

55 Gladstone Rd, Allenstown

Flood Hazard Assessment

Project Name: 55 Gladstone Rd, Allenstown Flood Hazard Assessment

Project Number: 21-760

Project Address: 55 Gladstone Rd, Allenstown 4700 (Lot 1 on RP607366)

Client: Dezin Elements

Dated: 12.01.22

Rev: 0

Revision

Revision Issue Date

Original Issue

0

12.01.22

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the
current conditions of approval associated with

Preliminary Approval No.: D/4-2022

Dated: 23 March 2022

1.0 Introduction

The scope of this document is to address the relevant provisions of the Rockhampton Region Planning Scheme 2015 with regards to the Fitzroy River 2018 Flood Study overlay & South Rockhampton Local Catchment Study 2018 overlay for 55 Gladstone Rd, Allenstown.

The subject site is a commercial lot located in Allenstown. The site slopes generally from a gentle crest centred on the lot to the lot boundaries in all directions. The site has a minimum elevation of 6.36m AHD to a maximum elevation of 7.54m AHD. Appendix C – Site Plan shows the existing levels at the proposed location of the 40' shipping container, which ranges from 7.00m AHD to 7.2m AHD.

It is proposed that a 40' shipping container be located on the eastern side of the existing structure. The container will be approximately 12m long by 2.4m wide and high. Refer to Appendix C – Site Plan which shows the location of the proposed structure, which is within the footprint of the Fitzroy River 1% AEP event and the local creek catchment 1% AEP event.

2.0 Flood Hazard Assessment

The proposed structure is an enclosed shipping container with access doors along the short side which would be opened during the defined flood event to allow the free flow of water into the container such that no loss of flood storage would be possible. The purpose of the structure is to store goods associated with the business at the site under cover.

Based on information provided in a Flood Search by Rockhampton Regional Council, the below figures identify the current pre-construction hydraulic characteristics at the subject site:

Table 1 - RRC Flood Search Results

Riverine Flooding		Creek Flooding	
AEP 1% WSL Min:	8.19m	AEP 1% WSL Min:	7.45m
AEP 1% WSL Max:	8.20m	AEP 1% WSL Max:	8.95m
AEP 1% Velocity Min:	0.02m/s	AEP 1% Velocity Min:	0.03m/s
AEP 1% Velocity Max:	0.12m/s	AEP 1% Velocity Max:	0.98m/s

The above shows that the proposed container is affected by the riverine and creek flooding events. As can be seen, the depth of flows at the location of the container would be between 1.19m and 1.2m for the riverine flooding event and 0.45m and 1.95m for the creek flooding event. This results in an equivalent flood hazard category of H4 (Riverine) and H5 (Creek) per the Australian Emergency Management Institute guidelines.

The flood characteristics at the site are indicative of backwater flooding resulting from the Fitzroy River flood, which historically has a significant lag time between rain events and peak flooding. The creek flooding event is indicative of rising localised flow in the Goss Park drainage feature, and has a significant range of depth and velocity which results in a higher hazard category. The use of engineered footings capable of withstanding the minor racking forces the moving floodwater will exert of the structure will mitigate the risk of damage or instability. It is seen that because of this, there is minimal risk to people and property.

Given the container will run roughly parallel with the natural grade of the land and the existing structure, and there is no proposal to provide any filling, it is seen that flood waters are free to move unhindered through the property as they rise and fall. Negligible flow velocities indicate that there will be negligible potential for afflux to be generated, and it is seen that there will be no negative impacts to the adjacent properties upstream or downstream.

It is seen that the proposal is acceptable based on the following:

1. Resilience to the existing flood event affects will be provided in accordance with the RRC Planning Scheme outcomes towards a defined flood event. This is achievable due to the fact that the slow moving water will exert less force on the container than other load criteria, such as wind, which will govern for this structure.
2. There will be no affect to flood heights due to the proposed having no loss to storage and no retardance to the already slow-moving flows.
3. As there will be no change to depth or velocity, there will be no increase to the sites Flood Hazard Category and therefore no risk to persons, infrastructure or property generated by this proposal.
4. There are no proposed earthworks.
5. There will be sufficient notice period for the owner in case of a defined flood event, as BOM or other weather information sources would provide warning with enough time to open up the structure to allow ingress of flood water, as well as relocation of all goods offsite or to higher ground.

