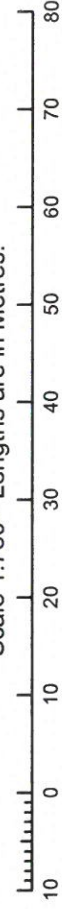


| Rev | Description           | Drawn | Checked | Date       |
|-----|-----------------------|-------|---------|------------|
| B   | Amendments to wording | SEA   | MF      | 28/09/2017 |
| A   | Original Issue        | TH    | MHM     | 08/02/2017 |

Scale 1:750 - Lengths are in Metres.



## SKETCH PLAN

**PROJECT:** Proposed office and Igloo shelter

**LOCATION:** 320-326 George Street, Rockhampton

**REAL PROPERTY DESCRIPTION:** Lot 45 on SP187380

**CLIENT:** Busby Construction Pty Ltd

**Horiz. Datum:** MGA Zone 56

**Vert. Datum:** AHD

**Local Authority:** Rockhampton Regional

**Contour Interval:** N/A

**Surveyor:** N/A

**Scale:** 1 : 750 @ A3

**Drawn:** TH

**Sheet:** 1 of 1

**Revision:** B

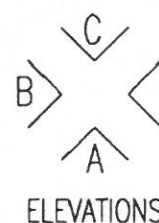
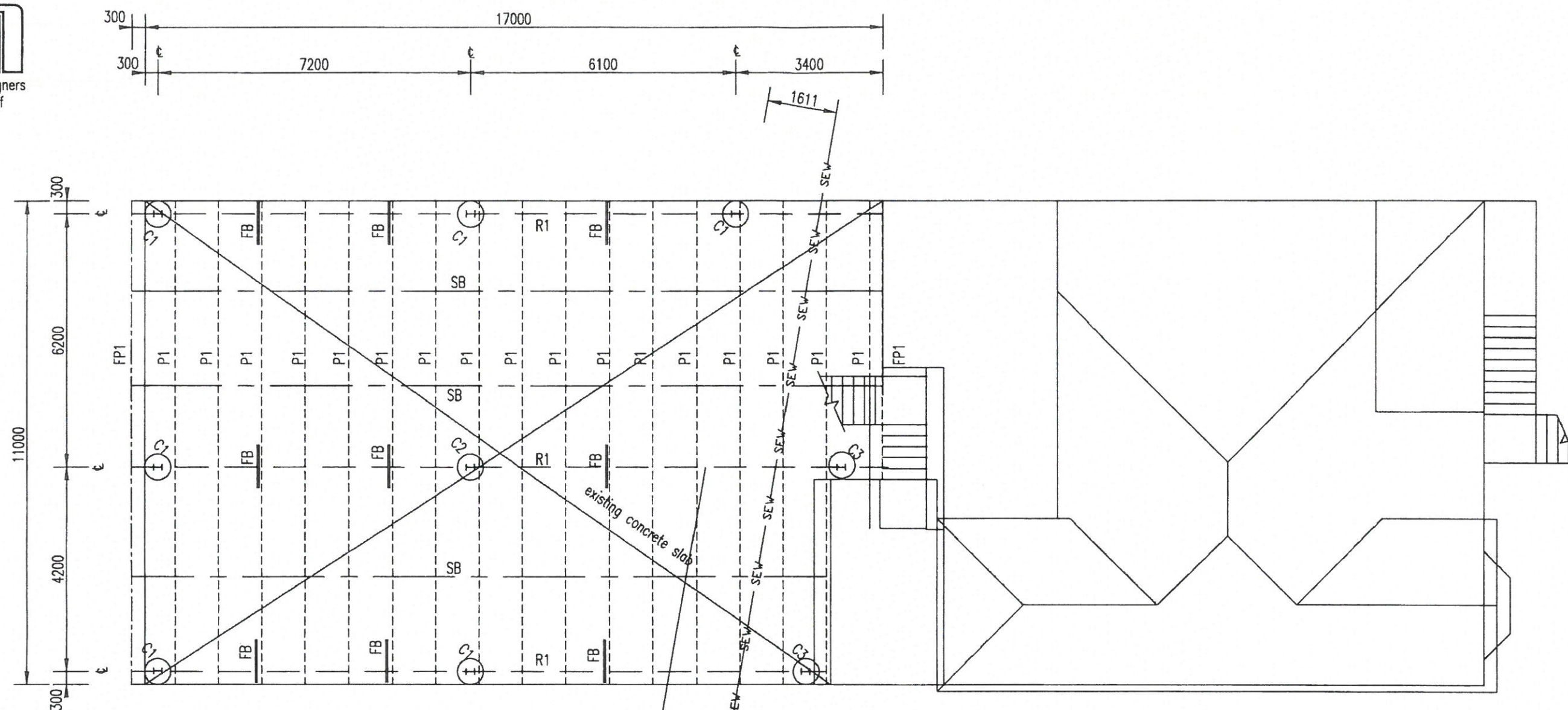
**ROCKHAMPTON REGIONAL COUNCIL**  
**AMENDED PLANS APPROVED**  
13-10-2017  
DATE  
These plans are approved subject to the current conditions of approval associated with  
Development Permit No. D/22-2007 dated 17-12-08

This plan is prepared from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose. The title boundaries shown hereon were not marked by the author at the time of survey and have been determined by plan dimensions only and not by field measurement. Services shown hereon, have been located where possible by field survey. If not able to be located, services may have been plotted from the records of relevant authorities where available. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible locations of further underground services and detailed locations of all services. This note is an integral part of this plan.





building designers  
association of  
queensland



- LEGEND:
- C1 .... 200UB25  
600 x 1500d N20 concrete footings
  - C2 .... 200UB25  
600 x 1800d N20 concrete footing
  - C3 .... 200UB25  
600 x 1700d N20 concrete footing
  - R1 .... 250x90 PFC
  - P1 .... Z15019 at 1000 centres
  - FP1 .... C15019 fascia purlins
  - SB .... 32x1.6mm G.I. strap bridging

**ROCKHAMPTON REGIONAL COUNCIL**  
**AMENDED PLANS APPROVED**

13-10-2017

DATE

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

Development Permit No. D/22-2007 dated 17-12-08

AUSTIN GRILLMEIER

RPEQ No. 2048

Signed .....

Date .....

SCALE:

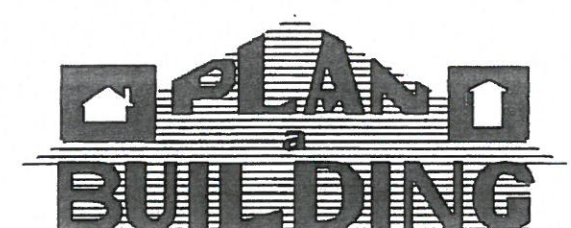
1: 100

JOB No:

17.66

28-08-2017

SHEET 2 OF 9



**BUILDING DESIGN SERVICE**  
Des Houghton, A.D.C.E., M.BDAQ, M.QMBA Phone (07) 49264003  
ABN 31 412 306 218 Fax 07 49264007 Mobile 0407760733  
95 Burnett Street, North Rockhampton 4701

QBCC Lic. No. 57924

PROJECT PROPOSED TEMPORARY OFFICE AND ROOF SHELTER  
SITE ADDRESS 326 GEORGE STREET, DEPOT HILL, QLD. 4700

CLIENT BUSBY HOUSE REMOVALS  
CLIENT ADDRESS 326 GEORGE STREET, DEPOT HILL, QLD. 4700

OWNER BUSBY HOUSE REMOVALS  
OWNERS ADDRESS 326 GEORGE STREET, DEPOT HILL, QLD. 4700





building designers  
association of  
queensland

WOOD STREET

54460

227'30"0"

MURRAY STREET

201168

317'30"0"

PROPERTY DESCRIPTION  
LOT NUMBER: 45  
REGISTERED PLAN NUMBER: SP 187380  
PARISH: ROCKHAMPTON  
COUNTY: LIVINGSTONE  
AREA: 16202.0 SQ.METRES



NOTE:

Sewer manholes were visually found  
and measured on site from boundaries.  
Dwelling to boundaries measured on site

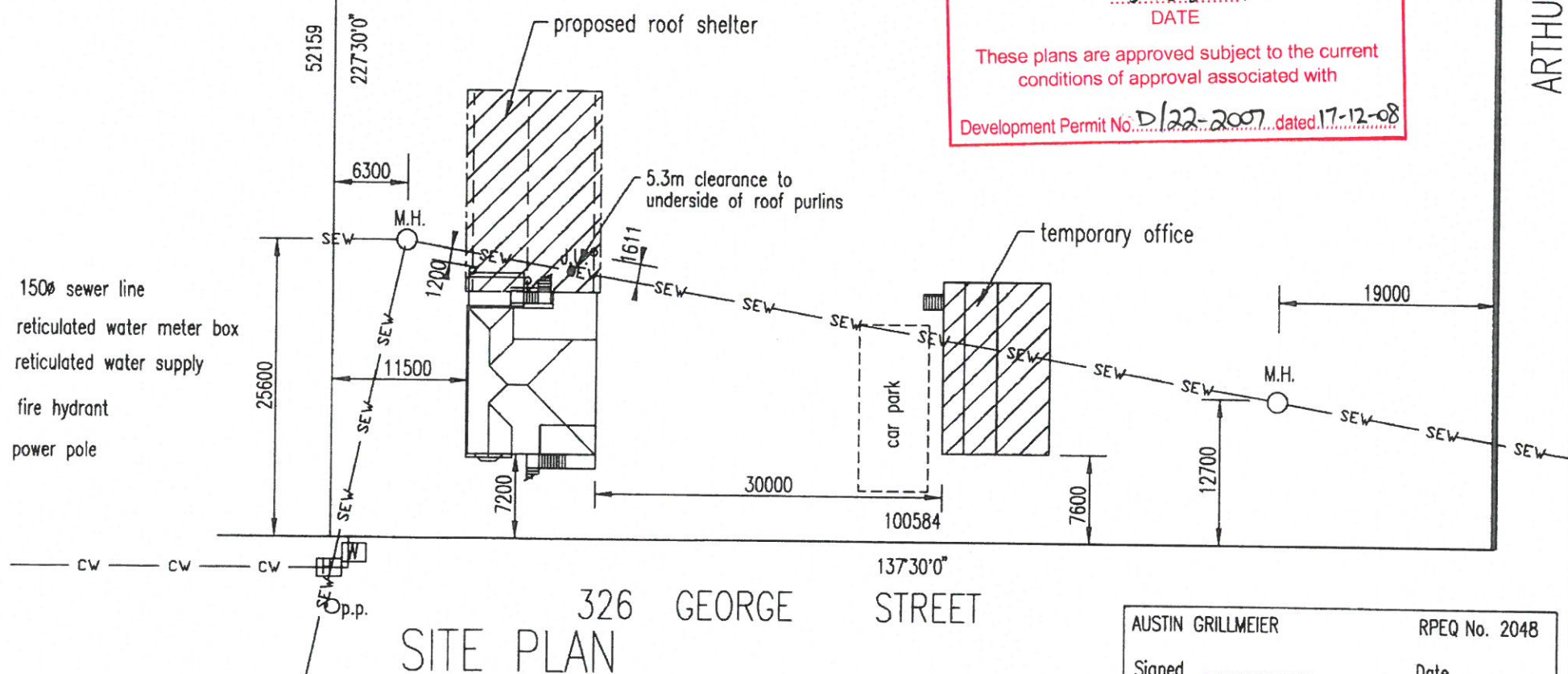
100584  
137'30"0"

52159

227'30"0"

LEGEND:

- SEW — 150Ø sewer line
- W reticulated water meter box
- CW — reticulated water supply
- H fire hydrant
- Op.p. power pole



**ROCKHAMPTON REGIONAL COUNCIL**  
**AMENDED PLANS APPROVED**  
13-10-2017  
DATE  
These plans are approved subject to the current  
conditions of approval associated with  
Development Permit No. D/22-2007 dated 17-12-08

106619

ARTHUR STREET  
47'30"0"



**BUILDING DESIGN SERVICE**  
Des Haughton, A.D.C.E., M.BDAQ, M.QMBA Phone (07) 49264003  
ABN 31 412 306 218 Fax 07 49264007 Mobile 0407760733  
95 Burnett Street, North Rockhampton 4701

QBCC Lic. No. 57924

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OWNER BUSBY HOUSE REMOVALS  
OWNERS ADDRESS 326 GEORGE STREET, DEPOT HILL, QLD. 4700

SCALE:

1: 500

28-08-2017

JOB No:

17.66

SHEET 5 OF 9

AUSTIN GRILLMEIER

RPEQ No. 2048

Signed .....

