

In the matter of the
Commissions Of Inquiry Act 1950

Commission of Inquiry Order (No. 1) 2011

QUEENSLAND FLOODS COMMISSION OF INQUIRY

CLAYTON UTZ-(Ipswich City Council –
Brett Davey)
Attach BD-15 –BD-16
#1763968 - 1763969 File 539764/1
Volume 1 of 3 ORIGINAL

Second Witness Statement of Brett Davey

Development Team Coordinator- (West team)
Ipswich City Council

Volume 1 of 3

QFCI

Date:

28/10/11

Jm

Exhibit Number:

906

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Commissions Of Inquiry Act 1950

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QUEENSLAND FLOODS COMMISSION OF INQUIRY

Second Witness Statement of Brett Davey

Development Team Coordinator - (West Team)

Ipswich City Council

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Table of Attachments

	Description	Date
BD-15	Plan showing location of lots 51 to 55	Undated
BD-16	Application 6293/09 and supporting material	8 October 2009
BD-17	Application 2727/10 and supporting material	27 April 2010
BD-18	Development Planners Report (6293/09)	29 October 2010
BD-19	Development Application Decision Notice (6293/09)	1 November 2010
BD-20	Development Planners Report (2727/10)	29 October 2010
BD-21	Development Application Decision Notice (2727/10)	29 October 2010
BD-22	Submission of Nick J White and E. Tilbrook	20 January 2010
BD-23	Submission of E. Tilbrook	5 February 010
BD-24	Letter of Ms Joanne Pocock to Mr White and Ms Tilbrook	8 June 2010
BD-25	Submission of Nick J White and E. Tilbrook	6 August 2010
BD-26	Submission of [REDACTED]	6 August 2010

SECOND WITNESS STATEMENT OF BRETT DAVEY

This written statement is provided in further response to a Requirement, dated 23 September 2011, pursuant to section 5(1)(d) of the *Commissions of Inquiry Act 1950* (Qld) to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry.

I, Brett Davey, of [REDACTED] Gibbon Street, East Ipswich, in the State of Queensland, swear as follows:

Introduction and Qualifications

1. Details of my employment, experience, qualifications and responsibilities are set out in paragraphs 1-5 of my statement to the Commission of Inquiry dated 7 October 2011 and are not repeated here.
2. I was the Assessment Officer involved in the consideration of two applications concerning lot 55 SP222487 at 21 A North Street, North Ipswich, located within an area known as Riverlink, being:
 - (a) Application 6239/09 received on 8 October 2009 for a Material Change of Use: Multiple Residential (100 units); and
 - (b) Application 2727/10 received on 27 April 2010 for a Combined Approval (Material Change of Use for 18 units and Reconfiguring a Lot: one (1) into 3 lots).
3. Each application was approved subject to conditions on 1 November 2010, and each is now the subject of a negotiated decision request.
4. This statement is provided in response to a statement of Mr Nicholas White dated 11 October 2011. The sources of information for the matters set out in this statement are:
 - (a) my personal knowledge and recollection of relevant events; and
 - (b) my review of the relevant Council development application files.

Background

5. The Riverlink site is an area comprising lots 51 to 55 on SP222497. The site is subject to an existing combined approval (Application 682/03) for:
 - (a) Preliminary Approval - making a material change of use of premises (Preliminary approval to override the Planning Scheme section 3.1.6 of the *Integrated Planning Act 1997* (IPA))
 - (b) Development Permit - making a material change of use of premises for the development of part of the site for a shopping centre (Riverlink Shopping Centre)

(c) Preliminary Approval - carrying out operational work.

6. Application 682/03 was the subject of a Ministerial Call In on 3 June 2004 and was subsequently approved by the Minister for State Development and Innovation on 1 July 2004.
7. Lot 55 was created from a Reconfiguring a Lot approval (5026/08). Attached to my statement and marked **BD-15** is a plan showing the location of lots 51 to 55. For convenience the attachments to this statement are numbered so as to continue from my earlier statement dated 7 October 2011.
8. Applications 6293/09 and 2727/10 are development applications for the staged development of a total of 118 units in five stages and for the reconfiguration of land into three (3) lots, generally to define the area of the proposed units (2 lots) and an area proposed for drainage (1 lot). In total, the combined land the subject of the applications is 4.893 hectares.
9. The subject land is located north of the Riverlink Shopping Centre and is bound to the west by the railway line which accesses the North Ipswich Rail yards, to the north by Ipswich Railway Workshops Museum and to the east by North Street. The southern portion of the site is separated from the balance of the site by a steeply sloping culvert which runs from the east toward the Bremer River to the west. This area comprises the proposed drainage reserve.
10. The site is affected by the 1 in 100 year flood event as identified by the ICC Planning Scheme development constraint overlays. However, the parts of the site proposed for residential dwellings are all above the 1 in 100 flood event.
11. The applications were supported by a number of reports. Attached to my statement are copies of:
 - BD-16:** Application 6293/09 and supporting material;
 - BD-17:** Application 2727/10 and supporting material.
12. Also attached to my statement are:
 - 6293/09**
 - BD-18:** Development Planner's report dated 29 October 2010
 - BD-19:** Development Application Decision Notice dated 1 November 2010
 - 2727/10**
 - BD-20:** Development Planner's report dated 29 October 2010

BD-21: Development Application Decision Notice dated 1 November 2010.

13. Application 2727/10 includes an updated Site Based Stormwater Management Plan (March 2010 revision 2) (**SMP**) produced by Yates Consulting Pty Ltd. This SMP was taken into consideration in the assessment of both applications.

Public notification of the applications and submissions received

14. Application 6293/09 was processed generally in accordance with the IDAS process and the provisions of IPA. The application was code assessable under the Ipswich Planning Scheme and was therefore not open to formal submissions or appeal rights pursuant to IPA.

15. Although the application was not a publicly notifiable application, submissions were received from:

BD-22: Nick J White and E. Tilbrook dated 20 January 2010; and

BD-23: E. Tilbrook dated 5 February 2010.

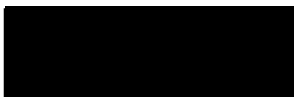
16. These submissions also referred to Operational Works application 6291/09, to be addressed in a supplementary statement to be provided to the Commission by Council's Engineering and Environment Manager, Mr Gary Ellis.

17. Notwithstanding these submissions were not "properly made" pursuant to IPA, they were nevertheless considered in the assessment of the application. In addition, the Team Coordinator (Central/West), Ms Joanne Pocock wrote to Mr White and Ms Tilbrook on 8 June 2010 in response to the issues raised in their submissions. A copy of this letter is attachment **BD-24** to my statement.

18. Application 2727/10 was processed generally in accordance with the IDAS process and the provisions of the *Sustainable Planning Act 2009* (**SPA**). This application was impact assessable and underwent public notification in accordance with the relevant provisions of SPA. Public notification included:

- (a) the placement of a public notice in the Queensland Times newspaper on 29 June 2010;
- (b) a notice erected on the road frontage to the subject site on 28 June 2010 and maintained on the site until 10 August 2010; and
- (c) notification of the application to adjoining land owners by letter dated 25 June 2010.

19. Submissions in respect of application 2727/10 were received from:



A solid black rectangular redaction box covering text at the bottom right of the page, with the handwritten signature "Soliz 1/10" visible below it.

BD-25: Nick J White and E. Tilbrook dated 6 August 2010

BD-26: [REDACTED] received 6 August 2010.

20. These were considered to be properly made submissions pursuant to SPA, thereby affording the submitter appeal rights. The submissions were taken into account in assessing the application.
21. As this application is presently the subject of a negotiated decision request, the submitters have not been formally provided with decision notices. Upon finalisation of the negotiated decision, a copy of the decision notice will be provided to the submitters pursuant to the requirements of the SPA and the submitters will be in a position to exercise, should they be so minded, their appeal rights pursuant to the relevant provisions of the SPA.
22. Background material in relation to each application was also made available by Council on PDOnline, which is the publicly available database of development applications available through the ICC website. Generally applications are available online within two business days of the date of lodgment of the application.
23. The information available online is generally as required pursuant to Chapter 5, Part 7 of IPA and sections 728 and 729 of the SPA. This includes the subject application, including any supporting material, any acknowledgement notice, any information request, any properly made submissions, any referral agency's response and each decision notice and negotiated decision notice, including any plans and specifications approved in relation to the decision notice.

Concurrence and advice agencies

24. The Department of Environment and Resource Management (**DERM**) was a concurrence and advice agency for the applications in respect of heritage related matters and contaminated land matters. DERM provided a coordinated response dated 28 September 2010 in which it advised that there were no concurrence agency requirements and that DERM did not require the imposition of any conditions in relation to the development approval. The DERM response forms part of attachments BD-19 and BD-21 to this statement.

Response to the statement of Mr White

25. Mr White raises the following matters at paragraph 18 of his statement:

- (a) *"In summary we believe that the whole process with regards to the approval of the Riverside Central development did not involve or take into consideration the residences on the opposite bank of the Bremer River..."*

- (b) *"...The opportunity to make a public submission concerning their proposal was limited and the attaining of applications and other supporting documents was difficult..."*
- (c) *"...None of our concerns have been suitably addressed..."*
- (d) *"...In summary our concerns relate to the inappropriate re-profiling of the riverbank, which I believe will increase flood risk and flood flows'; failure of the Council to obtain 3rd part review of the 2008 Cardno Flood Study which I believe is flawed as it used inappropriate modelling tools;*
- (e) *"inappropriate use of the river bank to store contaminated fill; the potential for increased storm water run-off into the Bremer River from the development, causing scouring on our side of the river,*
- (f) *"... the high flood risk for the many hundreds of units that are proposed for the Riverside Central site (most to be built approximately 2 meters below the Temporary Local Planning Instrument level) will endanger lives and property in future floods..."*

26. In relation to paragraph 25(a) above:

- (a) I do not agree with Mr White that the whole process as regards the approval of the development did not involve or take into consideration the residences on the opposite side of the Bremer River. A number of flood studies have been produced by Cardno (Qld) Pty Ltd (**Cardno**) in relation to the development. These studies were provided to, or have been available to Mr White;
- (b) In their study dated 23 July 2008 Cardno concluded that the results of the flood study undertaken by it showed that the Riverlink's development, including the proposed units, did not increase the flood levels for neighbouring properties, and that the increase to peak velocities as a result of the development was minimal, and did not extend upstream or downstream of the development;
- (c) In their further study dated 28 August 2009 Cardno concluded that the proposed works did not increase the flood levels for neighbouring properties and that no significant increases to peak flood velocities were predicted to occur, with small reductions predicted in the sites vicinity;
- (d) this issue is further addressed in the supplementary statement of Mr Ellis.

27. In relation to paragraph 25(b) above:

- (a) I do not agree with Mr White that the opportunity to make a public submission concerning the proposals was limited and that the attaining of applications and other supporting documents was difficult;

- (b) as I have described in paragraphs 22 and 23, the applications and all relevant supporting documents were readily available to Mr White, and to the public at large, on PDOnline. Mr White has exercised his submitter rights in relation to application 2727/10. That application is in the negotiated decision phase, and Mr White's appeal rights as a submitter remain "alive" in relation to that application;
- (c) although not having formal submitter rights in relation to application 6293/09 Mr White's submission was received by Council and his concerns were considered and responded to;
- (d) in addition, on numerous occasions during the processing of these applications I had telephone conversations with Mr White and Ms Tilbrook regarding numerous issues concerning the proposals. These discussions were generally around the issues of additional peak flows, flooding, and adverse impacts on the natural environment, as raised in the submission of Mr White and Ms Tilbrook of 6 August 2010.

28. In relation to paragraph 25(c) above:

- (a) I do not agree with Mr White that none of his and Ms Tilbrook's concerns have been suitably addressed. The applications were processed in accordance with the provisions of IPA and SPA, and the concerns of submitters were taken into account as part of that assessment. I refer in that regard to the Development Planner's report in relation to application 2727/10 dated 29 October 2010 (attachment BD-20) and the letter by Ms Pocock (attachment BD-24) in response to the submissions received from Mr White and Ms Tilbrook in relation to application 6293/09;
- (b) each application was assessed on its individual merits, and approved subject to conditions designed to address not only the issues raised by Mr White, but all other issues considered by Council to be relevant and appropriate in relation to the approval.

29. In relation to paragraph 25(d) above:

- (a) consideration was given by Council to expert reports relating to the development applications where relevant, including reports relating to flooding/stormwater run-off, geotechnical stability and erosion management control;
- (b) these issues are further addressed in the supplementary statement of Mr Ellis.

30. In relation to paragraph 25(e) above:

- (a) The issue of contaminated land is not within Council's jurisdiction as Assessment Manager. However, it is noted that the subject land is on the Environmental Management Register and the developer must comply with the approved Site Management Plan (SMP) issued under the *Environmental Protection Act 1994* by DERM (Contaminated Land Unit). The SMP has specific requirements which apply to excavation during site construction works and for the removal of soil from the site;
- (b) the SMP was put in place at around the time of the preliminary approval in 2004 and remains applicable to the management of contamination within and beyond the site;
- (c) applications 6293/09 and 2727/10 were supported by a GeoEnvironmental remediation plan and the endorsed third party review of that remediation plan by WSP Environmental Pty Ltd, who was a third party reviewer appointed by DERM for the purposes of such review;
- (d) this issue together with the other issues raised in paragraph 25(e) is further addressed in the supplementary statement of Mr Ellis.

31. In relation to paragraph 25(f) above:

- (a) I do not agree that the high flood risk for the units proposed for the site will endanger lives and property in future floods;
- (b) the Yates Consulting Pty Ltd SMP noted, in Table 3.3, that in accordance with flood modelling undertaken by Cardno, the 100 year ARI flood level for the development area is 18.31m AHD;
- (c) the conditions of approval (condition 20(g) in relation to application 6293/09 and condition 19(g) in relation to application 2727/10) provide that:

"Construction of buildings or other structures is not permitted below the flood level associated with an ARI of 100 years. Additionally, as stated in the approved Site Based Stormwater Management Plan (the Yates Consulting 1 March 2010 plan) within Table 3.3, the minimum pad level for any of the units on this site must be 19.2m AHD";

- (d) based on the approved plans, the pad levels of proposed units range from 19.2 to 21.99m AHD, with finished floor levels likely to be above this level;

- (e) further, whilst it would be inappropriate to comment with specificity regarding the negotiated decision requests in relation to applications 6293/09 and 2727/10 whilst those requests remain under consideration, Council will be aware, in relation to the issue of flood levels, of the 2011 flood levels and the requirements of the TLPI; and
- (f) as regards any future residential development proposed for lots 51 to 54, there is currently no development application lodged or approved that permits development of those lots, and any future application for such development will be assessed against the requirements of the TLPI or any equivalent instrument applicable at the time of the assessment of such development.

32. There have been two Operational Works applications in relation to the subject land:

- (a) Operational Works application 6291/09, which application lapsed; and
- (b) Operational Works application 3262/10, which application was approved subject to conditions on 13 July 2010.

33. To the extent that the matters raised by Mr White concern operational works and engineering issues, those issues are further addressed in the statement to be provided to the Commission by Mr Ellis.

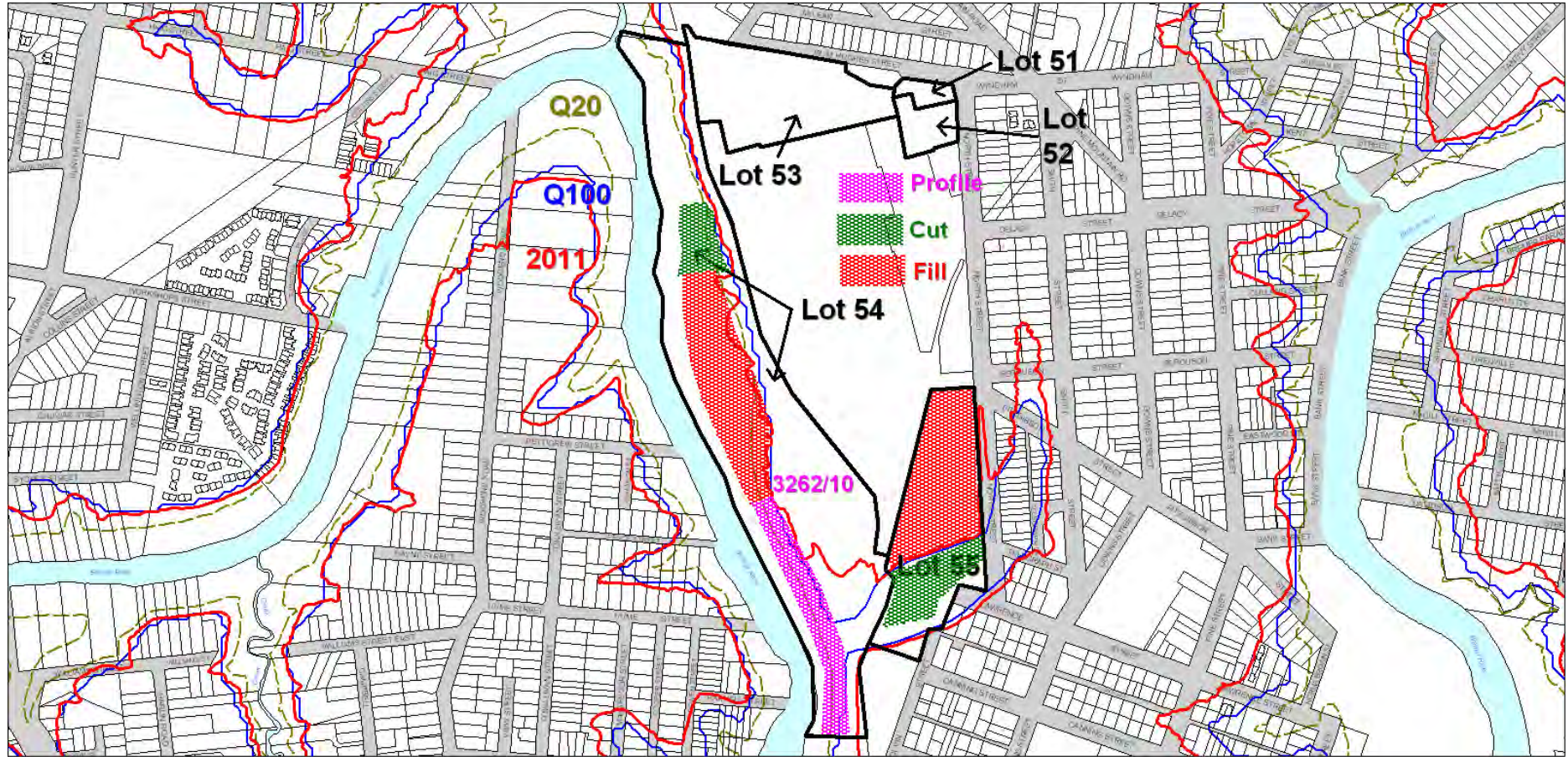
I make this statement conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867* (Qld).

Signed and declared by Brett Davey at Ipswich in the State of Queensland this 26th day of October 2011 before me:


.....
Deponent


.....
Witness *Solicitor.*

Attachment BD-15



Attachment BD-16



MICHEL
GROUP SERVICES

8 October 2009

Our Ref. 874206

Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

MEMBERSHIPS:

Association of
Consulting Surveyors
Queensland

Urban Development
Institute of Australia

DIRECTORS:

Geoff Thomson
B.App.Sc (Surv).
Cadastral Surveyor Qld.
Reg. Surv. NSW.

Tony Cullane
B.Surv.
Cadastral Surveyor Qld.
Reg. Surv. NSW.

Phil Brooker
B.Surv.
Cadastral Surveyor Qld.

Garth Lambert
Ass Dip App.Sc. (Arch)
IT / Drafting

Attn: Joanne Pocock

Dear Sir,

**RE: DEVELOPMENT APPLICATION:
MATERIAL CHANGE OF USE (DEVELOPMENT PERMIT) FOR MULTIPLE
RESIDENTIAL (118 UNITS).
20A NORTH STREET, NORTH IPSWICH.
LOT 55 ON SP222487.**

Please find attached a development application seeking Council approval for Material Change of Use at the abovementioned property. The following is attached in this regard:

1. Six complete copies of the application material.
2. Council's application fee of \$38,260 (Type 3 Development Code - \$18,200 plus \$295 per unit above 50 = (68 units x \$295) + \$18,200 = \$38,260).

We will await Council's Acknowledgement Notice in due course and should you have any questions please don't hesitate to contact us.

Yours Faithfully
Michel Group Services Pty Ltd

Quality Assurance:
ANZSIC ISO 9001:2008
ACSIS Reg. No. 411

Michel Group Services Pty Ltd
A.C.N. 061 750 132
ABN 53 841 801 835

23 Cotton Street
Nerang
QLD Australia 4211

P.O. Box 2695
Nerang BC
QLD Australia 4211

Telephone
07 5502 2500

Facsimile
07 5500 4890

Email
admin@michelservices.com.au

Web Site
www.michelservices.com.au

Cc.: Leda Developments Pty Ltd (Attn: [REDACTED])

Form 1 Development Application idas

Part A

Common details

NOTE: Answer **all** questions unless directed to go to a particular question. Refer to the end of the form for advice on how to complete this form.

Applicant details (The Applicant is the person responsible for making the application and need not be the owner of the land. The Applicant is responsible for ensuring the information provided on the IDAS Application Form is correct. This information is relied upon by the Assessment Manager and any referral agencies when assessing and deciding this application. By lodging this application, the Applicant incurs the obligations and responsibilities prescribed by the IPA. Any development permit or preliminary approval that may be issued as a consequence of this application will be issued to the Applicant.)

Company/organisation name (if applicable) Lipoma Pty Ltd C/ Leda Developments

Individual applicant/Contact person (If there is more than one applicant, provide additional applicant details on an attachment to this form)

Title	Mr	First name		Last name	
Postal address	PO Box 1914 SURFERS PARADISE QLD 4217				
Contact telephone number			Mobile phone number		
Facsimile number			e-mail address		

Details of the premises (i.e. the land on which the development is proposed - refer to the advice at the end of the form)

1. Identify the premises by completing Table A, or Table B and/or Table C (ensure adequate information is given to identify the premises)

Table A If the application is for a **mobile and temporary Environmentally Relevant Activity (ERA)**, complete Table A only. Then go to Q2.

	Name of each local government area in which the mobile and temporary ERA is proposed to operate
1	

OR

Table B Street address for the premises (tick applicable box/es below and insert property description in the table. Identify each lot in a separate row.)

- (i) Street address / lot on plan for the **premises** (Appropriate for most applications including building applications); OR
- (ii) Street address /lot on plan for the **land adjoining or adjacent to the premises** (Appropriate for development in water e.g. jetty, pontoon etc) (Note: Lot on plan details may be obtained from title documents, a 'Rate' notice, or from the local government.)

	Street Address				Lot on plan description		Local government area (e.g. Logan, Cairns)
	Unit No.	Street No.	Street Name and official suburb/locality name	Post Code	Lot No.	Plan type and Plan Number	
1		20A	North Street, North Ipswich	4305	55	SP222487	Ipswich City Council

AND / OR

Table C Coordinates and/or a map of the premises (Appropriate for development in remote areas, over part of a lot, in water (e.g. channel dredging in Moreton Bay) etc.)

	Coordinates <small>(Note: place each set of coordinates in a separate row)</small>				Zone Reference	Datum	Local government area <small>(If applicable)</small>
	Easting	Northing	Latitude	Longitude			
1						<input type="checkbox"/> DGDA94 <input type="checkbox"/> WGS84 <input type="checkbox"/> Other -	

2. Identify if any of the following apply to the premises by completing Tables D, E, or F. (Note: In most instances, the premises will not involve any of the following characteristics, however some applications may involve one or more of these characteristics - complete only if applicable)

Table D Complete if the premises are adjacent to or associated with a water body, watercourse or aquifer (e.g. river, creek, lake, canal)

Name of water body, watercourse or aquifer (if known)	
1	

Table E Complete if the premises are on Strategic Port Land under the *Transport Infrastructure Act 1994*

Lot on plan description for strategic port land	Port Authority for the lot
1	

Table F Complete if the premises are in tidal water

Name of local government for the tidal area (if applicable)	Name of port authority for the tidal area (if applicable)
1	

3. Indicate the total area of the premises on which the development is proposed: (Note: The total area may include land both above and below water)

Total area of premises	
4.89	<input type="checkbox"/> m ² <input checked="" type="checkbox"/> hectares (Tick applicable unit)

Existing use of the premises

4. Current use/s of the premises: (e.g. vacant land, house, townhouses, apartment building, shop, service station, school, sugar cane farming etc.)

1	Vacant Land
---	-------------

5. Are there any existing easements on the premises? (e.g. for vehicular access, electricity, overland flow, water etc.)?

No Yes - Ensure the type, location and dimensions of each easement are included in plans, submitted with the application

Proposal details

6. Brief description of the proposal (e.g. 6 unit apartment building, 30 lot residential subdivision, a bore, aquaculture)

Development of 118 units

7. Does the proposal include new buildings or operational work (including any services) on the premises?

No Yes - Ensure the nature, location and dimensions of the proposed works are included in plans, submitted with the application

Resource entitlement (if applicable) - further information is provided in the advice section at the end of the form

8. Does the application involve taking or interfering with a State resource and therefore require a resource entitlement? (e.g. the application involves State land (leased and freehold), declared Fish Habitat areas, taking quarry material, taking or interfering with water under the Water Act 2000, etc.)

No - Go to Q9 Yes - Complete Table G - provide details for each evidence required on a separate row, if applicable. Evidence of resource allocation or entitlement must be submitted with the application. You do not need to answer Q9 - go to the next section.

Owner's consent (if applicable) - further information is provided in the advice section at the end of the form

9. Complete Table H for applications involving a material change of use; reconfiguration of a lot; work on land below high-water mark and not within a canal as defined under the *Coastal Protection and Management Act 1995*; or work on rail corridor land defined under the *Transport Infrastructure Act 1994* - provide details for each owner on a separate row, or on an attachment to this form if applicable.

Table H	Premises Owner's name/s and postal address	Details of the premises owned (street address or lot on plan description)	Owner's signature*	Date consent was obtained
1	Lipoma Pty Ltd ACN 002 203 581	Lot 55 on SP222487		

* Owner's signature cannot be provided on the form if you intend to submit the application electronically. Owner's consent must be provided to the assessment manager on an attachment containing appropriate written documentation of the owner's consent. If the owner is a company, s127 of the *Corporations Act 2001* (Cwealth) details how a company may sign as owner. Templates for the provision of owner's consent are available on the [JPA website](#).

Attachments and supporting information (Complete Table I - Use a separate row for each type of attachment or information, including information required under this Part) Please ensure all documentation submitted with this form, including other Parts of Form 1, or owner's consent, etc, are securely attached to this Part of the Form.

Table I	Description of attachment or information (e.g. Part C of Form 1, owner's consent, evidence of resource allocation/entitlement, plans, drawings, reports)	Title (if applicable) (e.g. General Authority, James Street Traffic Report)	Date	Method of delivery to assessment manager
1	Part D, N and IDAS Checklist	Application Forms		over the counter
2	Supporting Information	Planning Report		over the counter

Portable Long Service Leave (PLSL) levy (Applicable for certain building and construction work valued over \$80,000 only)

10. The Portable Long Service Leave Levy (PLSL) is not applicable to this application if any of the following apply: (Tick box if applicable)
- the application seeks a preliminary approval only;
 - the application is not for building and construction work under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, section 3AA (e.g. the application is only for a change of use, or for the following types of work **carried out solely for farming purposes**: land clearing, site preparation, earthworks, fences, fodder harvesting, clearing of encroaching vegetation, clearing of regrowth, thinning vegetation or controlling weeds or pests);
 - all costs, that relate to the work both directly and indirectly, are less than \$80,000, inclusive of GST; or
 - the work is being carried out under an owner-builder permit issued under the *Queensland Building Services Authority Act 1991* - Complete and submit a QLeave Notification and Payment Form (no payment required if owner-builder permit number stated) The receipted form must be sighted by the assessment manager before a development permit can be given.

11. Is payment of a PLSL levy applicable to this application? (Refer to Q10 and the Advice below for more information)?

- No - End of Part A
- Yes - Answer Q12 below

OFFICE USE ONLY (For use by the Assessment Manager / Private Certifier) (Optional)

Fee (\$)		Date received		Receiving officer's name		Reference numbers	
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NOTIFICATION OF ENGAGEMENT OF PRIVATE CERTIFIER

To: Council. I have been engaged as the private certifier for the building work referred to in this application.

Date of engagement	Name	BSA Certification number	Building classification/s

QLEAVE NOTIFICATION AND PAYMENT (for completion by assessment manager or private certifier if applicable)

	Description of the work	QLeave Project Number	Amount paid (\$)	Date paid	Date receipted form sighted by assessment manager	Name of officer who sighted the form
1						

Privacy Statement

The information collected on Form 1 will be used by the Department of Infrastructure and Planning (DIP) in accordance with the processing and assessment of your Application. Your personal details will not be disclosed for a purpose outside of the IDAS process, except where required by legislation (including the Freedom of Information Act 1992) or as required by Parliament. This information may be stored in a DIP database. The information collected will be retained as required by the Public Records Act 2002.

Advice for completing Part A

General advice

- Part A of IDAS Development Application Form 1 must be completed and accompany all development applications. The applicant is responsible for answering **all** questions fully and correctly, unless following a response there is a statement to go directly to another question. The Assessment Manger may refuse to receive an application that is not properly made.
- The IDAS Assessment Checklist must also be completed for all development applications, other than those requiring assessment against the *Building Act 1975* only, i.e. those applications requiring the completion of Parts A and B only.

Applicant details

- If the applicant is a company or organisation, a contact person must be nominated. The applicant's signature is not required to be provided under the IPA.

Details of the premises

- The term 'premises' is defined by the IPA, schedule 10 to mean a building or other structure, and land (whether or not a building or other structure is situated on the land). The term 'land' is also defined to include the estate in, on, over or under the land.
- Details of the land are not required if the application involves a mobile and temporary Environmentally Relevant Activity only. Instead complete Table A.
- The premises may be identified in a number of ways --
 - Street address and lot on plan are most common and will apply to most applications.
 - Coordinates may provide the best means of accurately identifying the location of development proposed in waters, or on a relatively small development site distant from property boundaries on a large lot. Sufficient coordinates need to be provided to identify the boundary of the premises the subject of the application. Eastings and northings using GDA94 datum is preferred, but longitude and latitude and other (specified) datum such as Zone Reference or GS84 may be provided.
- The definition of 'water body' and 'watercourse' can vary from Act to Act.
- StrategicPortLand is within a local government area but a local government's planning scheme does not apply on StrategicPortLand. StrategicPortLand is declared under the *Transport Infrastructure Act 1994*. For further information go to [iDAS Guide 11](#) (Development on strategic port land) and the Queensland Transport (Ports) website.
- 'Tidal water' is defined in the *Coastal Protection and Management Act 1995* (Schedule) and 'tidal area' for a local government and for strategic port land is defined in the IPA (schedule 10). Generally, the area below 'high-water mark' (defined by the *Coastal Act in relation to high water mark at spring tides*) establishes the boundary of a tidal area. Land below high water mark is not within a local government's area unless provided for under the *Local Government Act 1993*. Unless otherwise provided for by legislation, a local government has no jurisdiction below high water mark. A tidal area for strategic port land is within the jurisdiction of the relevant port authority, while the Environmental Protection Agency generally has jurisdiction for a local government tidal area. However, the IPA gives local governments jurisdiction for assessing and deciding applications for prescribed tidal works within the local government tidal area, and the planning scheme may be applied to that assessment (to the extent provided for in the code for prescribed tidal work).

Resource entitlement

- Section 3.2.1(5) of the IPA requires evidence of resource entitlement be given for applications if they involve taking or interfering with a prescribed State resource. Schedule 10 of the *Integrated Planning Regulation 1998* (IPR) prescribes the State resources, including State-owned land, where evidence is required to be given, and the evidence required to support the application. Link to [Integrated Planning Regulation](#). Section 3.2.1(10)(a)(ii) states an application **cannot** be taken to be properly made without the required evidence.
- For applications involving the **taking or interfering with water under the Water Act**, the development application may be made at the same time as the request for resource entitlement, and the Department of Natural Resources and Water will accept the application as properly made.
- For **State-controlled roads**, a resource entitlement is not required for an activity that is exempt ancillary works or encroachment (identified by gazette notice under the *Transport Infrastructure Act 1994*, section 50), or if the activity requires referral to the Department of Main Roads.
- Evidence may be required from more than one Department responsible for a State-owned resource, e.g. from the Environmental Protection Agency for quarry material below high water mark, and the Department of Natural Resources and Water in relation to the State-owned land above high water mark.

Owner's consent

- Section 3.2.1(3) of the IPA prescribes that an application must contain, or be supported by, the written consent of the land owner/s, if the application involves: a material change of use; reconfiguration of a lot; work on land below high-water mark and not within a canal as defined under the *Coastal Protection and Management Act 1995*; or work on rail corridor land defined under the *Transport Infrastructure Act 1994*.
- Evidence of this consent may need to be provided before the application will be accepted as properly made by the Assessment Manager, during the processes of the application or in the event of an appeal about the outcome of the application.
- 'Owner' for the purpose of a lodging an iDAS development application means the person at the time of lodging the application, entitled to receive the rent for the land (or would be entitled to receive the rent for it if it were let to a tenant at a rent).
- Templates are available from the [IPA website](#) for the provision of owner's consent as an attachment to this form. However other documentation may be used for providing owner's consent provided it is clear the documentation relates to the development application for the premises.
- Owner's consent, if required, must be provided even if the applicant is the owner. Owner's consent is not required for a mobile and temporary ERA.

Portable Long Service Leave (PLSL) Levy

- The Building and Construction Industry Portable Long Service Leave Scheme provides long service leave entitlements to workers in the building and construction industry who would be unlikely to accrue enough service with one employer to qualify for long service leave. To fund the scheme, a Portable Long Service Leave Levy (PLSL levy) is collected on certain building and construction work carried out in Queensland.
- The PLSL levy amount and other prescribed percentages and rates for calculating the levy are stated in the *Building and Construction Industry (Portable Long Service Leave) Regulation 2002*. Included in the amount collected by QLeave is the Workplace Health and Safety Fee and the Building and Construction Industry Training Levy.
- The *Building and Construction Industry (Portable Long Service Leave) Act 1991* (PLSL Act) defines the building and construction work subject to the PLSL levy and includes renovating, relocating, constructing, altering, demolishing, maintaining or repairing buildings, pools, roads, jetties, pipelines, fences or earthworks, and works for subdividing, irrigating or draining land.
- The PLSL levy need not be paid when the application is made, but the PLSL Act requires the levy to be paid before a development permit may be issued.
- The Assessment Manager must sight an approved form issued by QLeave advising of the status of the payment of the PLSL levy. Building and Construction Industry Notification and Payment Forms are available from any Queensland post office or agency, on request from QLeave, or can be completed on the QLeave website at www.qleave.qld.gov.au. For further information contact QLeave (Tel: 1800 803 481 Web: www.qleave.qld.gov.au)

Form 1 Development Application

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Part D**Material change of use assessable against a planning scheme¹**

Planning scheme identification

1. How is the premises identified / zoned in the applicable planning scheme? (NOTE: if the premises involves multiple zones clearly identify the relevant zone for each lot) - provide details for each lot on a separate row

	Lot description (i.e. street address or lot on plan details)	Applicable zone /precinct /area	Applicable overlays
1	Lot 55 on SP222487	Special Opportunity Zone	OV00 Character Places; OV5 Flooding and Urban Stormwater Flow Paths; OV7A Defence Regulations and Obstruction Clearances

Nature of the proposed material change of use (MCU)

2. How is the proposed use/s defined in the applicable planning scheme?

	General explanation of the proposed use (i.e. in your own words)	Planning scheme definition (include each definition in a new row or on attached documentation if applicable)	No. of dwelling / tenancy units (if applicable)	Days & hours of operation (if applicable)	No. of employees (if applicable)
1	Construction of units	Multiple Residential	118	-	0

3. What type of approval is being sought?

Development Permit Preliminary Approval Both (Provide details below)

4. Are there any current approvals associated with this application for the change of use of the premises? (e.g. a Preliminary Approval for the use)

No Yes - Provide details for each associated approval on a separate row

	List of approval reference/s	Date approved	Date approval lapses (if known)
1	1 into 5 lot subdivision - ICC File Ref. 5026/08	13/2/09	

5. Does the proposed use involve:

- (i) the **reuse of existing buildings** on the premises No Yes - Complete Table A
- (ii) **new building work** on the premises No Yes - Complete Table B
- (iii) the **reuse of other existing operational works** on the premises No Yes - Complete Table C
- (iv) **new operational work** on the premises No Yes - Complete Table D

Table B	Proposed floor area	14,997.54m2 (gross building area)
	Proposed site cover	21.03%
	Proposed maximum number of storeys	2
	Proposed maximum height above natural ground level	Less than 8 metres

Mandatory Information

6. Confirm that the following mandatory information accompanies this application:

	Confirmation of lodgement	Method of lodgement
For all applications		
(i) Plans showing the nature and location of the proposed use on the premises and a statement about the intensity and scale of the proposed use (e.g. number of employees, days and hours of operation, number of visitors, number of seats, capacity of storage area)	<input checked="" type="checkbox"/> Confirmed	over the counter
When the application involves reuse of existing buildings		
(ii) Plans showing the size and location of the buildings to be reused	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	
When the application involves new building work		
(iii) Plans showing the size and location of the proposed new building work	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	over the counter
When the application involves reuse of other existing works		
(iv) Plans showing the nature and location of the works to be reused	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	
When the application involves new operational work		
(v) Plans showing the nature and location of the proposed new operational works	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	

OFFICE USE ONLY

Date received Reference numbers

Advice for completing Part D

General advice	
•	Part A must also be completed for all IDAS development applications.
•	The applicant is responsible for answering all questions fully and correctly, unless following a response there is a statement to go directly to another question.
•	When paying fees to the Environmental Protection Agency by electronic funds transfer (EFT) for coastal development applications, use the process from the information sheet <i>Electronically paying fees to the Environmental Protection Agency (EPA)</i> and securely attach the form <i>Electronic Funds Transfer (EFT) payment notification</i> to this application.
Q3	A development permit authorises development to occur. A preliminary approval is a step in the approval process and does not authorise development to occur - a subsequent application for a development permit must be sought.
Table D	If the MCU application involves operational work that is the building of a retaining wall on the premises, the application is taken also to be for the operational work if approval for the operational work has not been applied for in this application or in a separate application.

¹ This form is also used for material change of use assessable against the land use plan for Cairns airport land or Mackay airport land. Wherever planning scheme is mentioned, take it to mean the land use plan for the airport land.

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Form 1 Development Application

Part N

Contaminated land

Nature of the application and contamination

1. What is the nature of the application and the nature of the contamination on the premises? *(Tick applicable box/es)*

Nature of the application	Nature of the contamination
<input checked="" type="checkbox"/> Material change of use <input type="checkbox"/> Reconfiguring a lot	<input checked="" type="checkbox"/> (i) All or part of the premises is on the Environmental Management Register <input type="checkbox"/> (ii) All or part of the premises is on the Contaminated Land Register <input type="checkbox"/> (iii) All or part of the premises is currently used for, or if there is no existing use, was last used for - <div style="margin-left: 20px;"> <input type="checkbox"/> (a) a notifiable activity <input type="checkbox"/> (b) an industrial activity and the proposed use is for a child care centre, educational, recreational or residential purpose (including a caretaker residence on industrial land) </div> <input type="checkbox"/> (iv) In an area for which an 'area management advice' has been given for natural mineralisation or industrial activity and the proposed use is for a child care centre, educational, recreational or residential purpose (including a caretaker residence on industrial land) <input type="checkbox"/> (v) In an area for which an 'area management advice' has been given for unexploded ordnance

Mandatory information

2. Confirm the following mandatory information accompanies this application.

	Confirmation of lodgement	Method of lodgement
(i) Plans showing where any notifiable activities, hazardous contaminant or potentially contaminated activity has occurred on the premises	<input checked="" type="checkbox"/> Confirmed	over the counter
(ii) If the application involves a material change of use from an industrial use to a more sensitive use (e.g. child care, educational, recreational or residential purpose, including a caretaker residence on industrial land), a detailed site history outlining previous potentially contaminated uses on the premises	<input checked="" type="checkbox"/> Confirmed	over the counter
	<input type="checkbox"/> Not applicable	

OFFICE USE ONLY

Date Received Reference Numbers

Advice for completing Part N

- General advice**
- Part A must also be completed for all IDAS development applications.
 - The applicant is responsible for answering **all** questions fully and correctly, unless following a response there is a statement to go directly to another question.
 - For further information about completing this form go to -
 - [IDAS Guide 5 \(Contaminated land matters\)](#)
 - [EPA contaminated land website.](#)

Form 1 Development Application

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IDAS**Assessment Checklist**

IDAS Development Application Form 1 is the approved form for all development applications under the *Integrated Planning Act 1997* (IPA). Form 1 is made up of various Parts.

Part A (Common details) of Form 1 must be completed for all applications. The relevance of other Parts of Form 1 depends on the nature of the application.

Form 1 also includes this IDAS Assessment Checklist, which is used to assist in determining State assessment and referral requirements, and the Parts of Form 1 relevant to the application.

Section 1 and all other relevant sections of the IDAS Assessment Checklist, as identified in the Table below, must be completed for all development applications except those proposed on land in an urban development area, or for building work requiring assessment against the *Building Act 1975* only.

For more information about development applications on land in an urban development area, refer to www.ulda.qld.gov.au.
For more advice about building applications refer to Part B of the IDAS Application Form.

Answering the following questions will assist you in determining which sections of the checklist must be completed for your application. If unsure, phone or visit your local government or log onto the DIP website www.dip.qld.gov.au for help

For all IDAS development applications (except those for building work requiring assessment against the <i>Building Act 1975</i> only) - complete Section 1 of this checklist		
Does the application seek approval to make a material change of use of the premises? <i>If yes - complete Section 2 of this checklist</i>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Does the application seek approval to reconfigure a lot? <i>If yes - complete Section 3 of this checklist and Part F of IDAS Application Form 1. If the premises are completely within a single local government area assessment is by the local government.</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the application seek approval to carry out operational work? <i>If yes - complete Section 4 of this checklist</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the application seek approval to carry out building work requiring assessment against the <i>Fisheries Act 1994</i> ? <i>If yes - complete Section 5 of this checklist</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Have you received a referral agency response under section 3.3.2 of the IPA, in relation to this development application? <i>If yes - complete Section 6 of this checklist</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the application seek approval to carry out building work requiring assessment against a local government planning scheme? <i>If yes - complete Form 1 Part E of IDAS Application Form 1. Assessment is by the local government.</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Does the application seek approval to carry out building work requiring assessment against the <i>Building Act 1975</i> ? <i>If yes - go to Appendix 1 of this checklist for advice on building referrals. Complete Part B of IDAS Application Form 1. Assessment is by a building certifier</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Do you wish the application to be assessed against a superseded planning scheme? <i>If yes - complete Form 1 Attachment 1</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the application for development completely or partly on Cairns and Mackay airport land under the <i>Airport Assets (Restructuring and Disposal) Act 2008</i> ? <i>If yes - Assessment is by the Department of Infrastructure and Planning. Complete Form 1 Part D of IDAS Application Form 1 if the application is for a material change of use, and Part E if for building or operational work. Also, the application must be referred to the local government as Advice Agency.</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

SECTION 1 Section 1 must be completed for all applications that require completion of the IDAS Assessment Checklist.