3.0 Qualifications & Limitations

This certification has been prepared by Patcol Group Pty Ltd with the intention of addressing relevant Flood Hazard Overlay Code provisions of the RRC Planning Scheme for 55 Gladstone Rd, Allentown. The use of this assessment is limited to such use only and any third parties should consult with Patcol Group to determine it's applicability. Data relied on for this report has come from Council's planning scheme, mapping & flood search reporting. As such, the accuracy of this certification is limited by the accuracy of this information.

4.0 Conclusion

There appears to be no great engineering infrastructure difficulties with the proposed changes to the aforementioned property. It is seen that the proposal will not affect flooding, either on the property or upstream/downstream in any way and conforms to the acceptable outcomes as set out by the RRC planning scheme.

Yours sincerely,



Scott Thomas

Manager – B. Eng (Civil/Structural) RPEQ 16203

5.0 Appendix A – Development Outcomes

Fitzroy River – H1 or H2 or North Rockhampton flood management area or Creek catchment planning area 2

Table 8.2.8.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes		Acceptable outcomes	
Development in Fitzroy River flood areas – H1 (low hazard area) or H2 (medium hazard area) or North Rockhampton flood management area or Creek catchment flood - planning area 2			
PO1 Development (including extensions) for non-residential purposes is able to provide a safe refuge for people and for the storage of goods during times of flood inundation. Editor's note—Refer to overlay maps OM-8A and OM-8C		AO1.1 For non-residential development, at least thirty (30) per cent of the <u>gross floor area</u> of all new buildings and structures is located a minimum of 500 millimetres above the defined flood level. Editor's note—Areas less than those nominated above may be supported where accompanied by a flood impact report in accordance with SC6.10—Flood hazard planning scheme policy . Providing a minimum of 500mm freeboard isn't feasible in order to eliminate loss of storage.	For non-residential development, at least thirty (30) per cent of the <u>gross floor area</u> of all new buildings and structures is located a minimum of 500 millimetres above the defined flood level. Editor's note—Areas less than those nominated above may be supported where accompanied by a flood impact report in accordance with SC6.10—Flood hazard planning scheme policy . Providing a minimum of 500mm freeboard isn't feasible in order to eliminate loss of storage.
		AND AO1.2 A report from a registered professional engineer of Queensland certifies that the development in the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties.	
PO2 Development is located to minimise susceptibility to and potential impacts of flooding.		AO2.1 For residential uses the finished floor levels of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level. No habitable rooms in the structure.	As covered in this report. For residential uses the finished floor levels of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level. No habitable rooms in the structure.
		AND AO2.2 A report from a registered professional engineer of Queensland certifies that the development in the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties. Editor's note—Report to be prepared in accordance with SC6.10—Flood hazard planning scheme policy .	
PO3 Development avoids the release of hazardous materials into floodwaters.		As provided in this report.	As provided in this report.
		AO3.1 All hazardous materials and hazardous manufacturing equipment and hazardous containers are located and stored a minimum of 500 millimetres above the defined flood level. No hazardous materials, hazardous manufacturing equipment or hazardous containers are to be stored within the structure. Editor's note—Refer to the Work Health and Safety Act 2011 and associated regulation, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.	

Fitzroy River – H3-H4 or H5-H6 or Creek catchment flood planning area 1

Table 8.2.8.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes		Acceptable outcomes
Development in Fitzroy River flood areas – H3-H4 (high hazard areas) or H5-H6 (extreme hazard areas) or Creek catchment flood - planning area 1		
Editor's note—Refer to overlay maps OM-8A and OM-8C		
PO4		
Development does not involve the further intensification of land uses and does not increase the risk to people and property.		
Editor's Note—Flood hazard risk assessment can be undertaken in accordance with SC6.10 — Flood hazard planning scheme policy .		
	AO4.1 AO4.1.1 Development does not involve new buildings or structures. Proposed development is a storage container which will not result in intensification of flows/depths/velocities as covered in this report. OR AO4.1.2 Where involving the replacement or alteration to an existing non-residential building or structure: 1. there is no increase in the existing or previous buildings' <u>gross floor area</u>; and 2. the finished floor level of any replacement or alteration to an existing building is constructed a minimum of 500 millimetres above the defined flood level. No existing structure. OR AO4.1.3 Where involving the replacement or alteration to an existing caretaker's accommodation, <u>dwelling house</u> or <u>dwelling unit</u>: 1. there is no <u>increase</u> in the number of dwellings; 2. there is no increase in the existing or previous buildings' <u>gross floor area</u>; and 3. the finished floor level of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level. No existing structure. AND	