Date .....

# Material Change of Use Busby House Removal Depot

320 – 326 George Street, Depot Hill

For Busby House Removal

## PLANS APPROVED

These plans are approved subject to the current conditions of approval associated with Development Permit No. D22/2007  
Dated: 16/12/2008

### ROCKHAMPTON REGIONAL COUNCIL

These plans are approved subject to the current conditions of approval associated with Development Permit No. D22/2007  
Dated 6/11/2009



042-07-08 Rev A

May 2008



# Material Change of Use Busby House Removal Depot

320 – 326 George Street, Depot Hill

For Busby House Removal

---

**Submission to:**


Rockhampton Regional Council  
Rockhampton Office  
PO Box 1860  
Rockhampton Qld 4700

**Prepared by:**

McMurtrie Consulting Engineers  
63 Charles St  
North Rockhampton, Qld 4701

| Rev.      | Description               | Sig. | Date       |
|-----------|---------------------------|------|------------|
|           |                           |      |            |
|           |                           |      |            |
|           |                           |      |            |
| A         | Submitted for Information | PYU  | 16/05/2008 |
| Revisions |                           |      |            |

Authorised:



Ian McMurtrie  
RPEQ 1347  
For McMurtrie Consulting Engineers.



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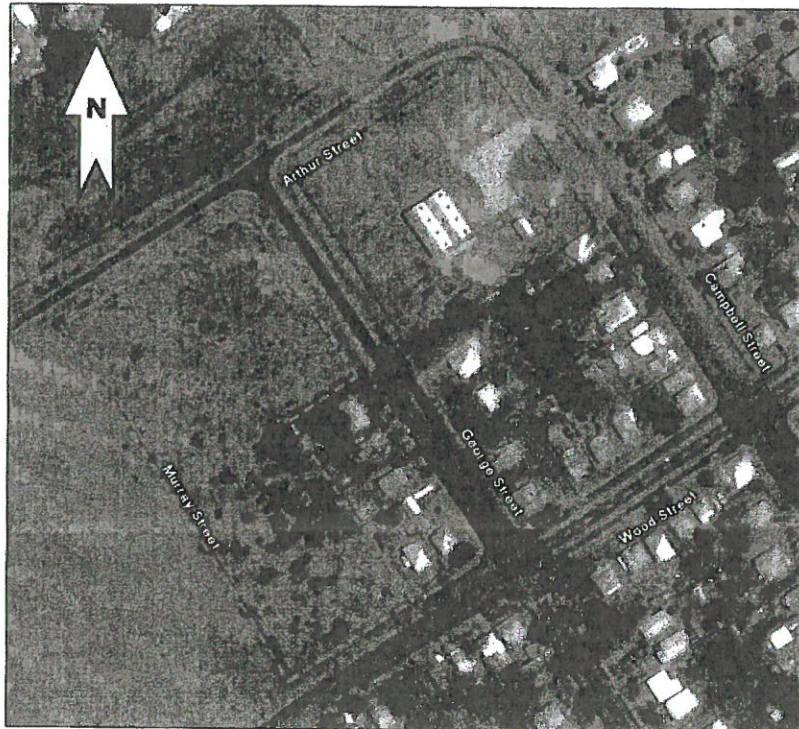
## 1.0 INTRODUCTION

The report has been prepared on behalf of Busby House Removal and addresses the issues of the Material Change of Use (MCU) with respect to Rockhampton City Council's (RCC's) Information Request (Application No: D-22/2007) dated 10 July 2007.

The proposed house removal depot is located on Lot 45 of SP187380 in the Depot Hill area and has frontages to Arthur, George, Wood and Murray Street, although Murray Street is an unformed road reserve.

The figure below shows the aerial photo of the site:

Figure 1.1: Site Plan



## 2.0 STORMWATER DISCHARGE

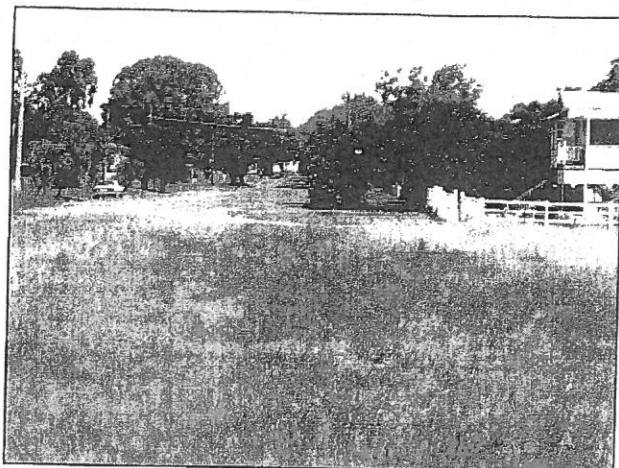
### *External Works and Services Code*

### 2.1 CURRENT SITE DRAINAGE

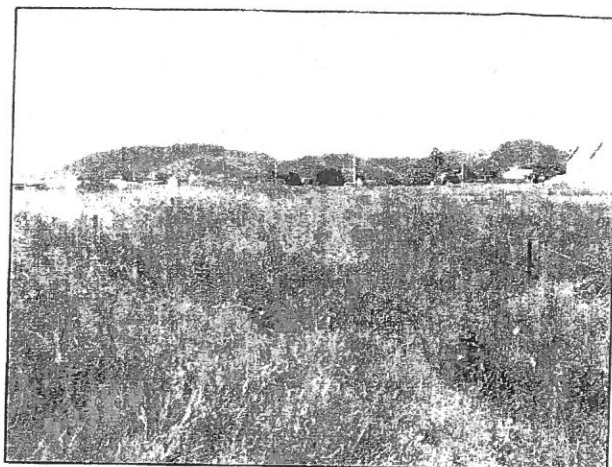
The existing caretaker's residence discharges roofwater to ground, where the water sheet-flows along the natural grade. The existing site is moderately grassed and drains through a 525RCP under Arthur Street.



Figure 2.1: Existing Drainage



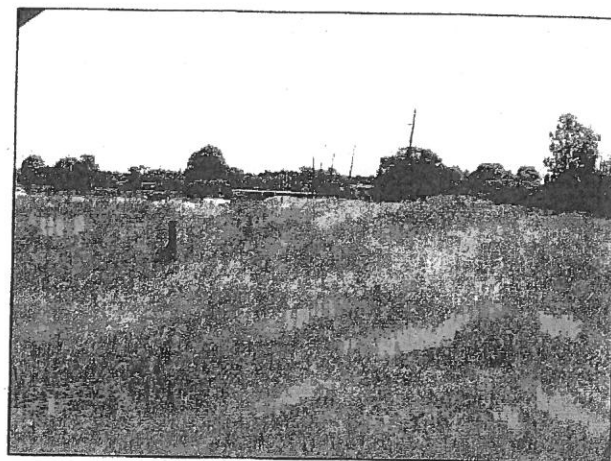
1. Existing table drain along George Street



2. Existing 525 RCP under Arthur Street



3. Existing site drains towards Arthur Street



4. Existing overland flow path along Arthur Street looking west

## 2.2 STORMWATER STRATEGY

The existing grade of the site will be maintained after development. The only change to the imperviousness of the site will be the addition of an unsealed gravel access road and the roof area of the houses temporarily stored on the site.

Due to the temporary nature of these houses it would not be practical to collect the roofwater via a piped network. It is anticipated that all roofwater will be discharged to ground and allowed to sheet-flow offsite.

The existing grassed areas will be maintained plus a 6.0m vegetated buffer will be planted around the perimeter of the site to control dust.



After development the site will have a peak overland flow discharge of  $0.21 \text{ m}^3/\text{sec}$  (refer to Appendix A), which is a 4% increase on the undeveloped peak discharge ( $0.20 \text{ m}^3/\text{sec}$ ). This increase is very conservative as the rate is calculated at full occupancy (14 stored houses) and the landscaped buffer should provide additional retardance to the overland flow.

### 3.0 SITE ROAD REQUIREMENTS

#### *Flood Prone Land Code*

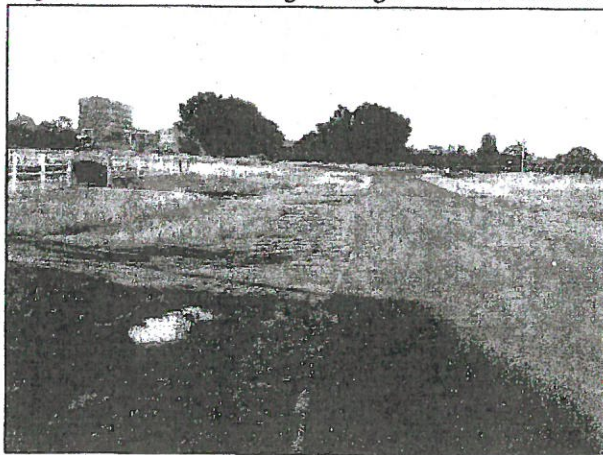
#### 3.1 FRONTAGE ACCESS

Although the site fronts George Street, Wood Street, Murray Street (unformed) and Arthur Street, access will be via George Street and Wood Street only. In accordance with the Schlencker Surveying Plan 5505-04 the depot will have one-way access, entering from George Street and exiting on to Wood Street.

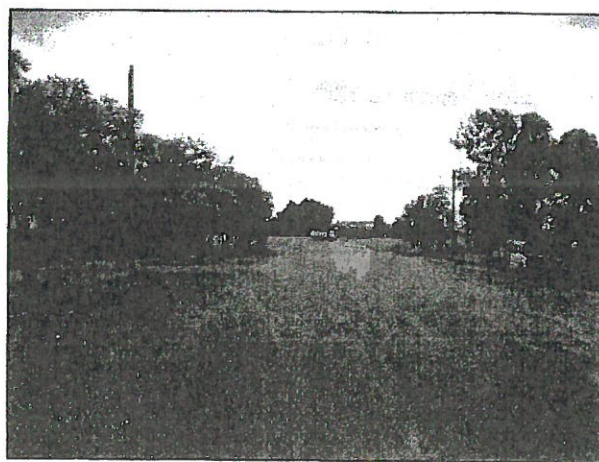
#### *George Street*

The George Street frontage is sealed approximately 5.0m wide with no kerb and channel installed. A small table drain directs stormwater run-off across the existing access of Lot 2 (the caretakers residence).

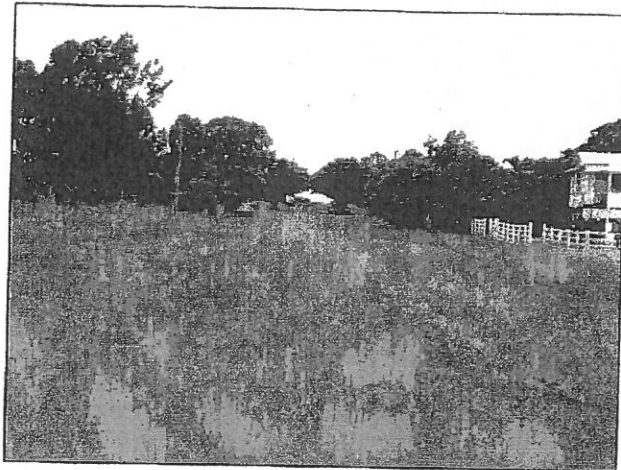
Figure 3.1: Existing George Street Access



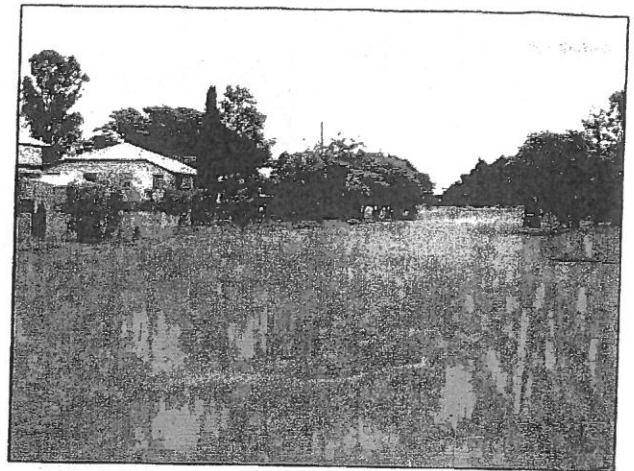
1. Existing Accesses to Caretaker's Residence



2. George Street looking north-west



3. George Street looking south-east



4. George Street and Wood Street  
Intersection looking west

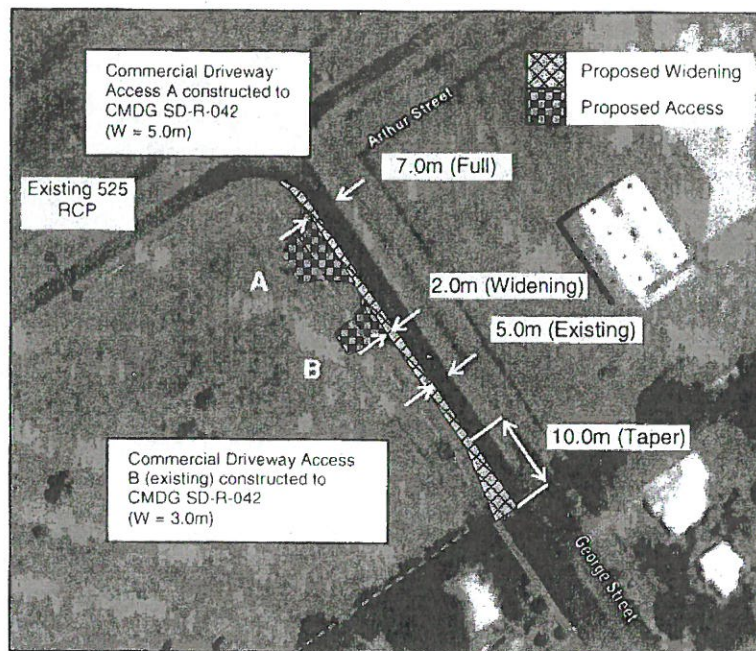
As further development of the surrounding area is limited by the flood immunity of the adjoining land it is proposed to only widen the existing sealed road to accommodate the requirements of the design vehicle expected (25.0m Semi with Extendable Trailer for over-dimensional loads).