HERITAGE

1.1A Is any part of the proposal intended to be carried out on a Queensland heritage place under the *Queensland Heritage Act 1992*?

No - Go to 1.1B Yes

IPA, schedule 8, part 1, table 5, item 2; IP Regulation, schedule 2, table 2, item 18.

1.1B Does the proposal involve development intended to be carried out on a place entered in a local heritage register under part 11 of the *Queensland Heritage Act 1992*, other than if the place is on Cairns or Mackay airport land?

No - Go to Q1.2 Yes

IPA, schedule 8, part 1, table 5, item 2A, IP Regulation, schedule 1, part 2, table 5, item 2.

REMOVING QUARRY MATERIAL; WILD RIVER AREA

1.2 Does the proposal involve removing quarry material from a watercourse or lake as defined under the *Water Act 2000*?

No - Go to Q1.3 Yes

IPA, schedule 8, part 1, table 5, item 1; IP Regulation, schedule 2, table 2, item 11; IP Regulation, schedule 1, table 5, item 2 (wild river area); Water Act 2000, section 966C; Wild Rivers Act 2005, section 43A

ENVIRONMENTALLY RELEVANT ACTIVITY; WILD RIVER AREA

1.3 Does the proposal involve an environmentally relevant activity (ERA), other than a mining activity or a petroleum activity?

No - Go to Q1.4 Yes

IPA, schedule 8, part 1, table 2, item 1; IPA, schedule 8, part 1, table 5, items 3 and 4; IP Regulation, schedule 2, table 2, items 1 and 23; Environmental Protection Act 1994, section 73AA (wild river area); Wild Rivers Act 2005, section 43A; relevant wild river declaration; Wild Rivers Code.

WITHIN THE LIMITS OF A PORT

1.4 Is any part of the premises within the limits of a port under the *Transport Infrastructure Act 1994*?

No - Go to Q1.5
 Yes

IP Regulation, schedule 2, table 2, items 15 and 16

DECLARED FISH HABITAT AREA

1.5 Does any part of the premises adjoin a declared fish habitat area under the *Fisheries Act 1994*?

No - Go to Q1.6
 Yes - *If answers to questions in other sections of this checklist indicate that the proposed development is assessable under IPA, schedule 8, this application requires assessment by the Department of Primary Industries and Fisheries (DPI&F). If DPI&F is not the Assessment Manager for the application, the agency has jurisdiction as Advice Agency.*

IP Regulation, schedule 2, table 2, item 26

COMMUNITY INFRASTRUCTURE

1.6 Is any part of the premises designated for community infrastructure?

No - Go to Q1.7
 Yes

IP Regulation, schedule 2, table 3, item 7

WASTE WATER MANAGEMENT

1.7 Does the proposal involve the establishment or expansion of a waste water disposal system?

No - End of Section 1 Yes

IP Regulation, schedule 2, table 3, item 5

SECTION 2 - Section 2 must be completed when the application seeks approval to make a material change of use of premises.**STATE PLANNING REGULATORY PROVISIONS AND PLANNING SCHEME**

2.1 Is the proposed use assessable under any State planning regulatory provisions?

No Yes

If yes, is the proposed use assessable under the planning scheme?

No - Answer Q2.1.1 - 2.1.13 Yes - Complete Form 1, Part D and answer Q2.1.1 - 2.1.13 below

STATE-CONTROLLED ROAD

2.1.1 Is any part of the premises located in part of a future State-controlled road, or within 100m of a State-controlled road?

Yes No

If no, is the proposed use listed in schedule 5 of the *Integrated Planning Regulation 1998* and does it exceed the specified threshold?

No Yes - This application must be referred to the Department of Main Roads (DMR) as Concurrence Agency.

IP Regulation, schedule 2, table 3, items 1(a) and 3

ACID SULFATE SOILS

2.1.2 Is the use proposed in a local government area listed² in State Planning Policy 2/02: *Planning and Managing Development Involving Acid Sulfate Soils*?

No - Go to Q2.1.3 Yes

² Aurukun, Bowen, Brisbane, Broadsound, Bundaberg, Burdekin, Burke, Burnett, Caboolture, Cairns, Calliope, Caloundra, Cardwell, Carpentaria, Cook, Cooloola, Douglas, Fitzroy, Gladstone, Gold Coast, Hervey Bay, Hinchinbrook, Isis, Johnstone, Livingstone, Logan, Mackay, Maroochy, Maryborough, Mirium Vale, Morningson, Noosa, Pine Rivers, Redcliffe, Redland, Rockhampton, Sarina, Thuringowa, Tiaro, Torres, Townsville, Whitsunday

IP Regulation, schedule 2, table 3, item 4; State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils, section 3.6

COASTAL MANAGEMENT DISTRICT

2.1.3 Is any part of the premises located in a coastal management district?

No - Go to Q2.1.4 Yes

IP Regulation, schedule 2, table 3, item 6

VEGETATION CLEARING

2.1.4 Do the premises include a lot containing the following?

- (i) A category 1, 2 or 3 area shown on a Property Map of Assessable Vegetation (PMAV) No Yes
- (ii) If there is no PMAV for a lot, remnant vegetation No Yes

IP Regulation, schedule 2, table 3, item 11

CONTAMINATED LAND - UNEXPLODED ORDNANCE

2.1.5 Is any part of the premises in an area for which an area management advice has been given for unexploded ordnance?

No - Go to Q2.1.6 Yes - (Complete Form 1, Part N) This application must be referred to the Administering Authority as Concurrence Agency.

IP Regulation, schedule 2, table 3, item 12

PUBLIC PASSENGER TRANSPORT

2.1.6 Is the proposed use of premises listed in schedule 13C of the *Integrated Planning Regulation 1998* and does it exceed the specified threshold?

No - Go to Q2.1.7 Yes - This application must be referred to Queensland Transport (QT) as Concurrence Agency.

IP Regulation, schedule 2, table 3, item 14

RAILWAY SAFETY AND EFFICIENCY

2.1.7 Is the proposed use of premises listed in schedule 13D of the *Integrated Planning Regulation 1998* and does it exceed the specified threshold?

No - Go to Q2.1.8 Yes - This application must be referred to Queensland Transport (QT) as Concurrence Agency.

IP Regulation, schedule 2, table 3, item 15

KOALA CONSERVATION

2.1.8 Is any part of the premises in a koala conservation area or koala sustainability area, other than in an SEQ urban footprint area?

Yes No

If yes, is the use for a domestic activity, as defined by the *Environmental Protection Act 1994*?

Yes No

IP Regulation, schedule 2, table 3, items 18 and 19A

EASEMENTS AND SUBSTATIONS

2.1.9 Is the use associated with reconfiguring a lot?

Yes - Go to Q2.1.10 No - Answer both (a) and (b) below

(a) Will any part of any structure or work that is the natural and ordinary consequence of the use, be located in an easement?

No - Go to (b) Yes - Answer both (i) and (ii) below

(i) Is there an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* for a transmission grid or supply network under that Act?

No Yes - This application must be referred to the entity as Advice Agency.

(ii) Is there an easement in favour of the holder of pipeline licence number 1 issued under the *Petroleum Act 1923* for the construction or operation of the Moonie to Brisbane strategic pipeline under that Act?

No Yes - This application must be referred to the licence holder as Advice Agency.

(b) Is any part of the premises situated within 100m of a substation site under the *Electricity Act 1994*?

No Yes - This application must be referred to the entity responsible for the substation as Advice Agency.

IP Regulation, schedule 2, table 3, item 8 (electricity easement); IP Regulation, schedule 2, table 3, item 16 (pipeline easement); IP Regulation, schedule 2, table 3, item 9 (substation)

RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT IN A WILD RIVER AREA

2.1.10 Is any part of the premises in a wild river area declared under the *Wild Rivers Act 2005*?

No - Go to Q2.1.11 Yes

IP Regulation, schedule 1, part 2, table 5, item 1(a); Wild Rivers code (Note: the code does not currently contain applicable provisions for residential, industrial or commercial development inside a designated urban area)

WETLAND

2.1.11 Is the proposal only for the construction or use of a single residence on a lot and any reasonably associated building or structure?

Yes - Go to Q2.1.12 No

If no, do the premises include a lot situated in, or within 100m of, a wetland shown on the 'Map of referable wetlands'?

No Yes - This application must be referred to the Environmental Protection Agency (EPA) as Advice Agency.

IP Regulation, schedule 2, table 3, item 20

HERITAGE

2.1.12 Do the premises include a lot sharing a common boundary with a Queensland Heritage place under the *Queensland Heritage Act 1992*?

No - Go to Q2.1.13 Yes - (Complete Form 1, Part C). This application must be referred to the Environmental Protection Agency (EPA) as Advice Agency.

IP Regulation, schedule 2, table 3, item 22

CERTAIN PRELIMINARY APPROVALS

2.1.13 Is preliminary approval sought for the application under the IPA, section 3.1.6?

No - Go to Q2.2 Yes - (Complete Form 1, Attachment 2) This application must be referred to the Department of Infrastructure and Planning (DIP) as Advice Agency.

IP Regulation, schedule 2, table 3, item 23

BROTHEL

2.2 Is the proposed use a brothel as defined under the *Prostitution Act 1999*?

No - Go to Q2.3 Yes

IPA, schedule 8, part 1, table 2, item 2; Prostitution Act 1999, section 64

STRATEGIC PORT LAND

2.3 Is any part of the use proposed on Strategic Port Land under the *Transport Infrastructure Act 1994*?

No - Go to Q2.3A Yes

IPA, schedule 8, part 1, table 2, item 3; IP Regulation, schedule 2, table 2, item 6.

AIRPORT LAND

2.3A Is any part of the use proposed on Cairn and Mackay airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*?

No - Go to Q2.4 Yes

IPA, schedule 8, part 1, table 2, item 3A; IP Regulation, schedule 2, table 2, item 6A.

MAJOR HAZARD FACILITY

2.4 Is the proposed use a major hazard facility or possible major hazard facility under the *Dangerous Goods Safety Management Act 2001*?

No - Go to Q2.5 Yes - (Complete Form 1, Part L) This application requires assessment by the Department of Emergency Services (DES). If DES is not the Assessment Manager for the application, the agency has jurisdiction as Concurrence Agency.

IPA, schedule 8, part 1, table 2, item 4; IP Regulation, schedule 2, table 2, item 7

CONTAMINATED LAND - REGISTERED LAND

2.5 Is any part of the land forming the premises on the Environmental Management Register or Contaminated Land Register under the *Environmental Protection Act 1994*?

No - Go to Q2.6 Yes

If yes, does one or more of the following apply?

(i) A suitability statement has been given and a site management plan has been approved for the proposed use of the land, and the proposed use involves only the following -

- the fit-out of a building on the land; or
- minor site excavation, including for example, post holes for open-sided non-habitable structures

No Yes

(ii) There is currently a notifiable activity on the land and the activity is continuing

No Yes

(iii) The proposed use is industrial and only involves minor site excavation (e.g. post holes for open-sided non-habitable structures)

No Yes

(iv) The land is used for a mining activity or petroleum activity

No Yes

If no to all (i) - (iv) above - (Complete Form 1, Part N) This application requires assessment by the Environmental Protection Agency (EPA). If EPA is not the Assessment Manager for the application, the agency has jurisdiction as Concurrence Agency.

IPA, schedule 8, part 1, table 2, item 5; IP Regulation, schedule 2, table 2, item 22

CONTAMINATED LAND - NOTIFIABLE ACTIVITY

2.6 Is any part of the land forming the premises currently used for a notifiable activity, or if there is no existing use was it last used for a notifiable activity?

No - Go to Q2.7 Yes

If yes, does one or more of the following apply?

- (i) A suitability statement, removing the land from the environmental management register, has been given under the *Environmental Protection Act 1994* for the existing use, or if there is no existing use, the last use, and the following **both** apply -
- no new notifiable activity has occurred on the land since the suitability statement was issued; No Yes
 - the land is not otherwise contaminated by a hazardous contaminant
- (ii) A suitability statement has been given and a site management plan has been approved for the proposed use of the land, and the proposed use involves only the following -
- the fit-out of a building on the land; or No Yes
 - minor site excavation, including for example, post holes for open-sided non-habitable structures
- (iii) The land is used for a mining activity or petroleum activity No Yes

If **no to all** (i) - (iii) above - (Complete Form 1, Part N) This application requires assessment by the Environmental protection Agency (EPA). If EPA is not the Assessment Manager for the application, the agency has jurisdiction as Concurrence Agency.

IPA, schedule 8, part 1, table 2, item 6; IP Regulation, schedule 2, table 2, item 22

CONTAMINATED LAND - INDUSTRIAL ACTIVITY

- 2.7 Is any part of the premises currently used for an industrial activity (other than for a mining activity or petroleum activity), or if there is no existing use was it last used for an industrial activity (other than for a mining activity or petroleum activity)?

No - Go to Q2.8 Yes

If yes, is the proposed use for child care, educational, recreational or residential purposes (including a caretaker residence on industrial land)?

No Yes - (Complete Form 1, Part N) This application requires assessment by the Environmental Protection Agency (EPA). If EPA is not the Assessment Manager for the application, it has jurisdiction as Concurrence Agency.

IPA, schedule 8, part 1, table 2, item 6; IP Regulation, schedule 2, table 2, item 22

CONTAMINATED LAND - AREA MANAGEMENT ADVICE (NATURAL MINERALISATION OR INDUSTRIAL ACTIVITY)

- 2.8 Is any part of the premises in an area for which an area management advice has been given for natural mineralisation or industrial activity (other than for a mining activity or petroleum activity)?

No - Go to Q2.9

Yes

IPA, schedule 8, part 1, table 2, item 7; IP Regulation, schedule 2, table 2, item 22

AQUACULTURE; WILD RIVER AREA

- 2.9 Is the proposed use for aquaculture as defined under the *Fisheries Act 1994*?

No - Go to Q2.10 Yes

IPA, schedule 8, part 1, table 2, item 8; IPA, schedule 8, part 2, table 2, item 1 (self-assessable aquaculture); IP Regulation, schedule 2, table 2, item 27
Fisheries Act 1994, section 76DA (wild river area); Wild Rivers Act 2005, section 43A

AGRICULTURAL AND ANIMAL HUSBANDRY ACTIVITIES IN A WILD RIVER AREA

- 2.10 Is any part of the premises in a wild river area declared under the *Wild Rivers Act 2005*?

No - Go to Q2.11 Yes

IPA, schedule 8, part 1, table 2, item 11; IP Regulation, schedule 2, table 2, item 36; Wild Rivers Act 2005, sections 42, 43A

SOUTH EAST QUEENSLAND REGION

- 2.11A Is any part of the premises within the South East Queensland (SEQ) designated region?

No - Go to Q2.11B Yes

If yes, do the following apply?

- (i) The application is for a proposed use assessable under the planning scheme No Yes
- (ii) The application is for development outside a rural precinct^{2.2}, or if in a rural precinct, it is inconsistent with the rural precinct No Yes

^{2.2} Rural precinct has the meaning given in the draft SEQ Regional Plan 2009-2031 Regulatory Provisions

If **yes** to both (i) and (ii) - Answer (a) to (c) below

(a) Is any part of the premises within a **future growth area or an urban growth area**?

No - Go to (b) Yes - (Answer (i) and (ii) below)

(b) Is the proposed use for an extension of more than 10,000m² to an existing retail centre in an activity centre identified in the SEQ Regional Plan?

No Yes - This application must be assessed by local government for the purposes of the SEQ Regional plan including policy 8.6.2.

(c) Is any part of the premises **outside the urban footprint**?

No - Go to Q2.11B Yes

Draft South East Queensland Regional Plan 2009-2031 Regulatory Provisions, divisions 2 and 4; IP Regulation, schedule 2, table 3, item 13

FAR NORTH QUEENSLAND REGION

2.11B Is any part of the premises within the Far North Queensland region (FNQ) designated region?

No - Go to Q2.12 Yes

Draft South East Queensland Regional Plan 2009-2031 Regulatory Provisions, divisions 2 and 4; IP Regulation, schedule 2, table 3, item 13

CONSERVATION ESTATE

2.12 Is the proposal for urban purposes, as defined under the IPA?

No - Go to Q2.13 Yes

If yes, is the use proposed on a lot situated in, or within 100m of, any of the following?

(i) A protected area, forest reserve, critical habitat or area of major interest under the *Nature Conservation Act 1992*

No Yes

(ii) A State forest or timber reserve under the *Forestry Act 1959*

No Yes

(iii) A marine park under the *Marine Parks Act 2004*

No Yes

(iv) A recreation area under the *Recreation Area Management Act 1988*

No Yes

(v) A world heritage area listed under the World Heritage Convention

No Yes

(vi) Brisbane forest park under the *Brisbane Forest Park Act 1977*

No Yes

If **yes** to any one of (i) - (vi) above - This application must be referred to the chief executive under the relevant Act mentioned as Advice Agency.

IP Regulation, schedule 2, table 2, item 40

REMOVAL, DESTRUCTION OR DAMAGE OF A MARINE PLANT

2.13 Does the proposed use involve the removal, destruction or damage of marine plants under the *Fisheries Act 1994*?

No - End of Section 2 Yes

IPA, section 3.2.2A; IPA, schedule 8, part 1, table 4, item 8 (assessable development); IPA, schedule 8, part 2, table 4, item 4 (self-assessable development); Fisheries Regulation 1995 s113A (self-assessable codes); IP Regulation, schedule 2, table 2, item 29; IP Regulation, schedule 1, part 3, table 4, item 8; Fisheries Act 1994, section 76DB (wild river area); Wild Rivers Act 2005, section 43A.

Disclaimer:

While the Department of Infrastructure and Planning (DIP) believes that this information contained on this form and provided as part of this process will be of assistance to you, it is provided on the basis that you will not rely on the information without first making your own enquiries regarding the interpretation and application of the applicable legislation to your circumstances.

To the full extent permitted by law DIP expressly disclaims all liability (including but not limited to liability for negligence) for errors or omissions of any kind or for any loss (including direct and indirect losses), damage or other consequence which may arise from your reliance on this process and the information contained on this form.



Interim questionnaire for the SEQ Koala SPRP and Koala Plan

The South East Queensland Koala State Planning Regulatory Provisions (SEQ Koala SPRP) took effect on 1 July 2009. The provisions replace the draft provisions released in December 2008.

Under the new provisions, some of the circumstances under which development applications are referred to the Department of Infrastructure and Planning have changed, as have the provisions relating to the clearing of certain vegetation.

The completed *Interim questionnaire for the SEQ Koala SPRP and Koala Plan* is intended to assist applicants identify referral requirements for development in koala habitat areas identified under the SEQ Koala SPRP and Koala Plan. If development is proposed in any of these areas, complete and submit the questionnaire, along with the completed *IDAS Assessment Checklist*.

Note: This is a revised version of the interim questionnaire prepared for the commencement of the final SEQ Koala SPRP. The questionnaire has been revised following the finalisation of the *South East Queensland Regional Plan 2009–2031*—to account for amendments to the boundaries of the regional land use category areas. These amendments have **not** changed the referral requirements for development in koala habitat areas.

The trigger for referral to the Department of Environment and Resource Management (DERM) relates to whether certain koala habitat areas are **outside** the SEQ urban footprint identified in the **draft** version of the regional plan (December 2008). Some of these areas are now located **inside** the SEQ urban footprint in the **final** version of the regional plan (July 2009). Maps showing these 'DERM urban footprint koala areas' can be viewed on the DIP website at www.dip.qld.gov.au/forms-templates/idas-assessment-checklist.html



For an application for a material change of use

KOALA CONSERVATION																												
2.1.8	<p>Is any part of the premises in an interim koala habitat protection area identified under the <u>SEQ Koala SPRP</u>?</p> <p><input type="checkbox"/> Yes</p> <p>If yes, do any of the exceptions stated in section 1.3 of the SEQ Koala SPRP apply?</p> <p><input type="checkbox"/> Yes – End of question</p> <p><input type="checkbox"/> No</p> <p>If no, does the following apply?</p> <table border="1"> <tr> <td>(i) The development is only for a private residence on an existing lot</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(ii) The development is on premises that will result in—</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td> <ul style="list-style-type: none"> • a gross floor area of no more than 500m²; and • the clearing of no more than 2,500m² of native vegetation; and • the excavation or filling of an area of no more than 5,000m²; and • no loss of mature koala habitat trees. </td> <td></td> <td></td> </tr> </table> <p>If yes to either or both – End of question</p> <p>If no to both – This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.</p> <p><input checked="" type="checkbox"/> No</p> <p>If no, is any part of the premises in a koala conservation area or koala sustainability area, identified under the <u>Koala Plan</u>¹, located outside the current SEQ urban footprint area²?</p> <p><input type="checkbox"/> Yes</p> <p>If yes, is the use for a domestic activity, as defined by the <i>Environmental Protection Act 1994</i>?</p> <p><input type="checkbox"/> Yes– End of question <input type="checkbox"/> No</p> <p>If no, will the use result in the following?</p> <table border="1"> <tr> <td>(i) Clearing of native vegetation over an area greater than 2,500m²</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(ii) A new building and any reasonably associated structure with a total footprint greater than 1,000m²</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(iii) An extension to an existing building and any reasonably associated structure if the extension has a total footprint greater than 1,000m²</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(iv) Extracting gravel, rock or sand from an area greater than 5,000m²</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(v) Excavating or filling an area greater than 5,000m²</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> <tr> <td>(vi) Additional traffic in a koala conservation area or koala sustainability area between 6:00pm on a day and 6:00am on the following day</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> Yes</td> </tr> </table> <p>If yes to any one of (i) – (vi) above - This application must be referred to the Department of Environment and Resource Management (DERM) as concurrence agency.</p> <p><input checked="" type="checkbox"/> No</p> <p>If no, is any part of the premises in a koala conservation area or koala sustainability area, identified under the <u>Koala Plan</u>, which is a '<u>DERM urban footprint koala area</u>'³?</p> <p><input checked="" type="checkbox"/> No – End of question <input type="checkbox"/> Yes</p> <p><small>IP Regulation, schedule 2, table 3, items 18 and 19A: South East Queensland Koala State Planning Regulatory Provisions</small></p>	(i) The development is only for a private residence on an existing lot	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(ii) The development is on premises that will result in—	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<ul style="list-style-type: none"> • a gross floor area of no more than 500m²; and • the clearing of no more than 2,500m² of native vegetation; and • the excavation or filling of an area of no more than 5,000m²; and • no loss of mature koala habitat trees. 			(i) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(ii) A new building and any reasonably associated structure with a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(iii) An extension to an existing building and any reasonably associated structure if the extension has a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(iv) Extracting gravel, rock or sand from an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(v) Excavating or filling an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(vi) Additional traffic in a koala conservation area or koala sustainability area between 6:00pm on a day and 6:00am on the following day	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(i) The development is only for a private residence on an existing lot	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(ii) The development is on premises that will result in—	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
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(i) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(ii) A new building and any reasonably associated structure with a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(iii) An extension to an existing building and any reasonably associated structure if the extension has a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(iv) Extracting gravel, rock or sand from an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(v) Excavating or filling an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										
(vi) Additional traffic in a koala conservation area or koala sustainability area between 6:00pm on a day and 6:00am on the following day	<input type="checkbox"/> No	<input type="checkbox"/> Yes																										

¹ The Koala Plan is the *Nature Conservation (Koala) Conservation Plan 2006*. The mapped areas under the plan can be viewed at www.epa.qld.gov.au/nature_conservation/wildlife/koalas/koala_plan/current_koala_plan_maps/koala_habitat_maps_by_lot_and_plan_or_street/

² The current SEQ urban footprint area is the area identified under the *South East Queensland Regional Plan 2009-2031* (final SEQ Regional Plan, July 2008).

³ A 'DERM urban footprint koala area' is a koala conservation area or koala sustainability area, identified under the Koala Plan, which is located **outside** the boundary of the SEQ urban footprint identified under the former *draft SEQ Regional Plan 2009-2031* (December 2008) but located **inside** the boundary of the final SEQ Regional Plan (July 2009). Maps showing these 'DERM urban footprint koala areas' can be viewed at www.dip.qld.gov.au/forms-templates/das-assessment-checklist.html



If yes, is the use for a domestic activity, as defined by the <i>Environmental Protection Act 1994</i>?		
<input type="checkbox"/> Yes– <i>End of question</i> <input type="checkbox"/> No		
If no, will the use result in the following?		
(vii) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(viii) A new building and any reasonably associated structure with a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ix) An extension to an existing building and any reasonably associated structure if the extension has a total footprint greater than 1,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(x) Extracting gravel, rock or sand from an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xi) Excavating or filling an area greater than 5,000m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xii) Additional traffic in a koala conservation area or koala sustainability area between 6:00pm on a day and 6:00am on the following day	<input type="checkbox"/> No	<input type="checkbox"/> Yes
If yes to any one of (i) – (vi) above - <i>This application must be referred to the Department of Environment and Resource Management (DERM) as concurrence agency.</i>		



For an application for reconfiguring a lot

KOALA CONSERVATION													
3.12	<p>Is any part of the premises in an interim koala habitat protection area, identified under the <u>SEQ Koala SPRP</u> ?</p> <p><input type="checkbox"/> Yes</p> <p>If yes, do any of the exceptions stated in section 1.3 of the SEQ Koala SPRP apply?</p> <p><input type="checkbox"/> Yes – <i>End of question</i></p> <p><input type="checkbox"/> No</p> <p>If no, will the reconfiguration result in the creation of an additional lot?</p> <p><input type="checkbox"/> No - <i>End of question</i> <input type="checkbox"/> Yes - <i>This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.</i></p> <p><input type="checkbox"/> No</p> <p>Is any part of the premises in a koala conservation area or koala sustainability area, identified under the <u>Koala Plan</u>⁴, outside the current SEQ urban footprint area⁵?</p> <p><input type="checkbox"/> Yes</p> <p>If yes, will the proposed reconfiguration result in the following?</p> <table border="1"><tbody><tr><td>(i) An increased number of lots</td><td><input type="checkbox"/> No</td><td><input type="checkbox"/> Yes</td></tr><tr><td>(ii) Clearing of native vegetation over an area greater than 2,500m²</td><td><input type="checkbox"/> No</td><td><input type="checkbox"/> Yes</td></tr></tbody></table> <p>If yes to either or both of (i) or (ii) above – <i>This application must be referred to the Department of Environment and Resource Management (DERM) as concurrence agency.</i></p> <p><input type="checkbox"/> No</p> <p>If no, is any part of the premises in a koala conservation area or koala sustainability area, identified under the <u>Koala Plan</u>, which is a '<u>DERM urban footprint koala area</u>'⁶?</p> <p><input type="checkbox"/> No – <i>End of question</i> <input type="checkbox"/> Yes</p> <p>If yes, will the proposed reconfiguration result in the following?</p> <table border="1"><tbody><tr><td>(i) An increased number of lots</td><td><input type="checkbox"/> No</td><td><input type="checkbox"/> Yes</td></tr><tr><td>(ii) Clearing of native vegetation over an area greater than 2,500m²</td><td><input type="checkbox"/> No</td><td><input type="checkbox"/> Yes</td></tr></tbody></table> <p>If yes to either or both of (i) or (ii) above – <i>This application must be referred to the Department of Environment and Resource Management (DERM) as concurrence agency.</i></p>	(i) An increased number of lots	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(ii) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(i) An increased number of lots	<input type="checkbox"/> No	<input type="checkbox"/> Yes	(ii) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(i) An increased number of lots	<input type="checkbox"/> No	<input type="checkbox"/> Yes											
(ii) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes											
(i) An increased number of lots	<input type="checkbox"/> No	<input type="checkbox"/> Yes											
(ii) Clearing of native vegetation over an area greater than 2,500m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes											

IP Regulation, schedule 2, table 3, items 18 and 19A; South East Queensland Koala State Planning Regulatory Provisions

⁴ The Koala Plan is the *Nature Conservation (Koala) Conservation Plan 2006*. The mapped areas under the plan can be viewed at www.epa.qld.gov.au/nature_conservation/wildlife/koalas/koala_plan/current_koala_plan_maps/koala_habitat_maps_by_lot_and_plan_or_street/

⁵ The current SEQ urban footprint area is the area identified under the *South East Queensland Regional Plan 2009-2031* (final SEQ Regional Plan, July 2009).

⁶ A 'DERM urban footprint koala area' is a koala conservation area or koala sustainability area, identified under the Koala Plan, which is located **outside** the boundary of the SEQ urban footprint identified under the former *draft SEQ Regional Plan 2009-2031* (December 2008) but located **inside** the boundary of the *final SEQ Regional Plan* (July 2009). Maps showing these 'DERM urban footprint koala areas' can be viewed at www.dip.qld.gov.au/forms-templates/idas-assessment-checklist.html



For an application for operational work

KOALA CONSERVATION				
4.3A	<p>Is any part of the premises in an interim koala habitat protection area, identified under the <u>SEQ Koala SPRP</u>?</p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>If yes, do any of the exceptions stated in section 1.3 of the SEQ Koala SPRP apply?</p> <p><input type="checkbox"/> Yes – <i>End of question</i> <input type="checkbox"/> No</p> <p>If no, will the development result in —</p> <table border="1"><tr><td><ul style="list-style-type: none">• the clearing of no more than 2,500m² of native vegetation; and• the excavation or filling of an area of no more than 5,000m²; and• no loss of mature koala habitat trees?</td><td><input type="checkbox"/> No</td><td><input type="checkbox"/> Yes</td></tr></table> <p>If yes - <i>End of question</i></p> <p>If no – <i>This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.</i></p> <p><small>IP Regulation, schedule 2, table 2, item 34A; South East Queensland Koala State Planning Regulatory Provisions</small></p>	<ul style="list-style-type: none">• the clearing of no more than 2,500m² of native vegetation; and• the excavation or filling of an area of no more than 5,000m²; and• no loss of mature koala habitat trees?	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none">• the clearing of no more than 2,500m² of native vegetation; and• the excavation or filling of an area of no more than 5,000m²; and• no loss of mature koala habitat trees?	<input type="checkbox"/> No	<input type="checkbox"/> Yes		



Interim questionnaire for the SEQ Regional Plan State Planning Regulatory Provisions

The South East Queensland Regional Plan 2009–2031 State Planning Regulatory Provisions took effect on 28 July 2009. These provisions replace the draft provisions released in December 2008.

Under the new provisions, some of the circumstances under which development applications are referred to the Department of Infrastructure and Planning have changed.

The *Interim questionnaire for the SEQ Regional Plan State Planning Regulatory Provisions* is intended to assist applicants identify referral requirements relating to the regulatory provisions. If development is proposed in the SEQ designated region, complete and submit the questionnaire as part of the development application, along with the completed *IDAS Assessment Checklist*.



For an application for a material change of use

SOUTH EAST QUEENSLAND REGION		
2.11A	Is any part of the premises within the South East Queensland (SEQ) designated region? <input type="checkbox"/> No – End of question <input checked="" type="checkbox"/> Yes	
	If yes, do the following apply? ¹	
	(i) The application is only for development proposed in a rural precinct and the development is consistent with the rural precinct	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(ii) The application is only for development identified as exempt development under the <i>Integrated Planning Act 1997</i> , schedule 9	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(iii) The application is only for development carried out under a development approval which has not lapsed for a development application— <ul style="list-style-type: none"> that was properly made before the <i>South East Queensland Regional Plan 2009-2031 State planning regulatory provisions</i> (SEQ 2009-2031 regulatory provisions) commenced; or to which division 2 of the SEQ 2009-2031 regulatory provisions applied 	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(iv) The application is only for development that is consistent with a preliminary approval which has not lapsed, for the part of a development application mentioned in IPA, section 3.1.6 that states the way in which the effect of a local planning scheme is varied, where the development application for the preliminary approval was— <ul style="list-style-type: none"> properly made before the SEQ 2009-2031 regulatory provisions commenced; or assessed against division 2 of the SEQ 2009-2031 regulatory provisions 	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(v) The application is only for development that is generally in accordance with a rezoning approval where the development entitlements from the rezoning approval are conferred by the following— <ul style="list-style-type: none"> the resulting zone in a transitional planning scheme; or a development permit or acknowledgement notice mentioned in IPA, section 3.2.5(1)(a) for a development application (superseded planning scheme) for the resulting zone in a transitional planning scheme which is a superseded planning scheme; or a planning scheme (other than a transitional planning scheme) 	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(vi) The application is only for development that is declared to be a significant project under the <i>State Development and Public Works Organisation Act 1971</i> , section 26(1)(a)	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	(vii) The premises are completely within a State development area under the <i>State Development and Public Works Organisation Act 1971</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
	If yes to any one of (i) – (vii) – End of question	
	If no to all of (i) – (vii) above – Answer (a) to (c) below	
	(a) Is any part of the premises within a development area , as defined under the SEQ 2009-2031 regulatory provisions? <input checked="" type="checkbox"/> No - Go to (b) <input type="checkbox"/> Yes	
	If yes, do the following apply?	
	(A) The proposed use is impact assessable under the planning scheme	<input type="checkbox"/> No <input type="checkbox"/> Yes
	(B) The gross floor area on the premises is no more than 10,000m ²	<input type="checkbox"/> No <input type="checkbox"/> Yes
	(C) The land area of the premises is more than 10,000m ²	<input type="checkbox"/> No <input type="checkbox"/> Yes
	If yes to any one of (A) – (C) above - This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.	

¹ For interpretation of terms in the following questions, see the *South East Queensland Regional Plan 2009-2031 State Planning Regulatory Provisions*, section 1.5



(b) Is the proposed use for an extension of more than 10,000m² of retail floor space?
 No Yes - *This application must be assessed by the local government against the assessment criteria in section 4.1 of the SEQ 2009-2031 regulatory provisions*

(c) Is any part of the premises **outside the urban footprint**?
 No - *End of question* Yes

If yes, do the following apply?

(i) The premises are completely in an urban area ² under a planning scheme (other than a transitional planning scheme)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ii) The premises are completely in a biodiversity development offset area approved under a State planning instrument	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If yes to either - *End of question*

If no to both (i) and (ii), does the proposed use involve **one or more** of the following activities, as defined under the SEQ 2009-2031 regulatory provisions, schedule 2.1?

• Tourist activity, sport and recreation activity or community activity	<input type="checkbox"/> No	<input type="checkbox"/> Yes - <i>(Answer (i) below)</i>
• Indoor recreation	<input type="checkbox"/> No	<input type="checkbox"/> Yes - <i>(Answer (ii) below)</i>
• Residential development other than rural residential development	<input type="checkbox"/> No	<input type="checkbox"/> Yes - <i>(Answer (iii) below)</i>
• Residential development that is rural residential development	<input type="checkbox"/> No	<input type="checkbox"/> Yes - <i>(Answer (iv) below)</i>
• Another type of urban activity	<input type="checkbox"/> No	<input type="checkbox"/> Yes - <i>(Answer (v) below)</i>

If no to all - *End of question*

(i) **For the proposed use for a tourist activity, sport and recreation activity or community activity** (SEQ 2009-2031 regulatory provisions, table 2B)

Do the following apply?

(A) Will have a gross floor area on the premises of more than 5,000m ² (excluding short term accommodation)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(B) Any incidental commercial or retail activity area on the premises will be more than 250m ²	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(C) Will accommodate more than 300 persons in any short term accommodation	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If yes to any one of (A) - (C) above - *This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.*

(ii) **For the proposed use for indoor recreation** (SEQ 2009-2031 regulatory provisions, table 2C)

Do the following apply?

(A) Will cater for more than 250 persons	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(B) Will have a gross floor area on the premises of more than 3,000m ² (excluding short-term accommodation)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(C) Will accommodate more than 100 persons in any short term accommodation	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If yes to any one of (A) - (C) above - *This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.*

(iii) **For proposed residential development other than rural residential development** (SEQ 2009-2031 regulatory provisions, table 2D)

Is the residential development for a private residence, as defined under the SEQ 2009-2031 regulatory provisions, on an existing lot?

Yes - *Go to (iv)* No - *This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.*

² Urban area has the meaning given in the *Integrated Planning Act 1997*, schedule 10.



(iv) **For proposed residential development that is rural residential development** (SEQ 2009-2031 regulatory provisions, table 2D)

Is any part of the premises in the Regional Landscape and Rural Production Area?

No - Go to (v) if applicable Yes

If yes, is the residential development for a private residence, as defined under the SEQ 2009-2031 regulatory provisions, on an existing lot?

Yes - Go to (v) if applicable No - *This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.*

(v) **For another type of urban activity** (SEQ 2009-2031 regulatory provisions, table 2E)

Do the following apply?

(A) The proposed use is only for an industrial or commercial purpose and—	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none"> the gross floor area on the premises is no more than 750m²; and any incidental retail activity on the premises is no more than 50m²; and any associated outdoor area on the activity is no more than 1,500m² 		
(B) The proposed use is only for a service station and—	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none"> the gross floor area on the premises is no more than 1,000m²; and any incidental retail activity on the premises is no more than 250m²; and any associated outdoor area on the premises is no more than 2,000m² 		

If no to both (A) and (B) above - *This application must be referred to the Department of Infrastructure and Planning (DIP) as concurrence agency.*

South East Queensland Regional Plan 2009-2031 State Planning Regulatory Provisions, divisions 2 and 4; IP Regulation, schedule 2, table 3, item 13.

For an application for reconfiguring a lot³

SOUTH EAST QUEENSLAND REGION

3.11A Is any part of the premises within the South East Queensland (SEQ) designated region?

No - End of question Yes

If yes, do the following apply?

(i) The application only seeks approval for reconfiguring a lot other than subdivision	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ii) The application is only for development inside a rural precinct and the development is consistent with the rural precinct	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(iii) The application is only for development identified as exempt development under the <i>Integrated Planning Act 1997</i> , schedule 9	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(iv) The application is only for development carried out under a development approval for the premises—	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none"> that was properly made before the <i>South East Queensland Regional Plan 2009-2031 regulatory provisions</i> (SEQ 2009-2031 regulatory provisions); or to which division 2 of the SEQ 2009-2031 regulatory provisions applied 		
(v) The application is only for development that is consistent with a preliminary approval which has not lapsed, for the part of a development application mentioned in IPA, s 3.1.6 that states the way in which the effect of a local planning scheme is varied, where the development application for the preliminary approval was—	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none"> properly made before the SEQ 2009-2031 regulatory provisions; or assessed against division 2 of the SEQ 2009-2031 regulatory provisions 		

³ For the purposes of the SEQ regulatory provisions, subdivision means creating a lot, or dividing land into parts by agreement rendering different parts of a lot immediately available for separate occupation, and does not include a lease for a term, including renewal options, not exceeding 10 years. Urban area has the meaning given in the *Integrated Planning Act 1997*, schedule 10.



(vi) The application is only for development that is generally in accordance with a rezoning approval where the development entitlements from the rezoning approval are conferred by the following— <ul style="list-style-type: none"> • the resulting zone in a transitional planning scheme; or • a development permit or acknowledgement notice mentioned in IPA, section 3.2.5(1)(a) for a development application (superseded planning scheme) for the resulting zone in a transitional planning scheme which is a superseded planning scheme; or • a planning scheme (other than a transitional planning scheme) 	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(vii) The application is only for development that is declared to be a significant project under the <i>State Development and Public Works Organisation Act 1971</i> , section 26(1)(a)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(viii) The premises are completely within a State development area under the <i>State Development and Public Works Organisation Act 1971</i>	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If **yes to any one**— *End of question*

If **no to all of (i) – (viii) above** – *Answer (a) and (b) below*

(a) Is any part of the premises in a **development area**?

No - *Go to (b)* Yes

If yes, do the following apply?

The subdivision:		
(i) Complies with a master plan for a declared master planned area	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ii) Results in no additional lots, for example, amalgamation or boundary realignment	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(iii) Creates one additional lot to accommodate an emergency services facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(iv) Creates one additional lot to accommodate a water cycle management infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(v) Creates one additional lot to accommodate a waste management facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(vi) Creates one additional lot to accommodate a telecommunication infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(vii) Creates one additional lot to accommodate electricity infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(viii) Creates one additional lot to accommodate an cemetery or a crematorium	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ix) Creates one additional lot to accommodate a correctional facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(x) Divides one lot into two, if the existing lot is severed by a road that was gazetted before 2 March 2006, and the resulting lot boundaries use the road as the point of division.	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xi) Is consistent with a development approval for a material change of use of premises that has not lapsed, where the application for the development approval was made before 31 October 2006	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xii) Is consistent with a development approval for a material change of use of premises that has not lapsed, where the material change of use was assessed by a referral agency against division 2 of the applicable State planning regulatory provisions	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If **no to all** - *This application must be referred to the Department of Infrastructure and Planning (DIP) as Concurrence Agency for the purposes of the SEQ Regional plan*

(b) Is any part of the premises within the **Regional Landscape and Rural Production Area**?

No - *End of question* Yes

If yes, do the following apply?

(i) The premises are completely in an urban area under a planning scheme (other than a transitional planning scheme)	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ii) The premises are completely in a biodiversity development offset area approved under a State planning instrument	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If **yes to either (i) or (ii)** – *End of question*

If **no to both (i) and (ii)**, do the following apply?