	AO4.1.4 Where located in the rural zone, the <u>total floor area</u> of class 10a buildings and structures on the <u>site</u> do not exceed a total of fifty (50) square metres, and are set back a minimum of twenty (20) metres from all <u>site</u> boundaries. Structure not located in the rural zone.
PO5 Development avoids the release of hazardous materials into floodwaters..	AO5.1 Materials manufactured, used or stored on <u>site</u> are not hazardous in nature. No hazardous materials to be manufactured, used or stored on site.

Fitzroy River – all hazard areas, North Rockhampton flood management area or Creek catchment – all planning areas

Table 8.2.8.3.2 Development outcomes for assessable development

Performance outcomes		Acceptable outcomes
Development in Fitzroy River flood area – all hazard areas, North Rockhampton flood management area or Creek catchment flood – all planning areas		
Editor's note—Refer to overlay maps OM-8A and OM-8C		
PO8 Development is located to minimise susceptibility to and potential impacts of flooding.		No acceptable outcome is nominated. Proposed location of container will minimise susceptibility to and potential impacts of flooding, as covered in this report.
PO9 Underground car parks are designed to prevent the intrusion of floodwaters.		AO9.1 Development with underground car parking is designed to prevent the intrusion of floodwaters by the incorporation of a bund or similar barrier a minimum of 500 millimetres above the defined flood level. No underground car parks.
PO10 Development: - does not result in any reduction of onsite flood storage capacity; or - does not result in any change to depth, duration or velocity of floodwaters within the premises; and - does not change flood characteristics outside the premises, including but not limited to causing: - loss of flood storage; or - loss of or changes to flow paths; or - acceleration or retardation of flows; or - any reduction in flood warning times elsewhere on the <u>floodplain</u>. Editor's note—Council may require the applicant to submit a site-based flood study that investigates the impact of the development on the <u>floodplain</u> and demonstrates compliance with the relevant performance outcome.		No acceptable outcome is nominated. - Development does not result in a reduction of onsite flood storage; - Development does not result in a change to depth, duration or velocity of floodwater within the premises, and; - Does not change flood characteristics outside the premises, including but not limited to causing ; - Loss of flood storage, - Loss of or changes to flow paths, - Acceleration or retardation of flows, and; - Any reduction of flood warning times.
PO11 Essential community infrastructure and community facilities are protected from, and able to		AO11.1 A use for a purpose listed in Table 8.2.8.3.3:

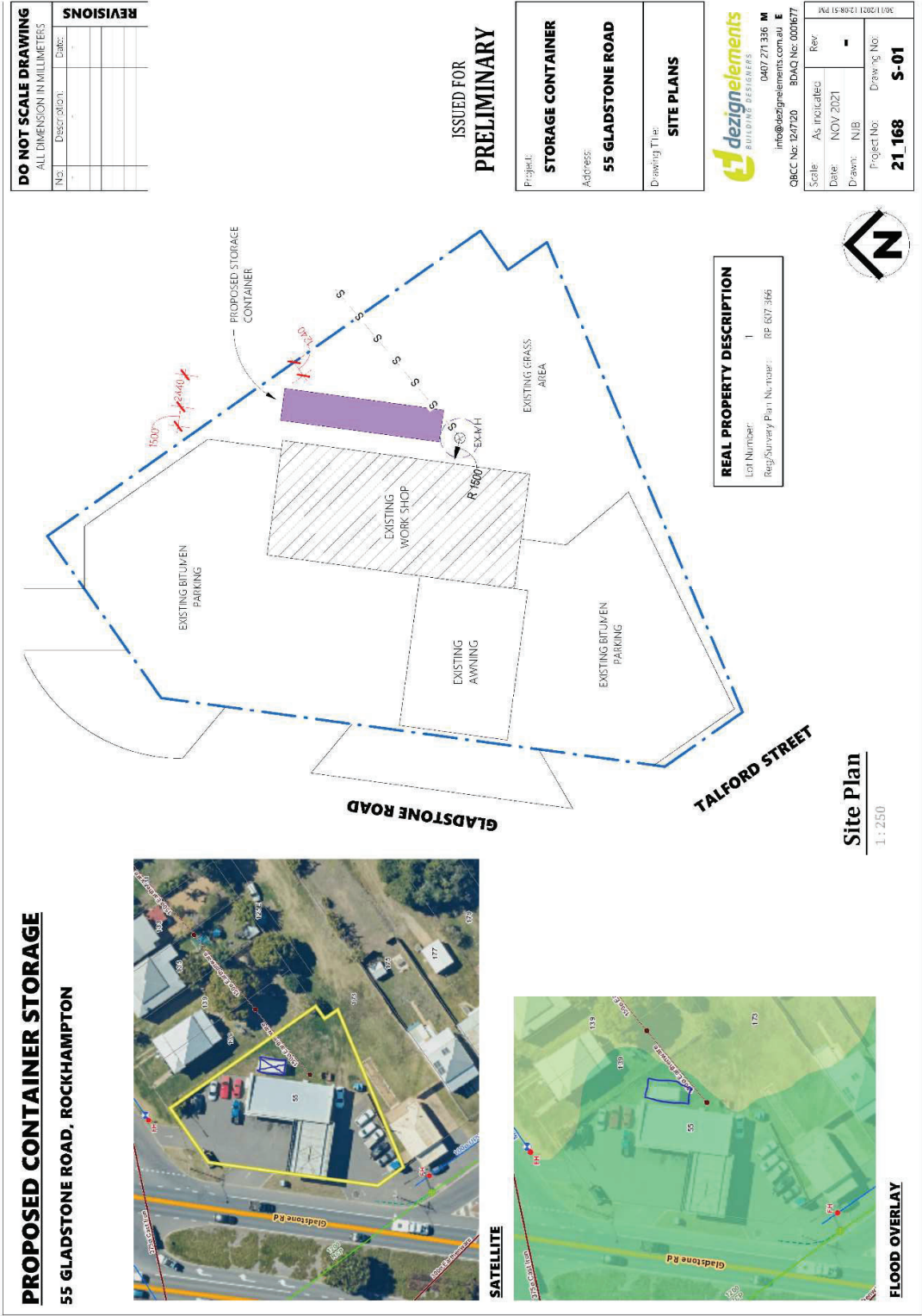
function effectively during and immediately after, a defined flood event.	1. is not located within the flood hazard area; and has at least one (1) flood free access road. Development is not essential community infrastructure, community facilities or public asset.
PO12 Development provides safe and trafficable access to the local evacuation centres and evacuation services and have regard to: 1. evacuation time; 2. number of persons affected; 3. types of vehicles necessary for evacuation purposes; 4. the distance to flood free land; and the evacuation route.	AO12.1 Trafficable access to and from the development complies with the Capricorn Municipal Guidelines. The structure is not habitable and therefore access is not required. Existing access to the front of the lot on Gladstone Road is suitable in this regard. AND AO12.2 Trafficable access to and from the development within the creek catchment planning areas are in accordance with the Queensland Urban Drainage Manual. The structure is not habitable and therefore access is not required. Existing access to the front of the lot on Gladstone Road is suitable in this regard. Note—Trafficable access for emergency services or community related uses is obtained from at least one (1) route (minor collector or higher) for emergency services purposes. The development is to ensure that safe access, to the road network between the development site and the closest centre zone, is provided. Editor's note—Trafficable access requirements for creek catchment planning areas has not been identified and reference has been made to the provisions under the Queensland Urban Drainage Manual. This is due to the short period that property may be isolated.

