuant to s129 of the *Planning Act 2016* (PA) (or equivalent section in any subsequent legislation). If through a conversion application (s139 PA) or a recalculation of the establishment cost of trunk infrastructure (s137 PA) a development that at the time an application under this policy was made was not subject to a refund becomes subject to a refund, then the development will no longer be eligible for a discount under this incentives scheme.

2.6 Development that does not meet the above criteria is not eligible for the infrastructure charges incentives.

3. Rules

3.1 Developments seeking to take advantage of the infrastructure charges incentives must make application to Council for a discount using the approved form. Applications for the infrastructure charges incentives can be made at any time prior to 1 July 2021.

3.2 Only one infrastructure charges incentives offer can apply to a development.

3.3 The infrastructure charges incentives will not apply to:

- any development that has been completed on or before 1 July 2020.

3.4 Discounts for the infrastructure charge are as follows:

- 100% discount for development that is completed before 1 July 2021 which is for:
 - (a) CBD/town centre development;
 - (b) Rural sector development where:
 - (i) Intensive horticulture;
 - (ii) Rural industry;
 - (iii) Intensive animal industry
 - (iv) Aquaculture; or
 - (v) Winery (where located in a rural zone);
- 50% discount for all other eligible development that is completed before 1 July 2021.

The above discounts are taken to be discounts off the applicable infrastructure charges specified in a charges notice or conditioned in a development approval (as varied by any infrastructure agreement relating to an extension of the relevant period of the development approval, where one exists). To be clear, no other discounts either under an adopted infrastructure charges resolution or other policy will apply.

3.6 The maximum discount under the incentives scheme is no more than \$1 million for an eligible development.

3.7 Council may, in its absolute discretion, extend the date for any of the above discounts for a particular development where:

- The applicant can show sufficient reason why the development cannot be completed by the original completion date; and
- The development has achieved substantial commencement prior to the original completion date.

3.8 Applications to extend the date by which development is to be completed for any particular discount must be made in writing and received prior to expiry of the completion date. Any extension to the date by which development is to be completed is at Council's absolute discretion.



3.9 Compliance with the completion date for receiving the incentive reduction in infrastructure charges is only achieved through full compliance with the following:

- For developments involving material change of use and building works, the issue of a certificate of classification for building works and/or issue of final inspection certificate by the completion date; or
- For developments involving material change of use and no building works, the approved use is established by the Completion Date;

3.10 In all cases, Council must be satisfied that all applicable conditions of the development approval for the development completed have been satisfactorily complied with.

3.11 The discount will be applied at the time of payment of the infrastructure charges, but no discount is applicable if Infrastructure Charges are not paid when due.

3.12 Nothing stops development from making early payment of infrastructure charges payable after approval for discount has been given under this policy. However, early payment does not guarantee eligibility for any discount. Development must comply with the terms of the executed infrastructure agreement to secure approved discounts.

3.13 The discount applies to gross charges before credits and offsets for the provision of trunk infrastructure have been deducted. To be clear, no discount given under this policy can result in a development receiving a refund.

4. Process

4.1 Applicants must lodge the application form prior to 1 July 2021.

4.2 Within five (5) business days of Council receiving the request, applicants will be notified by Council via email about whether the development is eligible for the incentive scheme applied for and details of any approved reduction in infrastructure charges subject to the incentive requirements being met and if so;

(a) An infrastructure agreement will be issued identifying the discount available and must be signed by the applicant to acknowledge all terms applying to the incentive offer approved for the development;

(b) For the discounts to apply, the applicant must execute and return the infrastructure agreement to Council prior to the time for payment of the Infrastructure charges.



Attachment B: Definitions

The below are the definitions for the Building Bundaberg Region 2020 incentives scheme. If a word is not defined in this document, unless the context or subject matter otherwise indicates or requires, the word is to have a meaning given to it by the following:

- (a) the Planning Act;
- (b) the Bundaberg Regional Council Planning Scheme 2015 if the word is not defined in the Planning Act;
- (c) the Macquarie Dictionary if the word is not defined in the Planning Act or the Bundaberg Regional Council Planning Scheme 2015.

Where a development approval has been given under one of the four superseded planning schemes for the Bundaberg Region, the development's eligibility will be determined by applying the definition from the Bundaberg Regional Council Planning Scheme 2015 that best fits the approved development.