The subdivision:		
(i) Is consistent with a rural subdivision precinct, as defined under the SEQ 2009-2031 regulatory provisions	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ii) Results in lots of 100 hectares or greater	<input type="checkbox"/> No	<input type="checkbox"/> Yes



(iii) Results in no additional lots, for example, amalgamation or boundary realignment	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(iv) Is within an area designated by the regional planning Minister in a gazette notice as having a rural residential purpose, and is subject to a development application that is properly made on or before 6 December 2010	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(v) Creates one additional lot to accommodate an emergency services facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(vi) Creates one additional lot to accommodate a water cycle management infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(vii) Creates one additional lot to accommodate a waste management facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(viii) Creates one additional lot to accommodate a telecommunication infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(ix) Creates one additional lot to accommodate electricity infrastructure	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(x) Creates one additional lot to accommodate an cemetery or a crematorium	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xi) Creates one additional lot to accommodate a correctional facility	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xii) Divides one lot into two, where the existing lot is severed by a road that was gazetted before 2 March 2006, and the resulting lot boundaries use the road as the boundary of division	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xiii) Is consistent with a development approval for a material change of use of premises that has not lapsed, where the development application was made before 31 October 2006	<input type="checkbox"/> No	<input type="checkbox"/> Yes
(xiv) Is consistent with a development approval for a material change of use of premises that has not lapsed, where the material change of use was assessed by a referral agency against division 2 of the applicable State planning regulatory provisions	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If no to all - The subdivision may not occur and an application involving that component cannot be made

South East Queensland Regional Plan 2009-2031 State Planning Regulatory Provisions division 3 : IP Regulation, schedule 2, table 2, item 35

Company Owner's consent to the making of
an IDAS development application

I,  (insert name in full),
Director, AND

I, _____ (insert name in full),
CHAIRMAN / DIRECTOR (insert Company position
in full – i.e. another director, or a company secretary – strike out above name and company position
if not applicable, i.e. for a proprietary company that has a sole director who is also the sole
company secretary, only that director needs to complete the owner's consent),

of LIPOMA PTY LTD (insert name of
company)

owner of premises identified as follows

NORTH ST., NORTH IPSWICH (LOT 55 SP222487) (insert street
address; lot on plan description; or coordinates of the premises the subject of the application)

consent to the making of a development application under the *Integrated Planning
Act 1997* by

LIPOMA PTY LTD c/- P.O. Box 1914
SURFERS PARADISE (insert name of applicant)
4217

on the premises described above for the purposes of

MCU FOR 118 TOWN HOUSES. (insert
details of the proposed development, eg material change of use for 3 storey apartment building))

 (signature of Director)

Signed on the 6TH day of OCTOBER, 2008.

(signature of Director/ Company Secretary)

Signed on the _____ day of _____, 2008.

Company seal (if used)

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 7604304

Search Date: 28/09/2009 08:44

Title Reference: 50780672

Date Created: 26/08/2009

Previous Title: 50718421

REGISTERED OWNER

Dealing No: 712667818 18/08/2009

LIPOMA PTY LTD A.C.N. 002 203 581
TRUSTEE
UNDER INSTRUMENT 708510442

ESTATE AND LAND

Estate in Fee Simple

LOT 55 SURVEY PLAN 222487
County of STANLEY Parish of CHUWAR
Local Government: IPSWICH

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 13509199 (POR 233)
2. EASEMENT No 708022944 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT B ON SP151433
3. EASEMENT No 708022959 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT D ON SP151433
4. EASEMENT No 708022965 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT E ON SP151433
5. EASEMENT No 708022973 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT F ON SP151433
6. EASEMENT No 708022974 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT G ON SP151433
7. EASEMENT No 708022975 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT H ON SP151433
8. EASEMENT No 708022977 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT J ON SP151433

CURRENT TITLE SEARCH
ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 7604304

Search Date: 28/09/2009 08:44

Title Reference: 50780672

Date Created: 26/08/2009

EASEMENTS, ENCUMBRANCES AND INTERESTS

9. EASEMENT No 708022998 02/09/2004 at 10:31
Benefiting
THE LAND OVER EASEMENT R ON SP151433
10. EASEMENT No 708023001 02/09/2004 at 10:32
Benefiting
THE LAND OVER EASEMENT S ON SP151433
11. EASEMENT IN GROSS No 710043236 25/10/2006 at 09:51
burdening the land
ENERGEX LIMITED A.C.N. 078 849 055
over
EASEMENT M ON SP196038

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
AS13931B	HERITGE SITE QUEENSLAND HERITAGE ACT 1992	09/09/1993 00:00	CURRENT
712098928	HERITGE SITE QUEENSLAND HERITAGE ACT 1992	10/12/2008 11:39	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

COPYRIGHT THE STATE OF QUEENSLAND (ENVIRONMENT AND RESOURCE MANAGEMENT) [2009]
Requested By: D APPLICATIONS GLOBAL X

Proposal: Material Change of Use (Development Permit) for Multiple Residential (118 units)

Site Address: 20A North Street, North Ipswich.

Legal Description: Lot 55 on SP222487.

Client Name: Leda Developments Pty Ltd.

Date: October 2009.



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Executive Summary

Site Details

Site Details	20A North Street, North Ipswich
Legal Description	Lot 55 on SP222487
Site Area	4.893 hectares
Zone	Special Opportunity Zone
Applicable Overlays	OV00 Character Places; OV5 Flooding and Urban Stormwater Flow Paths; OV7A Defence Regulations and Obstruction Clearances
Owners	Lipoma Pty Ltd ACN 002 203 581

Applicant Details

Applicant	Leda Developments Pty Ltd C/ Michel Group Services PO Box 2695 NERANG BC QLD 4211
Contact Person	[REDACTED]
Our File Reference	874206

The Proposal

- The proposed development involves the construction of 118 units within two development areas. 112 units will be located within the primary development area adjacent to North Street while the remaining 6 units will be located adjacent to Colvin Street.
- Access to the primary development area will be via North Street while the 6 units will gain access via Colvin Street.
- The drainage channel that traverses the site will be maintained in its natural state, albeit with minor improvements to facilitate ongoing maintenance.
- Earthworks will be undertaken to remove the contaminated material from the site and to provide a pad suitable for construction of the development.
- The design of the development has taken into account the character of the surrounding area and reflected certain elements such as roof form, construction materials and colours within the design of the proposed development.
- The development is capable of being serviced by the reticulated water and sewer networks as well as suitable electricity and telephone services.

1.0 Introduction

The development application is seeking Council approval for the construction of a unit development comprising 118 dwellings. Specifically, the application is seeking approval for a Material Change of Use (Development Permit) for Multiple Residential (118 units).

The following Planning Report outlines details of the subject site and the surrounding pattern of development, the specific details of the proposed development and an assessment against the relevant Planning Regulations (the *Integrated Planning Act 1997*, the South East Queensland Regional Plan, the State Planning Policies and the Ipswich Planning Scheme).

It is believed that the development is appropriate and justifiable and therefore Council's favourable consideration is requested.

2.0 Subject Site

2.1 Description and Characteristics

The subject site is located at 20A North Street, North Ipswich. The following points summarise the characteristics of the site:

- The legal description of the site is Lot 55 on SP222487 (note that this lot was only recently registered at the titles office and that a copy of the survey plan is included in Appendix 1 and the current title search is included with the owners consent in Appendix 11).
- The area of the site is 4.893 hectares.
- The site has frontage to North Street, Lawrence Street, Lennon Lane and Colvin Street. Physical access is available to the site from all of these roads, however access via North Street and Colvin Street is most suitable as it accesses areas of the site not subject to flooding.
- The site is currently vacant.
- The site contains two distinct sections in terms of topography, a drainage channel traverses the southern section of the site in an east to west direction, while the remainder of the site is a flat pad above the defined flood level adjacent to North Street.
- The site is predominately clear of vegetation however there are several established trees, all of which will be removed to facilitate construction of the development. It is important to note that the stand of pine trees at the western boundary of the site are located on the adjoining property and will not be impacted upon as part of the proposed development.
- The site is included within the Special Opportunity Zone for the purposes of the Planning Scheme.
- The site is included within the Urban Footprint for the purposes of the South East Queensland Regional Plan.

- The site is burdened by Easement M on SP196038, which is in favour of Energex for the purposes of underground electrical infrastructure (refer to the proposal plan for the location of the easement).
- The site is not identified as containing remnant vegetation.
- The site is not within 100 metres of any referable wetlands.



Photo 1: View looking southwest over the site from North Street. Note the existing culvert pipe and crossing that provides access to the site (refer yellow arrow) and the swale drain located along the site frontage (refer red arrow).

Photo 2: View to the southwest towards the drainage channel from the end of bitumen on North Street (refer to the red arrow for position of the drainage channel).





Photo 3: View to the north over the flat pad from the edge of the drainage channel (note that North Street is to the right of the photo).

Photo 4: View looking northwest towards the railway workshops from the same location as the above photo.



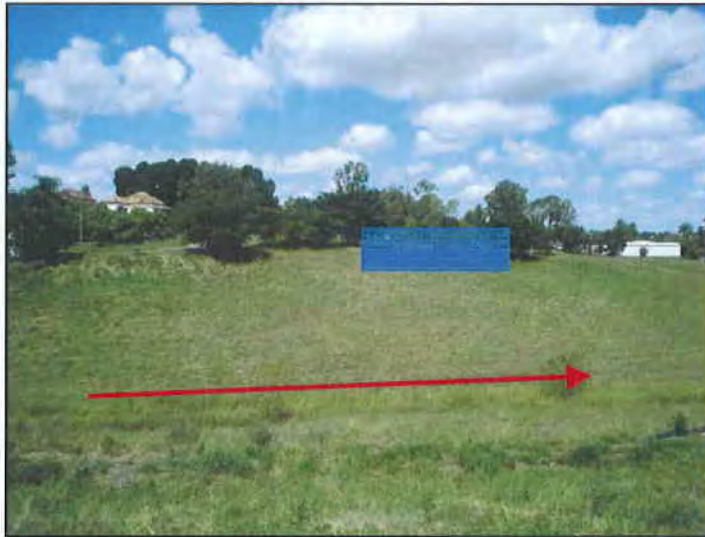


Photo 5: View to the south over the drainage channel from the southern most point of the flat pad. The red arrow indicates the location and direction of flow for the drainage channel while the blue hatched area indicates the area adjacent to Colvin Street that is to be developed.

Photo 6: View towards Lawrence Street from the southern most point of the flat pad. The drainage channel is also evident in this photo.



2.2 Background

There are two previous approvals relevant to the proposed development as summarised in the table below:

Table 1: Previous Approvals.

Type of Approval	Relevant Information
Preliminary Approval	Specific details regarding the Preliminary Approval granted by Council such as approval date, Council reference numbers etc are not available however a copy of the Riverlink Preliminary Approval Plan and the Ministerial conditions has been provided.

	<p>As outlined within the Ministerial conditions, Preliminary Approval was granted to establish a planning framework to guide the future development of the site. This planning framework is the basis against which development applications are to be assessed and details the level of assessment for particular uses within the various precincts (i.e. the Preliminary Approval overrides Council's Planning Scheme).</p> <p>The subject site is included partly within the Mixed Use Urban Village Precinct and partly within the Mixed Use Urban Village Parkland Precinct for the purposes of the Preliminary Approval. Attached Housing is identified as a code assessable use within the Mixed Use Urban Village Precinct.</p> <p>It is also noted that the drainage channel will be retained in its natural state, thus complying with the intended use of the Mixed Use Urban Village Parkland Precinct applicable to that section of the site. While part of the area dedicated as Parkland Precinct is to be developed, it is argued that the intent of the Preliminary Approval was to maintain the drainage channel while facilitating the development of those areas of the site above the defined flood level. The proposal achieves this intent.</p> <p>Section 3.2 of the Preliminary Approval document includes assessment criteria against which future applications are to be assessed (refer to section 4.3 of the below report for an assessment of the proposal against these criteria).</p>
Subdivision Approval	<p>Council Reference: 5026/08</p> <p>Approval Date: 13 February 2009</p> <p>The subdivision application was lodged following the preliminary approval being granted and sought to create 5 management lots for future development in accordance with the preliminary approval. The subject site (Lot 55) was created as part of this subdivision.</p> <p>Few conditions were attached to this approval and none were relevant to the proposed development.</p>

	<p>Council did however include two plans in the <i>Further Advice</i> section of this approval that were intended to guide the future development of the overall holding. Appendix A included a <i>Land Use Plan</i> to guide future development while Appendix B included an <i>Indicative Connectivity Plan</i> to guide future road and pedestrian infrastructure.</p> <p>The subject site was designated partly as a <i>Residential Medium Density Precinct</i> and partly as a <i>Drainage/Open Space Precinct</i> on the <i>Land Use</i> plan. Further points relevant to this site were that development was to be a maximum of 2 storeys along the North Street frontage and that a <i>Convenience Retail (General Store/Café)</i> use was indicated for the northern section of the subject site. The following points address the preferred land uses:</p> <ul style="list-style-type: none">▪ <i>Residential Medium Density Precinct</i> - The proposed development is seeking approval for medium density residential development in accordance with the preferred use expressed by Council through these plans.▪ <i>Drainage/Open Space Precinct</i> - The proposed development involves improvement works to drainage channel to facilitate ongoing maintenance. It is also noted that a small section of this area adjacent to Colvin Street will be developed with 6 units as an area suitable for development can be created above the defined flood level.▪ <i>Convenience Retail (General Store/Café)</i> – The Applicant has elected not to propose any commercial development on this site as there are similar facilities within walking distance of the site along Downs Street and any new facility in this locality would be more appropriate on the Railway Workshops and Museum site as opposed to the subject site. <p>In terms of intended connections reflected on the Appendix B plan, Council indicated a preference to have a public road along the western boundary of the subject site to provide a vehicle link to the land adjacent to the Bremer River and to provide a pedestrian link through to Colvin Street. Investigations during the early stages of preparing the development application revealed that a public road adjacent to the western boundary was not feasible as it severely impacted on the yield of the project and agreement was reached with Council to remove this road link. It is noted that the proposal incorporates suitable paths to provide a link to Colvin Street.</p>
--	--

2.3 Surrounding Land Uses

The following points summarise the surrounding pattern of development:

- The access driveway and car parking area associated with the railway workshops and museum adjoins the northern boundary of the site while the rail line and shunting yard associated with the workshops adjoins the western boundary of the site.
- Residential properties are located to the east of the site on the opposite side of North Street with detached dwellings being the most common land use.
- Residential development is the predominant use to the south of the site however the Queensland Transport service centre also adjoins the sites southern boundary.

- Land earmarked for future development is located to the west of the railway facilities, which adjoins the Bremer River.
- The subject site is approximately 1 kilometre north of the Ipswich CBD and approximately 500 metres north of the Riverlink Shopping Centre.
- Several small-scale commercial uses are also located along Downs Street that are within walking distance of the subject site.
- Ipswich North State School is also located on Downs Street to the east of the site.
- A local park is located to the east of the site on the opposite side of North Street.



Figure 1: Aerial photo of locality (source Google Earth).



Photo 7: As indicated above the access driveway and car parking area associated with the railway workshops and museum adjoin the sites northern boundary. Note that a swale drain is located between the two sites.

Photo 8: A local park is located on the opposite side of North Street as pictured.





Photo 9: Established residential properties are located to the east of the site on the opposite side of North Street. These dwellings are typically constructed with timber cladding with corrugated iron roofs and utilise a variety of colours and roof pitches.

Photo 10: A mechanical workshop is located to the southeast of the site fronting Telegraph Street. This site is located on the opposite side of the drainage channel that traverses the site.



Photo 11: A Queensland Transport service centre adjoins the sites southern boundary and gains access via Colvin Street.



Photo 12: A railway line that links to the railway workshops and museum adjoins the sites western boundary as pictured. An existing corrugated iron fence separates the subject site from the workshops area and shunting yard.



Photo 13: The established pine trees pictured are located on the adjoining property and do screen part of the workshops area and shunting yard from the subject site. As these trees are located on the adjoining property they will not be impacted upon as part of the development.

Photo 14: View over the railway workshops and shunting yard that adjoins the sites western boundary. Based on discussions with Queensland Rail, use of these facilities is infrequent.



Given the variety of potentially conflicting land uses located in close proximity to the site potential noise impacts on the proposed dwellings was an issue of concern. Therefore TTM Consulting were engaged to prepare an Environmental Noise Impact Report (refer to Appendix 2). This report outlines an assessment of the existing background noise as well as an assessment of noise generated by nearby land uses including the railway workshops, the railway museum, the mechanical workshop and the Queensland Transport service centre. The current background noise was used to calculate assessment requirements against which off-site activities could be assessed to ascertain potential impacts on the proposed development. Both daytime and evening and indoor and outdoor criteria were considered.

It is important to note here that the scale of future uses associated with the railway workshops and museum is unclear. Therefore the report considers three scenarios for future use, continuation of the current use, increased operations as a maintenance workshop and full operation of all facilities.

The report concludes that noise generated by nearby land uses can comply with the assessment requirements through use of the recommended acoustic barriers with the exception of shunting trains (scenario 3 only). The report notes that further acoustic treatments to the dwellings would result in compliance with the assessment requirements for these activities. Given the infrequency of these activities, it is argued that any potential impacts will not be significant.

The use of the adjoining railway line by steam locomotives for tourism purposes is also noted within the report. As only 10 trains per year use this line, it is argued that an assessment of the potential acoustic impacts is unnecessary due to the infrequent usage.

In summary, the report concludes that on the condition the recommendations presented in Section 7 of the report are implemented, the development is predicted to comply with the relevant Ipswich City Council and Queensland Transport assessment criteria.

3.0 Details of Proposal

As indicated above, the development application is seeking Council approval for the construction of a unit development comprising 118 dwellings. Specifically, the application is seeking approval for a Material Change of Use (Development Permit) for Multiple Residential (118 units). Of these units, 112 will be sited within the main development area adjacent to North Street while the remaining 6 units will be sited within the development area adjacent to Colvin Street. It is important to note that the development has been designed to provide diversity in terms of finished product while maintaining the affordability of dwellings for future owners. The proposal plans in Appendix 3 have been prepared by Bristow Architects and include details of the site layout, floor plans of the individual units, typical elevations, typical blocks of units, a detailed view of the entrance to the development as well as details of the proposed construction materials and colours.

In terms of building height, no structures will exceed two storeys with 76 of the proposed units being two storeys and the remaining 46 units being of single storey construction. The relatively low height of buildings will ensure that view corridors from the CBD, Aspire tower and nearby Primary School towards the nearby Powerhouse and Water towers will be maintained (i.e. the design of the development has been mindful of these prevailing views).

The development will incorporate six separate floor plans/layouts as summarised below:

- **Unit A** – one Type A unit is proposed within the development as this design is for the managers unit. The unit will be single storey and will include 3 bedrooms, 2 bathrooms, a combined living/dining area, a kitchen, a single garage with



LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES

allowance for a laundry as well as an outdoor entertainment area (patio). An office facility is also provided with access from either within the dwelling itself (on-site manager only) or from the visitor parking area. Note that fencing and landscaping within this area will be used to separate the private areas for this dwelling from the public access areas. The floor area of this unit will be 136.45m².

- **Unit B** – Type B units are to have a height of 2 storeys and will include a single garage, laundry, toilet, dining area, kitchen, living area and patio on the lower level and 3 bedrooms and 2 bathrooms on the upper level. These units will have an area of 140.1m² and 72 Type B units are proposed within the development. As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rB units).
- **Unit C** – Type C units will have a height of 2 storeys and will include 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. These units will have an area of 97.01m² and 13 of these units are proposed within the development. As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rC units).
- **Unit D** – 11 Type D units are proposed within the development and these units will be a single storey construction including 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. These units will have an area of 102.72m². As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rD units).
- **Unit E** – 15 Type E units are proposed within the development. These units will be a single storey construction including 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. These units will have an area of 101.24m². As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rE units).
- **Unit F** – The Type F units are proposed for the development area adjacent to Colvin Street and will utilise a split-level type construction to address the slope of the site. These units have been design in a traditional 'Queenslander' fashion to complement nearby buildings and will utilise timber cladding with a corrugated iron roof. These units will include 2 bedrooms, a bathroom, combined living and dining area, balcony and a kitchen on the upper level while the laundry and garage will be located under the dwelling.

It is proposed to construct the units in groups/terraces of either 4 or 6 units for the most part (note that block 9 will include only 2 units). These terraces typically include two storey units within the centre and single storey units on either end. This approach reduces the bulk of the unit blocks while also ensuring diversity of built form. Garages have been clustered in pairs to reduce the number of access points onto the internal roads and also to provide greater physical separation between the living areas of the units.

Balconies (first floor), patios (ground floor), offsetting units and extensive use of windows combine to ensure the terraces do not present any blank walls or lengthy walls on a single plane.



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The units are to be constructed with a variety of materials including face brick, cladding/weatherboards, rendered and painted blue board and corrugated iron roofs. The diversity in materials reflects those typically found within the surrounding area. Specifically, face brick has been chosen to reflect the buildings within the railway workshops and museum while cladding is extensively used on nearby dwellings.

Sheet DA12 within the proposal plans includes a colour palette showing four options for building facades. These colours have also been selected based on those typically found within the local area. It is intended that the differing colour palettes will be used to differentiate between units (i.e. to clearly separate neighbouring units) and also to ensure diversity of the finished product.

A 'saw tooth' roof form has been incorporated within the main development area to ensure consistency of the proposal with the railway workshops and museum. In summary, it is argued that the design of the development responds well to the locality, in particular the nearby railway workshops and museum.

One critical issue raised by Council during pre-lodgement discussions was how the development would address the North Street frontage. Council indicated a preference for a pedestrian path to be located along the western side of the swale drain and for units to gain direct access to that path. Further investigations have revealed that the only feasible approach is to construct such a path along part of the frontage (i.e. between the two access points). Sheet DA10B within the proposal plans includes a section detailing this arrangement. As indicated, a boundary fence will be constructed adjacent to the path that will separate the 'back yards' of the units from the path and gates will be provided for pedestrian access into the units. The Applicant has indicated that this arrangement is undesirable from their point of view due to potential security and noise issues resulting from the proximity of a public pedestrian path to the proposed units. It is requested that Council consider the necessity of maintaining this arrangement within the final development. It is also noted that the façade as presented to North Street will not appear as the 'back of house' area due to use of building articulation, balconies etc. The location of the living areas adjacent to North Street will activate the frontage and also provide passive surveillance.

3.1 Open Space

Two forms of open space are to be provided within the development, a central communal recreation area and private open space for each unit in the form of a 'back yard'.

The communal recreation area has been positioned to the centre of the main development area adjacent to North Street and has an area of 3,085m². The majority of this space will be retained in a natural grassed state so that it is suitable for active recreation (i.e. a kick around area) while a shade structures, bbq facilities, a pool, childrens play ground and numerous shade trees will also be provided. Landscaping and fencing within this area will aim to ensure that passive surveillance is available from the adjoining units while also clearly delineating between the communal area and the private open space of the adjoining units. It should also be noted that the southern part of the open space area complies with Council's minimum dimension



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requirements for communal open space in developments exceeding 30 units (i.e. 20 metre x 20 metre area).

Individual 'back yard' areas have been provided for each unit that will act as outdoor living areas for residents. These 'back yards' will be separately fenced to clearly identify ownership and will be accessible from the primary living areas of the dwellings. It is also noted that the private recreation space for each unit exceeds 35m², has a minimum dimension of 3 metres, a slope less than 5% and will be screened by suitable fencing.

When considering the proposals compliance with the recreation space provisions of the Planning Scheme, regard should be had to the 'Development Details' sheet (Sheet DA01) included with the proposal plans. This sheet includes details of the open space area provided for each unit and calculates the minimum communal recreation area required to comply with the Scheme provisions. The minimum communal recreation area required is 1,555.3m² and given that 3,085m² is provided, the total recreation area exceeds the Planning Scheme requirements by 1,530m².

The remaining area of open space is the drainage channel that traverses the site. As outlined within the Engineering Services Report, earthworks will be undertaken within this area to create suitable batters for ongoing maintenance. It is our view that this area is most appropriate as a drainage reserve under Council's ownership, however it is anticipated that conditions of approval will reflect Council's requirements regarding the ownership and maintenance arrangements for this area. It should also be noted that the construction of pedestrian paths through the drainage channel linking North Street to Colvin and Lawrence Streets is proposed (refer below for further details with regard to the proposed pedestrian network).

3.2 Access, Internal Roads and Parking

The following section addresses the provision of access to the site, the proposed internal road arrangements, pedestrian access throughout the development and the provision of vehicle parking.

3.2.1 Vehicle Access

Access to the site is currently via two separate points to North Street and the proposed development involves the reuse of these access points to service the proposed units.

The primary access will be via the northern most access point while the secondary access will be reserved for emergency and/or service vehicles as required. The Traffic Impact Assessment by Bitzios Consulting (refer to Appendix 4) includes recommendations as to the construction standard of the access to the development as well as an assessment of the potential impacts from vehicle traffic associated with the development on the surrounding road network. Specifically, it is proposed to use a four-way "give way" intersection whereby North Street remains the major through route and both Fitzgibbon Street and the proposed site access are "give-way" controlled. The results of the traffic modelling illustrates that the intersection would operate below the maximum practical operating capacity up to the 10-year design horizon. The report also notes that the location of the site access allows for clear site lines down Fitzgibbon Street to the east and both north and south along North



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Street. A plan detailing the proposed access arrangements is included within the Bitzios Report.

The assessment regarding potential impacts on the surrounding road network concludes that the increased traffic as a result of the proposal can easily be accommodated on Downs Street, Fitzgibbon Street and Ferguson Street without impacting on the environmental capacity of these streets. With regard to potential impacts on the operation of nearby intersections, the Bitzios report concludes that the traffic generation associated with the proposed development does not warrant upgrades to any existing intersections (as Council would be aware extensive road upgrades along Downs Street were undertaken by Leda as part of the construction of the Riverlinks Shopping Centre.

The Engineering Services Report by Yeats Consulting Engineers (refer to Appendix 5) makes recommendations as to the upgrade works required to the frontage roads. Specifically, it is proposed to upgrade North Street along the site frontage by constructing a concrete edge strip to formalise the existing bitumen surface, upgrade the existing roadside open drain and constructing concrete footpaths between the open drain and the existing sealed road. The Engineering Services Report contains plan and section views of the proposed works and it is anticipated that conditions of approval will specify Council's specific requirements including the need to obtain operational works approval prior to construction commencing.

It is also noted that the Traffic Impact Assessment by Bitzios Consulting (refer to Appendix 4) addresses the appropriateness of the proposed upgrade works. In particular the report addresses the issue of constructing a cul-de-sac head on North Street as raised by Council during pre-lodgement meetings. The report notes that all refuse and service vehicles associated with the proposed development enter the subject site via the primary access and the design of the internal roads allows these vehicles to enter and exit the site in a forward gear. As a result, the proposed development does not produce any additional vehicle movements along the southern end of North Street and it is therefore considered unreasonable that the proposed development provide any works or contributions to construct a turn-around facility at the southern end of North Street.

With regard to Colvin Street it is proposed to construct a two way, 6.5m wide road with cul-de-sac head while the one-way link to Lennon Lane will be maintained. A Plan reflecting these details is included within the Engineering Services Report.

3.2.2 Internal Roads

The proposal plans in Appendix 3 illustrate the proposed internal road network. A loop road is used as this allows for the most efficient use of the available developable area. All of the proposed units will gain direct vehicle access to this internal road network and all roads are of sufficient width to cater for two-way traffic. As a community title arrangement is to be used, the ongoing maintenance of the internal road network will remain the responsibility of the body corporate.

The Traffic Impact Assessment by Bitzios Consulting (refer to Appendix 4) contains comments on the internal road layout, in particular an assessment of the compliance with the relevant Australian Standards and Council's guidelines. The report notes



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that suitable turn-around facilities have been provided at the dead end aisles and that the road layout is suitable for the necessary service vehicles (note that the report includes plans showing the swept vehicle paths). With regard to the Colvin Street development, the internal road does not allow a HRV to enter and exit the site in a forward gear therefore wheelie bins will need to be taken to the road frontage garbage collection.

The Engineering Services Report by Yeats Consulting Engineers (refer to Appendix 5) details the construction standard of the proposed internal road network. An 11 metre wide sealed entry road is proposed while the remaining internal roads will have a width of 6.5 metres. An inverted crown design is proposed for the internal road with centre drainage points to eliminate the need for kerb and channel.

3.2.3 Pedestrian Access

The network of pedestrian paths proposed as part of the development is illustrated on sheet DA11 of the proposal plans by Bristow Architects, and within the appendices of the Traffic Impact Assessment by Bitzios Consulting.

A network of pedestrian paths is provided along either side of the internal roadway that will be used for all pedestrian movements throughout the site. These paths link to the communal open space within the development as well as public roads and the drainage channel area and will allow residents to move freely and safely into and out of the development and within the development itself. Zebra crossings are provided at strategic points on the internal road network to ensure that safe crossing points of the internal roads are available.

The external paths include a new path along North Street (note that this path will link with the existing paths along North Street to the north of the site) and a continuation of this path across the drainage channel area to provide a link to Colvin and Lawrence Streets as requested by Council. A link to the west is also proposed which will provide a link to the future development adjacent to the Bremer River on the western side of the railway.

At this stage it is only proposed to provide a pedestrian path up to the railway line. The actual crossing of the railway with the pedestrian path obviously requires approval from Queensland Rail (QR) as well as further consideration of the location and form of the crossing. Preliminary discussions have been held with Council and QR in this regard which culminated in an e-mail being sent by Trevor Andrews of Queensland Rail (refer to Appendix 6). While the Applicant is willing to make a contribution towards the necessary construction works (or undertake the construction works if required) the varying costs outlined within the correspondence from QR is of concern. As part of this application process, it is hoped that agreement can be reached with all parties as to the form and location of the crossing and the contribution required by the Applicant towards those works.

Local destinations in proximity to the development include retail and convenience shops along Downs Street as well as the recently constructed Riverlink Shopping Centre.



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In summary it is argued that the network of pedestrian paths proposed as part of the development is adequate to service the likely demand associated with the proposal and will provide valuable links for the wider community. The Engineering Services Report includes recommendations as to the construction standard for the paths.

3.2.4 Parking

The proposal plans in Appendix 3 indicate the location of parking areas within the development and the Traffic Impact Assessment by Bitzios Consulting (refer to Appendix 4) includes an assessment of the proposal against the Planning Scheme requirements and the relevant Australian Standards.

The proposal involves construction of 274 parking spaces in total which are summarised below:

- 118 covered spaces for residents use only in the form of single garages.
- 118 visitor spaces on driveways.
- 32 spaces in common areas for use by both residents and visitors including parallel parking spaces along the road network as well as clusters of spaces adjacent to the open space areas.
- 6 covered vehicle wash bays.

Based on the Planning Scheme provisions the following parking is required to service the development (total of 242 spaces):

- 118 covered spaces;
- 59 visitor parking spaces;
- 59 parking spaces for use by both residents and visitors; and
- 6 covered vehicle wash bays.

It is noted that the layout of the development does not provide all 59 commonly accessible spaces however the provision of one visitor space per unit is expected to greatly reduce the need for commonly accessible spaces. It is therefore argued that the parking arrangements proposed for the site are appropriate and generally comply with the Planning Scheme provisions. It is important to note that the design of the proposed development provides a total supply of 274 spaces, 32 more than that required by the Planning Scheme.

In terms of the compliance with the relevant standards, the report notes that the proposed car parking layout complies with provisions of the Ipswich City Council's Car Parking and Access Code and the relevant provisions of Australian Standard 2890.1. The report also includes a plan showing swept paths confirming that all visitor parking bays provide adequate spaces in which vehicles can access/egress the parking bays whilst remaining on the common roadway.

An assessment of the proposal against the Planning Scheme's Parking Code is included in Appendix 10.



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3.3 Servicing

Yeats Consulting Engineers were engaged to undertake an assessment of existing services surrounding the site and make recommendations as to the works required to service the development (refer to the Engineering Services Report in Appendix 5). The following points summarise the recommendations presented within the Engineering Services Report:

- Water – the report notes the presence of an existing 100mm diameter water main located within the eastern verge of North Street, extending along the full frontage of the site as well as a 300mm main within Downs Street. The report notes that the minimum main size to service the proposed development is 100mm. Therefore a new main and connection into the 300mm main within Downs Street may be required. The report notes that further investigations and possibly a network analysis are required to finalise details of the connection to the water network.

With regard to the development adjacent to Colvin Street, the report details the existing mains located within both Colvin and Canning Streets. This part of the development is intended to be serviced by a new connection to the existing 150mm main located at the intersection of Colvin and Canning Streets.

It is noted that the internal water reticulation will be designed and documented by the hydraulic engineer with specific details to be submitted in a subsequent plumbing and drainage application prior to construction. As the proposed development will utilise a community title arrangement, the ongoing maintenance of the internal network will remain the responsibility of the body corporate. It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction of new connection points to service the development (i.e. the connections into the live water mains).

- Sewer – for the purposes of servicing the development via the reticulated sewer network the development adjacent to North Street was considered separately to the development adjacent to Colvin Street.

An existing 300mm diameter Council trunk main traverses the southern part of the existing filled pad adjacent to North Street with three existing manholes located in the site. This main services the railway workshops and museum and exits to the site to the northeast. As noted with the report, the main part of the development adjacent to North Street will be serviced by a connection to the Council system at the existing manhole located within the North Street verge adjacent to the eastern boundary of the site. Calculations within the Yeats Report demonstrate that the main is of a suitable size to service the proposed development.

As indicated on the proposal plans, it is proposed to construct units over the existing sewer main leaving the pipe work and existing manholes in-place. The Yeats report concludes that based on geotechnical advice, a structural assessment, the depth of the existing line (generally 8.0-9.0m below the proposed pad levels), strength of insitu soils and the nature of the additional loads created at depth, the structural integrity of the existing pipe will not be compromised.

With regard to the development adjacent to Colvin Street, an existing 150mm Council main traverses the development site in an east to west direction. It is



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proposed to realign the sewer east around the proposed units and the boundary of the site and connect the new main back into the existing main within Colvin Street (the *Existing Services* Plan in Appendix B of the report details these works). A gravity connection into the main within Colvin Street will be required to service the units proposed within this area. Calculations within the Yeats Report demonstrate that the main is of a suitable size to service the proposed development.

It is noted that the internal sewer reticulation will be designed and documented by the hydraulic engineer with specific details to be submitted in a subsequent plumbing and drainage application prior to construction. As the proposed development will utilise a community title arrangement, the ongoing maintenance of the internal network will remain the responsibility of the body corporate. It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction of new connection points to service the development (i.e. the connections into the live sewer mains).

- Electricity and Telephone – electricity and telephone services will be connected to the development at the time of construction in accordance with the requirements of the relevant service providers.
- Waste Disposal – disposal of household waste will be via individual Council collected wheelie bins for each unit and it is noted that a suitable screened bin storage area will be provided for each unit. The layout of the internal roads for the North Street development ensures that waste collection vehicles can manoeuvre through the site without difficulty. Wheelie bins for the units located at Colvin Street will need to be taken out to the road frontage for collection.

In summary it is argued that the development is capable of being appropriately serviced. Future applications will provide more specific details of the systems and networks to be constructed.

3.4 Earthworks

The Engineering Services Report by Yeats Consulting Engineers (refer Appendix 5) addresses the earthworks required to construct the development.

As Council would be aware there are contamination issues on this site resulting from the historical railway activities. The proposed earthworks include the removal of this contaminated material and creation of a pad suitable for the construction of the proposed development. GeoEnvironmental Consultants were engaged to prepare a Remediation Plan for the site (refer to Appendix 7 – note that the Third Party Review is currently being undertaken and is expected to be received prior to the application being referred to the relevant referral agencies). The Remediation Plan addresses not only the subject site (Lot 55 on SP222487) but the wider Leda Holdings. The Plan provides details of the contaminated material present on the site and a summary of the earthworks to be undertaken to address the contaminated land issues. These earthworks are subject to the necessary approvals being obtained from both Council and the Contaminated Land Section of the Department of Environment and Resource Management.

With regard to the subject site, it is proposed to remove the existing contaminated material (approximately 21,500m³) prior to the resultant uncontaminated surface



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being validated then back filled using clean material to the finished earthworks levels shown on the earthworks drawings by Yeats Consulting Engineers. The contaminated material removed from this site will be removed and compacted into the future development areas adjacent to the Bremer River.

The following points should be noted with regard to the proposed earthworks:

- After the removal of the contaminated soil, imported fill is required to lift the finished ground levels of the North Street development site generally back to pre-development levels to tie into the existing ground levels surrounding the site.
- The finished levels will be designed to provide positive drainage towards the main gully and proposed stormwater treatment infrastructure to the south of the development area.
- All building pads will be elevated above the defined flood levels.
- Minor earthworks are also proposed to the central drainage gully and typically involve reshaping of the batters to achieve maximum 1:6 grades to facilitate ongoing maintenance.
- With regard to the Colvin Street development area, the proposed earthworks will involve benching of the slope to achieve a generally level platform to accommodate the proposed building pads and access road.

It is important to note that an operational works application over the wider Leda holdings will be lodged with Council concurrently with this application. This approach has been chosen as it is considered desirable to undertake the earthworks to address the contamination issues in a holistic manner to minimise delays associated with the ongoing development of the site.

3.5 Landscaping and Fencing

Landscaping and fencing throughout the development will be designed to achieve the following (note that a landscaping and fencing plan will be provided to Council throughout the assessment process):

- An attractive façade to North Street and a clearly identifiable entrance to the development.
- Soften the built form of the development.
- Minimal water use and ongoing maintenance requirements.
- An attractive setting for residents to enjoy.
- Ensure that site lines and passive surveillance is available.
- Clear delineation of private open space and communal open space areas.
- Clearly identifiable entrances to the individual units.
- Security for residents.

3.6 Flooding and Stormwater

To investigate the flooding issues associated with the proposal, Cardno were engaged to prepare a Flood Study (refer Appendix 8). The Study includes an assessment of both pre and post development cases to ascertain any potential impacts on flood levels as a result of the proposed development (note that for the post development case, the earthworks as designed by Yeats Consulting Engineers were incorporated into the necessary modelling software). The study also addresses both local flooding and regional flooding associated with the Bremer River.

The report concludes that the proposed development will not adversely impact the flood levels upstream of the site, however minor increases in flood levels will be experienced with the drainage channel that traverses the site (i.e. the impacts on flood heights etc are all contained within the site and will not impact any adjacent properties). The report also notes that no on-site detention of stormwater is required.

With regard to Regional Flooding, the Study concludes that the proposed development will have no discernable adverse impact on flood levels in the Bremer and Brisbane Rivers.

Yeats Consulting Engineers were engaged to prepare a Site Based Stormwater Management Plan for the proposed development (refer Appendix 9). The report addresses both quantity and quality issues and makes recommendations for the stormwater management infrastructure required to service the development. It is also important to note that when developing the stormwater management regime for the site, consideration was given to flooding issues and the conclusions of the Cardno flood study.

In terms of quantity of stormwater, the report includes an assessment of the pre-development hydrology, the post-development hydrology without mitigation and then makes recommendations for the necessary infrastructure to ensure no increase in stormwater flows following construction of the proposed development.

In terms of water quality, the report outlines the relevant objectives based on Council's guidelines and makes recommendations as to the works required to ensure that the relevant water quality objectives are complied with.

The following points summarise the stormwater treatment infrastructure proposed as part of the development:

- The legal point of discharge has been taken as the inlet into the existing culvert located beneath the railway line.
- Rainwater tanks will be provided for each unit that will assist in reducing the quantity of stormwater flows while also acting as a minor treatment node.
- A piped drainage system will be designed to cater for minor storm events (up to Q10) while overland flow paths will be provided throughout the development area to convey major storm events up to Q100 while maintaining adequate freeboard to habitable rooms.
- A bio-retention basin is proposed to treat runoff from the main development area adjacent to North Street. This basin will be sited in the southeastern corner of the



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development area within common property and will accept flows from the underground piped drainage network only. The stormwater flows will be percolated through the filter media within the basin before being recovered at the base of the basin via perforated pipes before being discharged to the gully and subsequently the legal point of discharge. It should be noted that the ongoing maintenance of the bio-retention basin will be the responsibility of the body corporate.

- To treat stormwater from the development area adjacent to Colvin Street, it is proposed to construct a Bio-retention swale. Flows from the minor piped drainage network will be directed to the vegetated swale adjacent to the access road. Overflow from the swale will be discharged into the drainage channel following treatment.

The report also addresses erosion and sediment management during all stages of the development. It is anticipated that a condition of approval will require the implementation of these recommendations during the different stages of the project.

The report concludes that with the implementation of the recommended stormwater management strategy, there will be no significant worsening in flooding conditions both upstream and downstream of the site and the water quality objectives as described in the Ipswich Planning Scheme will be met.

4.0 Planning Regulations

4.1 *Integrated Planning Act*

The purpose of the *Integrated Planning Act 1997* (the Act) is to achieve ecological sustainability by coordinating planning at all levels of Government and by managing the process by which development occurs as well as the impacts of development.

As indicated above, the Preliminary Approval applicable to the site indicates that the proposed use is subject to code assessment in accordance with section 3.5.4 of the Act.

4.2 *State Planning Policies (SPP)*

The proposal has been assessed against the State Planning Policies and it has been determined that none of the policies not adequately reflected within the Planning Scheme are relevant to the assessment of the proposal.

4.3 *Riverlink Preliminary Approval*

As indicated above, the Preliminary Approval established a planning framework against which development applications are to be assessed. The following table outlines an assessment of the proposed development against the provisions of the Preliminary Approval applicable to the Mixed Use Urban Village area (note that many of these provisions are not relevant to the current proposal as they are applicable to the future development of the areas adjacent to the Bremer River).



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Table 2: Assessment against the Riverlink Preliminary Approval.

Riverlink Preliminary Approval Requirements	Development Response
<p>Mixed Use Urban Village Precinct – It is preferred that the precinct accommodates a range of park and business or accommodation uses.</p>	<p>The current proposal is seeking approval for residential uses only. Future applications within the balance of the precinct may include business uses.</p>
<p><i>Mixed Use Urban Village Parkland Precinct</i> – The mixed-use urban village parkland precinct is intended to be developed as a regional recreational resource that will integrate the mixed-use urban village precinct with the other Riverlink sub-areas. Pedestrian and cycle links shall permeate throughout the precinct linking into the mixed-use urban village precinct, other riverheart parkland precincts and to the existing CBD.</p>	<p>As outlined above this area predominately covers the drainage channel that traverses the site and it is intended to maintain the function of the drainage channel in the long term. Pedestrian paths are proposed through this area as part of the current development. These paths provide links from North Street through to Lawrence and Colvin Streets as well as potential links across the railway to link in with the areas adjacent to the Bremer River. This particular proposal is the first stage of the Riverlink development around the railway workshops and museum and future developments will complete the pedestrian networks commenced as part of this proposal.</p>
<p><i>Specific Outcomes</i> Any development will need to be the subject of a detailed application which addresses:</p> <ul style="list-style-type: none"> ▪ View corridors. ▪ Landmarks and gateways. ▪ The design of public open spaces. ▪ High levels of pedestrian connectivity. 	<p>It is argued that the design of the proposal complies with the specific outcomes sought as view corridors are not impacted upon, the development will not detract from any existing landmarks, the open space areas will be landscaped in accordance with Council's requirements and the proposal provides the necessary pedestrian connections which will tie in with the future development of the remainder of the Riverlink precinct.</p>
<p><i>Probable Solutions</i></p> <ul style="list-style-type: none"> ▪ Buildings are to be designed and located so as to: <ul style="list-style-type: none"> o Create a vibrant, attractive 'main street' setting which is capable of accommodating pedestrian, cycle, vehicle and rail links between the workshops and the CBD. o Address the 'Riverheart' recreational corridor. o Support the conservation of identified places of cultural significance. o Conserve view corridors. ▪ All buildings and structures are to be below RL48m AHD. ▪ New buildings are limited to a maximum height of 4 storeys. ▪ Whilst no building plot ratio is specified the net residential density should be at least 50 dwellings per hectare distributed across a wide range of dwelling types. 	<p>The following points address those probable solutions considered relevant to the current proposal:</p> <ul style="list-style-type: none"> ▪ The design of the development includes the provision of pedestrian and cycle links (note that links to the CBD and creation of a 'main street' will be completed as part of ongoing development of the site). ▪ Those areas identified as open space on the current site are to be retained as part of the proposal (i.e. the function of the drainage channel will be retained). ▪ The site does not contain features with cultural significance, is not identified as a Heritage Place and does not directly adjoin a Heritage Place. It is therefore argued that further investigations into heritage issues is unnecessary. ▪ The proposal will not impact on view corridors. ▪ All buildings and structures will be below



	<p>RL48m AHD.</p> <ul style="list-style-type: none">▪ The maximum building height proposed is 2 storeys.▪ The current proposal represents a density of 24 dwellings per hectare. Future proposals on the remaining development areas will include a variety of dwelling types and the overall density for the locality will be assessed again as part of future proposals.
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In summary, it is argued that the proposal is generally consistent with the provisions of the Preliminary Approval.