Fitzroy River – H3-H4 or H5-H6, North Rockhampton flood management area or Creek catchment – planning area 1

Table 8.2.8.3.2 Development outcomes for assessable development

Performance outcomes	Acceptable outcomes
Development in Fitzroy River flood areas – H3-H4 (high hazard areas) or H5-H6 (extreme hazard areas), North Rockhampton flood management area or Creek catchment flood – planning area 1 Editor's note—Refer to overlay maps OM-8A and OM-8C PO13 Development that involves temporary or moveable residential structures (for example caravan parks and camping grounds) are not located with the Fitzroy River high and extreme hazard areas, North Rockhampton flood management area and Creek catchment planning area 1.	No acceptable outcome is nominated. The development is not temporary or moveable.

6.0 Appendix B – Proposed Plans



7.0 Appendix C – Site Plan

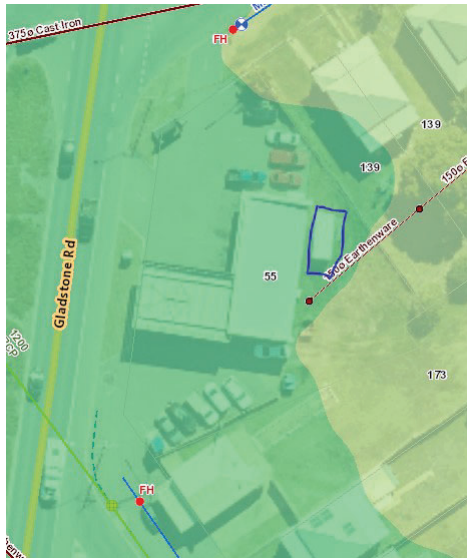


PROPOSED CONTAINER STORAGE

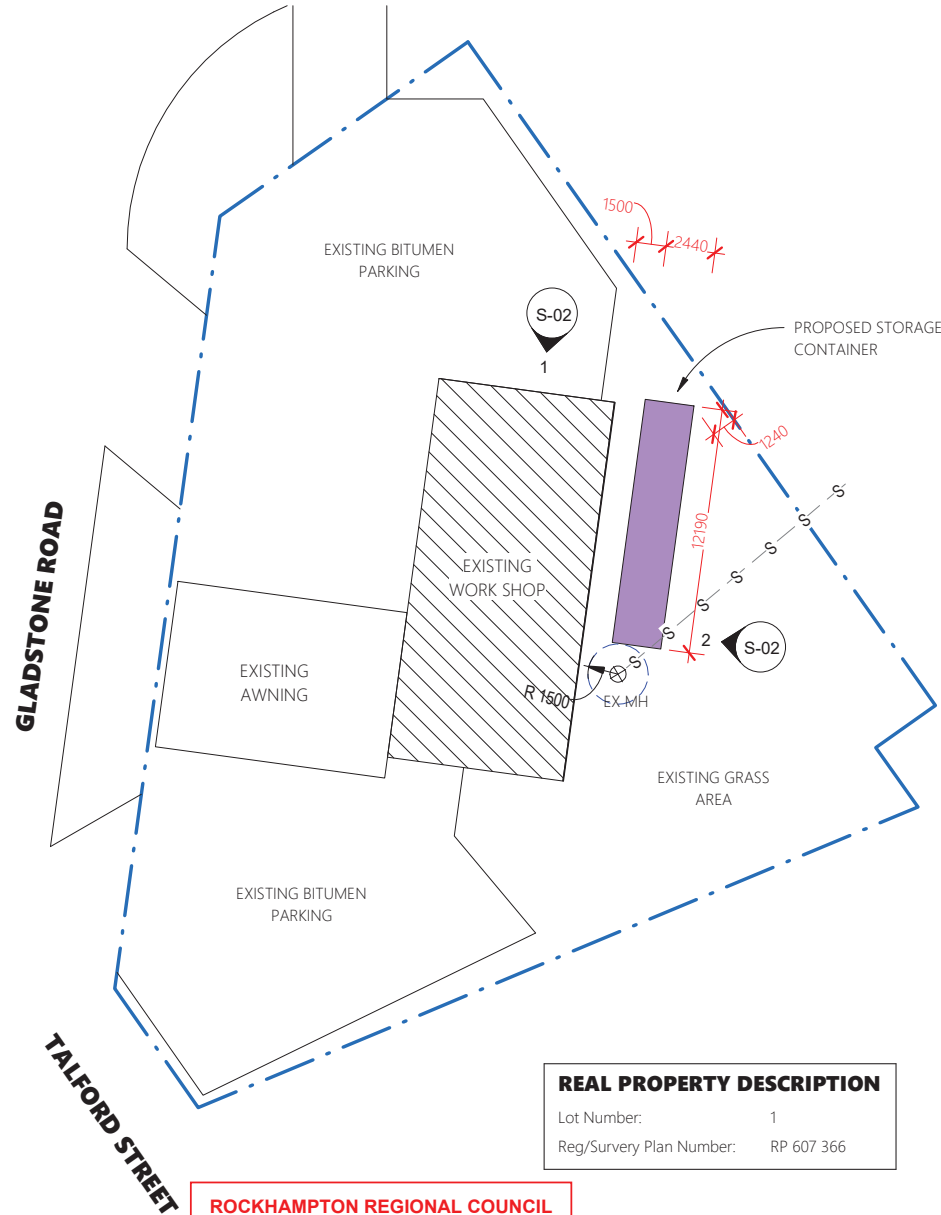
55 GLADSTONE ROAD, ROCKHAMPTON



SATELLITE



FLOOD OVERLAY



Site Plan

1 : 250