Widening (on the development side only) of the existing roadway to achieve a 7.0m seal width will provide the design vehicles with sufficient trafficable area to safely enter the depot site. Queuing of traffic during this maneuver is not considered an issue as the road has extremely low traffic volumes and all loads use police escorts to control traffic.

As the new road widening will not match to the existing kerb and channel alignment (finished at the boundary of Lot 1 RP605588) the change in width will be transitioned over 10.0m. The existing table drain invert will be retained across the proposed access to maintain flow. The new access will be constructed to Commercial Driveway Slab Type A with a minimum lane width of 5.0m in accordance with the Capricorn Municipal Development Guideline (CMDG) Standard Drawing SD-R-042.



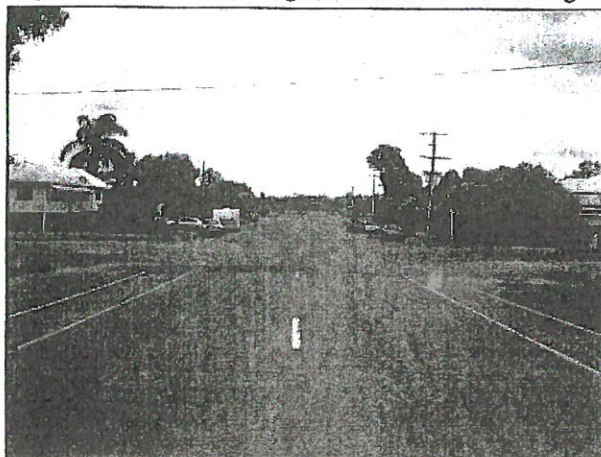
Figure 3.2: Proposed George Street Upgrade



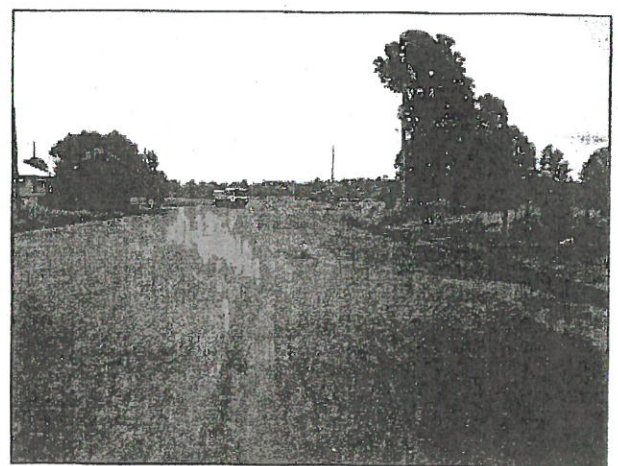
### Wood Street

The frontage to Wood Street is currently kerb and channeled the full length to Murray Street (unformed). Although the seal is full width (19.0m kerb to kerb) for the majority of Wood Street the width reduces significantly (down to 11.5m) after the common boundary with Lot 6 on RP605588. As a result, the unsealed formation between the existing seal edge and the kerb & channel has become overgrown with grass and ponds water.

Figure 3.3: Existing Wood Street Frontage



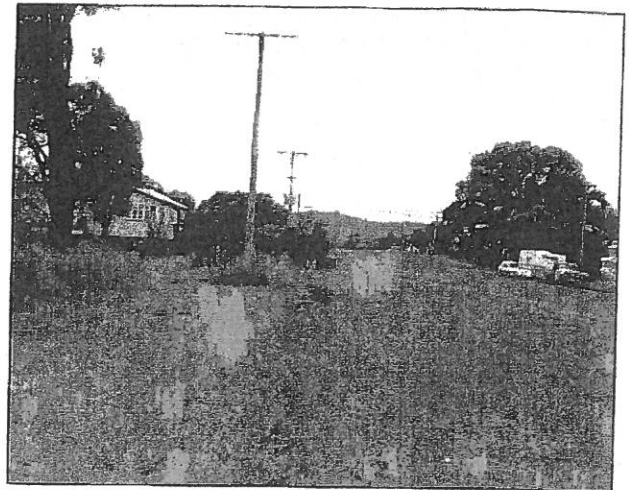
1. George Street and Wood Street looking south-west



2. Unsealed formation between edge of seal and kerb and channel



3. Existing kerb and channel ponding water

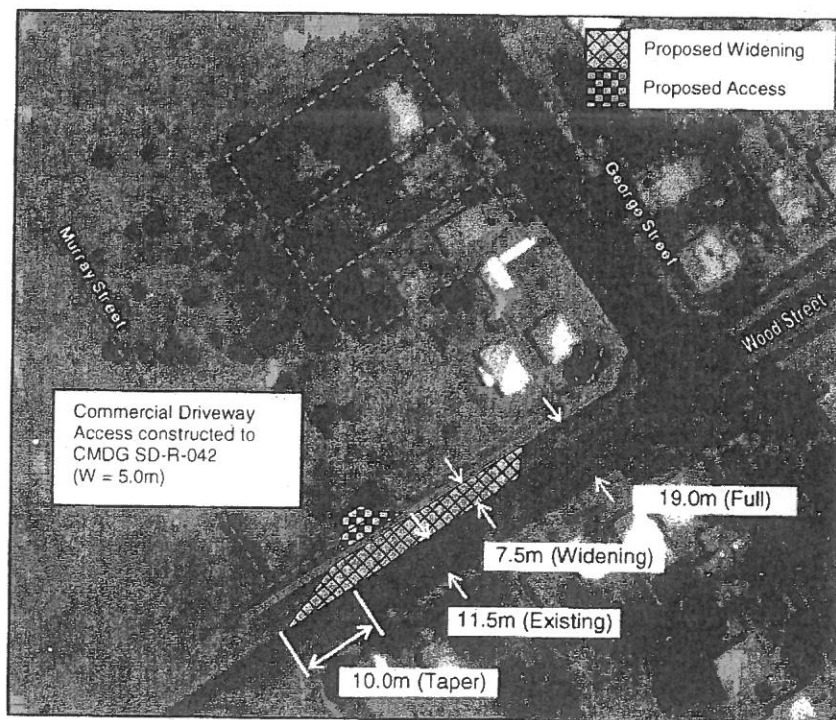


4. Frontage to proposed Wood Street Access

To resolve the current kerb drainage issues it is proposed to complete the full width seal beyond the proposed access point (approximately 7.5m wide x 40.0m long).

The access onto Wood Street will be constructed to a Commercial Driveway Slab Type A in accordance with the CMDG Standard Drawing SD-R-042.

Figure 3.4: Proposed Wood Street Upgrade

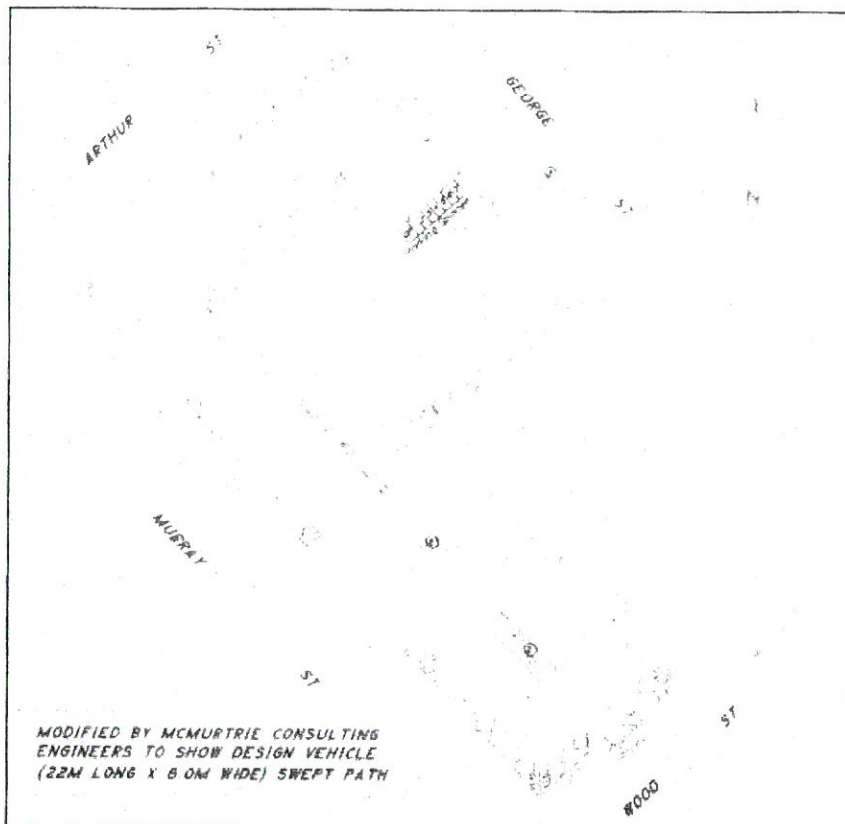




### 3.2 INTERNAL ACCESS

From the proposed Schlencker Surveying layout the internal access road is a 10m wide unsealed gravel formation. The figure below shows the design vehicle will comfortably negotiate the internal geometry of this access road.

Figure 3.1: Design Vehicle Swept Path for Internal Access Road



### 3.3 DUST CONTROL

Airborne dust is not considered an issue from the unsealed gravel access road as the traffic movements through the site will be single directional and at very low speeds. Non-trafficked areas such as verges and house storage pads will be stabilised with grass as well as a 6.0m landscaped buffer along the property boundary to further reduce dust.

## 4.0 EXTERNAL ROAD REQUIREMENTS

### 4.1 TRANSPORT ROUTE STRATEGY

Assessment of the road network in the area has identified two viable transport routes to and from the proposed depot site. The details of each route have been discussed below.

#### 4.1.1 Route 1 – Via Jellicoe Street

Beginning at the Lower Dawson Road intersection it is proposed to transport the houses along Jellicoe Street, past Port Curtis Road and onto Fiddes Street. From Fiddes Street the houses would move along Lucius Street and directly onto George Street where the depot is located.

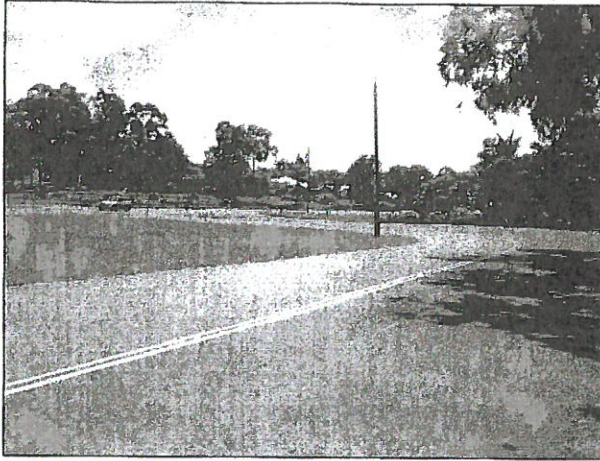
Although this road encompasses relatively few existing dwellings, the route encounters a number of roads with tight radius turns, narrow road formation widths, poor pavement condition, low flood immunity and encroaching obstructions (ie; trees and power poles).