4.4 Ipswich Planning Scheme

While the Preliminary Approval applicable to the site specifies the level of assessment for the proposed use and includes assessment criteria, it is considered relevant to undertake an assessment of the proposal against the provisions of Council's Planning Scheme. The following sections address those provisions of the Planning Scheme considered relevant to the proposed development.

4.4.1 Definition of Use

The proposal is seeking approval for Multiple Residential as defined under the Planning Scheme. For the purposes of the application the proposal will be defined as Multiple Residential (118 Units). The Planning Scheme defines Multiple Residential as:

***“Multiple Residential”** means the residential use of premises if there are three or more dwellings on any one lot. The term includes the use of premises for—*

- (a) apartments;*
- (b) boarding house, if providing permanent accommodation;*
- (c) caravan park, if providing permanent accommodation;*
- (d) nursing home;*
- (e) retirement community; or*
- (f) townhouses.*

The term does not include the use of premises for “Dual Occupancy”, “Institutional Residential” or “Temporary Accommodation”.

The proposal is clearly consistent with this definition as it involves the construction of townhouses for residential use. Note that an assessment of the proposal against the Residential Use code is included in Appendix 10.

4.4.2 Zoning

As outlined above, the subject site is included within the Special Opportunity Zone for the purposes of the Planning Scheme (refer to extract from zoning map below).

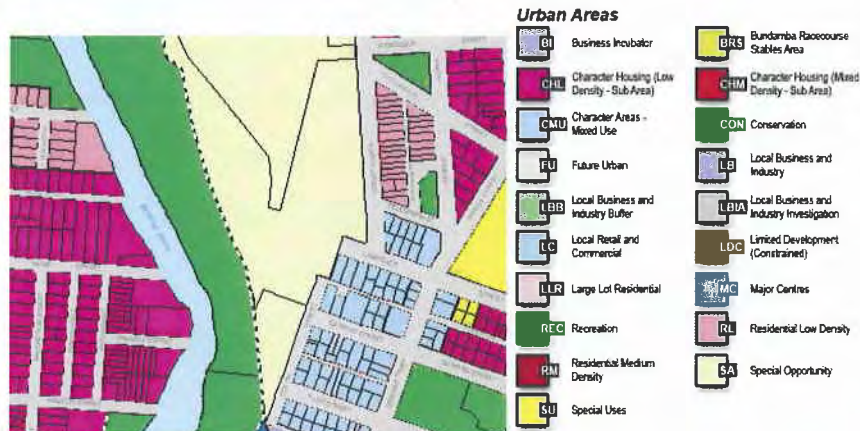


Figure 2: Extract from Zoning Map.

The Planning Scheme includes the following statement regarding the overall outcomes sought for properties included within the Special Opportunity Zone:

The overall outcomes sought for the Special Opportunity Zone are the following—

(a) The Special Opportunity Zone caters for—

- (i) land where the future use cannot be definitively stated at this time;*
- (ii) the use and management of sites which perform a land use transition or buffering role;*
- (iii) the recognition of various opportunities over large, infill or broad hectare parcels of land; or*
- (iv) promoting a flexible approach to uses and works on land which is constrained.*

(b) Uses and works provide for the continuation of the existing or approved use or the protection of the intended use, however, were these uses to cease, the site's locational and physical attributes present opportunities for different development forms which require further detailed investigation.

(c) Uses and works within the Special Opportunity Zone are located, designed and managed to—

- (i) be compatible with the amenity and character of surrounding lands;*
- (ii) facilitate the development of the Sub Areas comprising the zone for their approved use or intended use;*
- (iii) maintain townscape character and amenity;*
- (iv) maintain the safety of people, buildings and works; and*
- (v) avoid significant adverse effects on the natural environment.*

In this instance the preferred use of the site has been established through the preliminary approval granted over the site (Riverlink Preliminary Approval) as well as subsequent ROL approvals to create management lots for development in accordance with the preliminary approval. The proposal is consistent with these approvals and it is therefore argued that compliance with the intent of the Special Opportunity Zone is achieved.

An assessment of the proposal against the Special Opportunity Zone Code is outlined in Appendix 10.

4.4.3 Overlays

The following points summarise the planning scheme overlays applicable to the subject site and the relevance of those overlays to the current development:

- **OV00 Character Places** – the extract from the Character Places overlay below indicates that the site is included in the State Heritage Register. As Council would be aware the site was recently subdivided into 5 management lots for future development. This management lot subdivision also divided the heritage listed features onto specific lots. The subject site (Lot 55 on SP222487) is not listed on the Heritage Register. As indicated in section 5 below, referral to the Heritage Section of DERM is triggered as the site adjoins a property listed on the Heritage Register.



Figure 3: Extract from Overlay Map 00.

- **OV4 Difficult Topography** – as illustrated on the map below, the area to be developed is not identified as containing difficult topography and therefore there are no slope stability issues associated with the proposal.

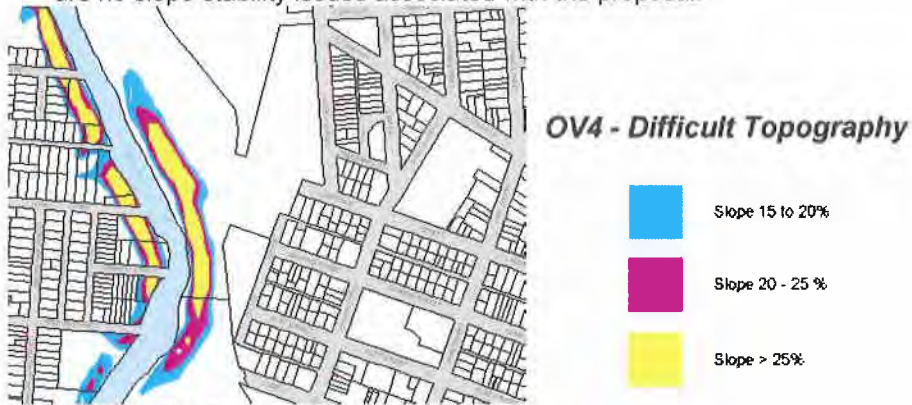


Figure 4: Extract from Overlay Map 4.

- **OV5 Flooding and Urban Stormwater Flow Paths** – as illustrated on the map below, a drainage path traverses the site that is impacted upon during a Q100 flood event. Suitable investigations into flooding issues have been undertaken as part of preparing the development application and a flood report prepared by Cardno is attached in Appendix 8.

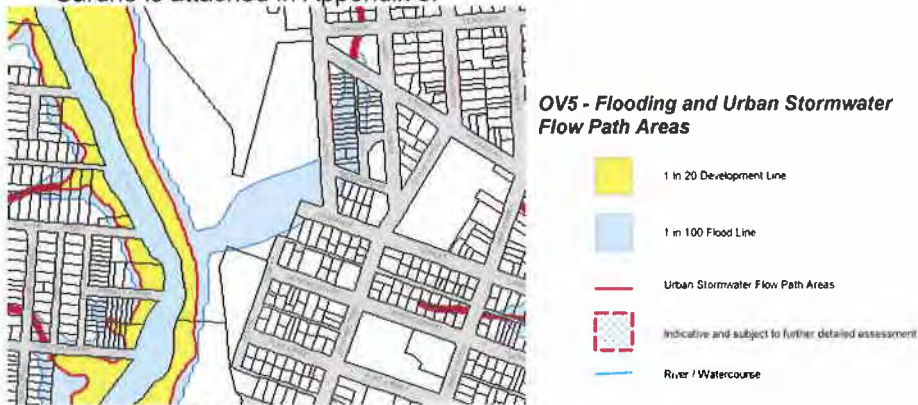


Figure 5: Extract from Overlay Map 5.

- OV7A Defence Regulations and Obstruction Clearances – the maximum building height for the site is indicated as 90m on the defence regulations and obstruction clearances overlay map below. As the proposal involves construction of buildings with a maximum height of 2 storeys, compliance with the maximum height is achieved.

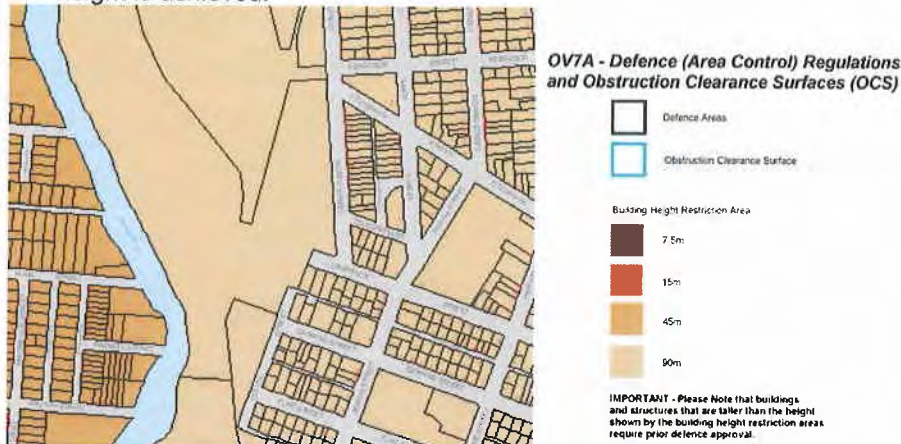


Figure 6: Extract from Overlay Map 7A.

4.4.4 Codes

An assessment of the proposal against the following Planning Scheme codes is outlined in Appendix 10 of the application material. These assessments demonstrate the proposals compliance with the relevant requirements.

- Special Opportunity Zone Code.
- Residential Use Code.
- Parking Code.

4.4.5 Infrastructure Charges

When calculating the infrastructure charges for the proposed development the issue of credits applicable to the subject site needs to be resolved. While the subject site is vacant, it is part of the land that formed the railway workshops. At the peak of operations, the railway workshops employed around 3,000 people and the scale of the use obviously generated significant demand on the water and sewer networks in particular. Given that suitable mains and treatment infrastructure were provided to service this previous use, it is argued that credits for infrastructure charges should be recognised for the subject site based on this previous land use. We are of the view that assessing the overall land that formed the railway workshops and calculating an appropriate credit rating on an area basis is the most appropriate approach.

When considering the likely infrastructure charges for Roadworks, it is considered relevant to have regard to the extensive road upgrades undertaken by Leda as part of the construction of the Riverlink Shopping Centre (note that this project represented the first stage of the wider Riverlink Development of which this proposal is part) and the recommendations of the traffic report which concludes that the traffic generation associated with the proposal will not impact on the surrounding road network.

4.5 South East Queensland Regional Plan

The subject site is included within the Urban Footprint for the purposes of the Regional Plan. As the proposal is seeking approval for *Urban Activities* consistent with the intended use of the site as specified through a preliminary approval, it is argued that the proposal is consistent with the provisions of the Regional Plan. It is also noted that there are no specific sections of the Regulatory Provisions relevant to the assessment of the proposal and that referral to the Department of Infrastructure and Planning is not triggered.

5.0 Consultation and Referrals

The development application triggers the following referrals:

Concurrence Agencies

- Department of Environment and Resource Management's (DERM) Contaminated Land Section – Referral to the Contaminated Land Unit is triggered as the site is listed on the Environmental Management Register. As indicated above, a separate application has been lodged for Operational Works approval (Bulk Earthworks) over the site that involves the remediation of the site. A Remediation Plan addressing contaminated land issues is attached in Appendix 7.

Advice Agencies

- Energex – Referral to Energex as an advice agency is triggered as the site contains an easement in favour of Energex for the purposes of electrical infrastructure. It is noted that the easement is adjacent to the northern and part of the western boundary of the site and that the electrical infrastructure is underground. It should be noted that it is not intended to build over the easement (other than fences) and that the easement will be maintained on the site following construction of the development.

It is noted that referral to the Department of Transport and Main Roads is not triggered as the site is not located within 100 metres of a State Controlled Road and the development does not exceed the thresholds specified within Schedule 5 of the *Integrated Planning Regulation 1998*.

It is also noted that the proposal does not trigger any of the referral requirements under schedule 13C or 13D of the *Integrated Planning Regulation 1998* and therefore referral to Queensland Transport is not triggered (note that the adjoining railway is not mapped as a railway corridor for the purposes of QT's IDAS Triggers Mapping).

With regard to referral to the Heritage section of DERM, it is noted that referral is not triggered in this instance, as the site does not share a common boundary with a Heritage Place. For Council's reference we have included an extract from the certified Heritage Register listing for the nearby railway workshops and museum. As illustrated on this plan, the boundary of the Heritage Place is approximately 100 metres from the subject site.

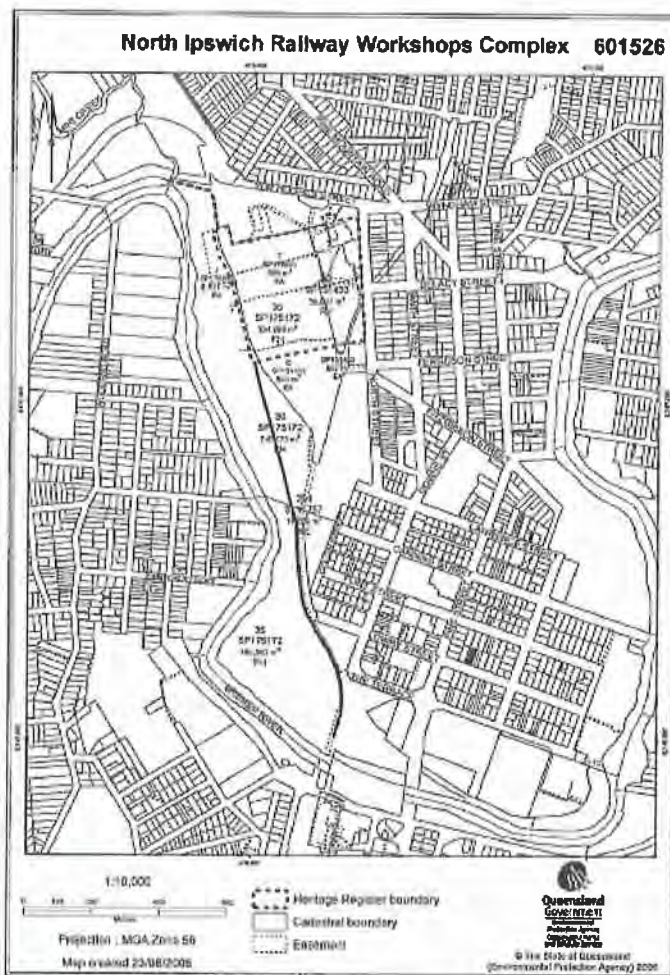


LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES

Leda Developments Pty Ltd – MCU for 118 Units.
North Street, North Ipswich.
Our Ref. 874206.

Queensland Heritage Act 1992

Certified copy of an entry in the Heritage Register pursuant to Section 32 (1) (a).
(See reverse side of form)



R. Brown
for Chairperson, Heritage Council

Date: 10/10/2006

Note: This certificate is valid at the date of issue only.



It is anticipated that Council will trigger referral to Queensland Rail as a third party advice agency.

MICHEL
GROUP SERVICES
LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES

Pre-lodgement discussions have been held with Council and the points raised during these discussions have been addressed through the design of the proposal where possible.

As the proposed development is subject to code assessment, public notification is not required.

6.0 Conclusion

The preceding report demonstrates the suitability of the proposal in terms of the Ipswich Planning Scheme, the South East Queensland Regional Plan and the *Integrated Planning Act 1997*. It is argued that the proposal is appropriate for the subject site and will not generate impacts on adjoining properties or the local area.

Having regard to the issues raised in this Planning Report, it is considered appropriate for Council to provide its support for the proposal and issue the necessary approvals in accordance with the *Integrated Planning Act 1997*.

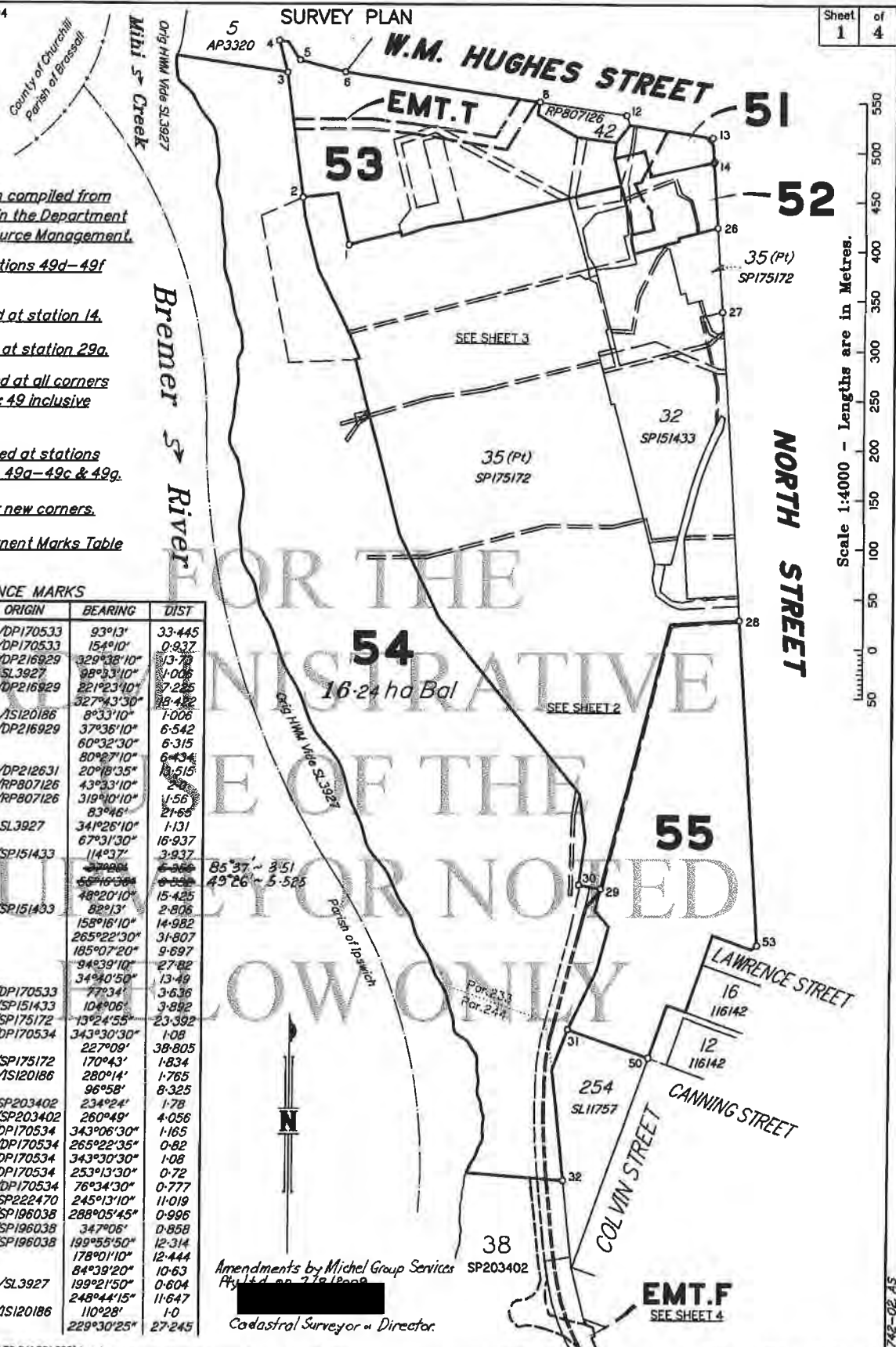
Appendix 1

Survey Plan (SP222487).

Land Title Act 1994; Land Act 1994
Form 21 Version 2

Sheet 1 of 4

SURVEY PLAN



Original information compiled from
SL3927 & SP203402 in the Department
of Environment & Resource Management.

No mark placed at stations 49d-49f
(under stockpiles)

Drill hole in brick placed at station 14.

Nail in concrete placed at station 29a.

Drill hole in conc placed at all corners
between stations 48 & 49 inclusive
and at station 39a.

GI Nail in bitumen placed at stations
15a, 15b, 39b, 39c, 47, 49a-49c & 49g.

Peg placed at all other new corners.

See Sheet 4 for Permanent Marks Table

REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	O.Screw	12/DP170533	93°13'	33.445
2	OIP	11/DP170533	154°10'	0.937
3	O.Screw	7/DP216929	329°38'10"	13.79
4	OIP gone	SL3927	98°33'10"	1.006
4	O.Screw	6/DP216929	82°23'40"	7.285
4	Nail in Conc		327°43'30"	18.482
6	OIP gone	4/SL20186	8°33'10"	1.006
6	O.Screw	3/DP216929	37°36'10"	6.542
6	Nail in Conc		60°32'30"	6.315
7	Nail in Conc		80°27'10"	6.434
8	O.Spike	2/DP212631	20°18'35"	13.515
9	O.Bolt (not searched)	8/RP807126	43°33'10"	2.28
10	O.GI Pipe (not searched)	7/RP807126	319°10'10"	1.56
11	D/H in Conc		83°46'	21.65
12	OIP not fd (Under Conc)	SL3927	341°26'10"	1.131
13	Nail in Kb		67°31'30"	16.937
13b	O.Nail gone	1/SP151433	114°37'	3.937
14	D/H in Kb		50°16'30"	6.366
15	Pin		85°37' - 3°51'	6.366
16	GI Nail in Bit		49°26' - 5°52'	15.425
17	O.GI Nail	8/SP151433	82°13'	2.806
20	Pin		158°16'10"	14.982
20	Pin		265°22'30"	31.807
21	Pin		185°07'20"	9.697
24	Pin		94°39'10"	27.82
25	Pin		34°40'50"	13.49
26	O.Nail hole	2/DP170533	77°34'	3.636
27	O.Nail	2/SP151433	104°06'	3.892
28	O.Nail	1/SP175172	13°24'55"	23.392
28	OIP gone	7/DP170534	343°30'30"	1.08
29	Pin		227°09'	38.805
30	OIP	2/SP175172	170°43'	1.834
31	O.Screw	16/SL20186	280°14'	1.765
31	Pin		96°58'	8.325
32	OIP	4/SP203402	234°24'	1.78
33	OIP	37/SP203402	260°49'	4.056
34	OIP not fd	6/DP170534	343°06'30"	1.165
35	OIP	6a/DP170534	265°22'35"	0.82
38	OIP gone	7/DP170534	343°30'30"	1.08
41	OIP gone	8/DP170534	253°13'30"	0.72
42	OIP	8a/DP170534	76°34'30"	0.777
43	O.Nail	14/SP222470	245°13'10"	11.019
44	OIP	17/SP196038	288°05'45"	0.996
45	OIP gone	15/SP196038	347°06'	0.858
46	OIP	16/SP196038	199°55'50"	12.314
49	D/H in Conc		178°01'10"	12.444
50	GI Nail in Bit		84°39'20"	10.63
50a	OIP	14/SL3927	199°21'50"	0.604
51	GI Nail in Bit		248°44'15"	11.647
52	OIP	12/SL20186	110°28'	1.0
53	GI Nail in Bit		229°30'25"	27.245

Amendments by Michel Group Services
Pty Ltd on 21/12/2009
Cadastral Surveyor or Director.

MICHEL GROUP SERVICES PTY. LTD. (ABN 53 841 801 835) hereby certify that the land comprised in this plan was surveyed by the corporation, by Geoffrey Scott GREEN, Cadastral Surveyor, for whose work the corporation accepts responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 18/08/2009.



Date 13/7/2009.

Plan of Lots 51-55, Easement T in Lot 53 & Easement F in Lot 38 on SP203402

Cancelling Lot 39 on SP203402

PARISH: CHUWAR COUNTY: Stanley

Meridian: SP196038

F/N's:

Scale: 1:4000

Format: STANDARD



SP222487

Plan Status:

8742-02, AS

**WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.**

712667818

\$664.90
18/08/2009 10:44

BE 400 NT

Registered

s. Lodged by

(include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We LIPOMA PTY LTD ACN. 002 203 581
TRUSTEE UNDER INSTRUMENT 708510442

(Names in full)

* as Registered Owners of this land agree to this plan and dedicate the Public Use Land as shown hereon in accordance with Section 59 of the Land Title Act 1994.

* as Lessees of this land agree to this plan
LIPOMA PTY LTD
ACN. 002 203 581
Signature of *Registered Owners 6 July 2009



6. Existing		Created				
Title Reference	Description	New Lots	Road	Emts	Cov.	Profit a prendre
50718421	Lot 39 on SP203402	51-55	---	T	---	---
50718420	Lot 38 on SP203402	-	---	F	---	---

BENEFIT EASEMENT ALLOCATIONS

Easement	Lots Fully Benefited	Lots Partially Benefited
708022944	51-53 & 55	54
708022959	51-53 & 55	54
708022965	51-53 & 55	54
708022973	51-53 & 55	54
708022974	51-53 & 55	54
708022975	51-53 & 55	54
708022977	51-53 & 55	54
708022998	51-53 & 55	54
708023001	51-53 & 55	54

ENCUMBRANCE EASEMENT ALLOCATIONS

Easement	Lots to be Encumbered
708022979	53
708022980	51 & 52
708022987	51 & 52
708022990	54
708022997	54
708324692	54
708324697	54
708324707	54
708324709	53
708324717	52
708492398	54
708492401	54
710043236	54 & 55

EXISTING ADMINISTRATIVE ADVICE ALLOCATIONS

Administrative Advice	Lots to be Encumbered
ASI3931B	51-55
ASI3983B	54
712098928	51-55

* Rule out whichever is inapplicable

2. Local Government Approval.

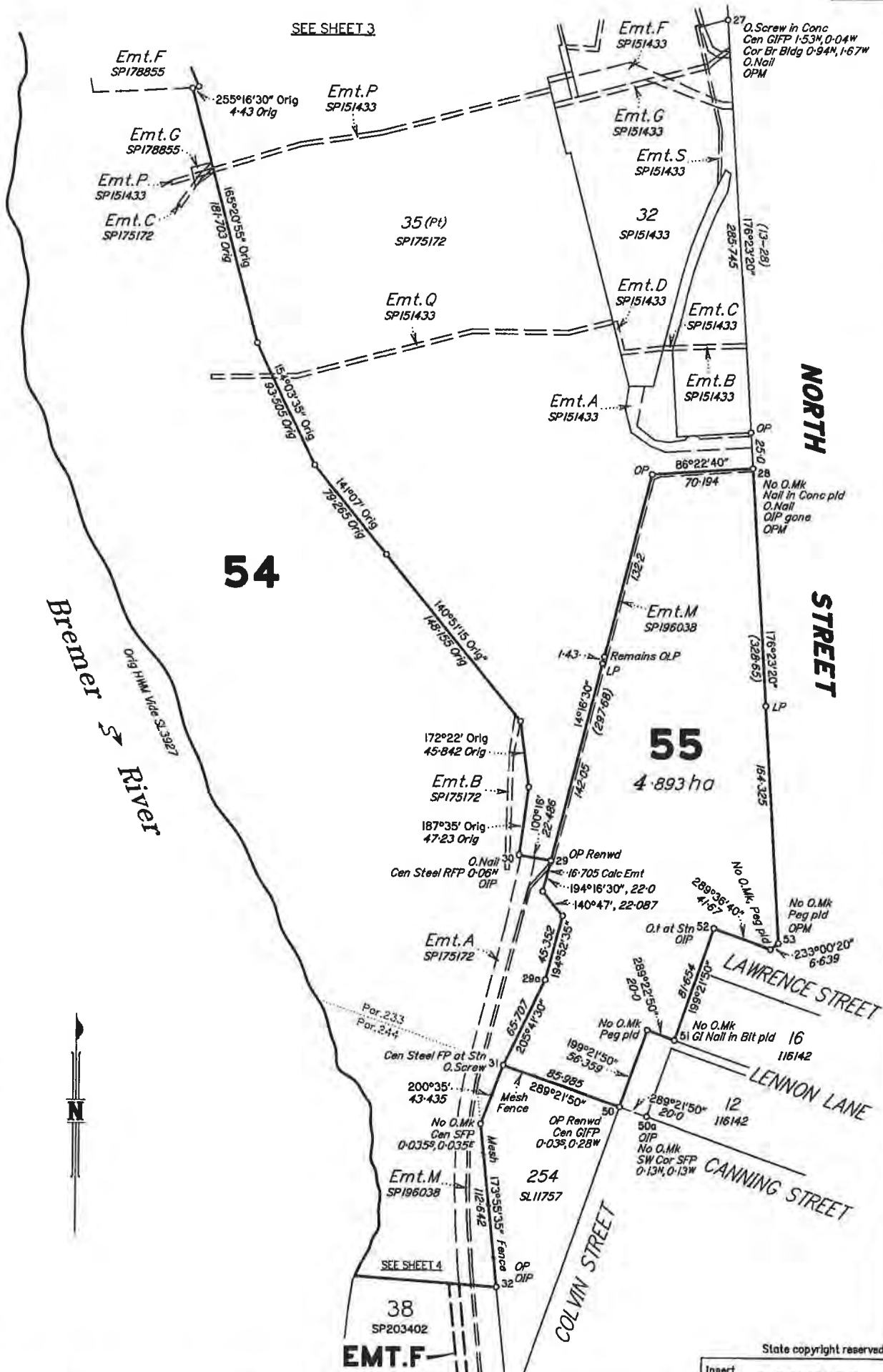
* **IPSWICH CITY COUNCIL**
hereby approves this plan in accordance with the:
% **INTEGRATED PLANNING ACT 1997**

Dated this 10th day of AUGUST 2009
2009

..... # **Authorised Local Government Officer**
..... #
* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or # Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1990

3. Plans with Community Management Statement:
CMS Number:
Name:
4. References:
Dept File:
Local Govt: S026108
Surveyor: 8742-02

54	Por. 233 & 244	12. Building Format Plans only. I certify that: * As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or road. * Part of the building shown on this plan encroaches onto adjoining lots and road.
51-53 & 55	Por. 233	
7. Portion Allocation: a. Map Reference: <u>9442-14334</u>		Cadastre Surveyor/Director * Date * Delete words not required
9. Locality: North Ipswich		13. Lodgement Fees: Survey Deposit \$..... Lodgement \$..... New Titles \$..... Photocopy \$..... Postage \$..... TOTAL \$.....
10. Local Government: Ipswich City Council		
11. Passed & Endorsed: By: MICHEL GROUP SERVICES PTY. LTD. ABN. 53 841 801 835 Date: <u>15.7.2009</u> <u>7.8.2009</u> Signed: <u>[Signature]</u> Designation: <u>Liaison Officer</u>		
14. Insert Plan Number SP222487		



SEE SHEET 3

SEE SHEET 4

State copyright reserved.

Insert Plan Number
SP222487

NORTH STREET

W.M. HUGHES STREET

51

3220 m²

52

7179 m²

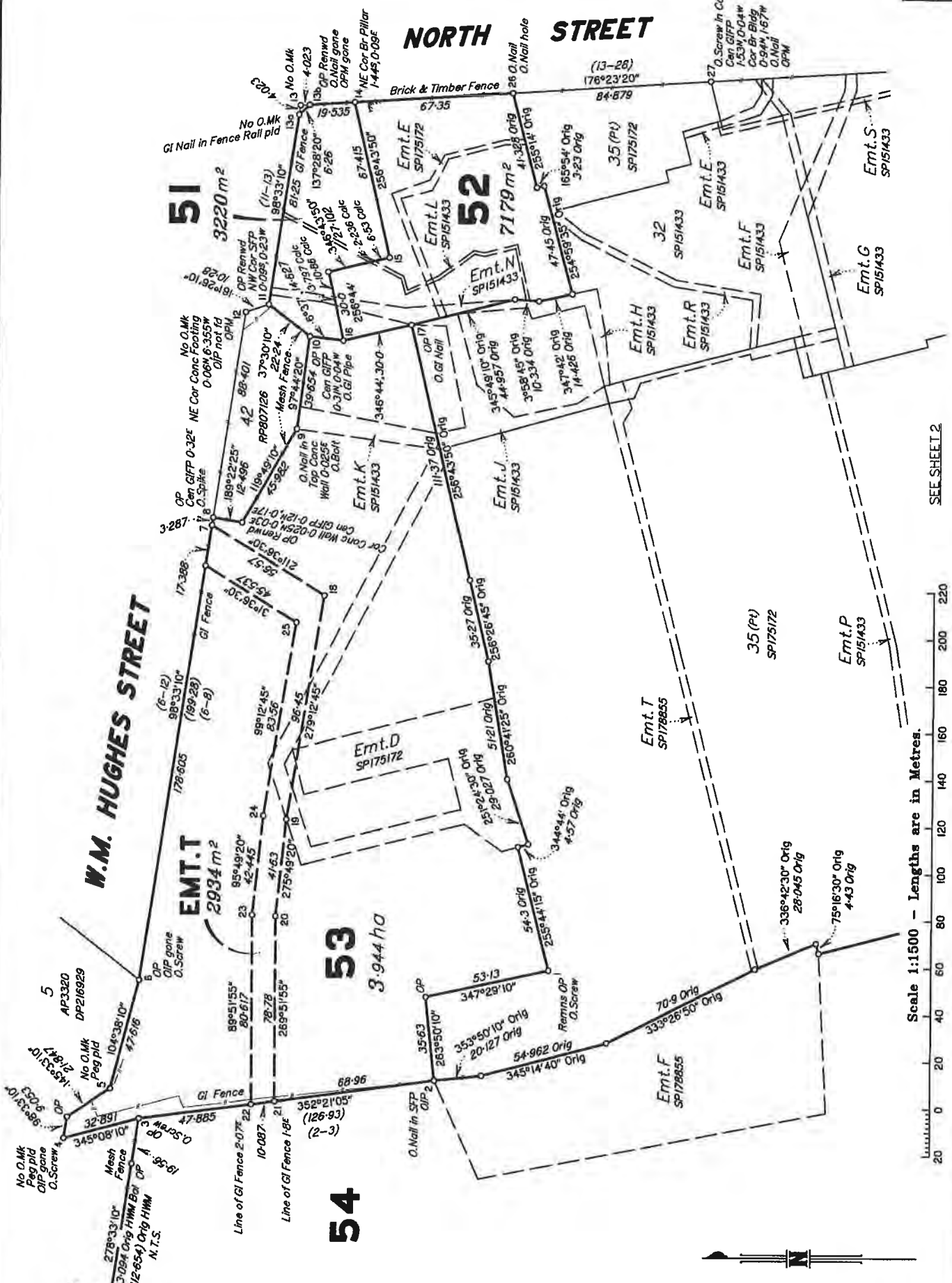
EMT.T

2934 m²

53

3.944 ha

54



SEE SHEET 2

Scale 1:1500 - Lengths are in Metres.

State copyright reserved.

Insert Plan Number SP222487

Orig HWM Vide SL3927
Mihī → Creek

0 50mm 100mm 150mm

PERMANENT MARKS

PM	ORIGIN	BEARING	DIST	NO	TYPE
12-OPM	1/DP216929	292°47'40"	6.594	90835	Standard
13b-OPM gone	SL3927	86°23'20"	0.604	36598	
27-OPM	2/SP1514.33	168°39'50"	23.354	53194	Standard
28-OPM	3/DP1705.33	38°00'15"	44.26	31434	Standard
53-OPM	B/SL3927	86°23'20"	0.604	36595	Standard

Bremer River

54

38
SP203402

254
SL11757

EMT.F
2855 m²

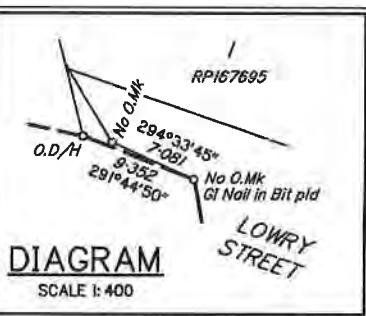
COLVIN STREET

Lease CW
SP222470

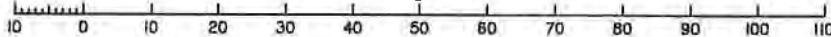
RP167695

LOWRY STREET

21
SP175186



Scale 1:750 - Lengths are in Metres.



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Insert Plan Number
SP222487

Appendix 2

Environmental Noise Impact Report (TTM Consulting).



TTM Consulting Pty Ltd
129 Logan Road,
Toowong Qld 4102
PO Box 1310 Cooperoo BC QLD 4102

t
f
e

ABN 65 010 868 621

**Proposed Townhouse Development – “Riverlinks”
North Street, North Ipswich**

ENVIRONMENTAL NOISE IMPACT REPORT

Prepared for:

Leda Holdings Pty Ltd

Date Prepared:

19th August 2009

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1. INTRODUCTION

The following report is in response to a request by Leda Holdings Pty Ltd for an environmental noise assessment for a proposed townhouse development located at Lot 55 North Street, North Ipswich. The report considers offsite activity and railway noise and forms part of a development application under consideration by Ipswich City Council.

An assessment of the activities associated with the *Queensland Rail (QR) Ipswich Workshops* was analysed in 3 scenarios as the future use of the workshops are uncertain. The modelling conducted considered the worst case for each scenario as detailed in this report.

In undertaking this assessment, the following noise monitoring was conducted:

- Unattended background noise monitoring; and
- Attended noise measurements of activities associated with the:
 - QR workshops,
 - Queensland Museum, and
 - Steam locomotives.

Based upon the predicted noise levels, recommendations regarding acoustic treatments and management controls were specified.

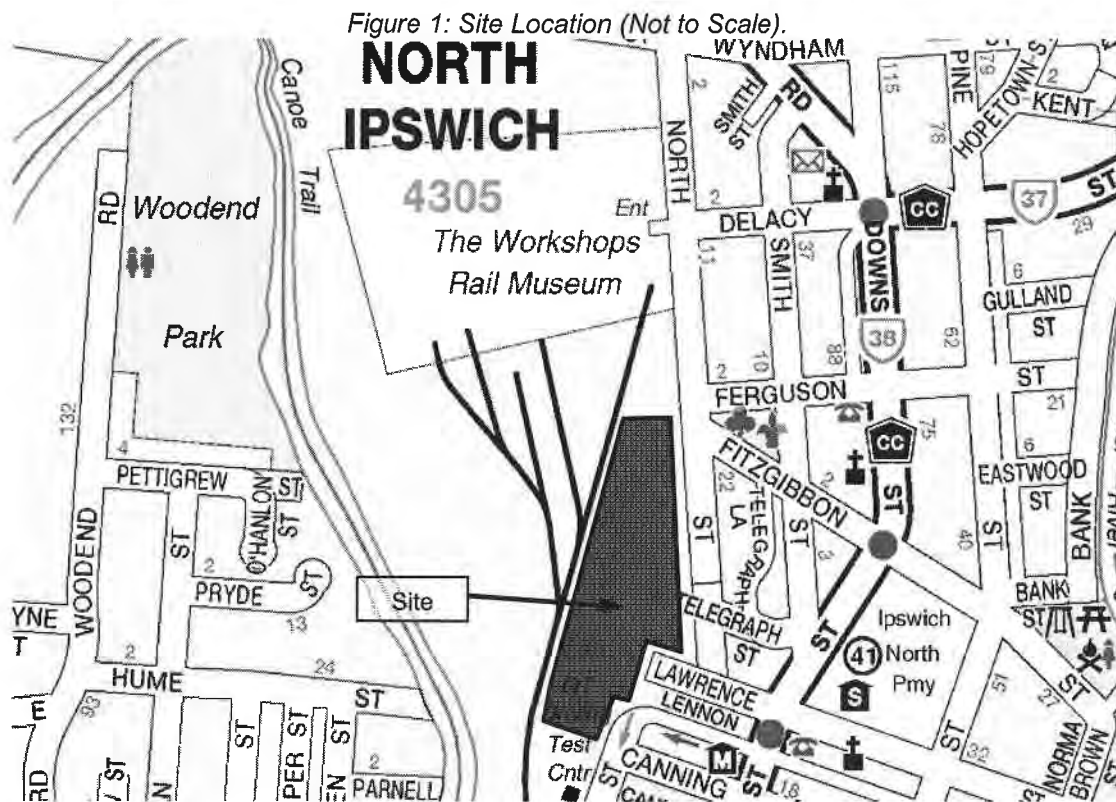
2. SITE DESCRIPTION

2.1 Site Location

The site is described by the following:

North Street, North Ipswich
Lot 55 on SP222487

Refer to Figure 1 for site location.



A comprehensive site survey was conducted on the 29th of May, 2009. The survey identified the following surrounding the site:

- North Street is located adjacent the eastern boundary, separating the site from an automotive smash repair workshop and a mixture of single storey highset, single and two storey residential dwellings.
- "Queensland Transport (QT) Driving Test Centre" is located adjacent the southern property boundary, separating the development from a mixture of residential and commercial premises.
- A railway line is located adjacent the western boundary separating the site from vacant land and the Bremer River.
- Located northwest of the development are the Queensland Museums' (QM) "Workshops Rail Museum" and Queensland Rails (QR) "Ipswich Workshop".

2.1 Proposal

The proposal is to develop the site as follows:

- A total of 120 two residential townhouse units (total of 22 buildings);
- Communal recreation areas and visitor parking spaces.

Access to the site is from North and Colvin Streets, with an internal road network providing access to individual units.

Refer to **Appendix A** for the development plans.

2.2 Acoustic Environment

The area surrounding the site is primarily affected by activities associated with the QR *Ipswich Workshops* and the QM *Workshop Rail Museum*. Other activities in the area that potentially affect the acoustic amenity include the QT *Driving Test Centre* (south) and the automotive smash repair workshop (east).

Note, during the site visit (29th of May, 2009) activities associated with QR *Ipswich Workshops*, QM *Workshop Rail Museum* were inaudible at the nearest site boundary. Additionally, activities associated with the QT *Driving Test Centre* and smash repair workshop were also inaudible at the site.

An assessment of the potential impacts from the QR Ipswich workshop and QM workshop rail museum were conducted at the site (refer to Section 6).