Definition

Adopted infrastructure charges resolution

Means Adopted Infrastructure Charges Resolution (No.1) 2012, Adopted Infrastructure Charges Resolution (No.1) 2013, Adopted Infrastructure Charges Resolution (No.1) 2014, Adopted Infrastructure Charges Resolution (No.1) 2015 or Charges Resolution (No. 1) 2018 or any subsequent charges resolution.

Applicant

Means the applicant for the infrastructure charges incentives under this policy.

CBD/town centre development

Means development located within the Bundaberg CBD, Childers Town Centre, Gin Gin Town Centre, Burnett Heads Town Centre, Bargarra Tourism Precinct, Moore Park Beach Tourism Precinct or Woodgate Tourism Precinct as delineated in the Building Bundaberg 2020 maps (shown on Council's website at bundaberg.qld.gov.au/development/bbr2020) for any one or combination of the following purposes defined under the Bundaberg Regional Council Planning Scheme 2015 subject to any limitation in brackets:

- Bar
- Dual occupancy (where part of a mixed use building)
- Dwelling unit (where part of a mixed use building)
- Educational establishment;
- Entertainment activities;
- Food and drink outlet;
- Multiple dwelling;
- Offices;
- Shop;
- Shopping centre;
- Short-term accommodation; and
- Showroom

Charges notice

Means:

- an infrastructure charges notice as defined in section 119 of the *Planning Act 2016* (PA); or
- a notice mentioned in section 301(1) of PA; or
- a notice equivalent to an infrastructure charges notice which is given under legislation which repeals and replaces PA.

Completed

Means for a material change of use:

- Where involving building works, a certificate of classification or the final inspection certificate (for a single detached class 1a building or structure) has been issued; or

- Where not involving building works, the approved use has been established.

Means for building work:

- A certificate of classification or the final inspection certificate (for a single detached class 1a building or structure) has been issued

Completion date

Means:

- Twelve months from the date of the email notice mentioned in section 4.2 of attachment A; or
- such date as extended by the Council pursuant to section 3.7 of attachment A.

Development approval

A development permit for a material change of use or a development permit or compliance permit for reconfiguring a lot or a development permit for building work (where the material change of use is accepted development) that has not lapsed.

Eligible development

Means proposed development that satisfies the requirements of section 2 of attachment A.

Entertainment activities

Means any of the following:

- Club;
- Function facility;
- Hotel;
- Nightclub entertainment facility;
- Theatre;
- Tourist attraction.

Infrastructure charges

Means infrastructure charges or contributions for trunk infrastructure payable pursuant to a charges notice or a contribution condition in a development approval.

Other eligible development

Means development for any material change of use or building works for which a charges notice has been issued.

Planning Act

Means the *Planning Act 2016* or subsequent legislation which repeals and replaces that act.

Rural sector development

Means development for any one or combination of the following purposes defined under the Bundaberg Regional Council Planning Scheme 2015 subject to any limitation in brackets:

- Intensive horticulture;
- Rural industry;
- Aquaculture;
- Winery (where located in a Rural zone);
- Intensive animal husbandry;
- Short-term accommodation (for the purpose of accommodating backpackers and/or itinerant farm workers);
- Non-resident workforce accommodation (for the purpose of accommodating backpackers and/or itinerant farm workers); or
- Rural workers accommodation.

Substantial Commencement

Means the commencement of the construction of either slab or footings (whichever is required for the development) proportionate to the size of the development proposed.

Preliminary site works including tree clearing or bulk earth works are not considered to be substantial commencement for these purposes.

Attachment B: Definitions

Page 5 of 5

Part 3 Execution by the parties

EXECUTED as a deed.

Signed by Michael Ellery, Group Manager Development on behalf of the **BUNDABERG REGIONAL COUNCIL** in accordance with the *Local Government Act 2009* on the 20th day of November 2020


Signature of


Signature of witness

JUDY JACKSON
Name of witness (print)

Signed by 18 NOV 2020 of the 18 day of NOV 2020 in the presence of:

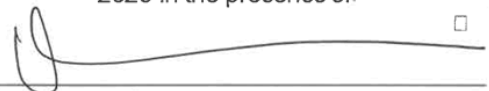

Signature of


Signature of witness

John Corza
Name of witness (print)

Signed by on the day of 18 NOV 2020 2020 in the presence of:


Signature of


Signature of witness

Daniel Corza
Name of witness (print)

**Item****21 December 2021****Item Number:**

O1

File Number:**Part:**COMMUNITY & CULTURAL
SERVICES**Portfolio:**

Community & Environment

Subject:

Lease AY - Bundaberg Regional Airport - PSA Super Pty Ltd

Report Author:

Nicole Sabo, Property & Leases Officer

Authorised by:

Gavin Steele, General Manager Community & Environment

Link to Corporate Plan:

Our organisational services - 3.2 Responsible governance with a customer-driven focus

Background:

Council as owner of Bundaberg Regional Airport located at Airport Drive, Kensington, leases non-air side space at Lot 35 on SP254546 for commercial use ('Property'). The general sheds are built and maintained by the lessee on Council land.