Figure 4.1: Proposed Transport Route 1 – Site Photos Layout





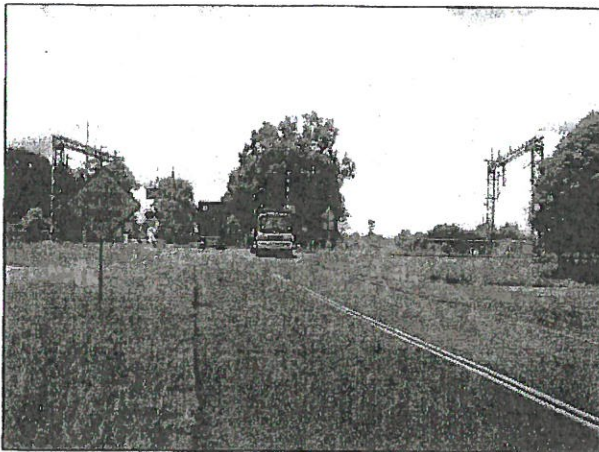
Figure 4.2: Transport Route 1 – Site Photos



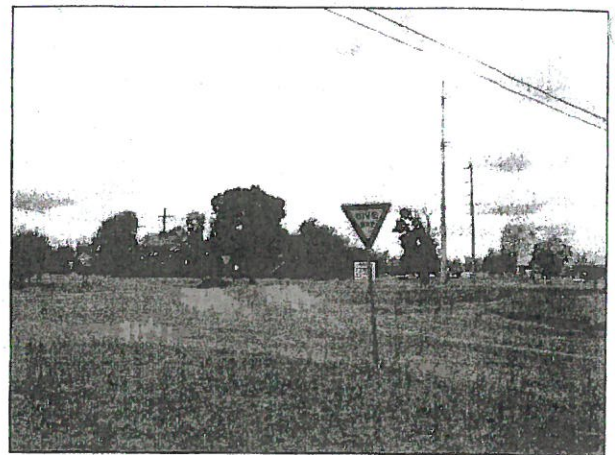
1. Jellicoe Street and Lower Dawson Road Intersection



2. Jellicoe Street looking south



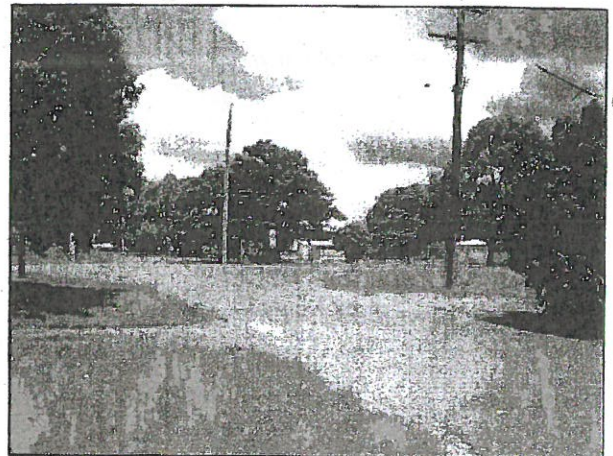
3. Jellicoe Street looking east showing  
Railway crossing



4. Jellicoe Street and Port Curtis Road  
Intersection (looking east)

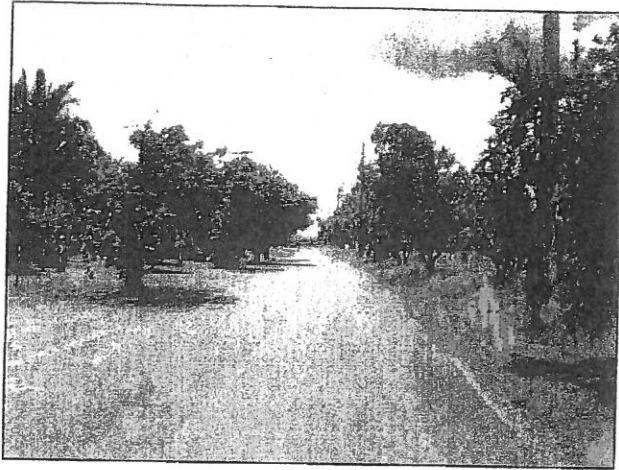


5. Tight turn at Jellicoe Street and Fiddes Street  
looking north-east

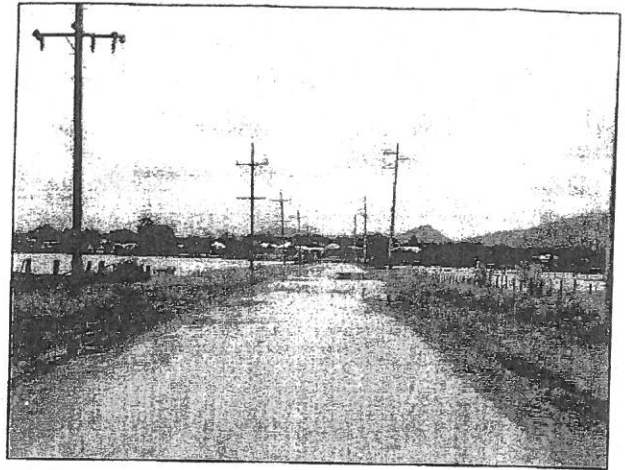


6. Tight turn at Jellicoe Street and Fiddes Street  
looking south-west





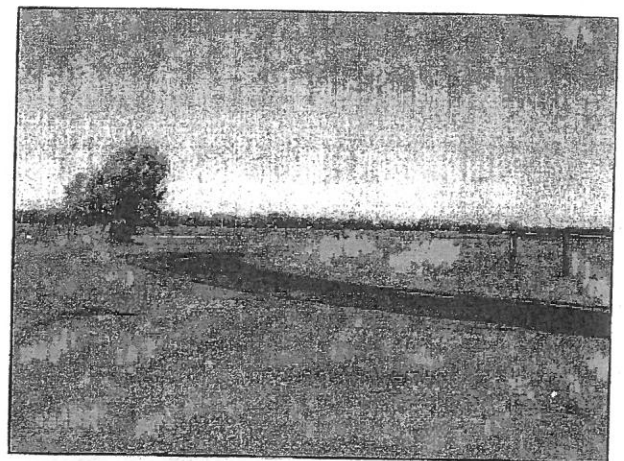
7. Fiddes Street looking north showing overhanging trees encroaching on the roadway



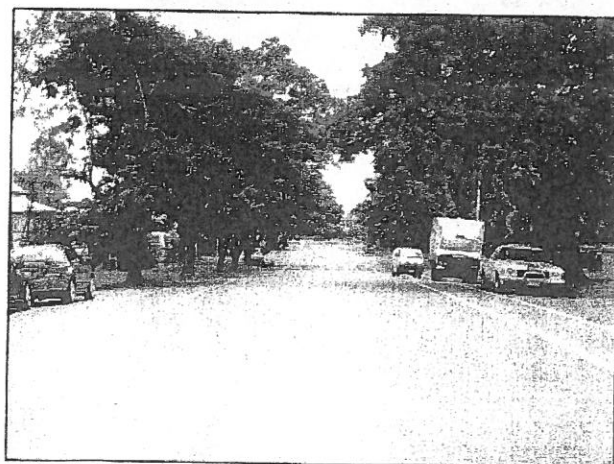
8. Fiddes Street looking north showing low flood immunity of existing road (between Dunlop Street and Prospect Street)



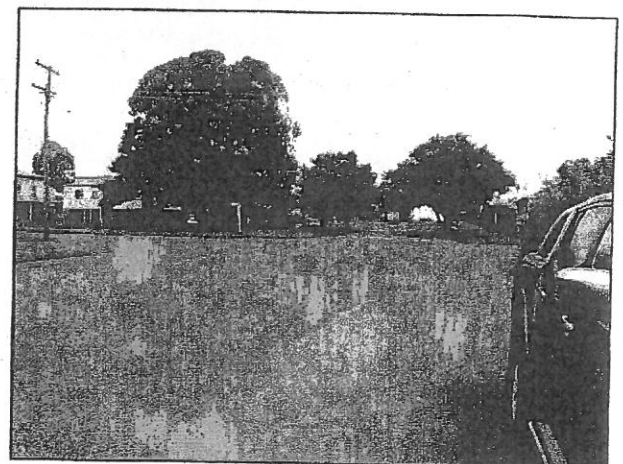
9. Intersection of Fiddes Street and Lucius Street



10. Tight turn at intersection of George Street and Lucius Street



11. George Street looking north-west showing overhanging trees encroaching on the roadway



12. George Street and Wood Street intersection looking south-east



#### 4.1.2 Route 2 – Via Stanley Street

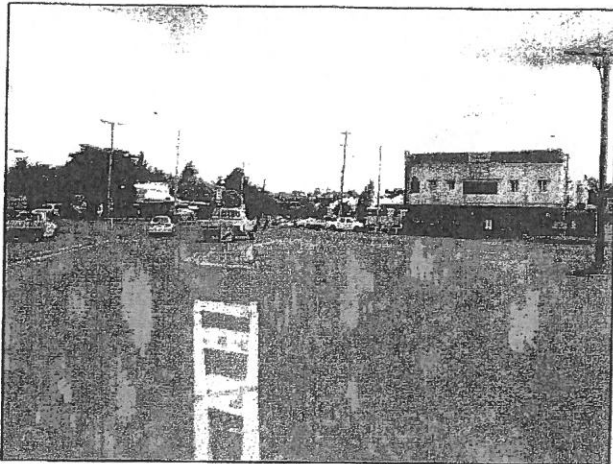
Route 2 accesses off Lower Dawson Road onto Stanley Street. Along Stanley Street the houses will be moved across the Denison Street railway line and turn right into East Street. From East Street the loads will turn right into Wood Street and right again into the George Street entrance.

This corridor provides adequate width on all legs of the route with greater than 18.0m seal width and no obstructions encroaching the roadway. The travel direction is predominately straight with 3 right-angle turns. Sufficient seal width exists at these locations to not impede the smooth transition of loads through these intersections.

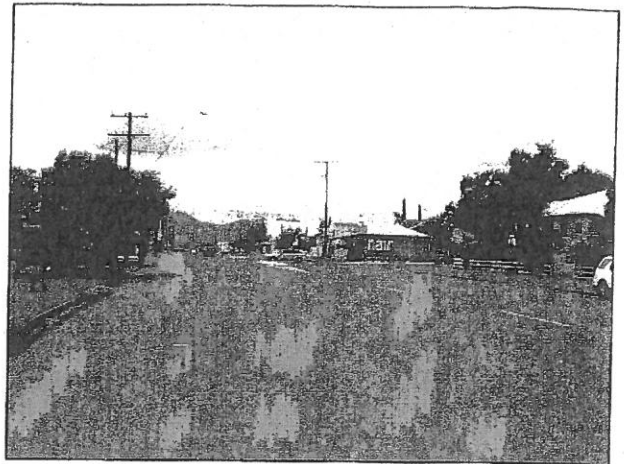
Figure 4.3: Transport Route 2 – Site Photos Layout



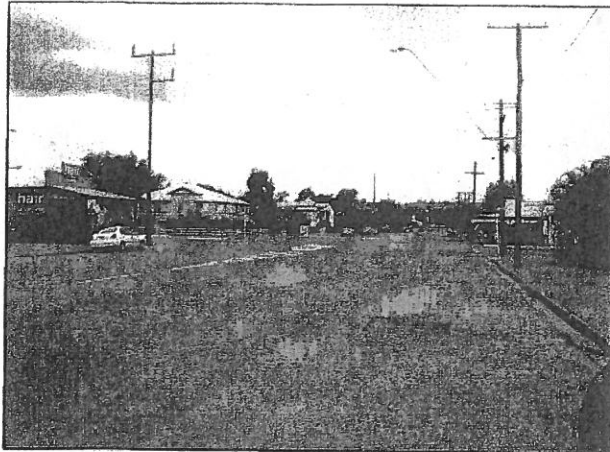
Figure 4.4: Transport Route 2 – Site Photos



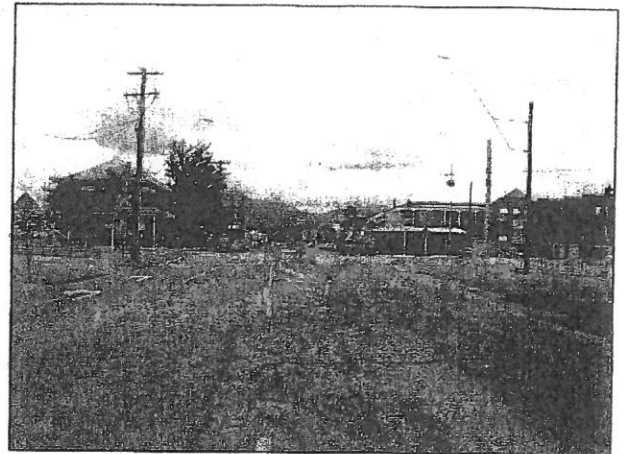
1. Stanley Street and Lower Dawson Road intersection



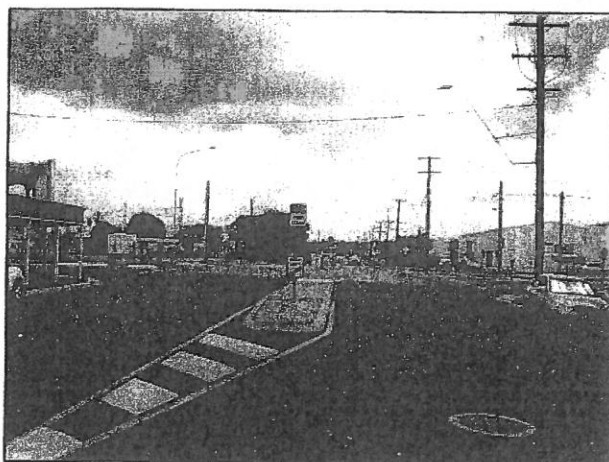
2. Stanley Street looking north-east towards Murray Street.