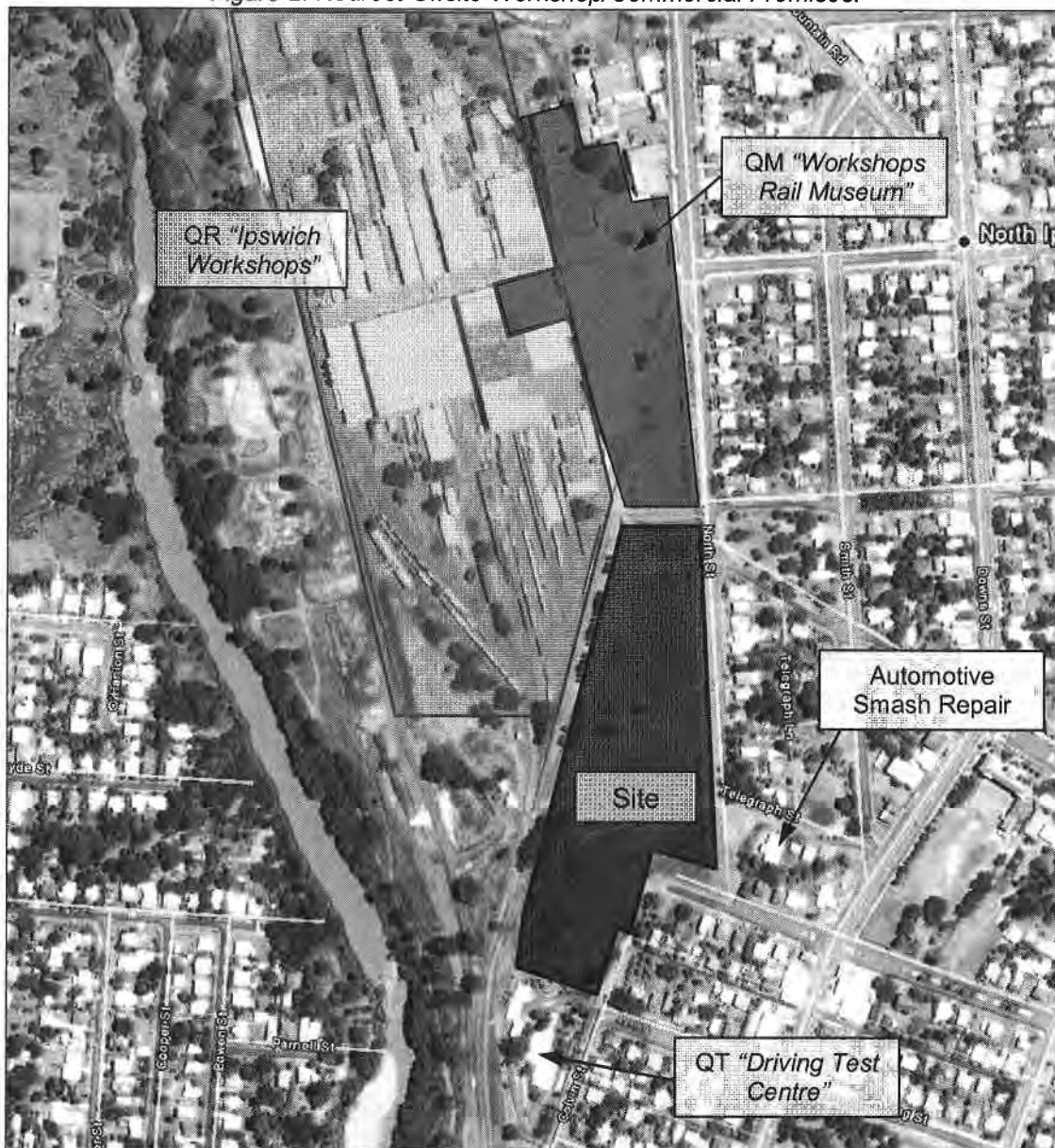
2.3 Offsite Workshop/Commercial Activities

To adequately assess the site, consideration must be given to the activities associated with commercial and light industry premises located in the vicinity of the site. During the site survey, the following offsite premises were identified as having potential to impact the acoustic amenity of the site:

- QR "Ipswich Workshops" (operating hours range from 7am to 5pm on weekdays) is situated northwest of the site.
- QM "Workshops Rail Museum" (operating hours are from 9:30am to 5pm 7 days) is located north.

Refer to Figure 2 for the location of the nearest workshop/commercial premises.

Figure 2: Nearest Offsite Workshop/Commercial Premises.



A preliminary assessment of the offsite activities which have the potential to impact the site was conducted with the results of the analysis presented in Section 6.3.

3. EQUIPMENT

The following equipment was used to record background and source noise levels:

- ARL EL316 Environmental Noise Monitor (SN # 16-306-005);
- RION NA-28 Sound Level Meter (SN # 01060055);
- RION NC-74 Sound Calibrator (SN # 35073393).
- BSWA Technology Co. Ltd Acoustical Calibrator (SN # 44095).

The ARL Environmental Noise Monitor and RION NA-28 Sound Level Meter hold current NATA Laboratory Certification and were field calibrated before and after the monitoring sessions with no significant drift from the reference signal recorded.

4. MEASUREMENT PROCEDURE

4.1 Unattended Background Noise Measurement Procedure

An ARL EL316 environmental noise monitor was placed on site to measure existing background noise levels representative of the development. The unattended noise monitor was located 1.3metres above ground level, in a free field location.

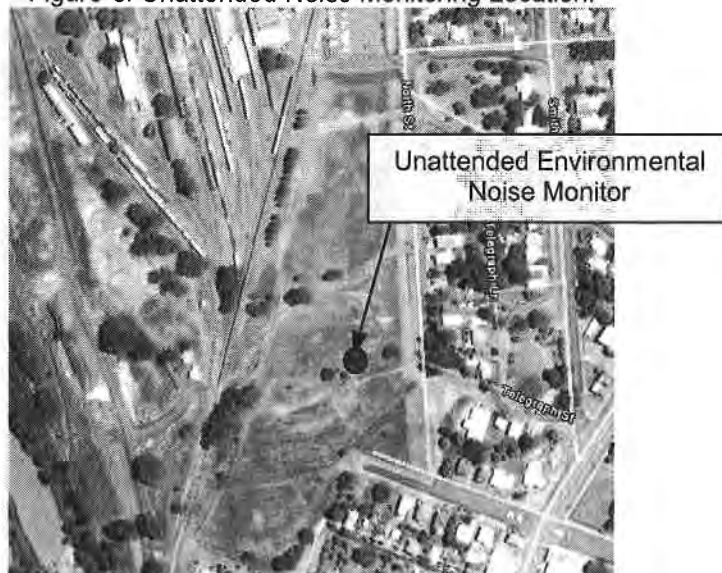
The noise monitor was set to record noise levels between the 29th of May and the 9th of June, 2009 as follows:

- "A" weighting;
- "Fast" response; and
- 15 minute statistical interval.

The statistical interval was chosen to allow application of *AS/NZS 2107:2000 'Acoustics – Recommended Design Sound Level and Reverberation Times for Building Interiors'*.

Refer to Figure 3 for the location of the unattended noise monitor.

Figure 3: Unattended Noise Monitoring Location.



Weather conditions during the unattended noise monitoring period were generally fine with light to moderate wind speeds and temperatures ranging from 4 to 24°C. Rainfall recorded on the 30th of May, 2nd – 4th and 7th of June. The data collected on these days were omitted from the analysis.

4.2 Queensland Rail and Queensland Museum Activity Noise Measurements

A site survey was conducted to determine the potential for offsite activities to impact the development. Attended noise measurements were conducted on Friday the 19th of June, 2009 between 10:00am and midday. Typical noise levels associated with relevant activities were taken from similar investigations. All measurements were conducted generally in accordance with Australian Standard AS1055:1997 *“Acoustics – Description & Measurement of Environmental Noise”*.

Weather conditions during the attended measurements were clear with low wind speeds.

4.3 Steam Locomotive Activity Noise Measurements

A site survey was conducted to determine the potential for steam locomotive activities (start up preparation and passby) to impact the development. Attended noise measurements were conducted on Saturday the 20th of June, 2009 between 6:30am and 3pm. All measurements were conducted generally in accordance with Australian Standards AS1055:1997 *“Acoustics – Description & Measurement of Environmental Noise”* and AS2377:2002 *“Acoustics – Methods for the measurement of railbound vehicle noise”*.

Weather conditions during the monitoring were varied with brief showers occurring during the day. Noise measurements were not conducted during these periods.

5. NOISE CRITERIA

The typical criteria applied to the development is divided into 4 sections (5.1 – 5.4) and details the assessment requirements for offsite activity, rail noise and mechanical plant. For industrial activities that come under the classification of an environmentally relevant activity the criteria stipulated in Section 5.3 applies.

5.1 Offsite Activity Noise

The criteria applied to the proposed townhouse development is in accordance with the Environmental Protection (Noise) Policy 2008 (EPP08). This section deals with noise sources associated with proposed onsite activities, excluding mechanical plant (i.e. vehicle activity).

For the implementation of the policy the following criteria was considered.

Schedule 1 acoustic quality objectives – Section 8

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}	
dwelling (for outdoors)	daytime and evening	50	55	65	health and wellbeing
dwelling (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

Note: for a noise reduction of 15dB(A) from the outdoor levels to the indoors, it was assumed that standard glazing for residential receivers was installed with the windows and doors facing the site closed.

To ensure the acoustic amenity of the surrounding area is maintained, the EPP08 policy also requires that background creep is assessed as follows:

Controlling Background Creep

- “(2) To the extent that it is reasonable to do so, noise from an activity must not be –
- (a) For noise that is continuous noise measured by $L_{A90,T}$ – more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$; or
 - (b) For noise that varies over time measured by $L_{Aeq,adj,T}$ – more than 5 dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$ ”.

Given the short duration and fluctuation of offsite noise levels, we recommend application of an $L_{Aeq,adj,T} + 5$ dB(A) criteria. Based upon the measured average levels onsite the following criteria applies:

Table 1: Recommended design noise level targets for offsite activity noise.

Time Period	Noise Limits L_{Aeq} dB(A)
Daytime 7am – 6pm	47 ($L_{A90} + 5$ dB(A))
Evening Time 6pm – 10pm	44 ($L_{A90} + 5$ dB(A))
Night Time 10pm – 7am	40 ($L_{A90} + 5$ dB(A))

Refer to **Appendix B** for graphical representation of measured noise levels.

5.2 Mechanical Plant

In accordance with Ipswich Shire Council requirement for the application of the background creep policy, the following criteria shall apply that mechanical plant does not exceed the existing background noise levels by more than 0dB(A). Based upon measured background noise levels measured at the site, the following noise limits apply to mechanical plant when measured at the property boundary of affected residents.

Table 2: Criteria for Residential Receivers.

Time Period	Criteria L_{A90} dB(A)
Daytime 7am – 6pm	42 ($L_{A90} + 0$ dB(A))
Evening - time 6pm – 10pm	39 ($L_{A90} + 0$ dB(A))
Night time 10pm - 7am	35 ($L_{A90} + 0$ dB(A))

Refer to **Appendix B** for graphical representation of measured noise levels.

The above levels are quoted as a measured level, not a component level, hence, all plant proposed must be included in assessment including correction for tonality. By designing plant noise to a measured level rather than a component level, the additive effect of multiple plant is taken into account.

5.3 Environmentally Relevant Activity

As certain operations may fall into the category of an environmentally relevant activity, the assessment criteria applied to the operation falls under the jurisdiction of the Environmental Protection Agency (EPA) and not the local Council. Therefore the EPP 2008 noise policy shall apply as stated in the previous section.

5.4 Rail Noise

We were advised by Queensland Transport that the development is to be designed to meet the following criterion:

- External design levels of $L_{Aeq,24hr}$ 65dB(A), assessed at outdoor recreation areas.
- L_{Amax} 87dB(A), assessed at outdoor recreation areas.
- Indoor design level for bedrooms and living areas of L_{Amax} 50dB(A) average maximum sound level between 10pm and 6am.

It is noted that the indoor design level is set out in Queensland Transport's 'Interest in Planning Schemes No.3'; and the external design levels are set out in the Environmental Protection (Noise) Policy 1997.

From time to time, passing trains will blow a horn to warn people of its presence. It should be noted however that Queensland Rails' "Code of Practice, Railway Noise Management" (December 1999), states the following in relation to noise impacts from horns and other safety devices:

8. "HORNS AND OTHER WARNING DEVICES"

Horns and sirens are used within QR as warning devices to protect the safety of both employees and the public. Unfortunately, noise from these devices may cause annoyance to some residents from time to time.

In general, public and employee safety must be satisfactorily protected and hence it is not appropriate to apply any particular noise criteria to these warning devices (including the QR nominated interim levels and the EPP Noise planning levels). Where specific complaints are received, however, responsible Managers will consider whether there is sufficient justification to change standing orders on the use of horns or to nominate alternative warning devices.

In considering what constitutes "sufficient justification", responsible Managers will have regard to any relevant QR Safety Management Systems.

QR shall ensure driver training will include appropriate use of horns and warning devices.

6. RESULTS & CALCULATIONS

6.1 Offsite Activity Noise Levels

The noise sources associated with the activities at the QR “Ipswich Workshop” and QM “Workshop Rail Museum” were based on attended measurements and similar investigations. Tables 3 – 5 present the noise levels associated with activities at the workshop and were selected as they represent the likely activities that have the potential to cause noise annoyance at the site.

Table 3: L₁ Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m L ₁ dB(A)	Correction SPL dB(A)*	Corrected Level SPL dB(A)
Car door closure	78	+ 2 (impulsive)	80
Car bypass @ 5 km/hr	77	N/A	77
Truck bypass @ 5km/hr	82	N/A	82
Truck reverse alarm	84	+ 5 (tonal)	89
Forklift outside	85	N/A	85
Forklift reverse alarm outside	90	+ 5 (tonal)	95
Unloading Truck with Forklift	92	+ 2 (impulsive)	94
Compression air brakes	95	+ 5 (impulsive)	100
Air compressor	89	+ 2 (impulsive)	91
Waste collection	92	+ 5 (impulsive)	97
Hammering sheet metal	106	+ 5 (impulsive)	111
Drill Press	76	N/A	76
Hand Grinder	98	+ 5 (tonal)	103
Compressed Air Rivet Gun	86	+ 5 (tonal)	91
Shunting Freight Wagon	98	+ 5 (impulsive)	103

*Correction due to tonality and impulsiveness as per AS1055 – 1997.

Table 4: L_{10} Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m L_{10} dB(A)	Correction SPL dB(A)*	Corrected Level SPL dB(A)
Car door closure	66	+ 2 (impulsive)	68
Car bypass @ 5 km/hr	75	N/A	75
Truck bypass @ 5km/hr	81	N/A	81
Truck reverse alarm	81	+ 5 (tonal)	86
Forklift outside	81	N/A	81
Forklift reverse alarm outside	86	+ 5 (tonal)	91
Unloading Truck with Forklift	88	+ 2 (impulsive)	90
Compression air brakes	85	+ 5 (impulsive)	90
Air compressor	84	+ 2 (impulsive)	86
Waste collection	87	+ 5 (impulsive)	92
Hammering sheet metal	102	+ 5 (impulsive)	107
Drill Press	74	N/A	74
Hand Grinder	97	+ 5 (tonal)	102
Compressed Air Rivet Gun	85	+ 5 (tonal)	90
Shunting Freight Wagon	98	+ 5 (impulsive)	103

*Correction due to tonality and impulsiveness as per AS1055 – 1997.

Table 5: L_{eq} Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m	Correction SPL dB(A)*	Corrected Level SPL
Car door closure	65	+ 2 (impulsive)	67
Car bypass @ 5 km/hr	72	N/A	72
Truck bypass @ 5km/hr	78	N/A	78
Truck reverse alarm	81	+ 5 (tonal)	86
Forklift outside	81	N/A	81
Forklift reverse alarm outside	86	+ 5 (tonal)	91
Unloading Truck with Forklift	85	+ 2 (impulsive)	87
Compression air brakes	79	+ 5 (impulsive)	84
Air compressor	83	+ 2 (impulsive)	85
Waste collection	84	+ 5 (impulsive)	89
Hammering sheet metal	96	+ 5 (impulsive)	101
Drill Press	69	N/A	69
Hand Grinder	95	+ 5 (tonal)	100
Compressed Air Rivet Gun	79	+ 5 (tonal)	84
Shunting Freight Wagon	96	+ 5 (impulsive)	101

The nearest noise sensitive receivers on site are located along the northern property boundary.

6.1.1 Predicted Noise Levels – Schedule 1 EPP08 Outdoor (day/evening) Criteria

Tables 6 and 7 present predicted noise impact levels from the *Ipswich Workshops* and *Workshop Rail Museum* impacting onto the nearest potentially affected noise sensitive premises. Predicted levels are based upon the above mentioned noise source levels and the receiver located at the nearest boundary of the site to the source.

Table 6: Predicted Noise Impacts from QR Ipswich Workshops to Nearest Onsite Receiver

Noise Source:	Predicted Level			Assessment Criteria Complies (Yes/No)		
	L _{A1} dB(A)	L _{A10} dB(A)	L _{Aeq} dB(A)	L _{A1} 65 dB(A)	L _{A10} 55dB(A)	L _{Aeq} 50dB(A)
Car door closure	49	37	36	Yes	Yes	Yes
Car bypass @ 5 km/hr	47	45	42	Yes	Yes	Yes
Truck bypass @ 5km/hr	54	53	50	Yes	Yes	Yes
Truck reverse alarm	48	45	45	Yes	Yes	Yes
Forklift outside	44	40	40	Yes	Yes	Yes
Forklift reverse alarm outside	54	50	50	Yes	Yes	Yes
Unloading Truck with Forklift	53	49	46	Yes	Yes	Yes
Compression air brakes	59	49	43	Yes	Yes	Yes
Air compressor	39	34	33	Yes	Yes	Yes
Waste collection	58	53	50	Yes	Yes	Yes
Milling Machine	39	36	33	Yes	Yes	Yes
Conversation	33	29	23	Yes	Yes	Yes
Hammering sheet metal	58	54	48	Yes	Yes	Yes
Drill Press	23	21	16	Yes	Yes	Yes
Hand Grinder	45	44	42	Yes	Yes	Yes
Compressed Air Rivet Gun	33	32	26	Yes	Yes	Yes
Shunting Freight Wagon	61	61	59	Yes	No	No

Based upon the source noise levels presented in Tables 3 – 5 and the construction of a 2.6metre high acoustic barrier along western site boundary, shunting freight wagons (only assessed for Scenario 3 – see Section 6.1.2) are predicted to exceed the L_{A10} and L_{Aeq} criteria. It is predicted shunting freight wagon activities can achieve compliance with additional acoustic treatments as detailed in Section 7.

All remaining activities associated with the *QR Ipswich Workshops* are predicted to comply with the criteria provided the recommended acoustic barrier detailed in Section 7 is implemented.

Table 7: Predicted Noise Impacts from QM Workshop Rail Museum to Nearest Onsite Receiver

Noise Source:	Predicted Level			Assessment Criteria Complies (Yes/No)		
	L _{A1} dB(A)	L _{A10} dB(A)	L _{Aeq} dB(A)	L _{A1} 65 dB(A)	L _{A10} 55dB(A)	L _{Aeq} 50dB(A)
Car door closure	49	37	36	Yes	Yes	Yes
Car bypass @ 5 km/hr	47	45	42	Yes	Yes	Yes
Truck bypass @ 5km/hr	54	53	50	Yes	Yes	Yes
Truck reverse alarm	48	45	45	Yes	Yes	Yes
Forklift outside	44	40	40	Yes	Yes	Yes
Forklift reverse alarm outside	54	50	50	Yes	Yes	Yes
Unloading Truck with Forklift	53	49	46	Yes	Yes	Yes
Compression air brakes	59	49	43	Yes	Yes	Yes
Waste collection	58	53	50	Yes	Yes	Yes
Conversation	33	29	23	Yes	Yes	Yes

The activities associated with the Workshop Rail Museum are predicted to comply with the criteria provided the recommended acoustic barrier detailed in Section 7 is incorporated into the development.

6.1.2 Predicted Noise Levels – Background Creep Criteria

To ensure the acoustic amenity of the surrounding area is not adversely impacted, a further assessment was conducted to determine the compliance of the offsite activities in accordance with the EPP08 “Background creep” assessment criteria.

As the future use of the rail workshop and associated yard are uncertain, 3 scenarios were considered and are detailed as follows:

- Scenario 1 – Current use/capacity:
 - 3 staff members (of a total 54 staff) operating equipment (hand tools, power tools, floor mounted machinery) indoors within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - 1 workshop/maintenance warehouse utilised,
 - 1 semi-truck delivery per month (with associated forklifts unloading/loading activities).
 - 1 “traverser” movement per month.

- Scenario 2 – Increased operational capacity (Increased activity as a maintenance workshop):
 - 25 staff members operating equipment (hand tools, power tools, floor mounted machinery) indoors within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - 2 semi-truck delivery per week (with associated forklifts unloading/loading activities)
 - 2 “traverser” movements per week

- Scenario 3 – Full operation of all facilities and workshop buildings (Use as a freight yard and maintenance workshop):
 - All staff members operating equipment (hand tools, power tools, floor mounted machinery) simultaneously (indoors) within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - All workshop/maintenance warehouses utilised,
 - 20 semi-truck delivery per day (with associated forklifts unloading/loading activities)
 - 1 “traverser” movement per day,
 - shunting freight wagons from rail yard.

For calculation purposes the following assumptions were made for day time operation (7am to 6pm):

- Scenario 1 – Current use/capacity:
 1. 162 Car passbys and 162 Car Door Closures.
 2. 2 Truck passbys 1 truck compression air brake and 1 Truck reversing alarm.
 3. 10 Forklift movements, 5 forklift unloading truck movements, 5 Forklift reversing alarms.
 4. 120 air compressor cycles.
 5. 45 uses of the milling machine, 200 hammering sheet metal and 10 uses of the drill press, hand grinder and compressed air rivet gun (each).
 6. 2 “Traverser” passbys and 2 loading/unloading of the traverser using the shunt tractor.
 7. 6 conversations (where 50% of the staff are talking simultaneously).
 8. 1 waste collection truck to empty industrial bin.

- Scenario 2 – Increased operational capacity:
 1. 162 Car passbys and 162 Car Door Closures.
 2. 4 Truck passbys 2 truck compression air brake and 2 Truck reversing alarm.
 3. 20 Forklift movements, 10 forklift unloading truck movements, 10 Forklift reversing alarms.
 4. 120 air compressor cycles.
 5. 60 uses of the milling machine, 300 hammering sheet metal and 100 uses of the drill press, hand grinder and compressed air rivet gun (each).
 6. 4 “Traverser” passbys and 4 loading/unloading of the traverser using the shunt tractor.
 7. 6 conversations (where 50% of the staff are talking simultaneously).
 8. 1 waste collection truck to empty industrial bin.

- Scenario 3 – Full operation of all facilities and workshop buildings:
 1. 162 Car passbys and 162 Car Door Closures.
 2. 40 Truck passbys 2 truck compression air brake and 2 Truck reversing alarm.
 3. 20 Forklift movements, 20 forklift unloading truck movements, 20 Forklift reversing alarms.
 4. 120 air compressor cycles.
 5. 80 uses of the milling machine, 400 hammering sheet metal and 300 uses of the drill press, hand grinder and compressed air rivet gun (each).
 6. 6 “Traverser” passbys and 6 loading/unloading of the traverser using the shunt tractor.
 7. 10 conversations (where 50% of the staff are talking simultaneously).
 8. 50 freight wagons being shunted in rail yard.
 9. 1 waste collection truck to empty industrial bin.

- QM Workshop Rail Museum:
 1. 500 Car passbys and 1000 Car Door Closures.
 2. 2 Truck passbys 1 truck compression air brake and 1 Truck reversing alarm.
 3. 10 Forklift movements, 5 forklift unloading truck movements, 5 Forklift reversing alarms.
 4. 2 “Traverser” passbys and 2 loading/unloading of the traverser using the shunt tractor.
 5. 50 conversations (where 50% of the 500 patrons are talking simultaneously).
 6. 1 waste collection truck to empty industrial bin.

All calculations were based on the worst case scenario and included the usage as stated in the itemised points. Table 8 details the predicted impacts at the nearest onsite receiver for the day time period.

Table 8: Onsite Combined Noise Impacts to Receivers.

Receiver Location	Predicted Level	Assessment Criteria Complies (Yes/No)
	$L_{eq\ day}$ dB(A)	Day Time 47 dB(A)
Scenario 1	38	Yes
Scenario 2	40	Yes
Scenario 3	44	Yes
Workshop Rail Museum	45	Yes

Based on the calculated noise levels for the different scenarios and premises, compliance is predicted with the day time criteria provided the recommended acoustic barriers detailed in Section 7 are incorporated into the development.

6.2 Tourist Steam Locomotive Train Noise

Currently there are 10 trains per year that traverse the line adjacent western site boundary (as advised by *QM Workshop Rail Museum*). Based upon the low rail volume (approximately one per month), TTM would advise that a detailed rail assessment of steam train passby's is not required due to the low usage of the line.

The developer should consider the quality of the development required, including the potential of upgrading the acoustic features of the site to provide a more suitable environment for future tenants.

7. RECOMMENDATIONS AND DISCUSSION

7.1 Offsite Activity Noise

Based upon calculated noise levels from the *QR Ipswich Workshops* and the *QM Workshop Rail Museum* activities, the site is predicted to comply with the criteria provided the recommendations detailed below for each scenario are incorporated into the development.

- **The Workshops Rail Museum:**
 - Construction of a 1.8metre high acoustic barrier along the northern property boundary as detailed in **Appendix C**.
 - Care should be taken to ensure the barrier is free of gaps or holes.
 - The recommended acoustic barrier shall achieve a minimum surface density of 12kg/m².
 - The recommended acoustic barrier may be constructed of, but not limited to, 19mm Lapped (40%) timber palings, 9mm FC sheet or masonry.

Based upon the assumption that the future uses of *the Ipswich Workshops* are addressed by the scenarios conducted in this assessment the following recommendations apply:

- **Ipswich Workshops Scenario's 1 and 2:**
 - Construction of a 1.8metre high acoustic barrier along the northern property boundary as detailed in **Appendix C**.
 - Care should be taken to ensure the barrier is free of gaps or holes.
 - The recommended acoustic barrier shall achieve a minimum surface density of 12kg/m².
 - The recommended acoustic barrier may be constructed of, but not limited to, 19mm Lapped (40%) timber palings, 9mm FC sheet or masonry.

The developer should consider the quality of the development required, including the potential of upgrading the acoustic features of the site to provide a more suitable environment for future tenants. Areas to consider upgrades of acoustic features include (but not limited to) improved construction of walls, windows and ceiling systems in relation to construction materials (insulation, window glazing and internal wall thickness).

In the event the *Ipswich Workshops* are reinstated as a fully operational rail yard and maintenance workshop the following additional recommendations apply:

- **Ipswich Workshops Scenario 3** (In addition to the requirements for scenarios 1 & 2):
 - We recommend the construction of a 2.6metre high acoustic barrier as detailed in **Appendix C**.
 - Care should be taken to ensure the barrier is free of gaps or holes.
 - The recommended acoustic barrier shall achieve a minimum surface density of 12kg/m².
 - The recommended acoustic barrier may be constructed of, but not limited to, 19mm Lapped (40%) timber palings, 9mm FC sheet, masonry or earth mounding.
 - Note the barrier may be constructed using a combination of earth mound and acoustic fence.
 - Detailed individual assessment of townhouse blocks 2 – 4, 6, 8 and 10 shall be conducted to ensure compliance with internal noise limits specified in Section 5.1.
 - To assist in reducing glazing treatment requirements, it is recommended all townhouse blocks are constructed using masonry walls on the ground and first floor levels.
 - Building treatments shall be determined by using the calculation methods detailed in Australian Standard AS3671:1989 '*Road Traffic Noise Intrusion – Building Siting and Construction*'.

Once the future use of the *Ipswich Workshop* is determined a further acoustic assessment should be conducted to assess background creep in relation to the site to ensure compliance with the criteria.

7.2 Tourist Steam Locomotive Train Noise

The developer should consider the quality of the development required, including the potential of upgrading the acoustic features of the site to provide a more suitable environment for future tenants. Areas to consider upgrades of acoustic features include (but not limited to) improved construction of walls, windows and ceiling systems in relation to construction materials (insulation, window glazing and internal wall thickness).

8. CONCLUSIONS

An environmental noise assessment was conducted of the proposed residential townhouse development located at Lot 55 North Street, North Ipswich. On the condition the recommendations presented in Section 7 are implemented, the development is predicted to comply with the relevant Ipswich City Council and Queensland Transport assessment criteria.

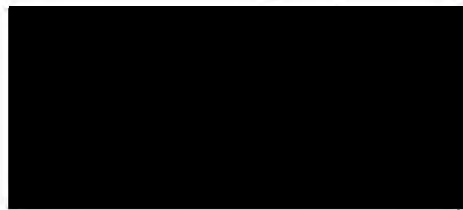
If you should have any further questions, please do not hesitate to contact us.

Report Compiled by:



Acoustic Consultant

Report Checked by:

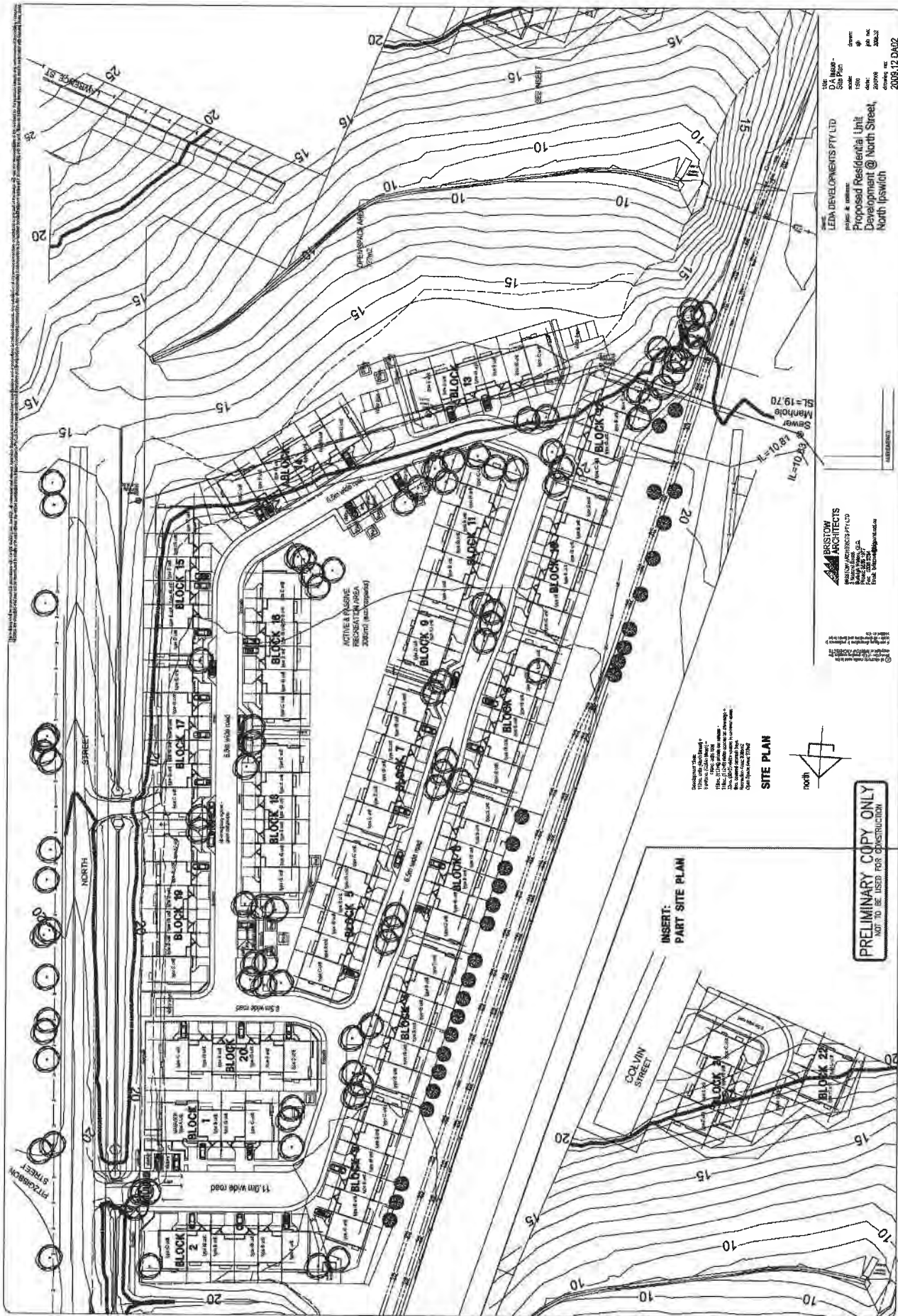


Associate Director

9. APPENDICES

Appendix A

Proposed Development Plan



DA 14309 -
 Sub Plan
 Date: 2008.12.02
 Drawn: [Name]
 Checked: [Name]

LEIN DEVELOPMENTS PTY LTD
 Project & address:
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich

ARCHITECTS
 ARCHITECTS PTY LTD
 1/100 North Street
 North Ipswich QLD 4750
 Phone: 07 5532 1111
 Fax: 07 5532 1112
 Email: info@architects.com.au

Scale: 1:500
 Date: 2008.12.02
 Drawn: [Name]
 Checked: [Name]

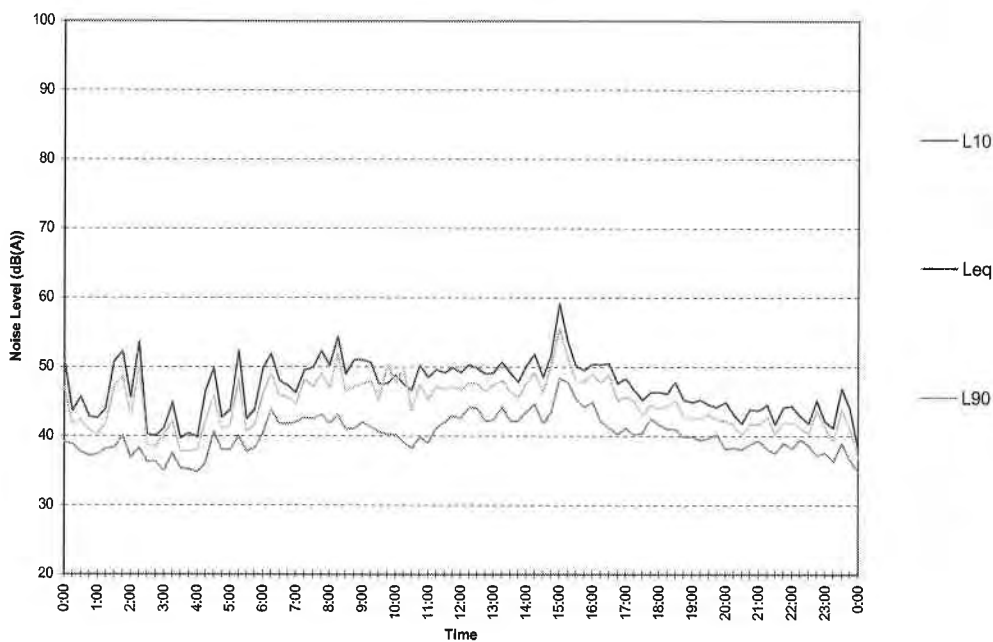
SITE PLAN
 north

INSERT:
 PART SITE PLAN

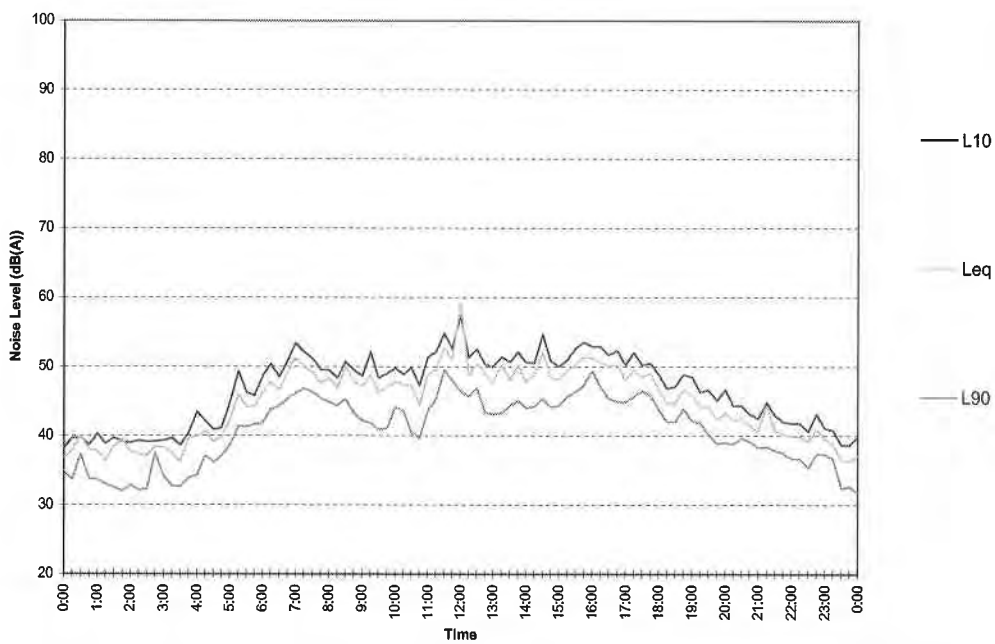
PRELIMINARY COPY ONLY
 NOT TO BE USED FOR CONSTRUCTION

Appendix B
Noise Monitoring Results

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31/05/2009

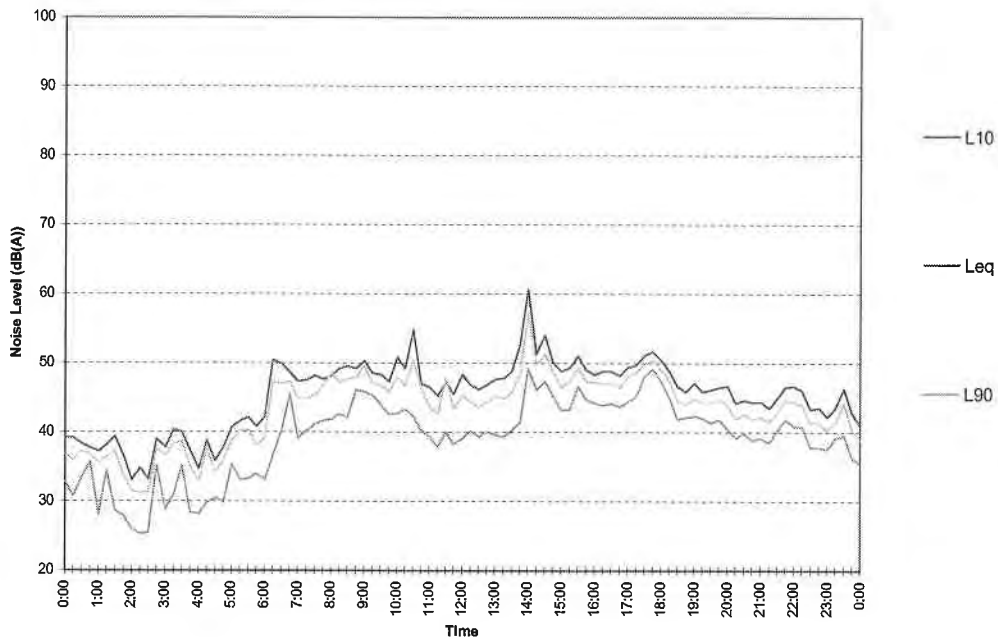


25691_ENV
01/06/2009



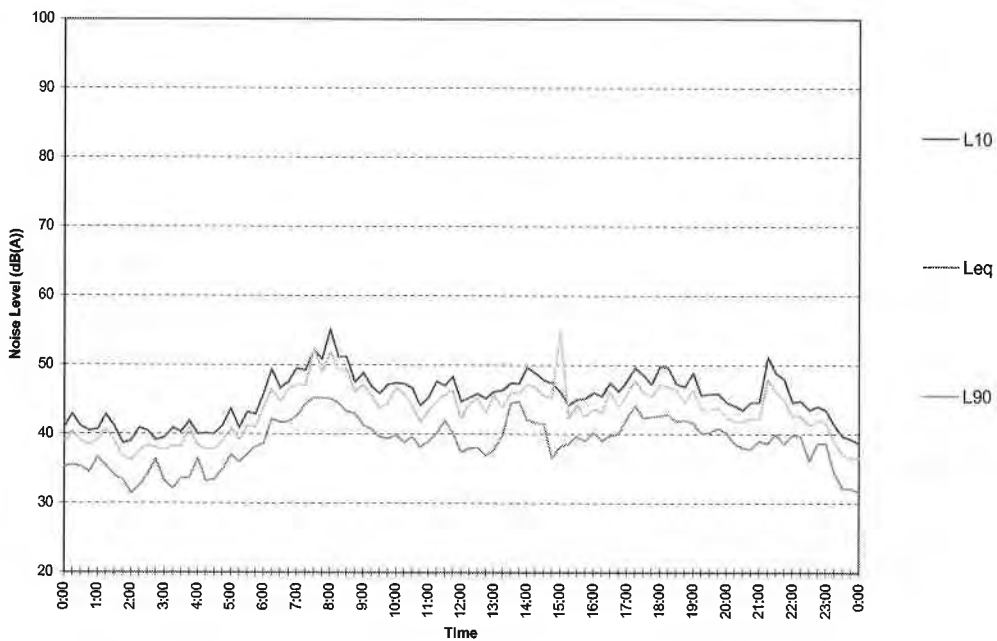
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05/062009



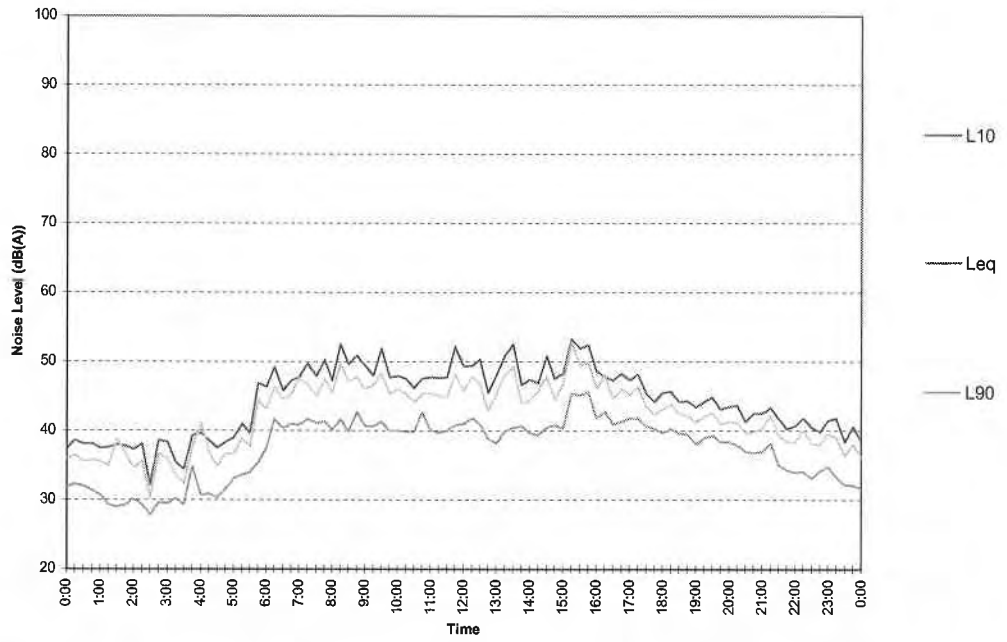
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Saturday June 6, 2009