PSA Super Pty Ltd ('PSA') currently lease part of the Property. Their Lease is due to expire on 31 July 2022. PSA are currently looking for tenants for their shed to sub-lease to and have requested a renewal of their lease to commence as soon as possible to attract potential sublease tenant as the lease expiry date is hindering efforts of PSA in find new sub-tenants.

The initial term of the lease will be for 5 years with one additional option of a further 5 years. Rent will be for market rent and will increase annually by CPI. The terms and conditions of the lease are to be as per Council's standard terms.

Council proposes to apply the exception to the tender/auction requirements contained in section 236(1)(c)(iii) of *Local Government Regulation 2012* given that the disposal is for the purposes of renewing a lease to an existing tenant.

Associated Person/Organization:

PSA Super Pty Ltd

Consultation:

Nil

Chief Legal Officer's Comments:

Pursuant to section 236(1)(c)(iii) of the *Local Government Regulation 2021*, Council may dispose of the property by way of lease to PSA Super Pty Ltd without first offering the lease by way of tender given that the disposal is for the renewal of a current tenant.

Policy Implications:

There appears to be no policy implications.

Financial and Resource Implications:

There appears to be no financial or resource implications.

Risk Management Implications:

There appears to be no risk management implications.

Human Rights:

There appears to be no human rights implications.

Attachments:

Nil

Recommendation:

That:-

- 1. Council apply the exception contained in section 236(1)(c)(iii) of the *Local Government Regulation 2012*; and**
- 2. the Chief Executive Officer be authorised to enter into a Lease to PSA Super Pty Ltd for part of Lot 35 on SP254546 for an initial term of 5 years with a further 5 year option.**

**Item****21 December 2021****Item Number:**

S1

File Number:**Part:**TOURISM & REGIONAL
GROWTH**Portfolio:**

Community & Environment

Subject:

Sole Supplier Arrangement with Skidata Australasia Pty Ltd

Report Author:

Greg Barrington, Manager Airport Operations

Authorised by:

Gavin Steele, General Manager Community & Environment

Link to Corporate Plan:

Our infrastructure and development - 2.1 Infrastructure that meets our current and future needs - 2.1.3 Manage and maintain Council owned buildings, facilities and assets that support and facilitate social connectedness and community life.

Background:

Council installed an access management system for the car park at Bundaberg Regional Airport during 2011, which was manufactured by Skidata AG of Germany. The system is made up from entry and exit control points, payment machines and system control consoles.

Preventive and reactive maintenance services for the access control system have been supplied under a maintenance contract with Skidata Australasia since that time. Programmed preventive maintenance reduces the risk of breakdowns, consequent loss of revenue, and risk of customer complaints. Reactive maintenance provides a rapid recovery from breakdowns to full operational service.

The maintenance contract with Skidata Australasia has run to the end of its term and a new contract is recommended. Skidata Australasia is the only organisation in Australia with the proprietary technical knowledge, and access to spare parts, required for the ongoing service and maintenance of the access control system.

It is proposed to negotiate an arrangement with Skidata Australasia to provide continuation of the services provided by the previous contract.

Associated Person/Organization:

Skidata Australasia Pty Ltd

Consultation:

Nil

Chief Legal Officer's Comments:

Section 235(a) of the *Local Government Regulation 2012* allows the local government to resolve that it is satisfied that there is only one supplier that is reasonably available.

Policy Implications:

There appears to be no policy implications.

Financial and Resource Implications:

The cost of maintenance services for the airport car park is included in Council's adopted budget for the current financial year.

Risk Management Implications:

There appears to be no risk management implications.

Human Rights:

There appears to be no human rights implications.

Indigenous Land Use Agreement (ILUA) Implications:

There appears to be no ILUA implications.

Attachments:

Nil

Recommendation:

That Council authorise the Chief Executive Office to enter into an arrangement with Skidata Australasia Pty Ltd (ACN 164 259 750) for the provision of maintenance services for the airport car park access management system without seeking competitive quotations or tenders pursuant to section 235(a) of the *Local Government Regulation 2012*.