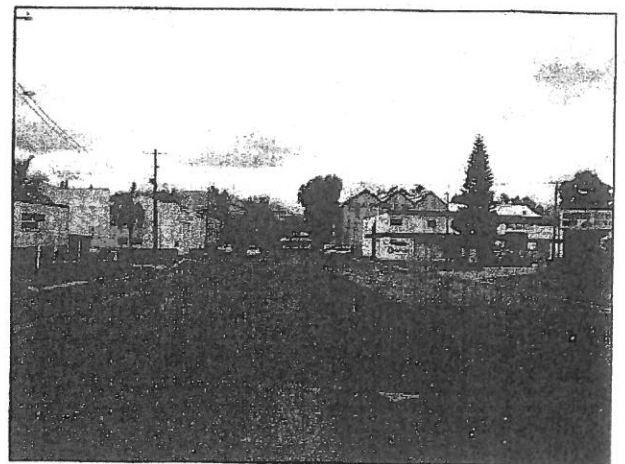
3. Murray Street raised median looking south-west



4. Denison Street railway crossing looking north-east

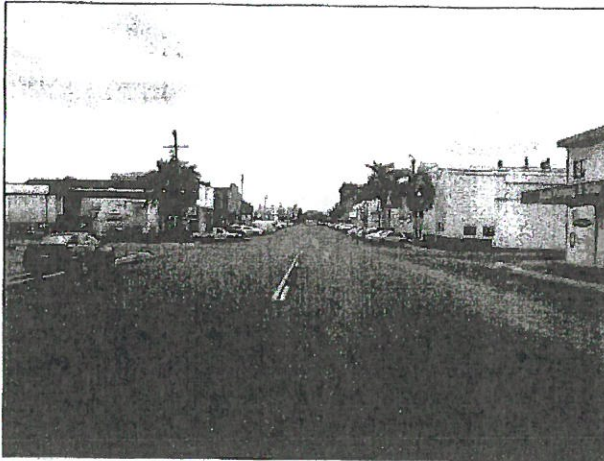


5. Denison Street railway crossing looking north-east

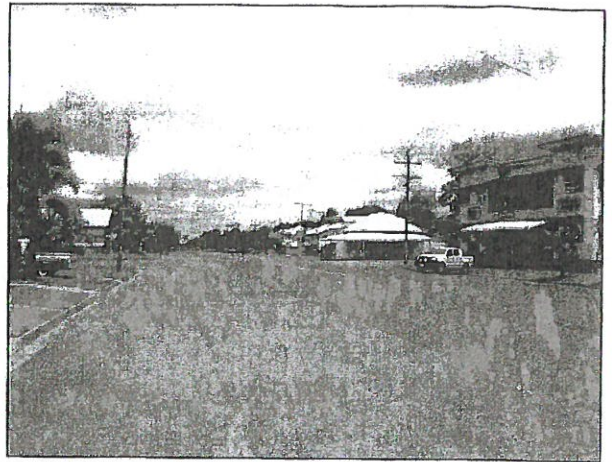


6. Intersection of Stanley Street and East Street looking north-east

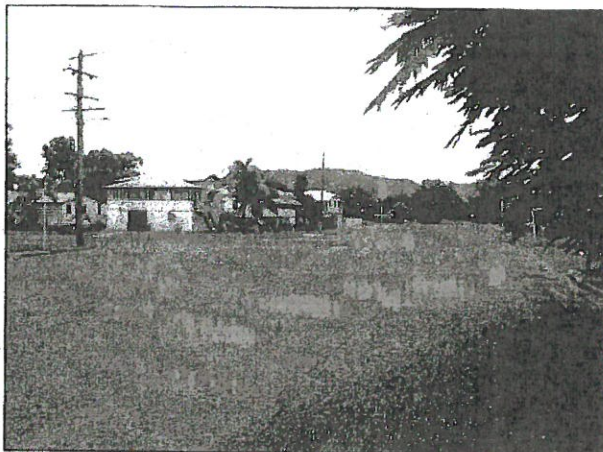




7. Intersection of Stanley Street and East Street looking north-west



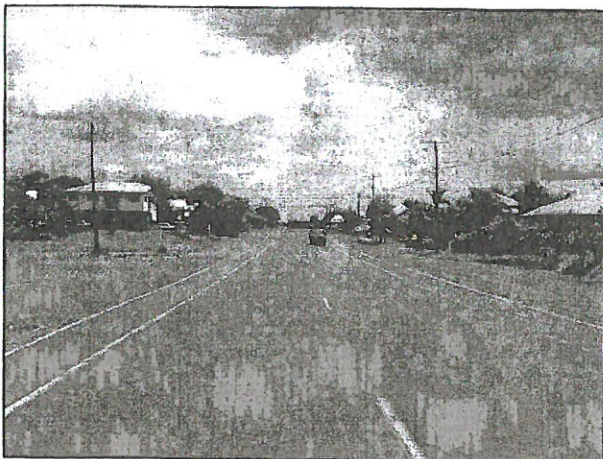
8. Intersection of East Street and Wood Street looking south-east



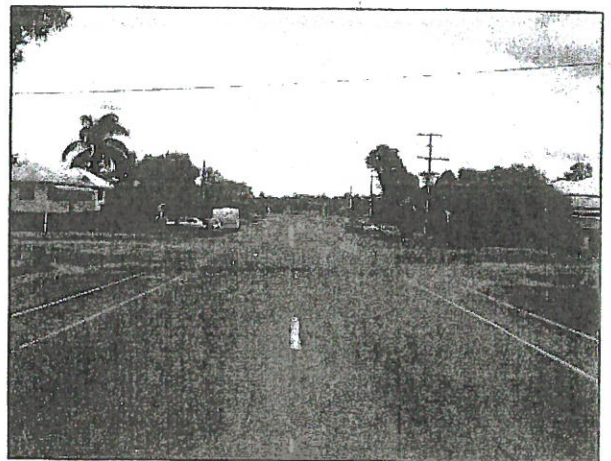
9. Intersection of East Street and Wood Street looking north



10. Wood Street looking north-east



11. Wood Street looking south-west



12. Wood Street and George Street Intersection looking south-west

#### 4.1.3 Preferred Route

Review of the two proposed routes identified a number of advantages and disadvantages with respect to town planning and engineering issues.

##### **Route 1**

###### *Advantages:*

- isolated to the low density rural and residential streets so noise or light impact will only cause minor nuisance during the house movements.
- extremely low traffic volumes during the off-peak traffic periods.

###### *Disadvantages:*

- route will encounter sections of road with minimum standard construction including seal width, pavement depth and road roughness/deterioration. Some roadworks (widening and maintenance) will be required to meet the minimum swept path of the transport vehicle.
- Route has very low flood immunity and surrounding area pools water for long periods on time.
- Streetscape trees encroach upon the roadway which will conflict with the over-dimensional loads. Trimming of the trees may be opposed by the local residents.

##### **Route 2**

###### *Advantages:*

- existing roadway possesses adequate road standard including seal width and comparatively better ridability (than Route 1).
- offset distance to streetscape obstructions is adequate for the entire length.
- low traffic volumes during the off-peak traffic periods.

###### *Disadvantages:*

- route traverses the medium populated residential areas so noise and light may impact residents.

Given the benefits of seal width, pavement condition and clear zone to obstructions it is the recommendation of this report to nominate Route 2 as the preferred transport route.



#### 4.2 PROPOSED TRAFFIC GENERATION

From the information provided by Busby House Removal, the anticipated number of house movements (houses to or from the depot) will be approximately 24 per year. This information is based on historic records of house movements from 2007 (15 movements) with a 60% increase to cater for any unexpected growth.

Given the Main Roads restrictions to movements over the Easter and Christmas periods (and public holidays) it is not expected that these forecast figures will be exceeded during the course of the year.

For simplicity it was assumed one house is delivered and removed from the depot each month. On occasion, a house is split over 2 trucks due to it's size. Busby House Removal has advised that this situation occurs approximately 2 out of every 3 sites (70%). As such the traffic generation volumes have been adjusted to include these additional vehicles.

Each house removal will result in the following traffic movements to and from the depot:

1. Loaded vehicles will enter the depot and unload house onto temporary site.
2. Unloaded vehicles will exit the depot.
3. Unloaded vehicles will enter the depot and load up house.
4. Loaded vehicles will exit the depot and deliver the house to the new site.

All house removal trucks are legally loaded semi articulated vehicles with extendable hydraulic lifting trailers (maximum vehicle length 25m).

The total annual traffic generation for the proposed development is as follows:

Table 4.1: ESA per Design Vehicle Type

|                            | Steer  | Tandum Drive | Tandum Drive |           |
|----------------------------|--------|--------------|--------------|-----------|
| Semi Trailer Configuration | Single | Dual         | Dual         | Total (T) |
|                            | O      | OO           | OO           |           |
| Std Load (T)               | 5.4    | 13.8         | 13.8         | 33        |
| Unloaded (T)               | 4.5    | 5            | 5            | 14.5      |
| Loaded (T)                 | 6      | 16.5         | 16.5         | 39        |

|                | Total (ESA's) |      |      |      |
|----------------|---------------|------|------|------|
| ESA's Unloaded | 0.48          | 0.02 | 0.02 | 0.52 |
| ESA's Loaded   | 1.52          | 2.04 | 2.04 | 5.61 |

Table 4.2: Annual ESA Contribution from Proposed Development

|          | No. of house<br>removals / yr | No. of trucks /<br>removal | No. of trips /<br>removal | ESA's /<br>CV | TOTAL<br>(ESA's / yr) |
|----------|-------------------------------|----------------------------|---------------------------|---------------|-----------------------|
| Unloaded | 12                            | 1.7                        | 2                         | 0.52          | 21                    |
| Loaded   | 12                            | 1.7                        | 2                         | 5.61          | 229                   |
|          |                               |                            |                           | <b>Adopt</b>  | <b>250</b>            |

Therefore, the total annual ESA's generated from the proposed development site on the proposed transport route is 250.

Due to Main Roads transport restrictions, most transport movements will occur during the non-peak periods between 11:00pm to 5:00am. As a result, transport movements will have little to no impact on existing traffic patterns.

## 5.0 FLOOD MITIGATION

### *Flood Prone Land Code*

#### 5.1 STABILITY OF TEMPORARY STORED HOUSES

The houses stored on the site are supported by timber (400mm dia logs) or steel beam (2 x 200UB25 or 200UB29) with steel framed stands (refer Appendix B) spaced at regular intervals. On a standard house (14L x 11W x 4H) the support beams are placed 1.2m from each outer edge (building edge or cut edge) with 2 internal support beams spaced evenly between the outer support beams. Each support beam is elevated by three (3) steel frame stands to a height of 1.5m (maximum).

During temporary storage the houses may be inundated by a major flood event. Information provided by the Rockhampton City Council (ref: Information Request dated 10 July 2007) states that during a Q100 flood event the site would be inundated by in excess of 2.25m of floodwater with a flow velocity of 0.1m/s.

To avoid dislodgement or buoyant displacement of the houses it is proposed to elevate the houses above the Q100 flood level in times of major flooding. This would require the temporarily stored houses to be jacked up to 2.5m (0.25m freeboard) and re-supported with either taller steel frame stands or hardwood pig-sties dunnage.