REAL PROPERTY DESCRIPTION

Lot Number: 1
Reg/Survey Plan Number: RP 607 366

ROCKHAMPTON REGIONAL COUNCIL

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DO NOT SCALE DRAWING

ALL DIMENSION IN MILLIMETERS

No:	Description:	Date:	REVISIONS

ISSUED FOR PRELIMINARY

Project:

STORAGE CONTAINER

Address:

55 GLADSTONE ROAD

Drawing Title:

SITE PLANS



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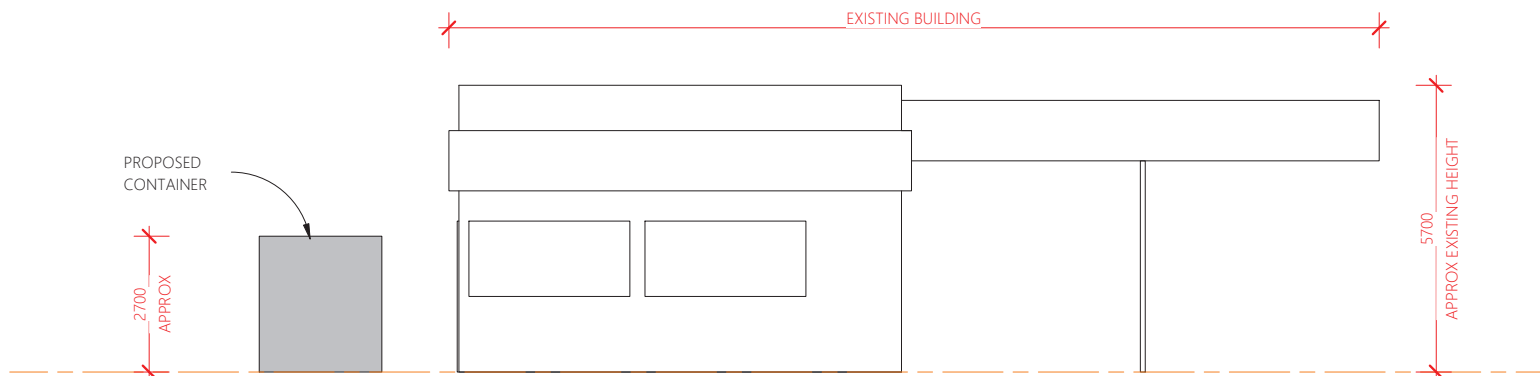
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Scale: As indicated	Rev: -	13/01/2022 8:01:30 AM
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No:	Description:	Date:	REVISIONS

**Elevation 1**

1 : 100

**Elevation 2**

1 : 100

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PRELIMINARY

Project:

STORAGE CONTAINER

Address:

55 GLADSTONE ROAD

Drawing Title:

ELEVATION

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QBCC No: 1247120

BDAQ No: 0001677

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Drawn: NJB	

Project No: Drawing No:

21_168**S-02**

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