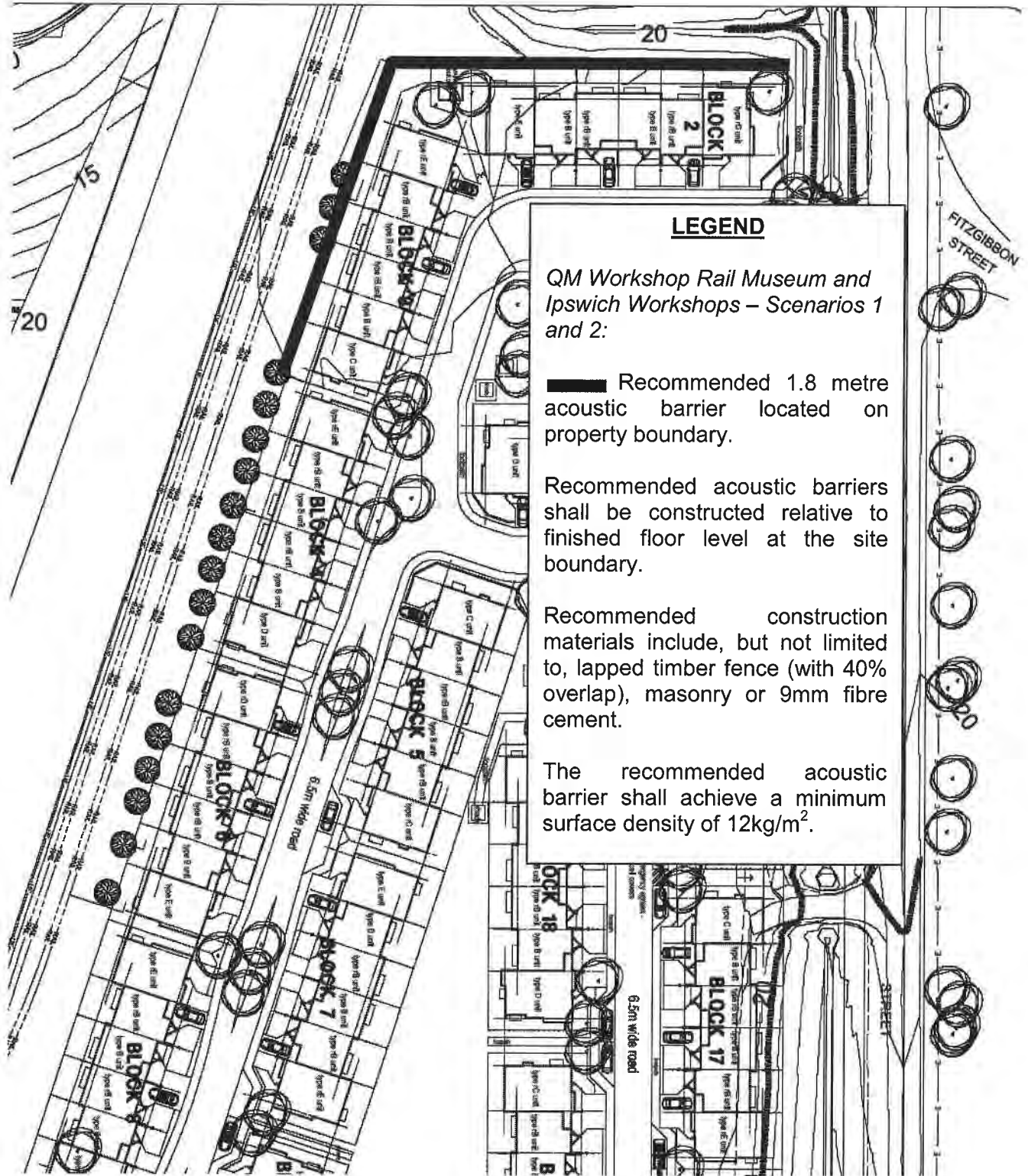


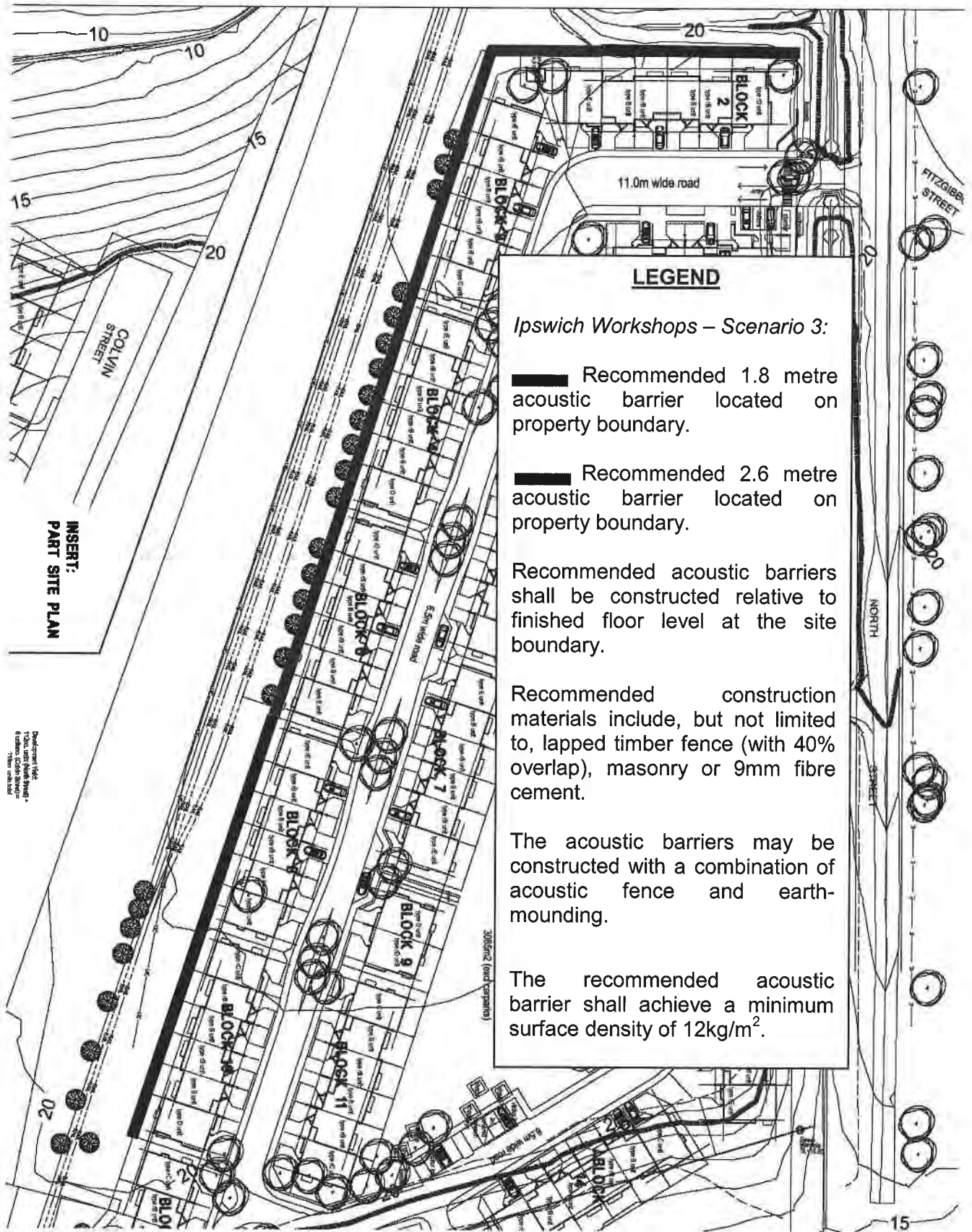
25691_ENV

08/06/2009



Appendix C
Recommended Acoustic Barriers





INSERT:
PART SITE PLAN

Development No. 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000

LEGEND

Ipswich Workshops – Scenario 3:

█ Recommended 1.8 metre acoustic barrier located on property boundary.

█ Recommended 2.6 metre acoustic barrier located on property boundary.

Recommended acoustic barriers shall be constructed relative to finished floor level at the site boundary.

Recommended construction materials include, but not limited to, lapped timber fence (with 40% overlap), masonry or 9mm fibre cement.

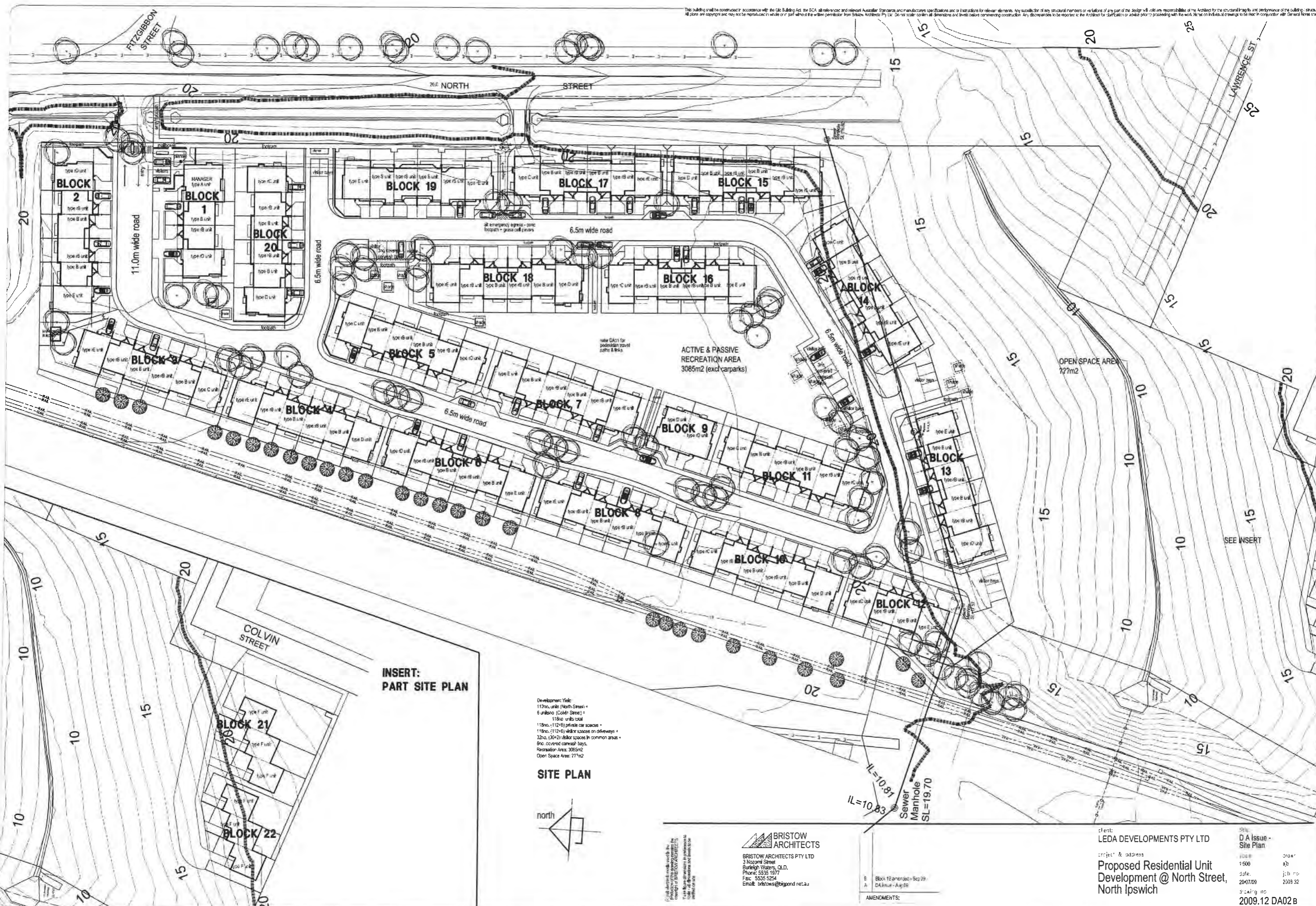
The acoustic barriers may be constructed with a combination of acoustic fence and earth-mounding.

The recommended acoustic barrier shall achieve a minimum surface density of 12kg/m².

Appendix 3

Proposal Plans.

This building shall be constructed in accordance with the Qld Building Act, the BCA, all relevant and relevant Australian Standards and manufacturers specifications and/or instructions for relevant elements. Any liability for any structural members or failures of any part of the building shall rest with the responsibility of the Architect for the structural integrity and performance of the building. Structures. All plans are copyright and may not be reproduced in whole or in part without the written permission from Bristow Architects Pty Ltd. Do not scale for dimensions and levels concerning construction. Any discrepancies to be reported to the Architect for clarification or advice prior to proceeding with the work. Please refer to individual drawings to be made in cooperation with General Notes cover.



11.0m wide road

6.5m wide road

6.5m wide road

6.5m wide road

6.5m wide road

ACTIVE & PASSIVE RECREATION AREA
3085m2 (excl carparks)

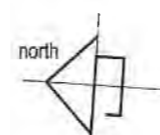
OPEN SPACE AREA
727m2

**INSERT:
PART SITE PLAN**



Development Yield:
112no. units (North Street) +
6 units (Colvin Street) =
118no. units total
118no. (112-6) private car spaces +
118no. (112-6) visitor spaces on driveways +
32no. (30+2) visitor spaces in common areas +
6no. covered carwash bays.
Recreation Area: 3085m2
Open Space Area: 727m2

SITE PLAN



BRISTOW ARCHITECTS
BRISTOW ARCHITECTS PTY LTD
3 Nozomi Street
Burleigh Waters, QLD.
Phone: 5535 1977
Fax: 5535 5254
Email: bristows@bigpond.net.au

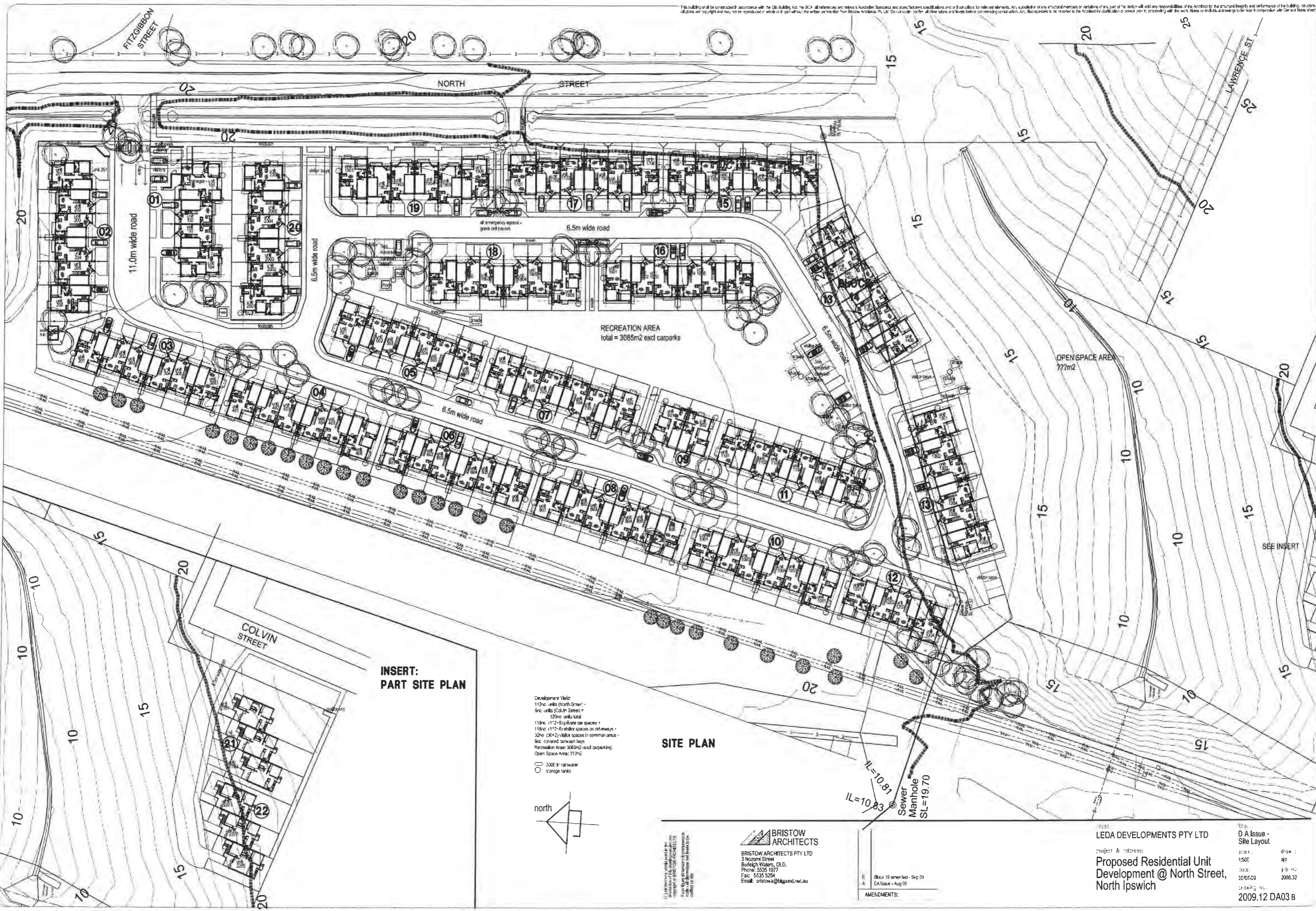
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IL=10.83
Sewer Manhole
SL=19.70

B Block 12 amended - Sep 09
A DA Issue - Aug 08
AMENDMENTS:

Client:
LEDA DEVELOPMENTS PTY LTD
Project & address:
**Proposed Residential Unit
Development @ North Street,
North Ipswich**

File:
D A Issue -
Site Plan
Date:
2007.09
2009.12
2009.12 DA02 B

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11.0m wide road

6.5m wide road

6.5m wide road

6.5m wide road

RECREATION AREA
total = 3085m2 excl carparks

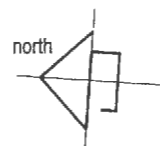
OPEN SPACE AREA
777m2

**INSERT:
PART SITE PLAN**

COLVIN STREET

SITE PLAN

- Development Yield:
 118no units (North Street) +
 8no units (Colvin Street) =
 126no units total
 118no (11'2"-6) private car spaces +
 118no (11'2"-6) visitor spaces on driveways +
 32no (3X12) visitor spaces in common areas +
 6no covered assembly bays
 Recreation Area: 3085m2 (incl carparks)
 Open Space Area: 777m2
- 3300 l rainwater storage tanks



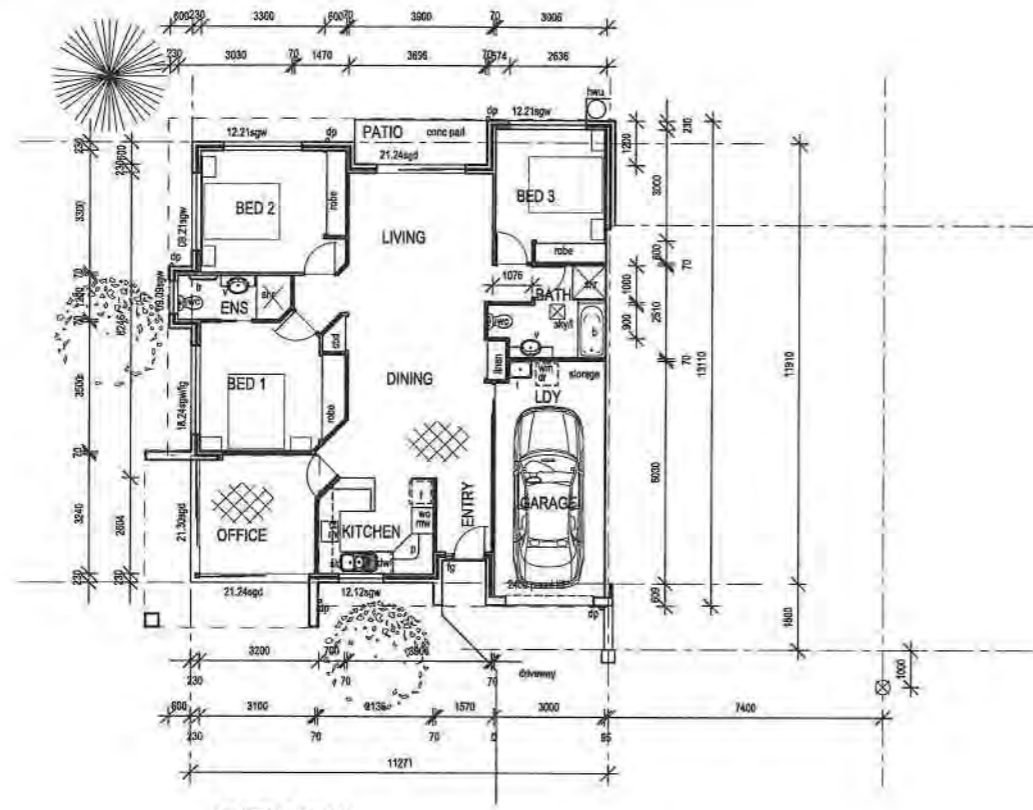
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 IL=10.83
 Sewer Manhole
 SL=19.70

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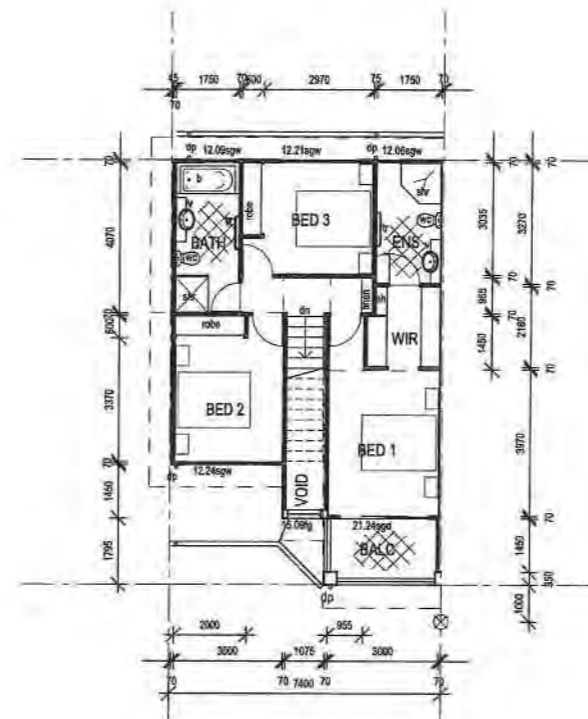
Block 19 amended - Sep 04
 CA Issue - Aug 09

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 project & address:
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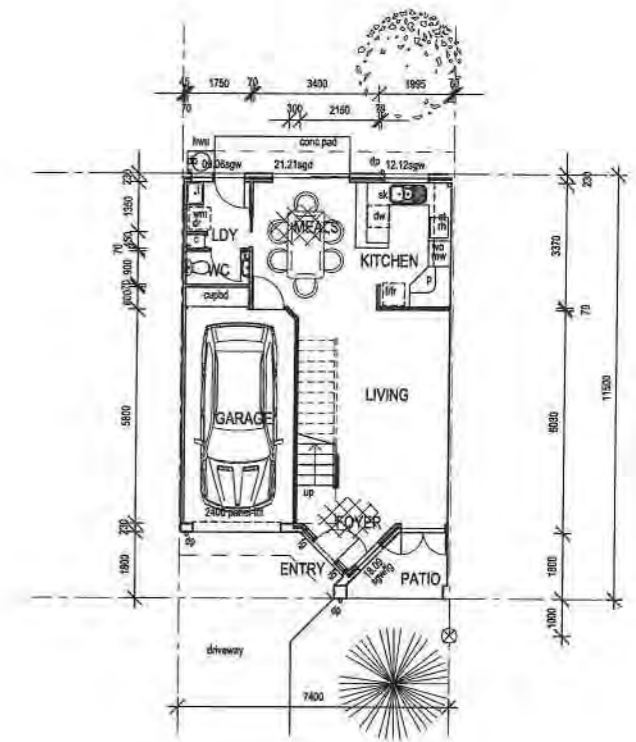
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 Site Layout
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 20/07/09
 drawing no:
 2008.32
 2009.12 DA03 B



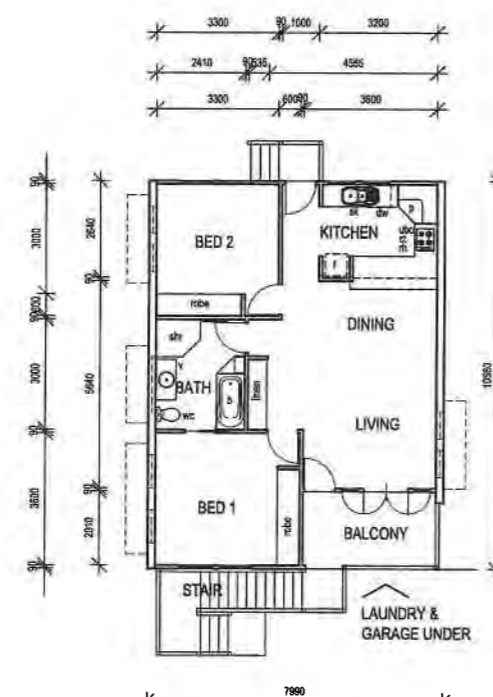
UNIT 'A' PLAN
floor area: 136.45m²



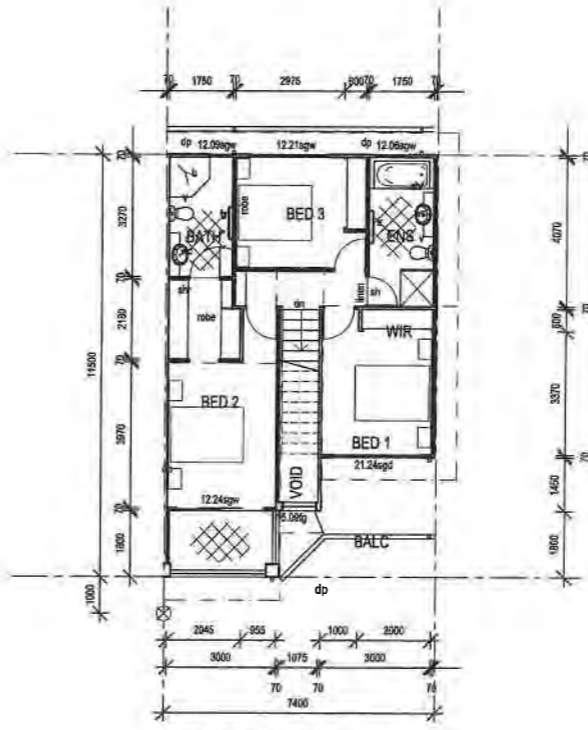
UNIT 'B' PLAN: FF
floor area: 66.45m²



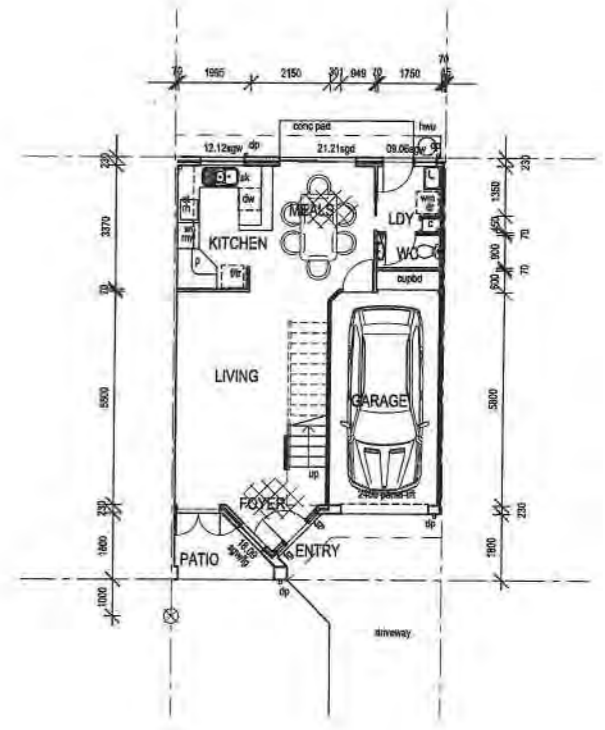
UNIT 'B' PLAN: GF
floor area: 73.64m²



UNIT 'F' PLAN
floor area: 110.0m²



UNIT 'rB' PLAN: FF
floor area: 66.45m²



UNIT 'rB' PLAN: GF
floor area: 73.64m²

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A DA Issue - Aug 06
AMENDMENTS:

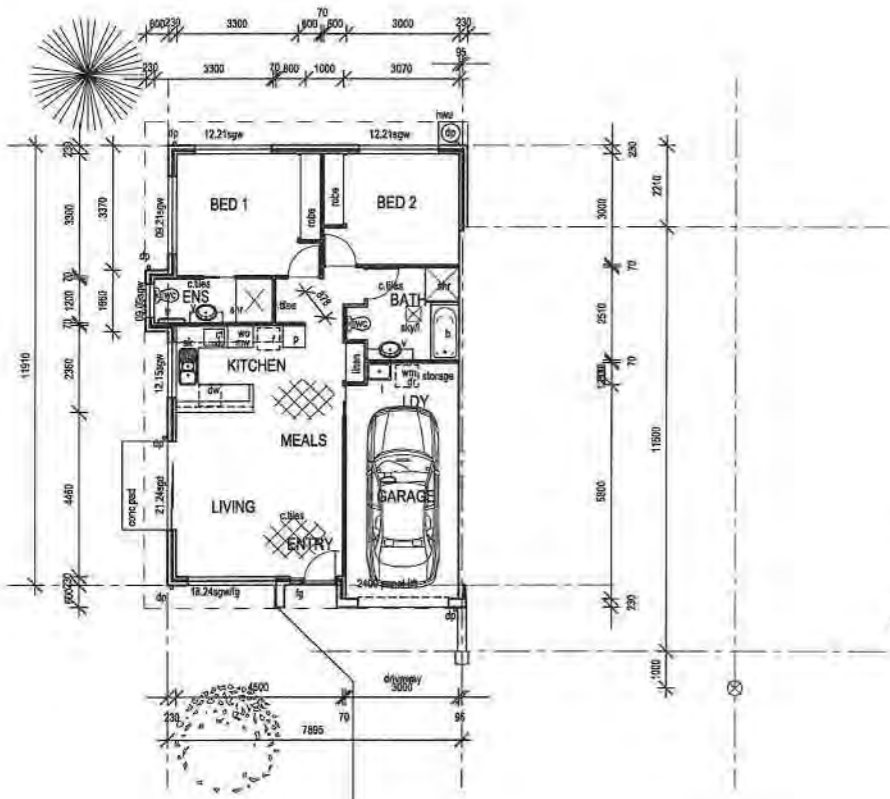
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project & address:
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Development @ North Street,
North Ipswich**

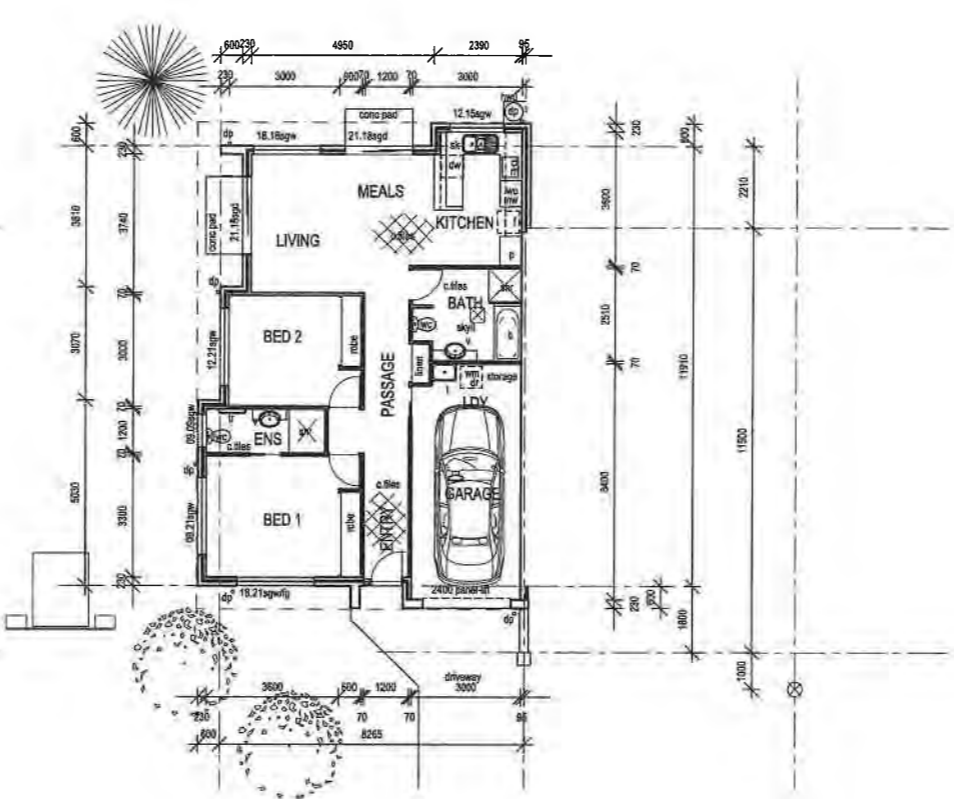
title:
D A Issue -
Unit Floor Plans 'A' & 'B'

scale: 1:100
date: 24/07/09
drawing no: 2009.12 DA04A

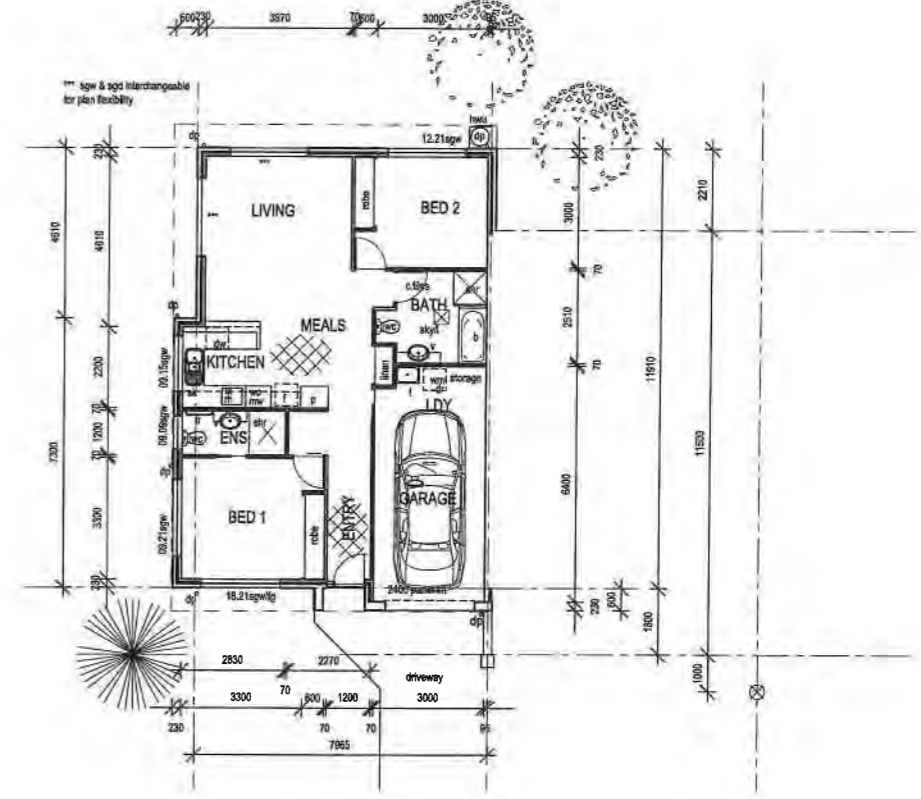
drawn: ajb
job no: 2008.32



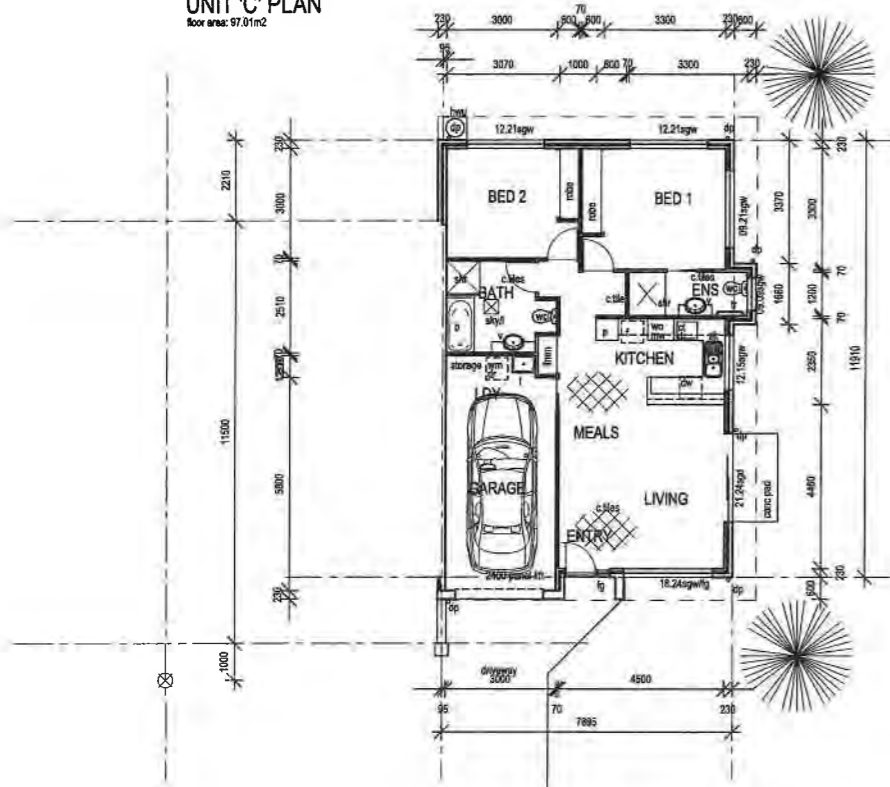
UNIT 'C' PLAN
floor area: 97.01m²



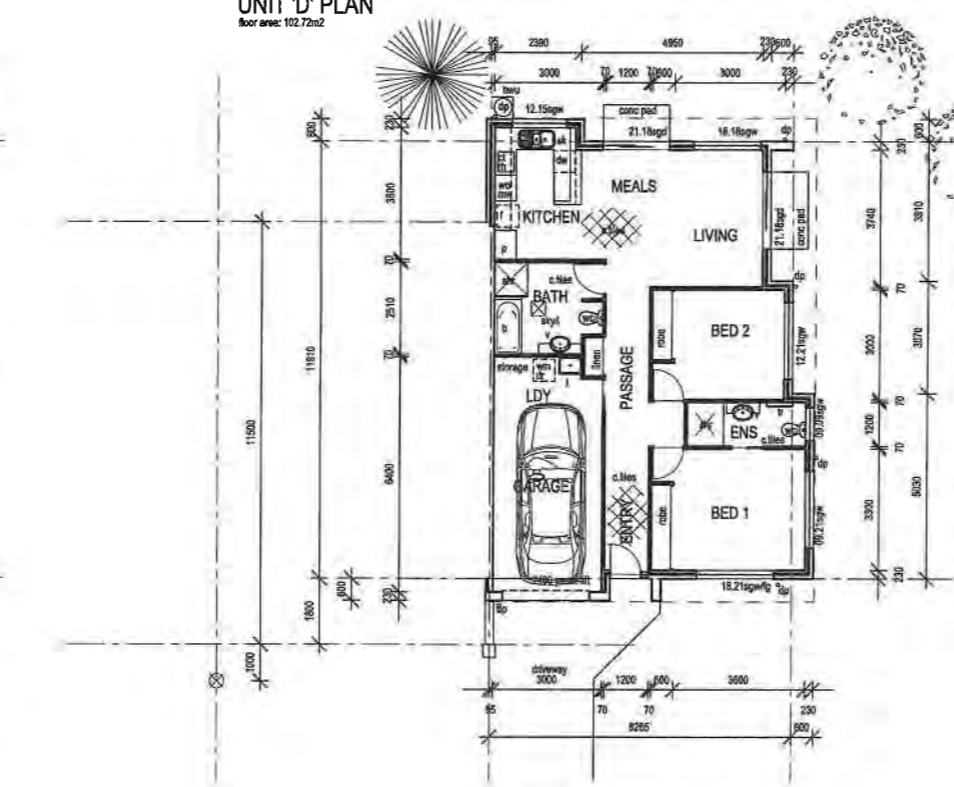
UNIT 'D' PLAN
floor area: 102.72m²



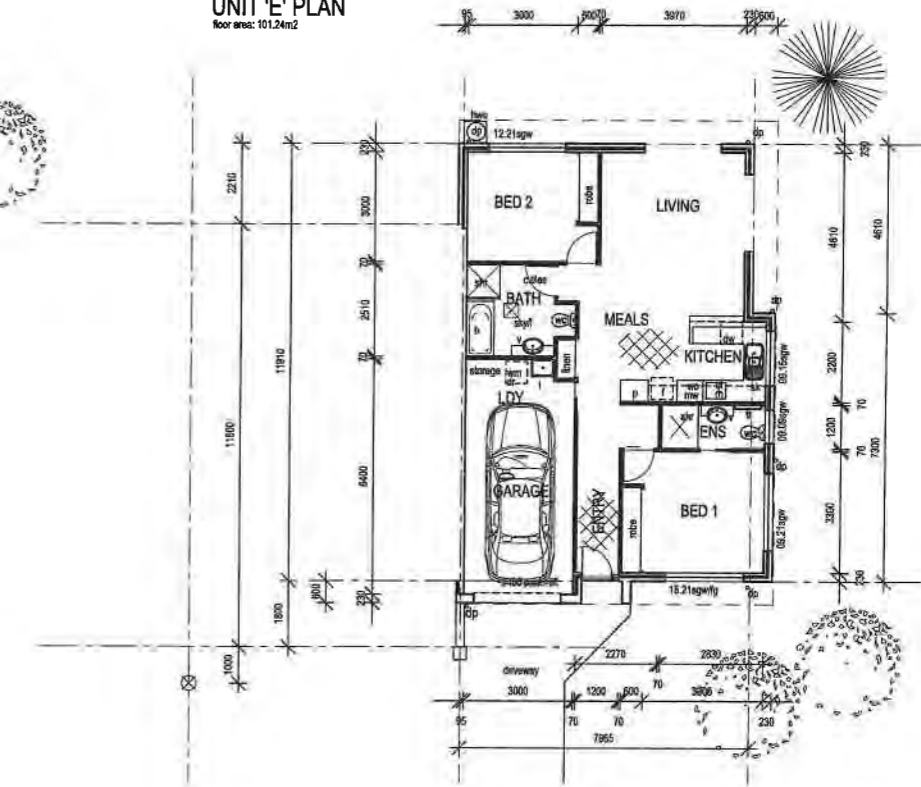
UNIT 'E' PLAN
floor area: 101.24m²



UNIT 'c' PLAN
floor area: 97.01m²



UNIT 'd' PLAN
floor area: 102.72m²



UNIT 'e' PLAN
floor area: 101.24m²

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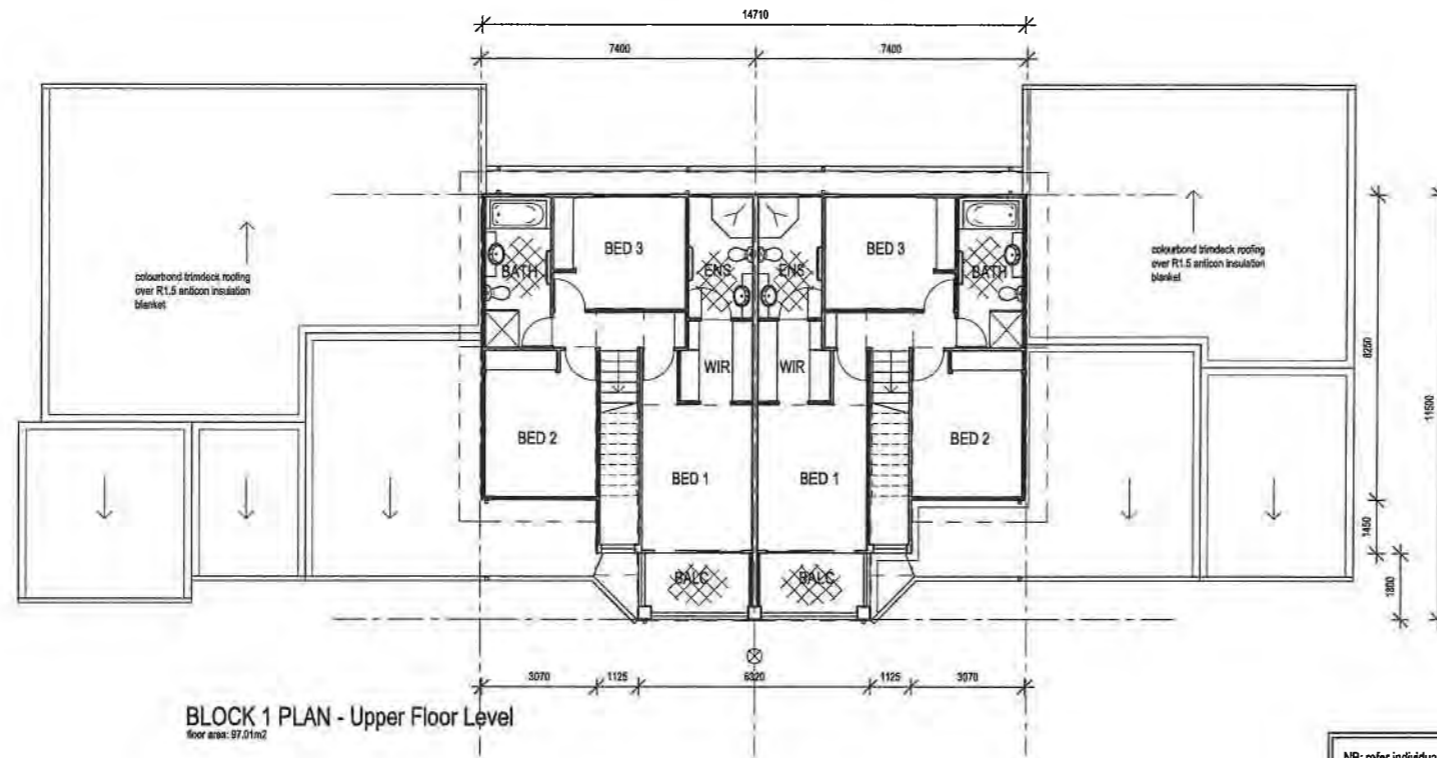
A DA Issue - Aug 09