Particular attention should be paid to the support conditions as the site can be completely immersed in water for numerous days and the

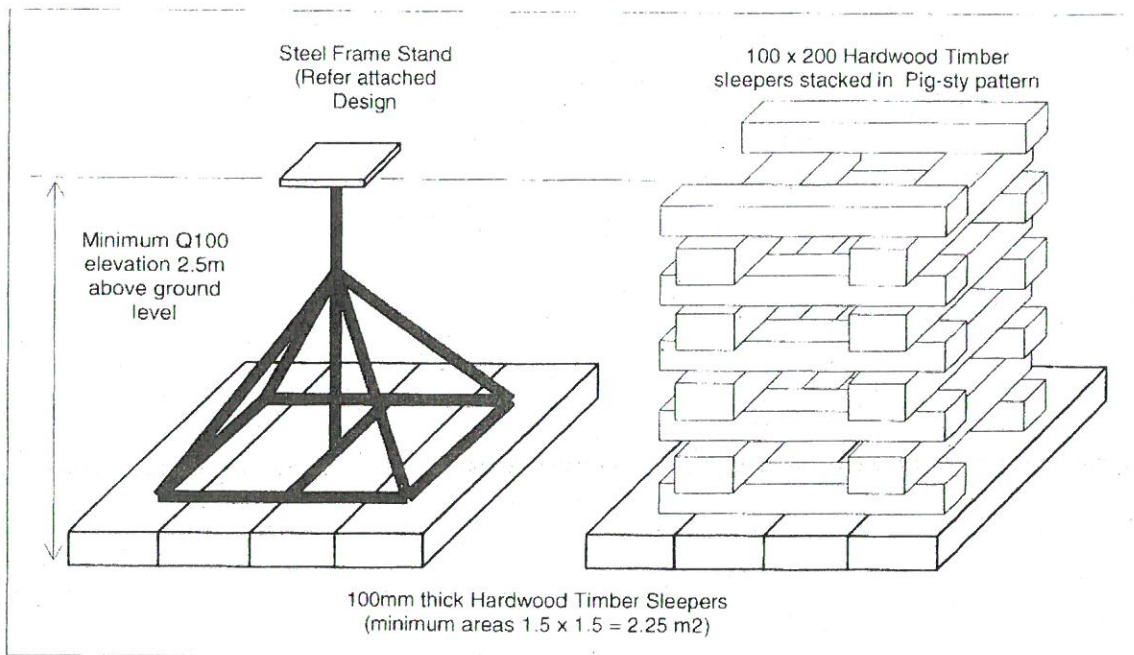


ground support (subgrade) conditions will be fully saturated. Regardless of the support type (steel frame or hardwood pig-sties dunnage) it is recommended that the bearing area under the support be covered with hardwood timber sleepers (stacked side-by-side) for a minimum of  $2.25\text{m}^2$  ( $1.5\text{m} \times 1.5\text{m}$ ) for each stand. This will aid in spreading the load across the bearing area and reduce localised deflection or subsidence.

The lateral loading on the support stands due to the flow velocity is considered negligible and is not envisaged to cause a problem to the stability of the stored houses.

Timing for the installation of these Q100 supports will be addressed in the Flood Contingency Plan (refer Appendix C).

Figure 5.1: Q100 House Support Arrangements



## 5.2 EXISTING CARETAKER'S RESIDENCE

### *Caretaker's Residence Code*

The caretaker's residence is an established two storey timber house on steel posts. The ground floor is currently used for laundry and workshop facilities (non-livable areas) with no enclosed areas. The first floor occupies the caretaker's living and storage areas.

As provided in the Rockhampton City Council – Information Request, the Q100 flood level at this site is 7.95m AHD. Level checks of the existing dwelling shows the ground floor is 5.866 AHD and the first floor is 8.711 AHD.

As a result, the first floor living area is approximately 761mm above the Q100 predicted flood level. Although the ground floor will be inundated by approximately 2.0m of flood water, this area is not used as livable space.

During a Q100 flood event, the Key Personnel (nominated in the Flood Contingency Plan) are responsible for carrying out the procedures detailed in the Flood Contingency Plan. The Flood Contingency Plan will detail the necessary steps to be taken before, during and after a major flood event including:

- General site management and precautionary measures
- Flood mitigation strategies and emergency supplies
- Site evacuation procedures
- Site resumption (re-occupancy) procedures

A detailed copy of the Flood Contingency Plan can be found in Appendix C of this report.

## **6.0 ONSITE PARKING**

In accordance with the Schlencker Surveying Plan 5505-4 (Refer Appendix D) eight off-street car parking bays have been provided next to the existing caretakers residence. This carpark area is accessed via the existing access which will be upgraded to the same commercial standard as the other George Street and Wood Street accesses.

The carpark consist of 7 standard parking bays at 5.5m L x 2.6m W and one disabled parking bay at 5.5m L x 4.8m W. This carpark has been designed in accordance with AS2890.



## 7.0 SUMMARY

This report has addressed the engineering issues in response to Rockhampton City Council - Information Request (Application No. D-22/2007) dated 10 July 2007.

The findings of this report are summarised below:

### *External Works and Services Code*

- Roofwater from existing and temporary houses will be discharged to ground and allowed to sheet-flow offsite. The existing grassed areas will be maintained and a 6.0m vegetated buffer will be planted around the perimeter of the site to control dust and erosion. All site stormwater will naturally sheet-flow to the legal point of discharge at the 525RCP under Arthur Street.
- Widening of the George Street roadway to achieve a total seal width of 7.0m will provide the transport vehicles with sufficient trafficable area to safely enter the depot site. The existing swale table drain will remain and the concrete driveways will be profiled as a floodway to provide unrestricted flow.
- The Wood Street frontage should be widened from the existing seal edge to the existing kerb and channel (approximately 40.0m Long x 7.5m wide).
- All accesses will be constructed to the Capricorn Municipal Development Guidelines – Commercial Driveway Slab details.

### *Dust Control*

- Dust is not considered an issue as the vehicles movements will be single directional and at low speed. Grassed areas and landscaping will aid in preventing airborne dust from leaving the site.

### *Route Strategy and Impact*

- The site will generate approximately 250 ESA's per year given the predicted house movements of 1 per month. The houses will be moved on articulated semi's with extendable trailers (maximum extension 25m).

- The preferred transport route travels along Lower Dawson Road, Stanley Street, East Street, Wood Street and onto George Street.

#### *Flood Prone Land Code*

- Significant inundation of the site occurs during Q100 flood events. To mitigate against any flood effects on the temporarily stored houses it is proposed to elevate the houses (2.5m above ground level) above the predicted maximum flood height.
- Although not all dwelling utilities (ie: caretaker's residence) are 500mm above the maximum flood height they are contained within the non-living areas.
- All living and storage areas are above the minimum flood height.
- All flood mitigation, evacuation and counter-measures for the site are detailed in the Flood Contingency Plan (refer Appendix C).

#### *Car Parking Requirements*

- The onsite parking bays (including disabled) have been designed to comply with the AS2890. All bays are 5.5m long with standard parks 2.6m wide and disabled parks 4.8m wide.



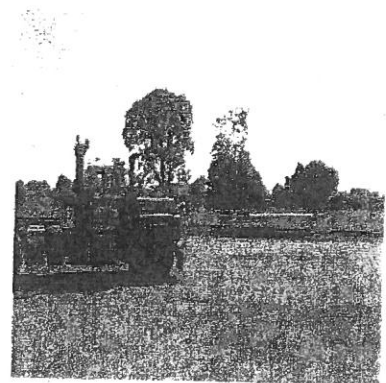
## 8.0 ATTACHMENTS

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|------------|---|
| Appendix A | Onsite Stormwater Calculations  |
| Appendix B | Busby Steel Frame Stand Plan  |
| Appendix C | Flood Contingency Plan  |
| Appendix D | Schlencker Surveying Layout Plan 5505-4 and<br>Design Vehicle Swept Path Plan |

## 9.0 REFERENCES

1. Department of Main Roads – Guidelines for Assessment of Road Impacts of Development (GARID) - 2006
2. Queensland Urban Drainage Manual – 2<sup>nd</sup> Edition 2007
3. Rockhampton City Plan – Planning Scheme for City of Rockhampton
  - External Works and Services Code - 30 August 2005
  - Flood Prone Lane Code – 30 August 2005
  - Caretakers Residence Code – 30 August 2005
4. Google Earth - 4.0.2737 31 January 2007
5. Capricorn Municipal Development Guidelines – Revision A

Prepared for:  
 Busby Group  
 PO Box 8103  
 Allenstown Qld 4700



## Revised Acoustic Assessment

Material Change of Use (Medium Impact  
 Industry - House Removal Depot) at 320 -  
 326 George Street, Depot Hill Qld 4700

### PLANS APPROVED

These plans are approved subject to the current conditions of  
 approval associated with Development Permit No: 022/2007  
 Dated: 16/12/2008

ENSR Australia Pty Ltd (HLA ENSR)

29 February 2008

Document No.: B4026201\_RPTFinal\_REV01\_29Feb08



## Distribution

Revised Acoustic Assessment for Material Change of Use  
(Medium Impact Industry – House Removal Depot)  
at 320 – 326 George Street, Depot Hill, Qld, 4700  
29 February 2008

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Plate P3: View of site from the northeast

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Appendix A: Unattended Noise Data

## Executive Summary

ENSR Australia Pty Ltd (HLA ENSR) was commissioned to conduct an acoustic assessment for a proposed House removal depot, 320 – 326 George Street, Depot Hill, to accompany the Development Application to Rockhampton City Council.

The investigation identified that predicted noise levels at the existing dwellings adjacent to the proposed house removal depot will not exceed the acceptable noise limit criterion stipulated by Rockhampton City Council during the day time hours 7 a.m. – 6 p.m.

However the investigation identified that without acoustic control measures, the noise levels at the proposed receptor sites lots 1, 2, 3, 4, 5 and 6 on RP605588 are predicted to exceed the acceptable noise limit criterion during the evening and night hours 6 p.m. – 7 a.m.

Noise emissions from the proposed house removal depot do not pose an impediment for the development to operate during the evening period provided control measures can be incorporated into the development design, such as the following:

- site management to prohibit the use of cranes and trucks on site within 40 metres of the boundary of Lots 1, 2, 3, 4, 5 and 6 on RP605588 during the evening time period (6 – 10 p.m.);
  - site management to prohibit the use of office air-conditioning and use of cranes and trucks on site within 40 metres of the boundary of Lots 1, 2, 3, 4, 5 and 6 on RP605588 during the night time period 10 p.m. – 7 a.m.; or
  - construct an appropriately designed acoustic fence of at least 2.1 m in height along the alignment of the boundary of Lots 1, 2, 3, 4, 5 and 6 on RP605588. (As shown in **Figure F2**).
-



## 1.0 Introduction

This report provides the results, findings and recommendations arising from an acoustic assessment of the predicted noise emanating from the proposed house removal depot located at 320 – 326 George Street, Depot Hill onto adjacent existing dwellings. The proposed site is the subject of an application for Material Change of Use (Medium Impact Industry – House Removal Depot). The location of the site is shown on **Figure F1**. The proposed layout of the depot has been presented in **Figure F2**. Photographs of the proposed site and adjacent dwellings have been attached as **Plates P1, P2, P3 and P4**.

The house removal depot typically operates five days a week. The typical hours of operation are between 7 a.m. to 6 p.m. Monday to Friday, however transporting to and from site is most likely to occur during the evening and night time periods (6 p.m. – 7 a.m.). The major noise sources from the operations which were assessed in this report include:

- steady state noise:
  - air conditioning noise (Caretakers Residence);
- time varying noise:
  - traffic movement (i.e. car parking, driveway);
  - human behavioural noise;
  - delivery trucks; and
  - Cranes.

This report has been prepared in response to an information request from Rockhampton City Council (RCC) dated 23 March 2007.

The purpose of the assessment was to:

- address all issues raised in the information request; and
- assess compliance with the RCC planning limits for noise sensitive locations that are likely to be affected by the proposed house removal depot and to recommend, if any, noise control measures to ensure noise levels comply with the planning limits.

This report replaces the previous acoustic report prepared by ENSR Australia Pty Ltd (HLA ENSR) (dated 5 July 2007), which includes an acoustic assessment for a proposed House removal depot during the night time period of the day (10 p.m. – 7 a.m.).

---

## 2.0 Site Characteristics

The area of the property that is subject to the development application sits within a light industrial area surrounded by residential.

The proposed development site is located on Lots 76 and 77 on R2634 and Lot 7 on RP605588. The proposed house removal depot is located on the corner of Arthur and George Streets Depot Hill (as presented in **Figure F2**).