AMENDMENTS:

client:
LEDA DEVELOPMENTS PTY LTD
 project & address:
**Proposed Residential Unit
 Development @ North Street,
 North Ipswich**

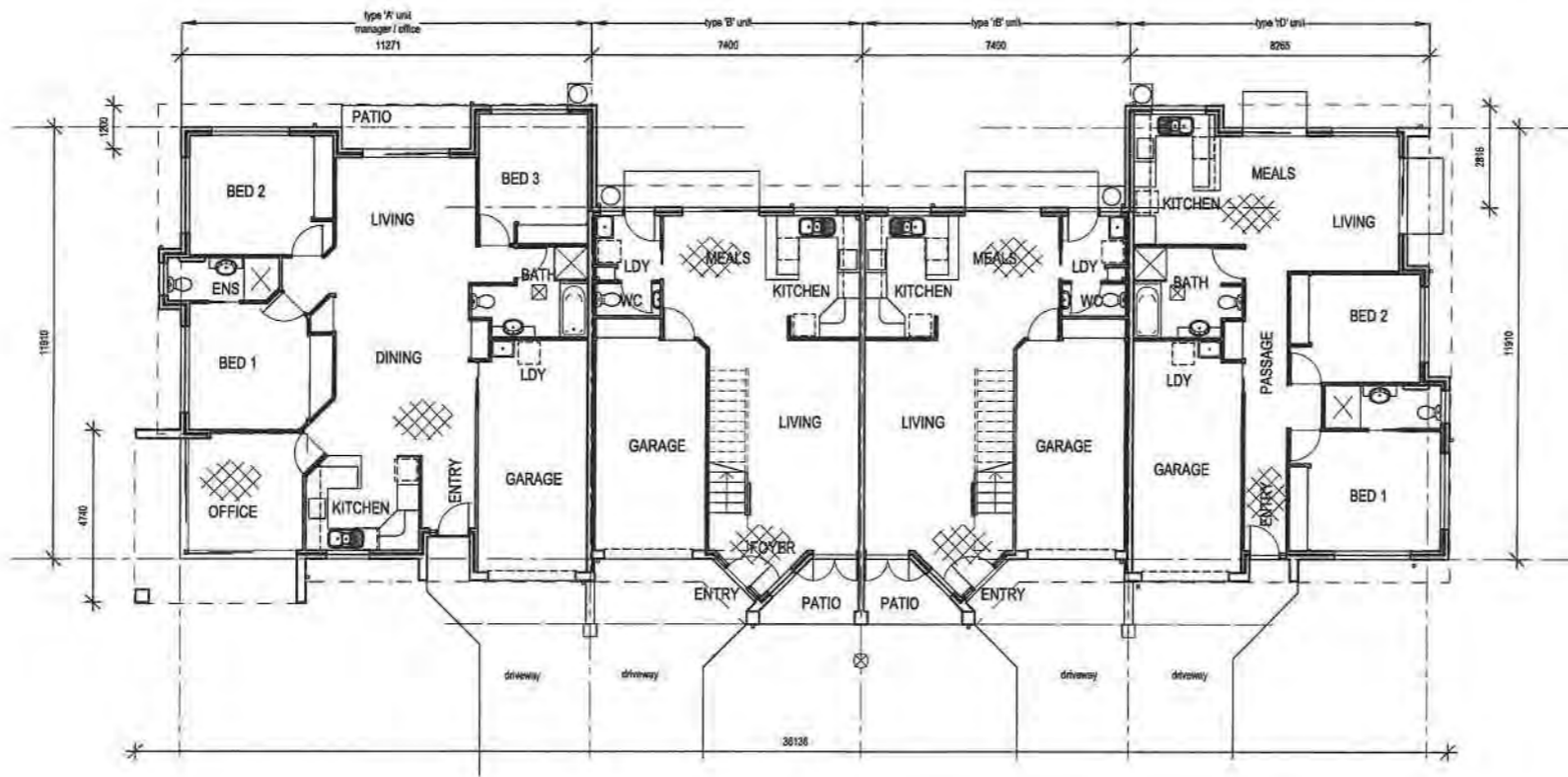
title:
**D A Issue -
 Unit Floor Plans 'C', 'D' & 'E'**
 scale:
 1:100
 date:
 24/07/09
 drawing no:
 2009.12 DA05A

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BLOCK 1 PLAN - Upper Floor Level
floor area: 97.01m²

NB: refer individual block details for elevation variations of unit types & for character elements

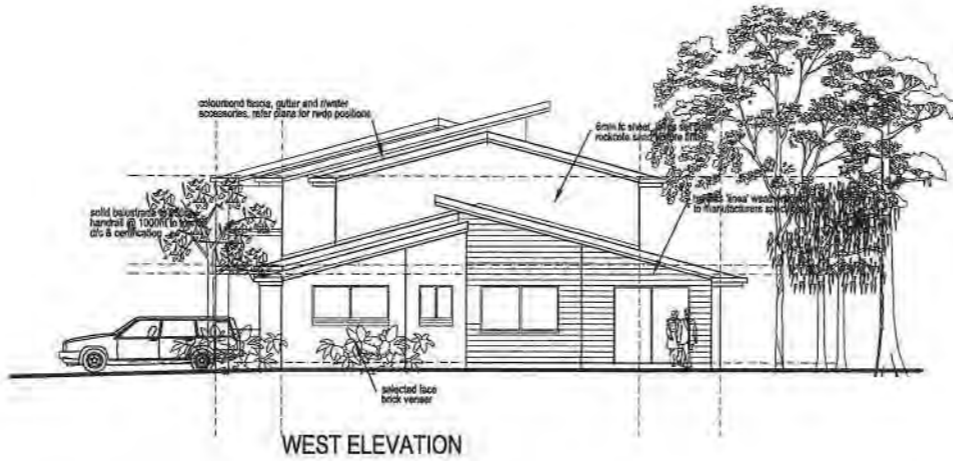


BLOCK 1 PLAN - Ground Floor Level
floor area: 97.01m²

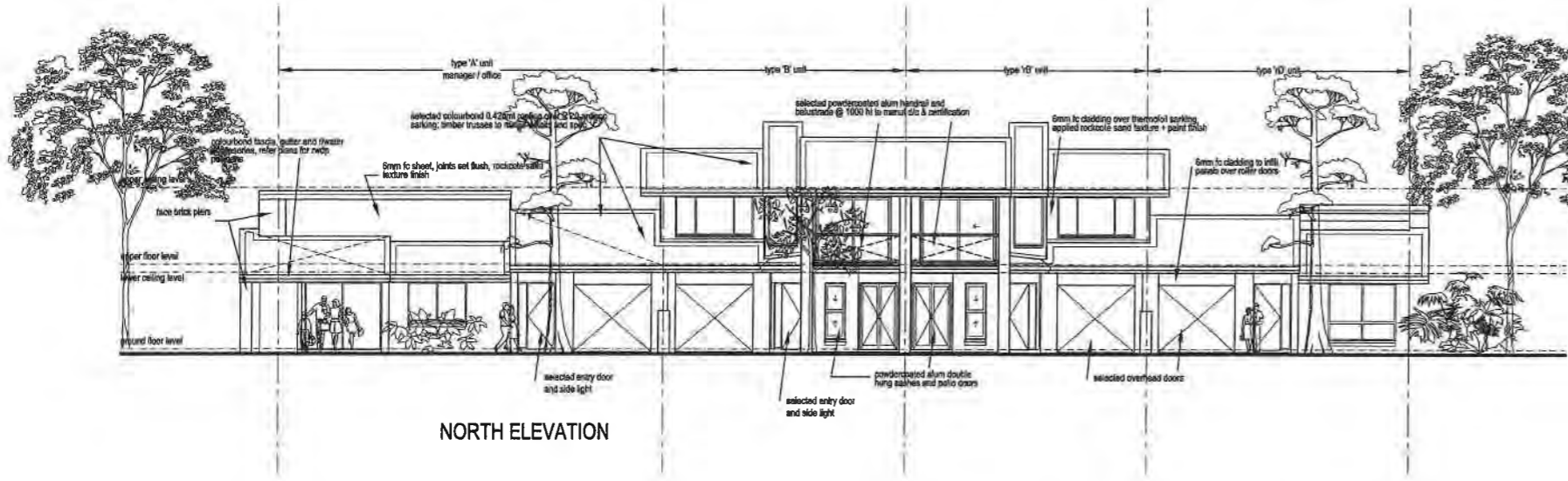
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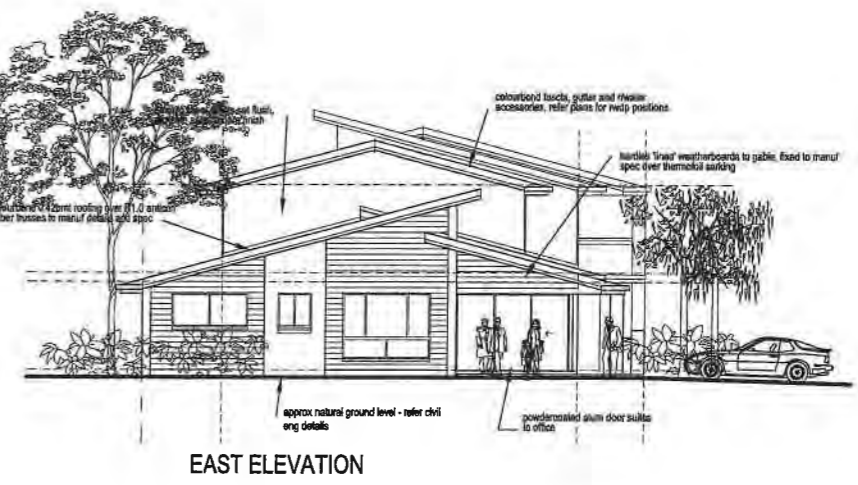
client:
LEDA DEVELOPMENTS PTY LTD
project & address:
**Proposed Residential Unit
Development @ North Street,
North Ipswich**
title:
D A Issue -
Block 1 Plan & Typical 4 Unit
scale: 1:100
date: 24/07/09
drawing no: 2009.12 DA06A
drawn: mp
job no: 2008.32



WEST ELEVATION

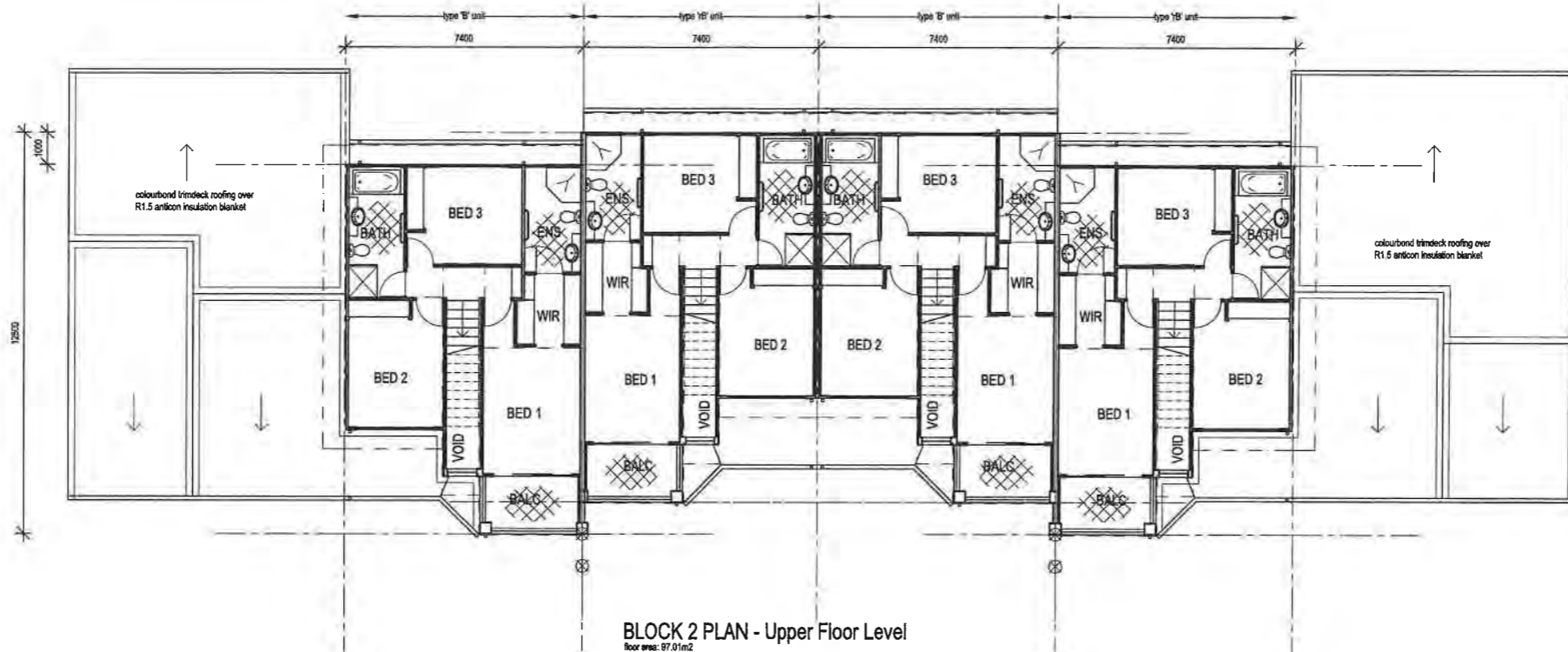


NORTH ELEVATION

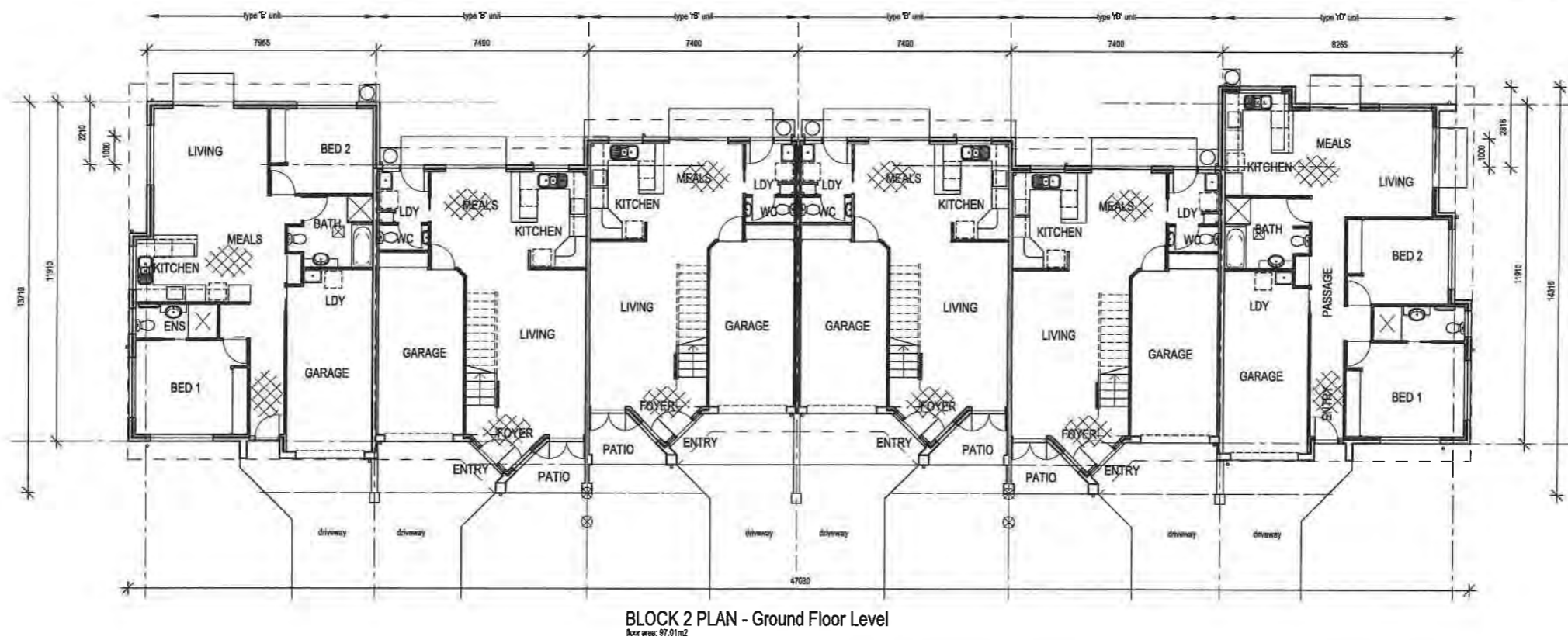


EAST ELEVATION

NB: refer individual block details for elevation variations of unit types & for character elements



NB: refer individual block details for elevation variations of unit types & for character elements

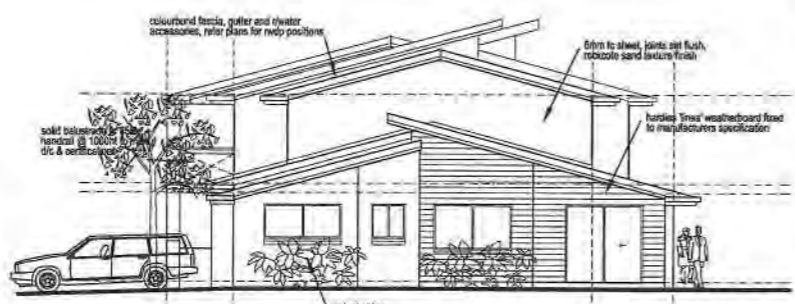


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A DA Issue - Aug 09
 AMENDMENTS:

client:
LEDA DEVELOPMENTS PTY LTD
 project & address:
**Proposed Residential Unit
 Development @ North Street,
 North Ipswich**
 title:
**D A Issue -
 Block 2 Plans & Typical 6 Unit**
 scale: 1:100
 date: 24/07/09
 drawing no: 2009.12 DA08 A

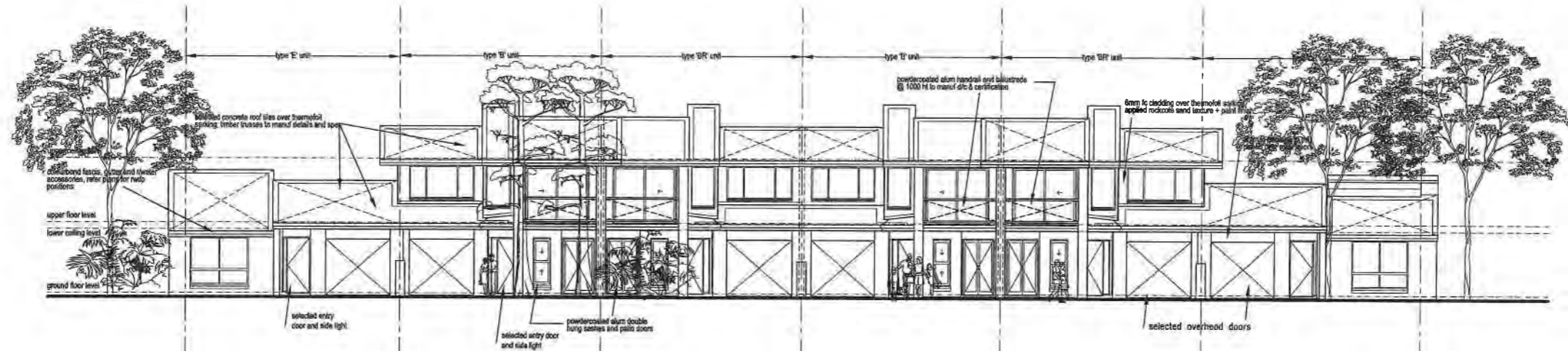
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EAST ELEVATION

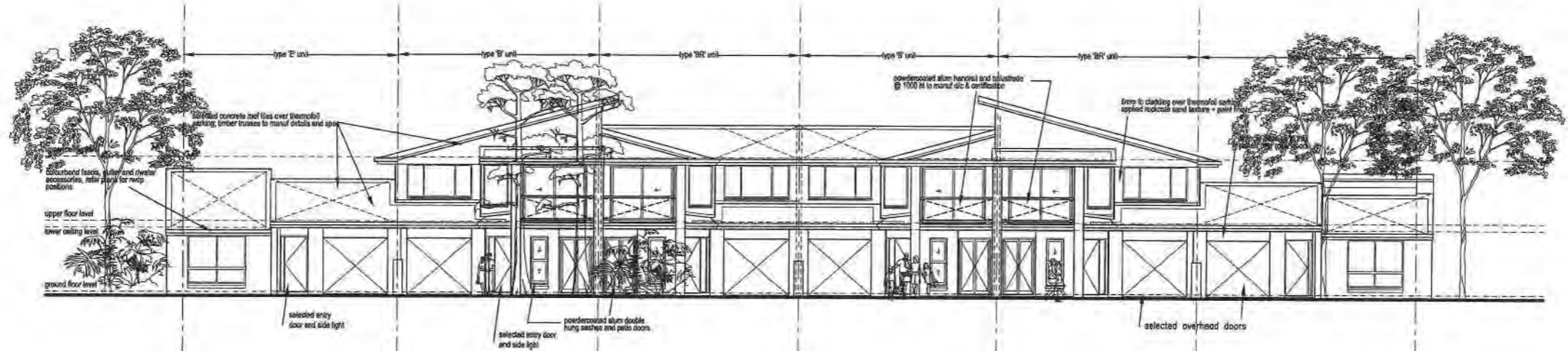


WEST ELEVATION



SOUTH ELEVATION - Block 2

NB: refer individual block details for elevation variations of unit types & for character elements



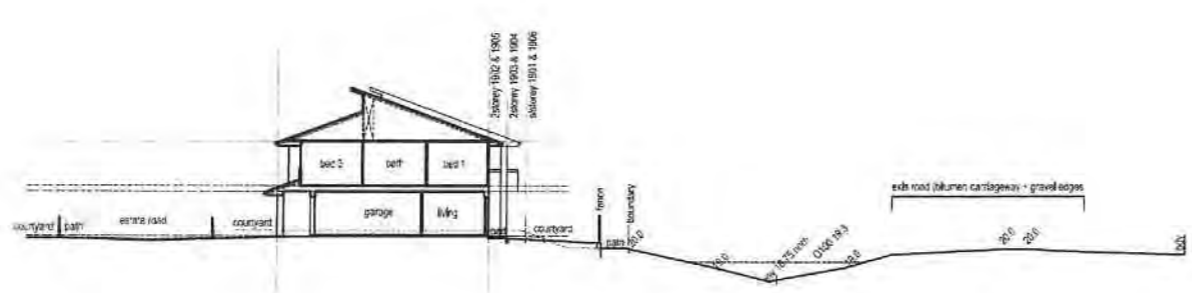
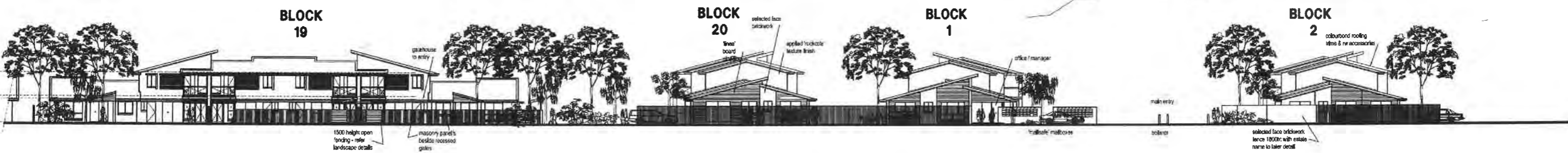
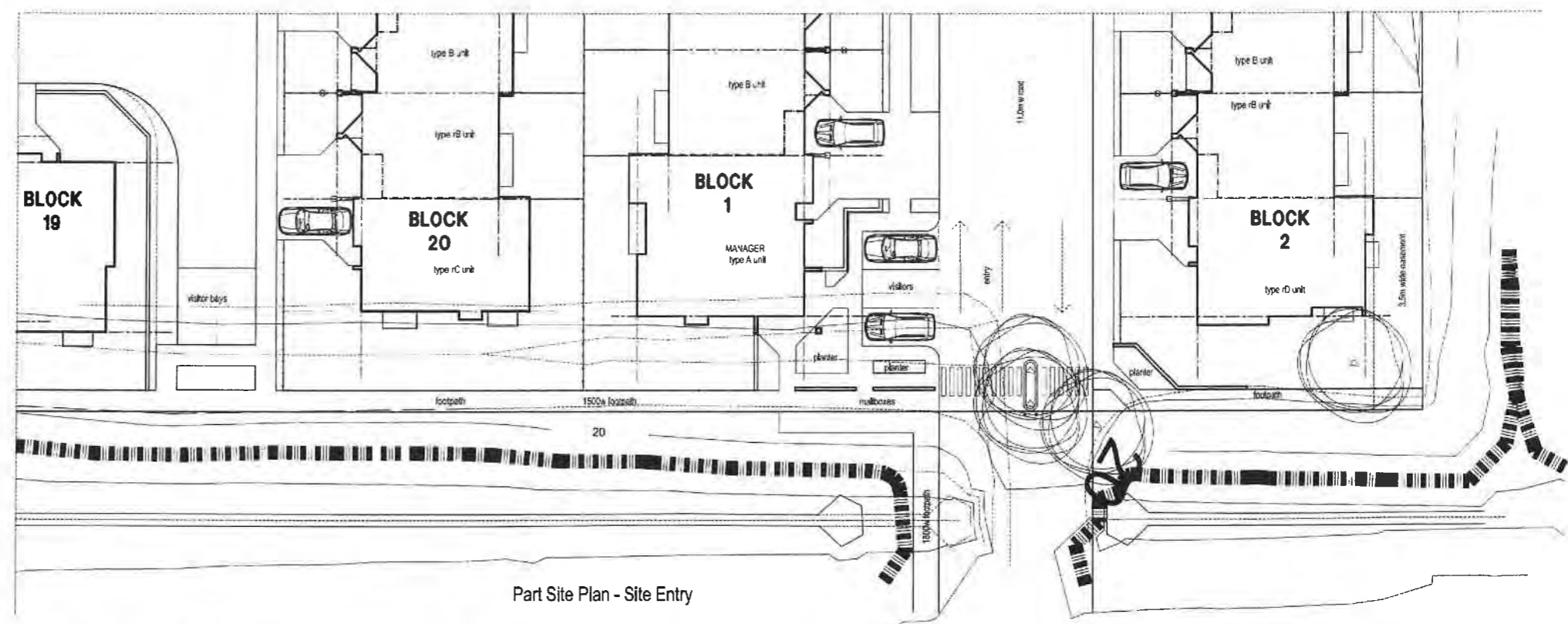
ALTERNATIVE TYPICAL ELEVATION

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 3 Nozomi Street,
 Burleigh Waters, QLD
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 Fax: 5535 5264
 Email: bristowa@bigpond.net.au

A DA Issue - Aug 08
 AMENDMENTS:

client:
LEDA DEVELOPMENTS PTY LTD
 project & address:
**Proposed Residential Unit
 Development @ North Street,
 North Ipswich**
 title:
**D A Issue -
 Block 2 Elevs & Typical 6 Unit**
 scale: 1:100
 date: 24/07/09
 drawing no: 2008.32
 drawn: epb
 job no: 2008.32
 2009.12 DA09 A

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East/West Section thru unit 1905 to North Street

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 Surfers Paradise, QLD
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 Fax: 5535 5264
 Email: bristow@optusnet.au

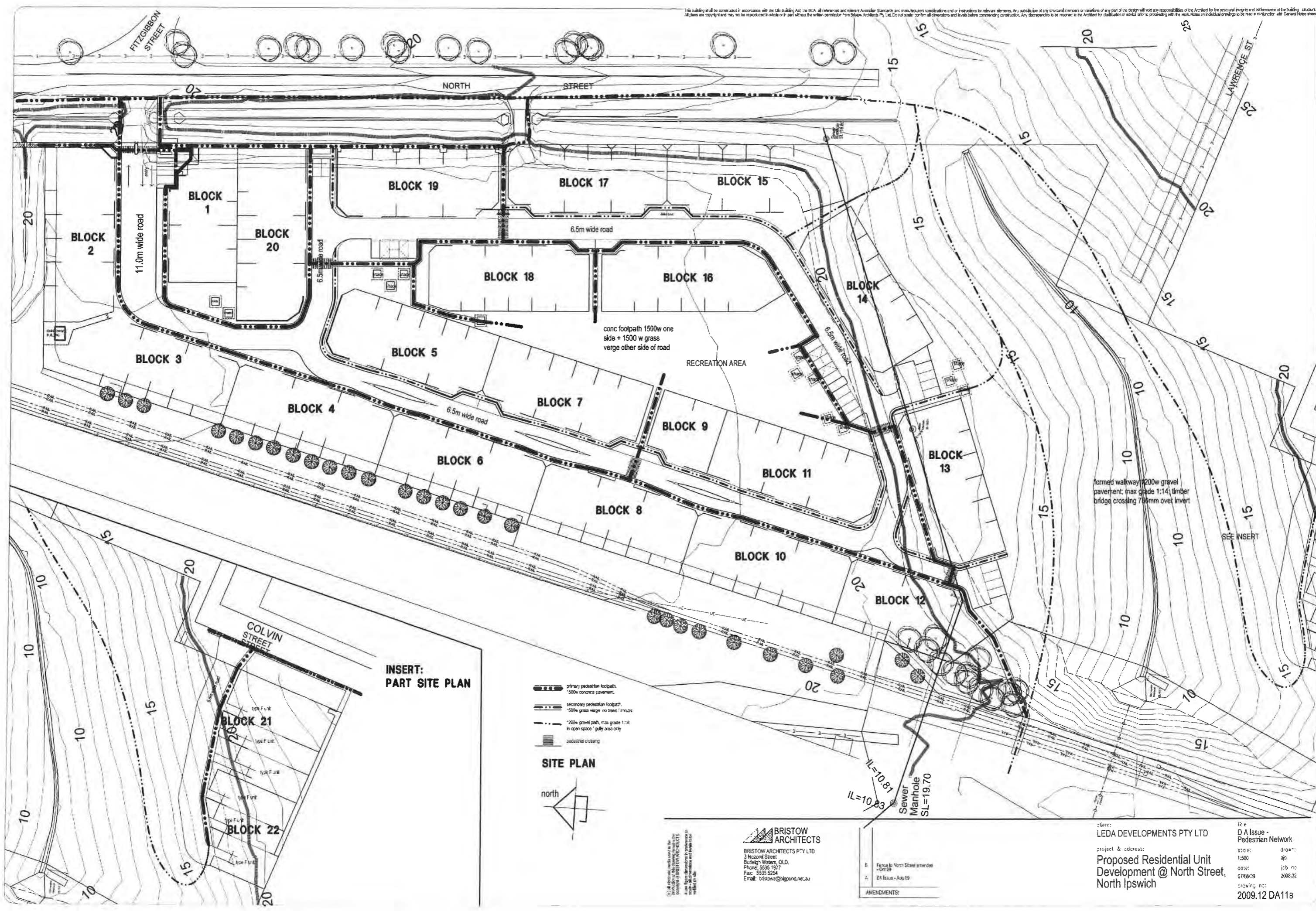
B Elevation amended - Section added - Oct 09
 A DA Issue - Aug 06

AMENDMENTS:

Client: LEDA DEVELOPMENTS PTY LTD
 Project & address: Proposed Residential Unit Development @ North Street, North Ipswich
 Scale: 1:200
 Date: 24/07/09
 Drawing no: 2008.12 DA10 B

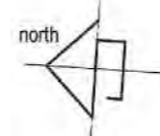
Site: D A Issue - Site Entry Area & part East Elevation
 Drawn: ajp
 Job no: 2008.32
 Drawing no: 2008.12 DA10 B

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- primary pedestrian footpath, 500w concrete pavement.
- secondary pedestrian footpath, 500w grass verge, no trees/shrubs.
- 200w gravel path, max grade 1:14; to open space/gully area only.
- residential zoning.

SITE PLAN



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B Fence to North Street amended
 -Dec 09
 A DA Issue - Aug 09

AMENDMENTS:

Client: LEDA DEVELOPMENTS PTY LTD
 Project & address: Proposed Residential Unit Development @ North Street, North Ipswich

File: DA Issue - Pedestrian Network
 scale: 1:500
 date: 07/06/09
 drawing no: 2008.32
 2009.12 DA118



#1 COLOUR SELECTION



Note: Roof & Trim colours are colourbond;
Paint colours are Taubmans;
Brick colours are PGH

#2 COLOUR SELECTION



Note: Roof & Trim colours are colourbond;
Paint colours are Taubmans;
Brick colours are PGH



#3 COLOUR SELECTION



Note: Roof & Trim colours are colourbond;
Paint colours are Taubmans;
Brick colours are PGH

#4 COLOUR SELECTION

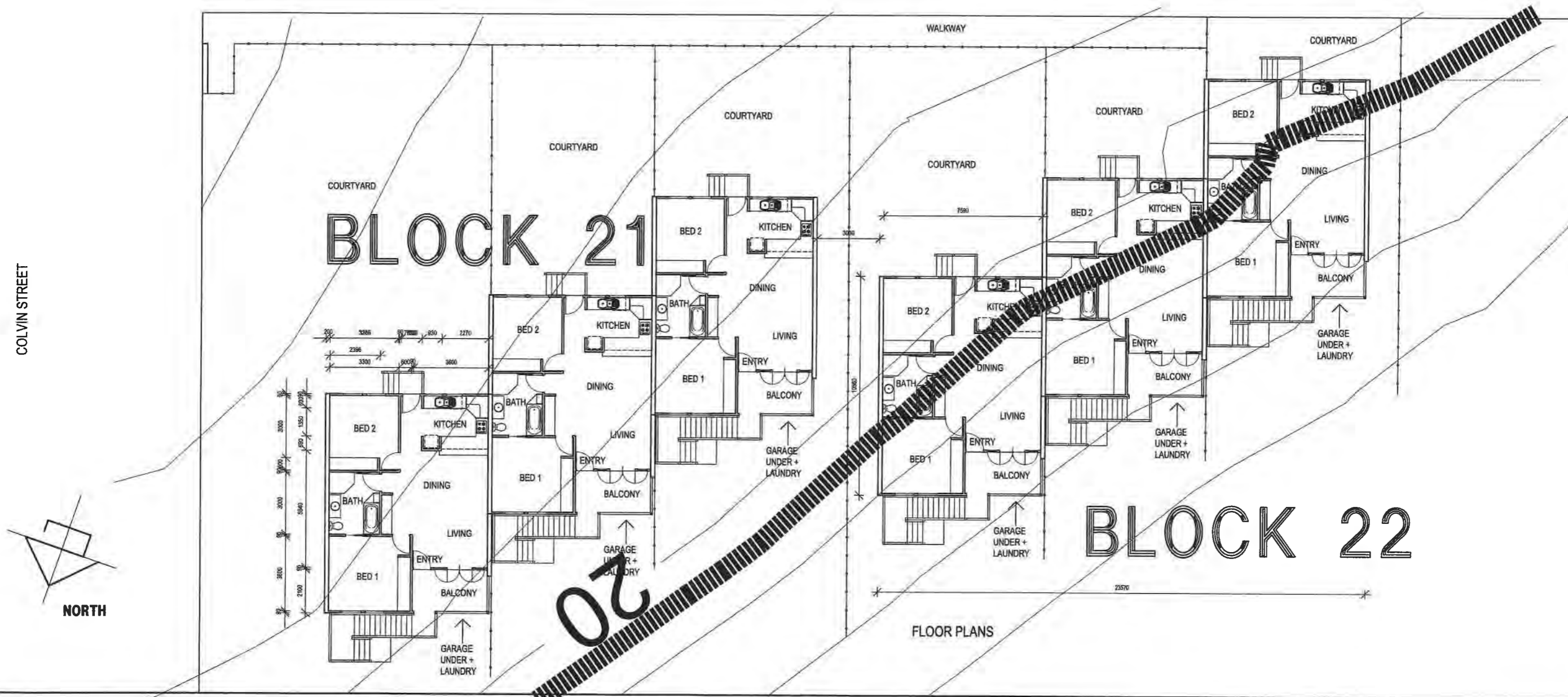


Note: Roof & Trim colours are colourbond;
Paint colours are Taubmans;
Brick colours are PGH

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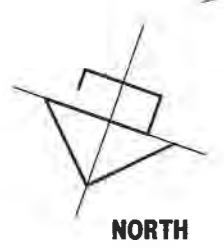


NORTH ELEVATION



FLOOR PLANS

COLVIN STREET



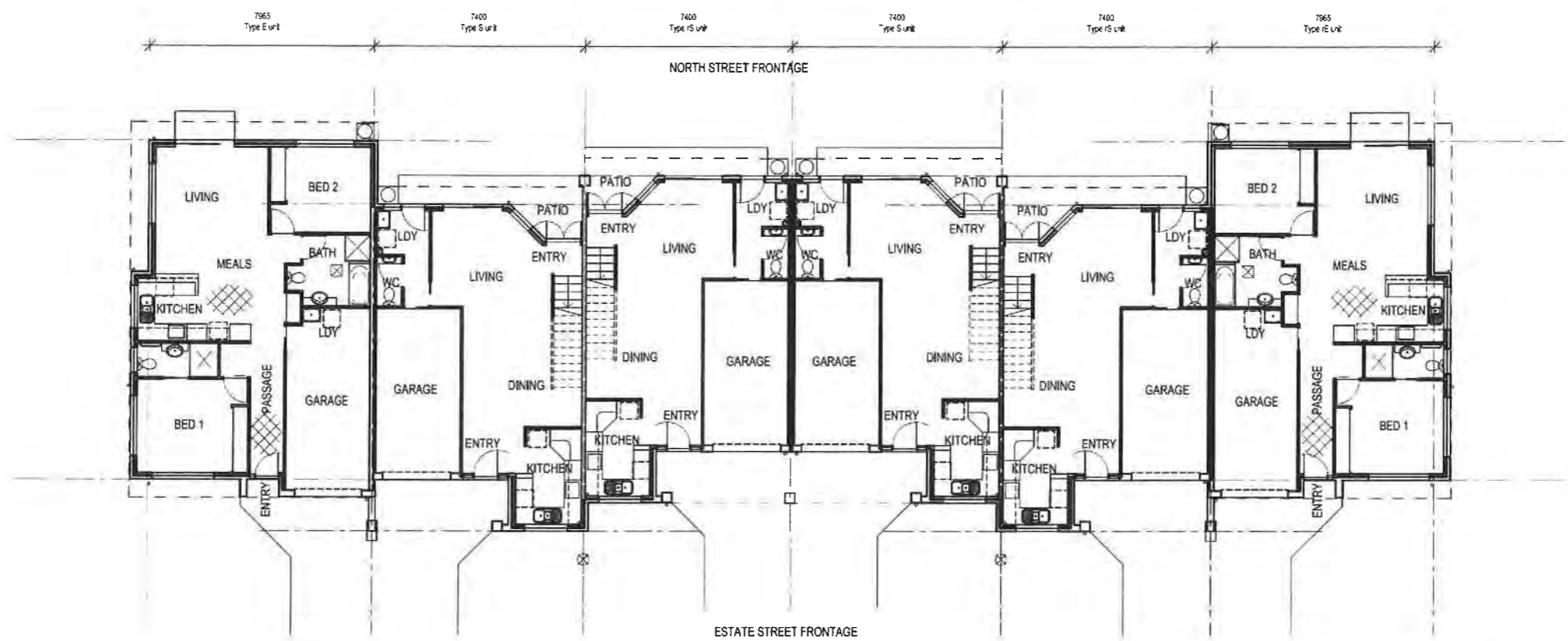
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AMENDMENTS:

client:
LEDA DEVELOPMENTS PTY LTD
 project & address:
**Proposed Residential Unit
 Development @ North Street,
 North Ipswich**

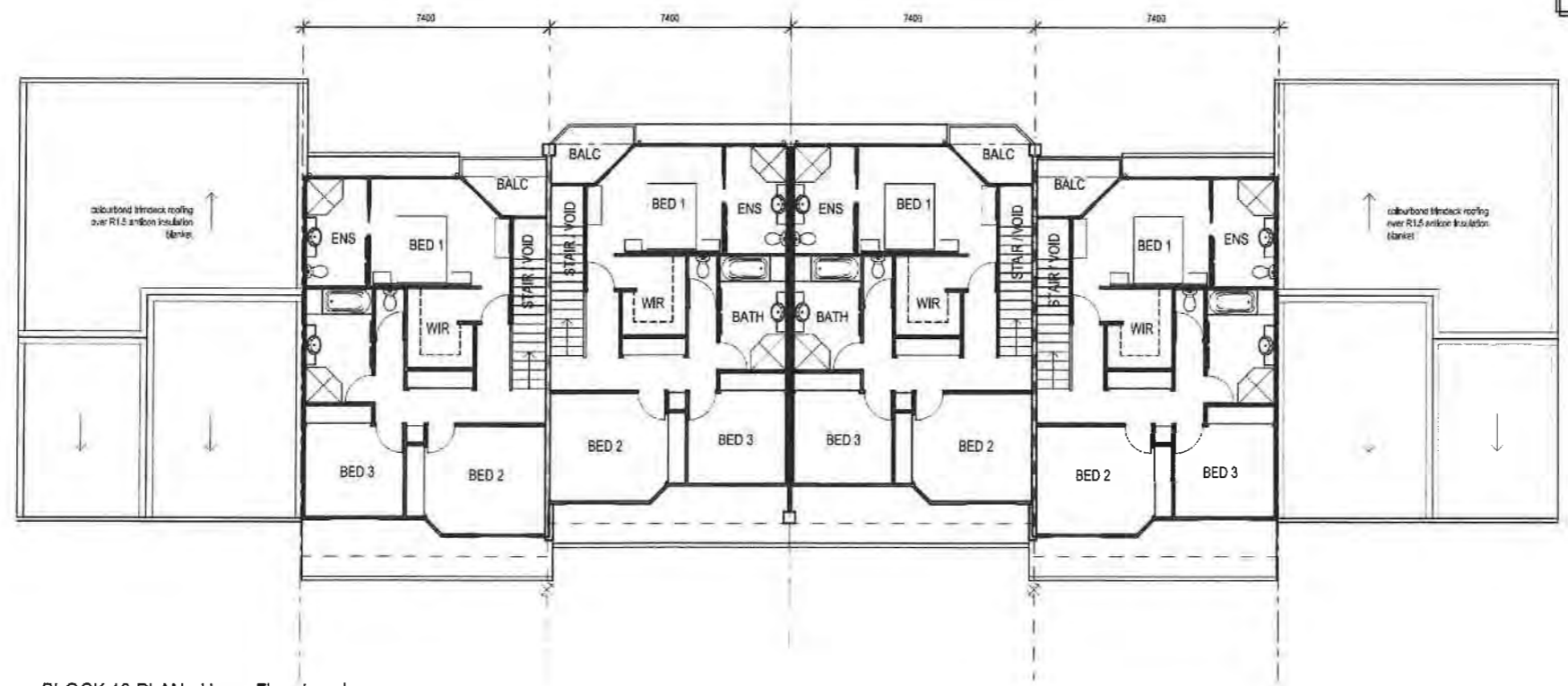
title:
**D A Issue -
 Colvin St Units**
 scale:
 1:100
 date:
 27/08/09
 drawing no:
 2008.12
 2009.12 DA13

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BLOCK 19 PLAN - Ground Floor Level
floor area: 97.51m²

NB: refer individual block details for elevation variations of unit types & for character elements



BLOCK 19 PLAN - Upper Floor Level
floor area: 97.01m²

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client: LEDA DEVELOPMENTS PTY LTD
project & address: Proposed Residential Unit Development @ North Street, North Ipswich
title: D A Issue - Block 19 Units (North St Frontage)
scale: 1:100
date: 01-10-09
drawing no: 2009.12 DA14

Appendix 4

Traffic Impact Assessment.