Lot 76 on R2634 is bounded by George Street, Arthur Street and Murray Street. Lot 77 on R2634 is bounded by George and Murray Streets and the existing dwelling (Lot 1 on RP605588). Lot 7 on RP605588 is bounded by Wood and Murray Streets and existing dwellings (Lots 2, 3 and 6 on RP605588).

Neighbouring land uses are shunting yards, residential and some light industry. The nearest residence to the proposed development is Lot 1 on RP 605588 which is directly adjacent to the eastern boundary of Lot 77 R2634.

## 3.0 Assessed Locations

For the purposes of this exercise, Lots 1, 2, 3, 4, 5 and 6 on RP605588 adjacent to the proposed depot were assessed as they are at greatest risk to noise emanating from the proposed home removal depot, refer to **Figure F2** attached.

## 4.0 Terms and Definitions

The definitions of commonly used acoustical terms have been presented as an aid to understanding this report.

**dB(A)** - The quantitative measure of sound heard by the human ear, measured by the A-Scale Weighting Network of a sound level meter expressed in decibels (dB).

**L<sub>Aeq</sub>** - Equivalent Continuous Noise Level - taking into account the fluctuations of noise over time. The time-varying level is computed to give an equivalent dB(A) level that is equal to the energy content and time period.

**L<sub>A10</sub>** - Average Maximum Noise Level - the level exceeded for 10 % of the monitoring period.

**L<sub>A90</sub>** - Average Minimum Noise Level - the level exceeded for 90 % of the monitoring period and recognised as the Background Noise Level. In this instance, the L<sub>A90</sub> percentile level is representative of the noise level generated by the surrounds of the residential area.

**L<sub>AMax</sub>** - The maximum noise recorded of a selected noise source. The noise level is measured as the maximum A-weighted sound level using a 'fast' meter response.



**Average maximum A-weighted sound pressure level ( $L_{A\text{Max},T}$ )** – the A weighted sound pressure level obtained by using time-weighted 'F' and arithmetically averaging the maximum levels measured during the time interval considered. Irrespective of the instrumentation used for the measurements,  $L_{A10,T}$  is commonly taken to be an approximation of  $L_{A\text{Max},T}$ .

**Adjusted average maximum A-weighted sound pressure level ( $L_{A\text{Max},\text{adj},T}$ )** – the average maximum A-weighted sound pressure level during a specified time interval, plus specified adjustments for tonal character and impulsiveness of the sound based on subjective assessment. If tonality due to, say, the humming of cooling fans or impulsiveness from hammering is just detectable, 2 dB(A) is added to  $L_{A\text{Max},T}$ . If tonality or impulsiveness is readily detectable, 5 dB(A) is added.

**Background A-weighted sound pressure level ( $L_{A\text{bg},T}$ )** – the A-weighted sound pressure level obtained by using time-weighted 'F' and arithmetically averaging the lowest levels of the ambient sound pressure levels in the absence of the noise source(s) under investigation, during the time interval considered. Irrespective of the instrumentation used for the measurements,  $L_{A90,T}$  is commonly taken to be an approximation of  $L_{A\text{bg},T}$ .

## 5.0 Methodology

All measurements and analysis were conducted in accordance with the relevant Australian Standard, AS1055.1 (1997) Acoustics – Description and measurement of environment noise, Part 1: General Procedures, and with reference to the Noise Measurement Manual (EPA 3<sup>rd</sup> Edition, 2000).

Unattended noise monitoring (ML1) was conducted using an ARL environmental noise logger. The logger was placed in free field, on the proposed development site, on the eastern boundary of lot 77 on R2634, adjacent to the nearest residence, (refer to **Figure F2**).

The logger was established for a 7 day period between 26<sup>th</sup> April and 3<sup>rd</sup> May 2007. The instrument was programmed to accumulate environmental noise data continuously over sampling periods of 15 minute durations for the entire monitoring period and set to record A-weighted noise in fast response mode. Internal software calculated and stored the Ln Percentile Noise Levels for the chosen sampling period, and the data was then retrieved for detailed analysis. The logged noise has been presented in **Appendix A**.

In addition, brief attended measurements of specific noise sources in octave bands were collected, using the RION NA29E Octave Sound Level Meter. Measurements taken of proposed noise sources (ML1) were taken on the eastern boundary of lot 77 on R2634. For each measurement the microphone was held at arms length, 1.5 m above the ground.

## 6.0 Equipment Used

Noise measurements used in this assessment were obtained using:

- an Acoustic Research Laboratories (ARL) Environmental Noise Logging Monitor, Type EL-315, which meets the requirements of AS1259.2 (1990) Acoustic – Sound Level Meters Part 2: Integrating – averaging, Type 2 (general purpose) specification; and
- a RION NA29E Octave Sound Level Meter that meets the AS1259.2 (1990), Type 1 (precision) specification.

All instruments were calibrated before and on completion of use using a RION NC73 sound level calibrator, which complies with IEC 942-1988.

## 7.0 Meteorological Conditions

The regional meteorological data was obtained from the closest Queensland Bureau of Meteorology's station, Rockhampton. Conditions throughout the monitoring period were fine, cool to warm temperatures ranging between 19-28 °C, with calm to fresh breezes (0-28 km/hr) prevailing from a west during late evening and night time periods, through to a south west to easterly direction during the day.

## 8.0 Assessment Criteria

### 8.1 External Acoustic Quality Objectives

Noise limit criteria acceptable to the Rockhampton City Council are as follows:

"Steady-state" noise e.g. air-conditioning, mechanical ventilation etc:

- Daytime: (0700 to 1800 hours): background + 5 dB(A);
- Evening: (1800 to 2200 hours): background + 5 dB(A); and
- Night time: (2200 to 0700 hours): background + 3 dB(A).

Time-varying noise e.g. human behavioural noise, truck deliveries, car park (cars driving, car doors closing and engines starting):-

Daytime and evening (e.g. 0630 to 1830 hours but what ever the hours of operation are): for like parameters ( $L_{A10}$  for car park and truck movements, human behavioural noise) the adjusted source noise level (adjusted for tonality and / or impulsiveness) must not exceed the ambient noise level (for the same parameter) outside the surrounding residences."

---



All noise level measurements must be conducted and the report prepared in accordance with the following:

- "Noise Measurement Manual", Queensland Government, Environmental Protection Agency, 3<sup>rd</sup> Edition, March 2000; and
- Australian Standard AS 1055.1-1997, Acoustics – Description and measurement of environmental noise, Part 1: General procedures.

As the proposed development is adjacent to existing residential, this acoustic assessment has been produced to determine any requirements for acoustic amelioration measures.

The noise limit criteria acceptable to the RCC are as detailed in **Table 1**.

**Table 1: Acoustic Quality Objectives for Steady-State Noise**

| Period                    | Noise Limit         |
|---------------------------|---------------------|
| Daytime (0700 to 1800)    | Background + 5dB(A) |
| Evening (1800 2200)       | Background + 5dB(A) |
| Night time (2200 to 0700) | Background + 3dB(A) |

Note: This noise limit is expressed as  $L_{Amax,adj,T}$ .

## 9.0 Results

### 9.1 Established Background Noise Levels

Background noise levels for day and evening time periods of the day were calculated from noise levels extracted from the unattended noise logging exercise for the 72 hour period between 26 April and 3 May 2007. Attended noise measurements of time varying noise sources observed while on site were also collected during the day and evening periods. A summary of the measured steady state and time varying noise levels have been presented in **Tables 2** and **3**.

**Table 2: Measured Steady State Background Noise Levels (26 March 2007)**

| Noise Descriptor     | Time Period      | Sound Pressure Level dB(A) |
|----------------------|------------------|----------------------------|
| LA90,11hr (Day time) | 0700 to 1800 hrs | 38                         |
| LA90,4hr (Evening)   | 1800 to 2200 hrs | 42                         |
| LA90,9hr (Night)     | 2200 to 0700 hrs | 35                         |

**Table 3: Summary of  $L_{Amax,adj,T}$  Time Varying Noise Levels (26 March 2007)**

| Observed noise source                   | Measurement Location | $L_{Amax,adj,T}$ in dB(A) |
|---|----------------------|---------------------------|
| <b>Day</b>                              |                      |                           |
| Bird calls (Magpies, Crows and parrots) | ML1                  | 71                        |
| Traffic on George Street                | ML1                  | 56                        |
| <b>Evening</b>                          |                      |                           |
| Insects                                 | ML1                  | 57                        |
| Traffic on George Street                | ML1                  | 52                        |
| <b>Night</b>                            |                      |                           |
| Traffic on George Street                | ML1                  | 54                        |

## 9.2 Projected Noise Limits

Based on the acceptable noise limit criteria (refer to **Section 8.1**) and the measured background levels as presented in **Tables 2 and 3**, the calculated steady-state noise criteria for this project, along the eastern boundary of lot 1 on RP605588 and southern boundary for lots 2, 3 and 6 on RP605588 (the most affected boundaries) are as shown in **Table 4**.

**Table 4: Acoustic Quality Objectives for Steady-State Noise**

| Period                 | Noise Limit |
|------------------------|-------------|
| Daytime (0700 to 1800) | 43          |
| Evening (1800 2200)    | 47          |
| Night (2200 0700)      | 38          |

As bird calls and insects are of natural origin, the time-varying noise criteria are based on the noise measured from traffic passing along George Street for each period of day. The calculated time-varying noise criteria for this project, along the western and southern boundaries of Lots 1, 2, 3 and 6 on RP605588 are as shown in **Table 5**.

**Table 5: Acoustic Quality Objectives for Time Varying Noise**

| Period                 | Noise Limit |
|------------------------|-------------|
| Daytime (0700 to 1800) | 56          |
| Evening (1800 2200)    | 52          |
| Night (2200 0700)      | 52          |



### 9.3 Steady State Noise Assessment

The adjusted maximum sound pressure levels for various steady-state noise sources assumed during the day and evening periods at the nearest noise sensitive location have been presented in **Table 6**.

**Table 6:  $L_{Amax,adj,T}$  Noise Level of Air Conditioner**

| Activity                   | Measurement Location | $L_{Amax,adj,T}$ in dB(A) | Noise Limit dB(A) | Noise Level Exceedance |
|----------------------------|----------------------|---------------------------|-------------------|------------------------|
| <b>Day Time Period</b>     |                      |                           |                   |                        |
| Air conditioner noise      | Lot 1 RP605588       | 42                        | 43                | 0                      |
| <b>Evening Time Period</b> |                      |                           |                   |                        |
| Air conditioner noise      | Lot 1 RP605588       | 42                        | 47                | 0                      |
| <b>Night Time Period</b>   |                      |                           |                   |                        |
| Air conditioner noise      | Lot 1 RP605588       | 42                        | 38                | 1                      |

The results in **Table 7** above indicate that the acoustic quality objective for steady state noise will not be exceeded at the nearest noise sensitive receiver lot 1 on RP605588 during the day or evening periods, however is predicted to exceed during the night time period by 4 dB(A) if operated.

### 9.4 Time Varying Noise Assessment

The adjusted maximum sound pressure levels for proposed time-varying noise sources at the nearest noise sensitive location lots 1, 2, 3 and 6 on RP 605588 have been presented in **Table 7**.

**Table 7: Summary of  $L_{Amax,adj,T}$  Noise Levels of Various sources (26 March 2007)**

| Observed Noise Source      | Measurement Location            | $L_{Amax,adj,T}$ in dB(A) | Noise Limit dB(A) | Noise Level Exceedance |
|----------------------------|---------------------------------|---------------------------|-------------------|------------------------|
| <b>Day Time Period</b>     |                                 |                           |                   |                        |
| Cranes                     | Lots 1, 2, 3 and 6 on RP 605588 | 54                        | 56                | 0                      |
| Delivery Trucks            | Lots 1, 2, 3 and 6 on RP 605588 | 52                        | 56                | 0                      |
| Human behavioural noise    | Lots 1, 2, 3 and 6 on RP 605588 | 50                        | 56                | 0                      |
| <b>Evening Time Period</b> |                                 |                           |                   |                        |
| Cranes                     | Lots 1, 2, 3 and 6 on RP 605588 | 54                        | 52                | 2                      |
| Delivery Trucks            | Lots 1, 2, 3 and 6 on RP 605588 | 52                        | 52                | 0                      |
| Human behavioural noise    | Lots 1, 2, 3 and 6 on RP 605588 | 50                        | 52                | 0                      |

| Observed Noise Source   | Measurement Location            | LAMax.adj.T in dB(A) | Noise Limit dB(A) | Noise Level Exceedance |
|-------------------------|---------------------------------|----------------------|-------------------|------------------------|
| Evening Time Period     |                                 |                      |                   |                        |
| Cranes                  | Lots 1, 2, 3 and 6 on RP 605588 | 54                   | 52                | 2                      |
| Delivery Trucks         | Lots 1, 2, 3 and 6 on RP 605588 | 52                   | 52                | 0                      |
| Human behavioural noise | Lots 1, 2, 3 and 6 on RP 605588 | 50                   | 52                | 0                      |

The results in **Table 7** above indicate that the acoustic quality objective for time-varying noise will not be exceeded at the nearest noise sensitive receiver sites during the day time period (7 a.m. to 6 p.m.), the period when most onsite activities are likely to occur.

If working hours are extended into the evening or night, typically this would involve the receipt and dispatch of houses, the acoustic quality objective for time-varying noise is predicted to exceed the acoustic quality objective for time-varying noise if a crane or truck operates closer than 40 m to the nearest residential boundary.

## 10.0 Recommendations

The site operations shall need to be carried out in a practicable means necessary to prevent the emission of noise that constitutes "unreasonable" or "intrusive" noise. Hours of operation should be regulated to day time hours where practicable.

For hours outside day time hours (7 a.m. - 6 p.m.), site management shall need to prohibit the use of cranes and trucks on site within 40 metres of the boundary of Lots 1, 2, 3, 4, 5 and 6 on RP605588. They shall also need to prohibit the use of the office air-conditioner during night time periods (10 p.m. - 7 a.m.).

However, an additional acoustic design control measure for optional deliberation, if not purely for security reason and dissociation from site activities, is to erect an acoustic fence along the propagation path, the adjoining boundary of lots 1, 2, 3, 4, 5 and 6 on RP605588, to shield receivers from any offensive noise sources. The exact location of the acoustic fence is shown in **Figure F2**.

In respect of the adjacent dwellings, sufficient protection could be achieved by the construction of a 2.1 m acoustic fence. An acoustic barrier is one that is impervious from the ground to the recommended height, and is typically a fence constructed from tongue and grooved timber, lapped and capped timber, bricks, concrete blocks or other material with a minimum surface density of 12.5 kg/m<sup>2</sup>. No significant gaps should remain in the barrier to allow the passage of sound below the recommended height.

## 11.0 Conclusion

The investigation identified that predicted noise levels at the existing dwellings adjacent to the proposed house removal depot will not exceed the acceptable noise limit criterion stipulated by Rockhampton City Council during the day time hours 7 a.m. - 6 p.m.

However, without acoustic control measures, the noise levels at the proposed receptor sites Lots 1, 2, 3, 4, 5 and 6 on RP605588 are predicted to exceed the acceptable noise limit criterion during the evening and night hours 6 a.m. - 7 a.m.

- It is our (HLA ENSR) opinion that noise emissions from the proposed house removal depot do not pose an impediment for the development provided adequate noise control measures are implemented (refer to recommendations in **Section 10** above).

## 12.0 References

- 'Noise Measurement Manual', Queensland Government, Environmental Protection Agency, 3rd Edition, March 2000.
  - Australian Standard AS 1055.1 - 1997, Acoustics - Description and measurement of environment noise, Part 1: General Procedures.
  - Australian Standard AS1259.2 (1990) Acoustic - Sound Level Meters Part 2. Integrating - averaging.
-



**Mark Wyer**

**From:** timeakin@ozemail.com.au  
**Sent:** Friday, April 24, 2009 10:25 AM  
**To:** Mark Wyer  
**Cc:** tim.eakin@aecom.com  
**Subject:** Drainage issues - Busby Group

Mark,

Sorry about the delay in this email, but I am sick at the moment. I am emailing you from my home address. My work email is [tim.eakin@aecom.com](mailto:tim.eakin@aecom.com).

With regard to our phone conversation earlier in the week, I have some options for you.

1. You could drill 50 cm holes at the bottom of the acoustic fence, which would allow drainage between the properties. You could do this every 1 to 1.5 m to allow for drainage, and this would not let any noise through to effect the neighbouring properties.
2. Install flaps on the bottom of the acoustic fence to allow water to drain out of the properties. The flap would move when enough pressure builds up next to the flap.
3. The third option would be to install an aggie pipe enclosed by aggregate to allow water to flow though the aggregate into the pipe and flow off site. This also would not effect the fence in any way.

I hope this helps. If you have any queries, please don't hesitate in giving me a call on Monday on 07 3606 8940 or 0408 455 654.

Regards

Tim Eakin  
ENSR

No virus found in this incoming message.  
Checked by AVG - [www.avg.com](http://www.avg.com)  
Version: 8.0.238 / Virus Database: 270.12.3/2075 - Release Date: 04/23/09 19:21:00

|  |
|--|
| <p>ROCKHAMPTON REGIONAL COUNCIL</p> <p>These plans are approved subject to the current conditions of approval associated with Development Permit No. <u>D22/2007</u></p> <p>Dated <u>6/11/2009</u></p> |
|--|

8/20/2009



For RCC Council

Draft Template Version 1.0, March 2015

|   |
|---|
| <b>ROCKHAMPTON REGIONAL COUNCIL</b>   |
| <b>AMENDED PLANS APPROVED</b>   |
| <b>25-06-2015</b>   |
| DATE  |
| These plans are approved subject to the current<br>conditions of approval associated with |
| Development Permit No. <b>D/22-2007</b> dated <b>6/11/2009</b>                            |



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## **Part 1. INTRODUCTION**

### **1.1 Endorsement**

The Busby House Removal Flood Emergency Plan (BHRFEP) has been prepared by (Patrick Busby) in conjunction with Development Application No. D/478-1010 and "as recommended in the report 042-07-08 Revision A".

### **1.2 Location**

Busby House Removals is located at 320 – 326 George St Rockhampton Qld. Busby House Removals is used as a House Removal depot for the temporary storage of removable houses.

### **1.3 Purpose and Scope of this Flood Emergency Plan**

The purpose of this Flood Plan is to detail arrangements agreed for the planning, preparedness/prevention and response to raise existing stored homes from 1.5 m high to 2.5 m high in the event of a major flood exceeding the 1% annual probability level at Busby House Removals 320 – 326 George St, Rockhampton Qld. As such, the scope of the Plan is to:

- Identify the Flood Risk to Busby House Removal 320 – 326 George St, Rockhampton Qld.
- Support the implementation of measures to minimise the causes and impacts of flood incidents within the Busby House Removal 320 – 326 George St, Rockhampton Qld;
- Detail Response and Recovery arrangements including preparedness, Incident Management, Command and Control;

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## **Part 2. PREVENTION / PREPAREDNESS ARRANGEMENTS**

### **2.1 Non-structural Flood Mitigation Measures**

#### **2.1.1 Exercising the Plan**

Arrangements for exercising this Plan will be at the discretion of Busby House Removals in conjunction with RCC. This Plan should be regularly exercised, preferably on an annual basis.

#### **2.1.2 Flood Warning**

Arrangements for flood warning are contained within the State Flood Emergency Plan and on the BoM website.

Specific details of local flood warning system arrangements are provided in Appendix B.

## **Part 3. RESPONSE ARRANGEMENTS**

### **3.1 Introduction**

#### **3.1.1 Activation of Response**

The following personnel may activate flood response arrangements:

- RCC
- Busby House Removal Supervisor and or Owner
- SES
- BOM

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### **3.1.2 Strategic Control Priorities**

To provide guidance to the Incident Management Team (IMT), the following strategic control priorities shall form the basis of incident action planning processes:

1. Protection and preservation of life is paramount - this includes:
  - a. Safety of emergency services personnel, and;
  - b. Safety of community members including vulnerable community members and employees located within the incident area.
2. Issuing of company information and community warnings detailing incident information that is timely, relevant and tailored to assist workers make informed decisions about their safety.;
3. Protection of critical infrastructure and stored removable homes;
4. Protection of environmental and conservation values that considers the cultural, biodiversity, and social values of the environment;

Circumstances may arise where the Supervisor is required to vary these priorities, with the exception being that the protection of life should remain the highest. This shall be done in consultation with relevant stakeholders based on sound incident predictions and risk assessments.

### **3.1.3 On Receipt of a Flood Watch / Severe Weather Warning**

The Busby House Removal Supervisor will undertake actions as defined within the flood reports as follows:

- Review flood intelligence to assess likely flood consequences
- Monitor weather and flood information – [www.bom.gov.au](http://www.bom.gov.au)
- Assess Command and Control requirements.
- Review local resources and consider needs for further resources regarding personnel, property protection, flood rescue and air support
- Notify and brief employees.
- Ensure flood bulletins and community information are prepared and issued all employees
- Monitor watercourses and undertake reconnaissance of low-lying areas
- Ensure flood mitigation works are being checked
- Develop and issue incident action & or Risk Assessment Plan.

### **3.1.4 On Receipt of the First and Subsequent Flood Warnings**

The Busby House Removal Supervisor will undertake actions as defined within the BOM & RCC flood reports. General considerations by the Busby Group Supervisor will be as follows:

- Develop an appreciation of current flood levels and predicted levels. Are floodwaters, rising, peaking or falling?
- Review flood intelligence to assess likely flood consequences. Consider:
  - What areas may be at risk of inundation



- 
- What areas maybe at risk of indirect affects as a consequence of power, gas, water, telephone, sewerage, health, transport or emergency service infrastructure interruption
  - The characteristics of the populations at risk
  - Determine what the employees need to know and do as the flood develops, including ensuring that an appropriate warning and information strategy is implemented including details of:
    - The current flood situation
    - Flood predictions
    - What the consequences of predicted levels may be
    - Who to contact for further information
    - Who to contact for emergency assistance
  - Implement response strategies and actions as required based upon flood consequence assessment.
  - Continue to monitor the flood situation – [www.bom.gov.au/vic/flood/](http://www.bom.gov.au/vic/flood/)
  - Continue to conduct reconnaissance of low-lying areas

### **3.2 Preliminary Deployments**

When flooding is expected to be severe enough to surpass the 1% Annual Exceedance Probability flood level the Busby House Removal Supervisor will consult with relevant agencies and employees to ensure that resources are in place to provide raise the existing storage homes from 1.5 m high to 2.5 m high and be fully supported.

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## **APPENDIX A – Scope of Works for Raising existing Storage Homes from 1.5 m high to 2.5 m high.**

### **Busby House Removals, 320 – 326 George St Rockhampton Qld.**

This Appendix is to provide a basic scope of works in the event of a *1% Annual Exceedance Probability flood level in times of major flooding.*

- Please note the George St House Removal Yard has a holding capacity of 15 homes maximum, based on average sized homes.
- Determine how many homes are required to be raised from 1.5 m high to 2.5 m high. This task is essential, as each home will take approximately 4 hours to complete this task. Generally you will be notified 5 days prior to major floodwater inundation and approximate flood level heights.
- Conduct on-site Risk assessment with all employees;
- Utilising the house removal trucks raise each home to the requires 2.5 m high from ground surface level;
- All homes are to be raised and fixed on timber sleepers and or House Removal Jacks;
- All homes to be secured by duckbills or star pickets.
- Ensure all remaining equipment is moved to higher ground.

Please note a SWMS / Risk Assessment will be conducted prior to commencement of work detailing each specific work activity. – See attached example Appendix B

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## APPENDIX B - FLOOD WARNING SYSTEMS

### Flood Warning

Flood Warning products and Flood Class Levels can be found on the BoM website. Flood Warning Products include Severe Thunderstorm Warnings, Severe Weather Warnings, Flood Watches and Flood Warnings.

### Flood Bulletins

BOM distributes flood emergency information to the media through "Flood Bulletins". Flood Bulletins provide Busby House Removals Flood Warning information as well as information regarding possible flood consequences and safety advice.

Flood Bulletins should refer to the warning title within the Bulletin header, for example Flood Bulletin for Major Flood Warning on Fitzroy River.

Flood Bulletins should follow the following structure

- What is the current flood situation;
- What is the predicted flood situation;
- What are the likely flood consequences;
- What should the community do in response to flood warnings;
- Where to seek further information;
- Who to call if emergency assistance is required.

It is important that the description of the predicted flood situation is consistent with and reflects the relevant BoM Flood Warning.

Flood Bulletins should be focused on specific gauge (or in the absence of gauges, catchment) reference areas, that is the area in which flood consequences specifically relate to the relevant flood gauge.

Flood Bulletins should be prepared and issued after receipt of each Flood Watch and Flood Warning from the BoM, or after Severe Weather or Thunderstorm Warnings indicating potential for severe flash flooding.

To ensure flood bulletins are released in a timely manner, standardised flood bulletins may be drafted based on different scenarios, prior to events occurring. The standardised flood bulletins can then be adapted to the specifics of the event occurring or predicted to occur.