NORTH IPSWICH TOWNHOUSE DEVELOPMENT TRAFFIC IMPACT ASSESSMENT

FOR

LEDA HOLDINGS PTY LTD



BITZIOS
consulting

traffic engineering ■ transport planning

GOLD COAST: (07) 5562 5377

BRISBANE: (07) 381 4442

POSTAL ADDRESS: PO Box 5102, Q Super Centre, Mermaid Waters, Q 4218

EMAIL: admin@bitziosconsulting.com.au

Project No: P0524 Version: 003

Date: September 2009

DOCUMENT CONTROL SHEET

Issue History

Report Number	Prepared by	Reviewed by	Issued by	Date
P0524.001 North Ipswich Townhouse Development	Charlotte Webb / Sid Shivpuri	Steve Brooke	Andrew Eke	August 2009
P0524.002 North Ipswich Townhouse Development	Andrew Eke	Steve Brooke	Andrew Eke	August 2009
P0524.003 North Ipswich Townhouse Development	Andrew Eke	Steve Brooke	Andrew Eke	September 2009

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Appendices

Appendix A:	Proposed Development Site Plans
Appendix B:	aaSIDRA Intersection Analysis Outputs
Appendix C:	Proposed Site Access Intersection Configuration
Appendix D:	North Street Frontage Cross Section
Appendix E:	Visitor Parking and Service Vehicle Swept Paths
Appendix F:	Pedestrian Network Plan

1. INTRODUCTION

Bitzios Consulting has been engaged by Leda Holding Pty Ltd to prepare a traffic impact assessment for a proposed townhouse development located at North Street, North Ipswich. Figure 1.1 shows the location of the proposed site.

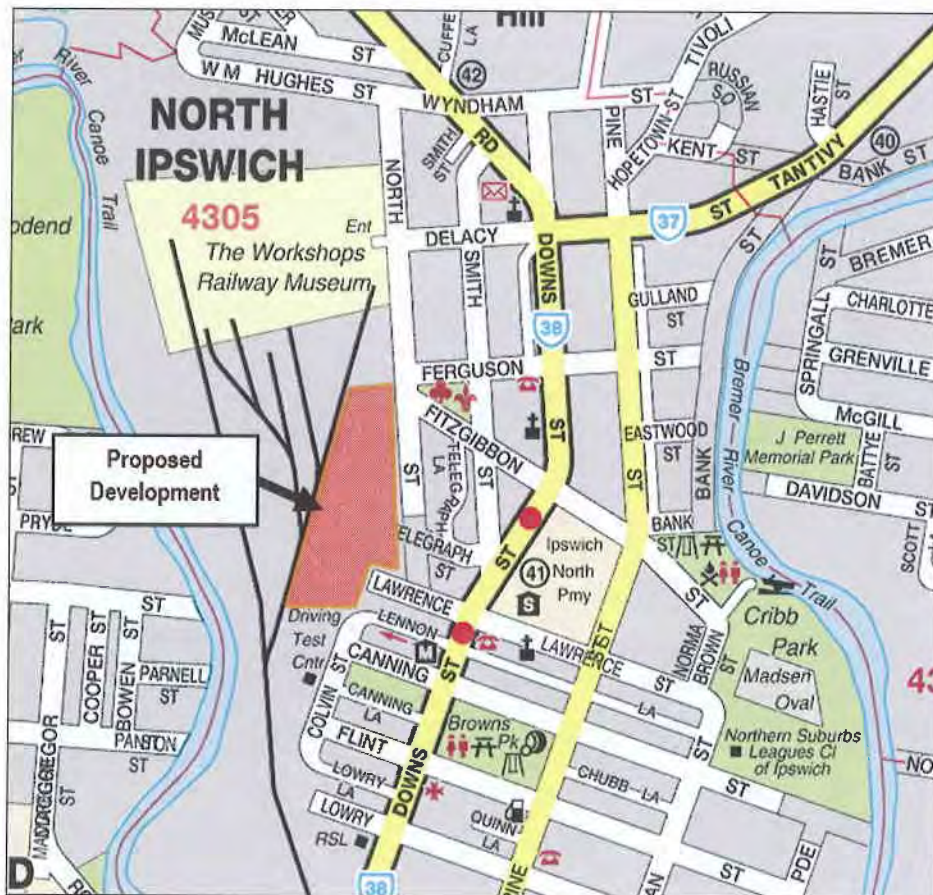


Figure 1.1: Site Location

1.1 SCOPE

This report addresses the requirements associated with the development in accordance with the of Ipswich City Council's Planning Scheme and the Department of Transport and Main Roads design manuals.

Specifically, this report includes:

- assessment of potential traffic impacts on the external road network;
- site access configuration;
- internal road layout and parking supply;
- service vehicle provision; and
- pedestrian and public transport amenity.

2. EXISTING CONDITIONS

2.1 ROAD NETWORK

2.1.1 Ferguson Street

Ferguson Street is a two-lane local access road with one lane in each direction. Ferguson Street runs from a cul-de-sac in the east to North Street in the west and intersects the following north-south streets:

- Pine Street;
- Downs Street; and
- Smith Street.

The proposed development is located 50 meters south of the Ferguson Street/North Street intersection.

2.1.2 Fitzgibbon Street

Fitzgibbon Street is a two-lane local access road with one lane in each direction. Fitzgibbon Street intersects North Street opposite the proposed site access approximately 50 metres south of Ferguson Street. It then continues in a south-east direction intersecting the same roads as Ferguson Street, then connects to Norma Brown Street.

2.1.3 North Street

North Street is also a two-lane local access road with one lane in each direction. North Street runs parallel to the proposed development in a north-south direction from a cul-de-sac in the south to W M Hughes Road in the north. The access of the proposed development has frontage to the existing T-intersection of Fitzgibbon Street and North Street. The construction of the development will see this intersection turn into a four-way give-way intersection.

2.1.4 Down Street

Down Street is a two-lane collector/distributor road with one lane in each direction. Down Street is the primary north-south road for North Ipswich and connects to Pine Mountain Road in the north and The Terrace in the south.

2.1.5 Traffic Assignment

It is expected that much of the traffic to/from the development will utilise Down Street to access destinations in the north such as neighbouring local centres of Warrego Highway or in the south such as Ipswich Town Centre. Access to Down Street is expected to be via either Ferguson Street if travelling to/from the north or Fitzgibbon Street if travelling to/from the south. Relevant intersections within the vicinity of the proposed development that require investigation are as follows:

- Smith Street/Fergusson Street;
- Smith Street/Fitzgibbon Street;
- Downs Street/Fitzgibbon Street (signalised intersection); and
- Downs Street/Ferguson Street (un-signalised intersection).

2.2 TRAFFIC VOLUMES

Based on the observed low traffic volumes along North Street, in particular at the southern end fronting the subject site, focus and subsequent surveys were towards the major intersections of Downs Street/Fitzgibbon Street and Downs Street/Ferguson Street.

Traffic surveys were undertaken on Thursday 4th June 2009 during AM and PM peak periods and are shown in Figure 2.1.

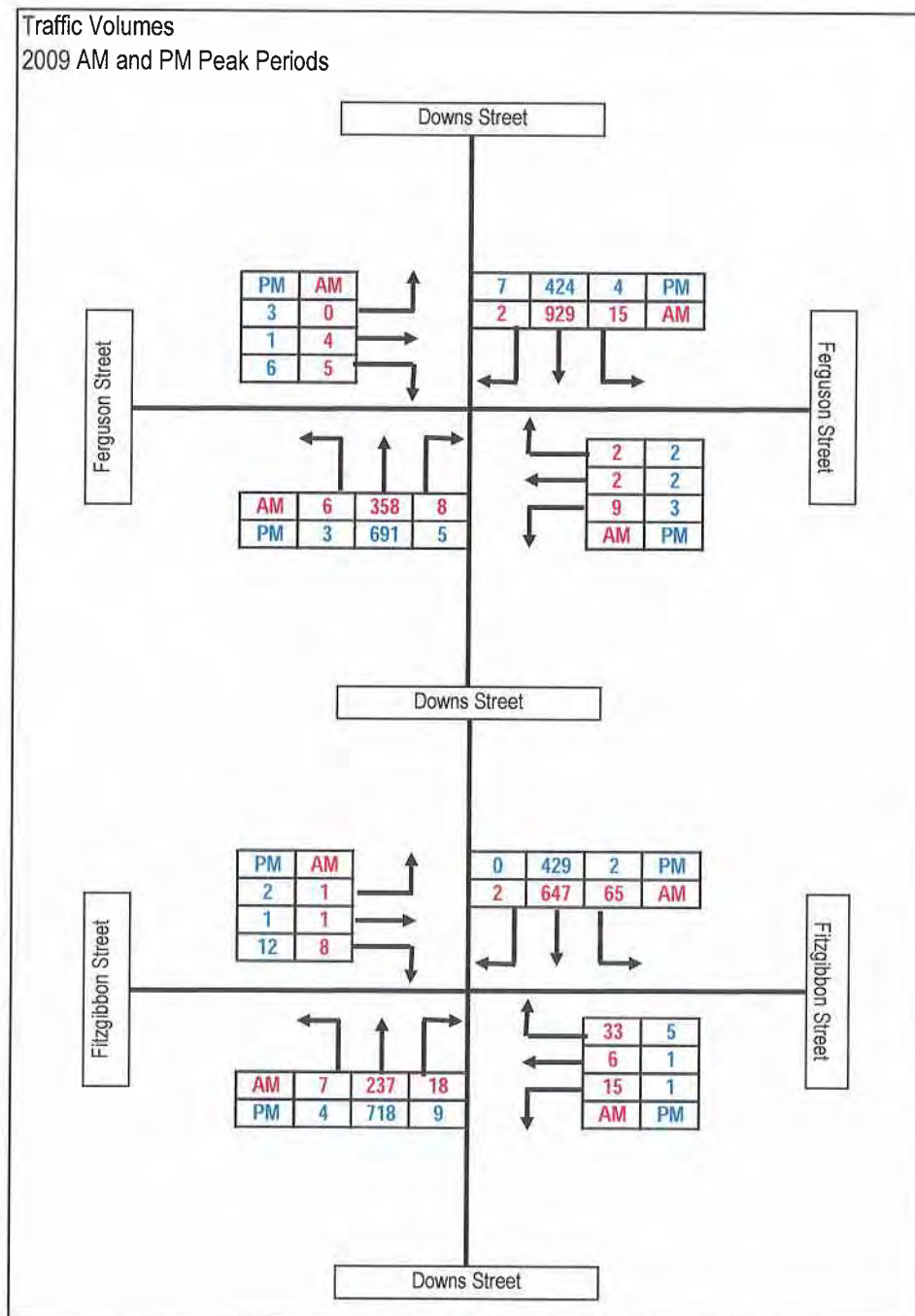


Figure 2.1: 2009 AM and PM Peak Traffic Volumes

2.3 TRAFFIC GROWTH

For the purpose of this assessment a conservative traffic growth rate of 4% per annum has been adopted for the through traffic volumes on Downs Street and Pine Street, which are expected to attract the majority of future traffic. A traffic growth rate of 2% per annum has been adopted for all other traffic movements on the basis that the surrounding streets include a relatively small residential catchment and are expected to have less growth than other areas within Ipswich. Figure 2.2 shows the future 2019 background traffic volumes at Downs Street/Fitzgibbon Street, Downs Street/Ferguson Street and Pine Street/Ferguson Street intersections.

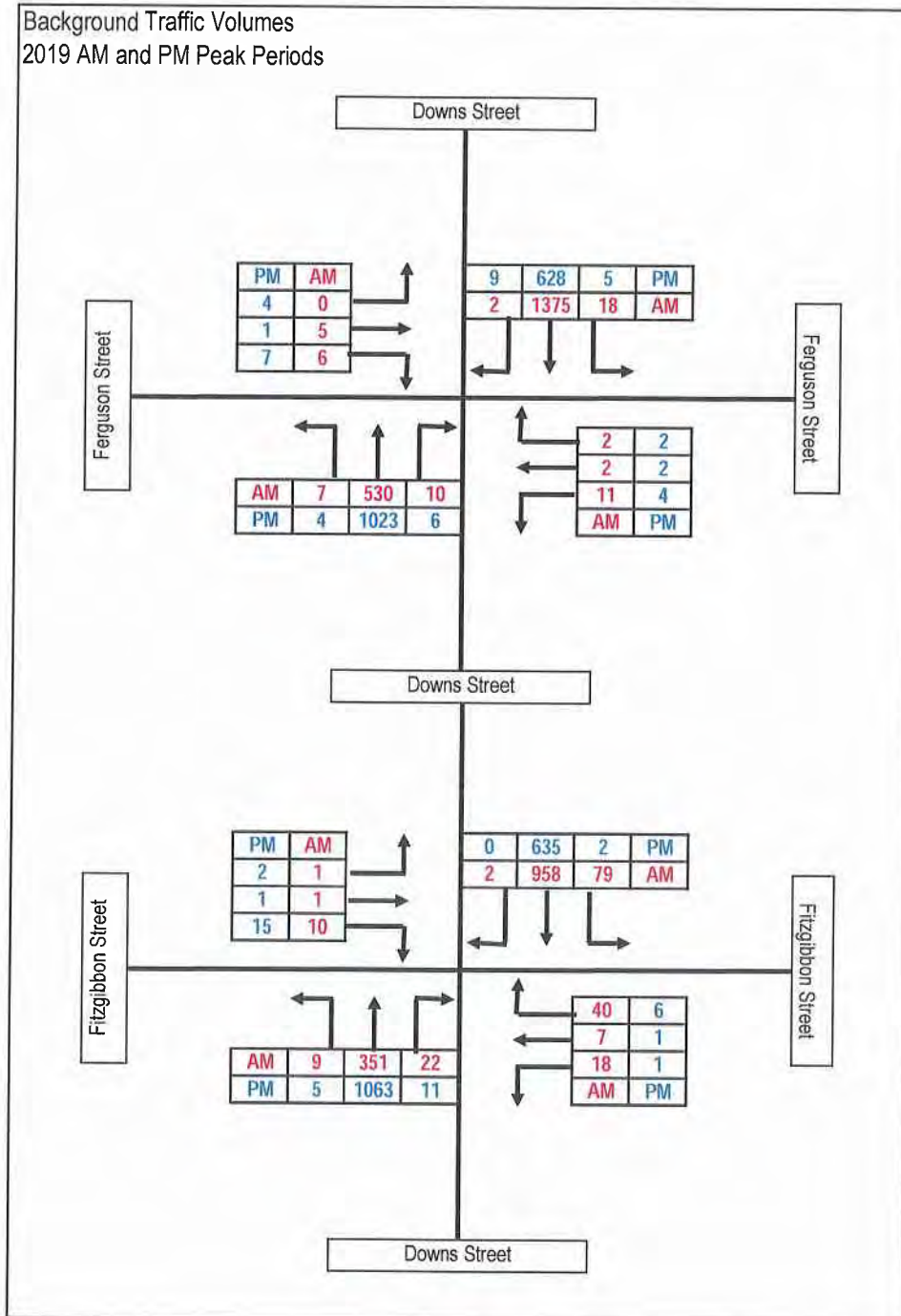


Figure 2.2: 2019 AM and PM Peak Background Traffic Volumes

3. PROPOSED DEVELOPMENT

The proposed development comprises of the following components:

- 118 attached units, of which 112 accessed by North Street and 6 units accessed by Colvin Street;
- single car garage within each unit (118 in total);
- single visitor space within each unit driveway (118 in total);
- two way access onto North Street located at the northern end of the site;
- secondary emergency access onto North Street;
- 6.5 metre circulating roadway;
- 32 visitor car spaces;
- 6 covered car wash bays; and
- 2750m² central recreational area.

Detailed plans for the proposed development are contained in Appendix A.

4. TRAFFIC ASSESSMENT

4.1 TRAFFIC GENERATION

The recommended traffic generation rates and the traffic generated by the proposed resort is summarised in Table 4.1 and Table 4.2 respectively. The development is expected to generate 71 peak hour trips which will be distributed within the surrounding road network as shown below.

Table 4.1: Development Traffic Generation Rates

Component	Peak Hour Rate(1)	Number of Dwellings	Trips	Directionality In/Out (%)	
				AM Peak	PM Peak
				Medium Density Residential	0.6 per dwelling

1. Refer RTA Guide to Traffic Generating Developments (RTA, October 2002).

Table 4.2: Development Traffic Generation Summary

Component	AM Peak Trips		PM Peak Trips	
	In	Out	In	Out
Medium Density Residential	21	50	50	21

4.2 TRAFFIC DISTRIBUTION FOR THE PROPOSED DEVELOPMENT

The following assumptions have been made in relation to the likely distribution of development traffic and have been based upon consideration of likely employment, services and recreational facilities in the area and traffic patterns from existing traffic counts at the intersections of Downs Street/Fitzgibbon Street and Downs Street/Ferguson Street:

- 35% of the proposed development traffic has been assumed to travel north in the AM peak with the remaining 65% of development traffic travelling south; and
- 60% of the proposed development traffic has been assumed to travel north in the PM peak with the remaining 40% of development traffic travelling south.

Existing traffic counts show that there is a high volume of existing through traffic movements on Downs Street travelling north and south in both the AM and PM peak periods. It has been assumed that traffic movements from the proposed development will distribute north and south along Downs Street and therefore assumed that it is unlikely that traffic from the proposed development will travel on through to Pine Street to access north and south.

The trip distribution assumptions at the intersections of Downs Street/Fitzgibbon Street and Downs Street/Ferguson Street for the AM and PM peak periods are summarised in Figure 4.1.

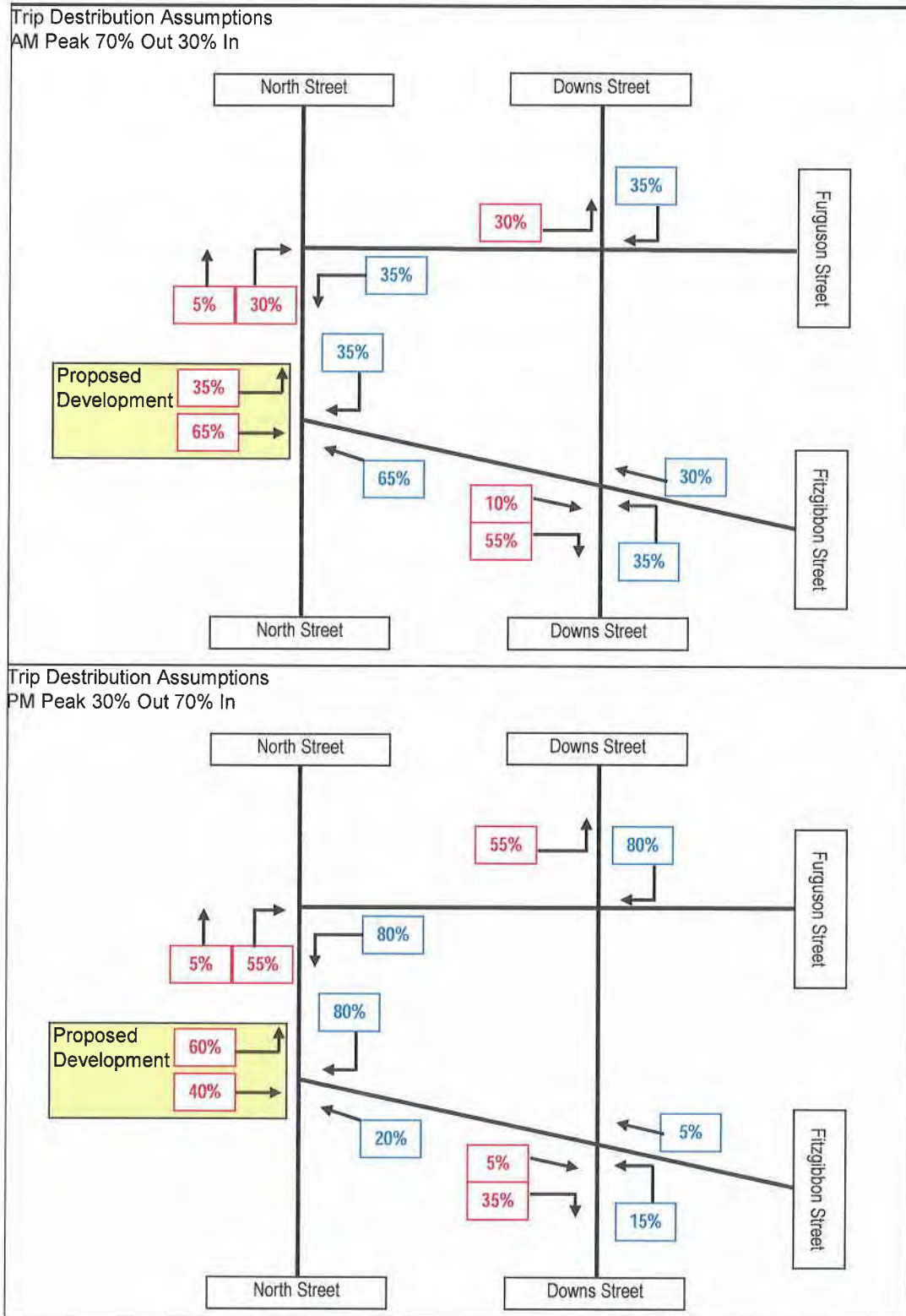


Figure 4.1: AM and PM Peak Period Traffic Distribution Assumptions for the Proposed Development

The development generated volumes are shown in Figure 4.2.

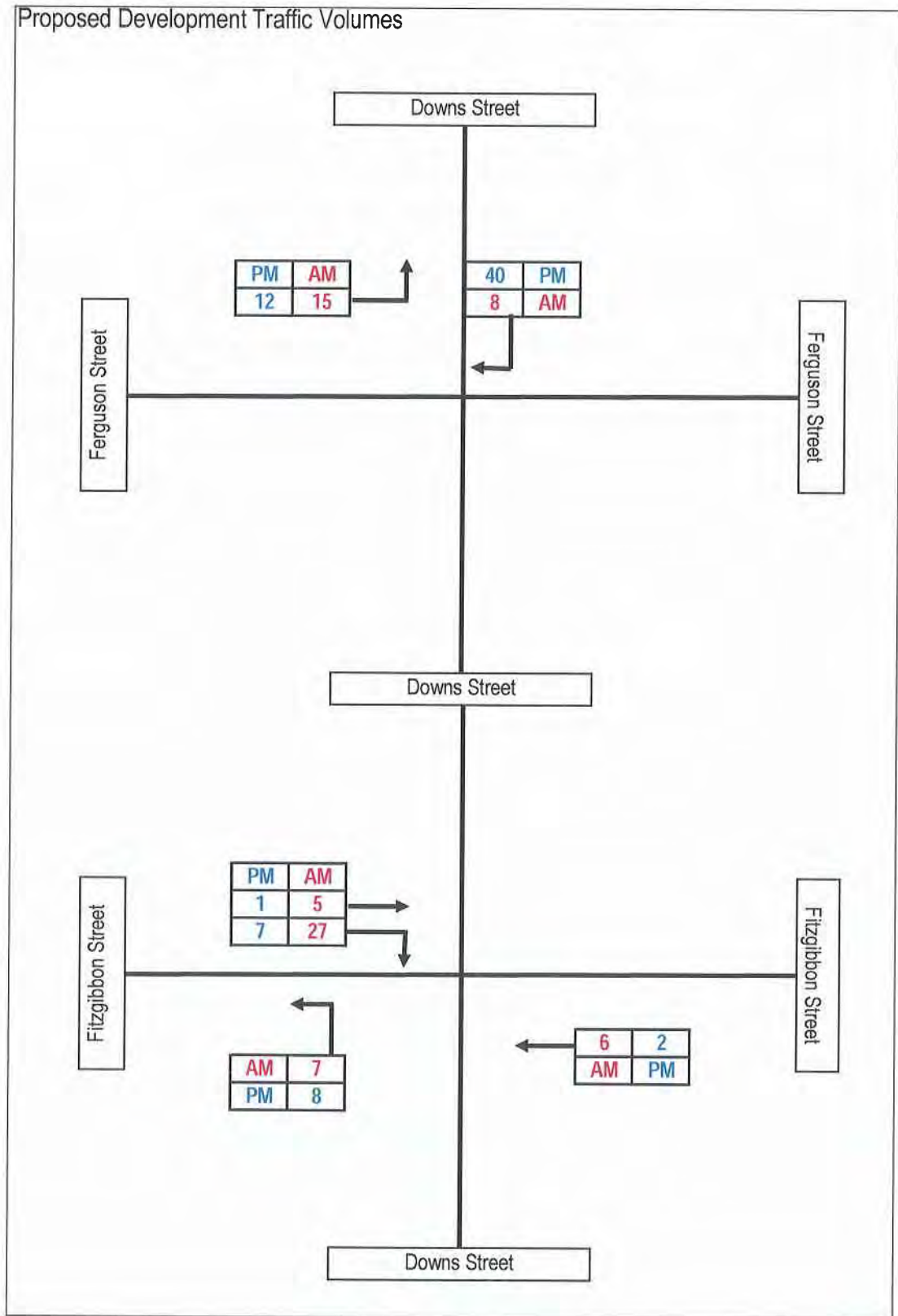


Figure 4.2: 2019 AM and PM Peak Proposed Development Traffic Volumes

4.3 DESIGN TRAFFIC VOLUMES

The year 2009 and 2019 design traffic volumes (i.e. development generated traffic + background traffic volumes) are shown in Figure 4.3 and Figure 4.4.

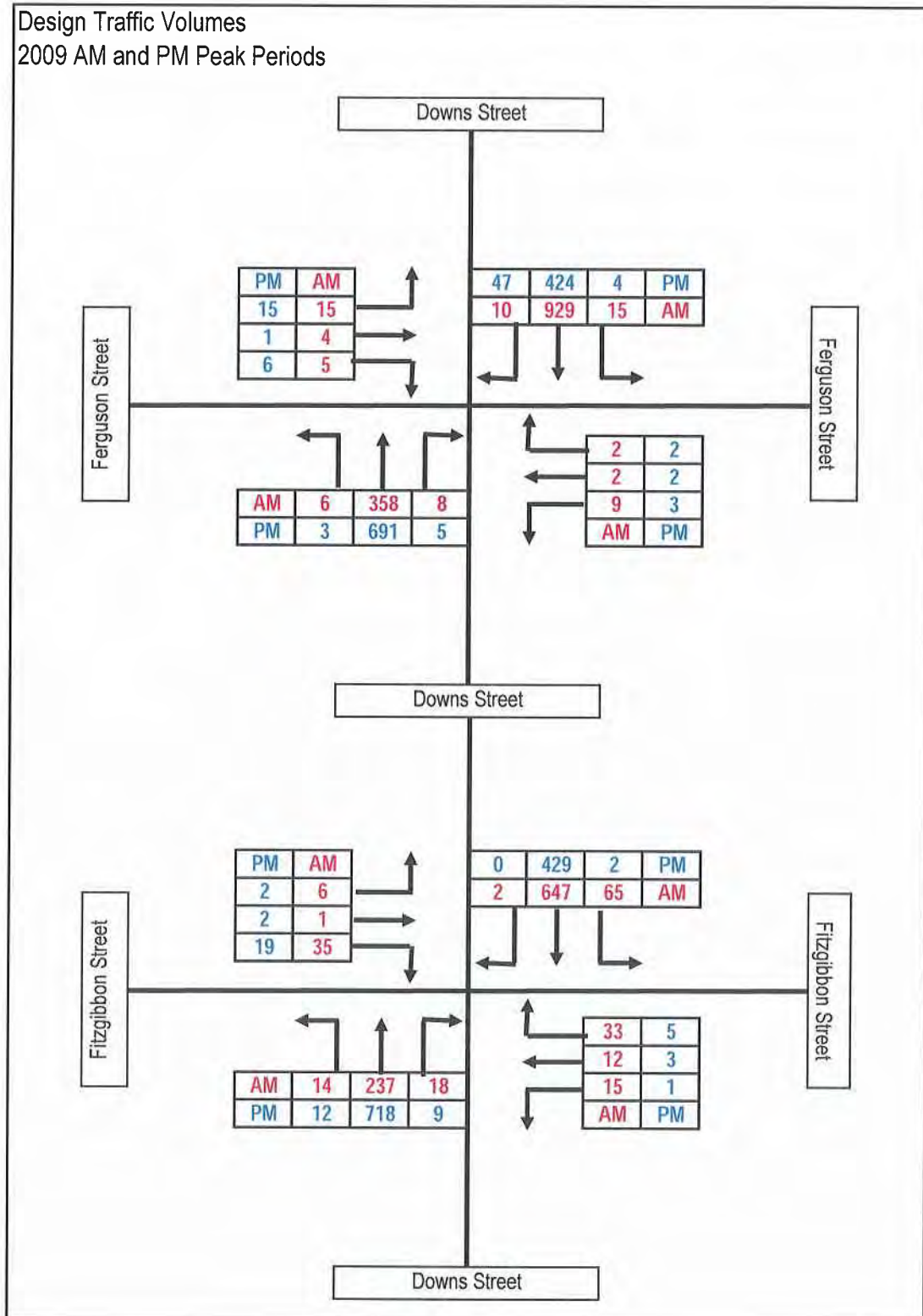


Figure 4.3: 2009 AM and PM Peak Design Traffic Volumes

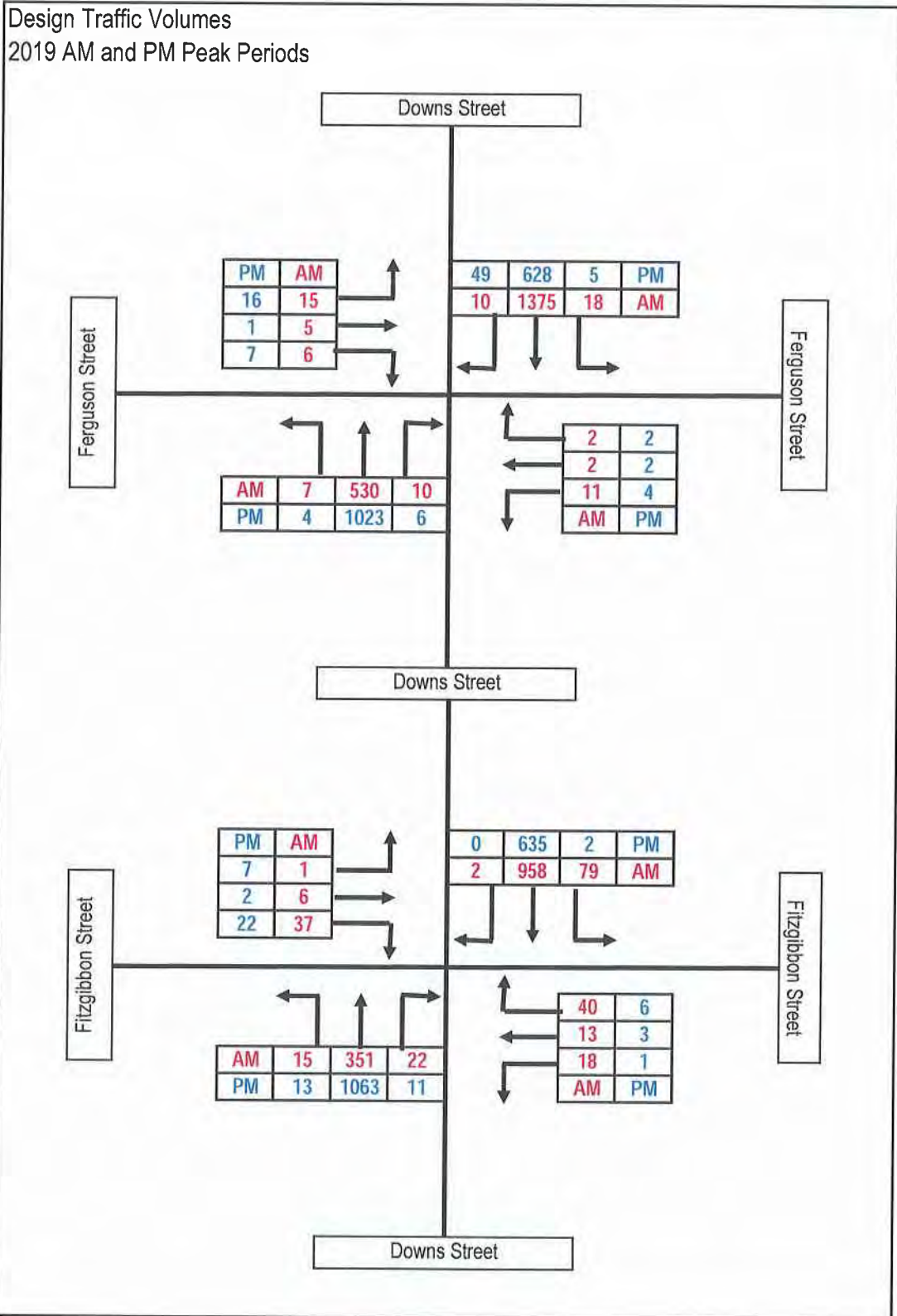


Figure 4.4: 2019 AM and PM Peak Design Traffic Volumes

4.4 INTERSECTION ASSESSMENT

4.4.1 Future Road Network

Based on the traffic generation assumptions in Section 4.1, in the peak operating period the surrounding road network would need to accommodate an additional 71 trips in both the AM and PM peaks from the proposed development. This increase can easily be accommodated on Downs Street, Fitzgibbon Street and Ferguson Street without impacting on the environmental capacity of these streets.

4.4.2 Intersection Performance

The operating performance of Downs Street/Fitzgibbon Street and Downs Street/Ferguson Street intersections has been assessed using aaSIDRA modelling software for the "no development" and "with development" scenarios at 2009 and 2019 design years. Tables 4.3 and 4.4 show the results of the aaSIDRA intersection analysis.

Table 4.3: Downs Street/Fitzgibbon Street Operating Performance

Scenario	Degree of Saturation (DoS)	Average Delay (s)	95% Back of Queue (Cars)
2009 AM Peak no development	0.466	10.5	16
2009 PM Peak no development	0.471	5.1	12
2009 AM Peak with development	0.471	12.9	17
2009 PM Peak with development	0.464	5.6	12
2019 AM Peak no development	0.689	11.0	30
2019 PM Peak no development	0.678	5.8	24
2019 AM Peak with development	0.689	11.3	30
2019 PM Peak with development	0.686	6.2	24

The results show that the intersection currently operates well below the maximum practical operating capacity for a signalised intersection (i.e. DoS <0.90) during both the AM and PM peak hours. Detailed aaSIDRA outputs are included in Appendix B.

Table 4.4: Downs Street/Ferguson Street Operating Performance

Scenario	Degree of Saturation (DoS)	Average Delay (s)	95% Back of Queue (Cars)
2009 AM Peak no development	0.516	0.9	1
2009 PM Peak no development	0.375	0.6	1
2009 AM Peak with development	0.516	1.0	1
2009 PM Peak with development	0.375	1.2	1
2019 AM Peak no development	0.760	3.9	3
2019 PM Peak no development	0.571	1.2	1
2019 AM Peak with development	0.760	4.1	3
2019 PM Peak with development	0.571	2.0	1

The results show that the intersection currently operates well below the maximum practical operating capacity for unsignalised intersection (i.e. DoS <0.80) during both the AM and PM peak hours. Detailed aaSIDRA outputs are included in Appendix B.

4.4.3 Smith Street

Development traffic is expected to travel along Fitzgibbon Street and Ferguson Street to access Downs Street. As a result, traffic to/from the development will subsequently pass through the 'stop sign' controlled intersections along Smith Street.

Smith Street is a local access road, which runs parallel to Down Street and North Street. The stop sign intersections are currently configured so that Smith Street is the primary through road at Ferguson Street intersection, but is required to yield at Fitzgibbon Street as shown in Figure 4.5. This current intersection configuration is set up in such a manner that it discourages north-south traffic along Smith Street as a possible alternative to Downs Street. As a result, traffic along Smith Street is low and any additional traffic volumes as part of the development do not warrant any upgrades at Smith Street intersections with Fitzgibbon Street and Ferguson Street.



Figure 4.5: Intersection Configurations Nearby to the Proposed Development

Assessment of the abovementioned intersections has identified existing linemarking is faded and difficult for drivers to distinguish. In addition, a stop sign is missing from the western approach of Ferguson Street. These intersection deficiencies raise safety concerns and are recommended to be addressed by Council. As these intersection deficiencies are an existing issue and the proposed development does not warrant any upgrades to these intersections, the proposed development should not be required to provide contributions to the identified intersection improvements.

5. ACCESS ASSESSMENT

5.1 ACCESS LOCATION AND DESIGN

The primary site access is located on North Street. North Street is a two lane road with one lane in each direction. North Street is a "no through road" south of Fitzgibbon Street. Currently the Fitzgibbon Street/North Street intersection is a "give-way" configuration with North Street having priority.

A four-way "give way" intersection has been investigated whereby North Street remains the major through route and both Fitzgibbon Street and the proposed site access are "give-way" controlled.

The additional approach from the proposed site access has clear site lines down Fitzgibbon Street to the east and both north and south along North Street.

The operating performance of North Street/Fitzgibbon Street intersection has been assessed using aaSIDRA modelling software for the "no development" and "with development" scenarios at 2009 and 2019 design years. Table 5.1 shows the results of the aaSIDRA intersection analysis.

Table 5.1: Downs Street/Fitzgibbon Street Operating Performance

Scenario	Degree of Saturation (DoS)	Average Delay (s)	95% Back of Queue (Cars)
2009 AM Peak no development	0.011	5.4	0
2009 PM Peak no development	0.017	4.8	0
2009 AM Peak with development	0.033	5.2	0
2009 PM Peak with development	0.065	5.7	0.5
2019 AM Peak no development	0.013	5.3	0
2019 PM Peak no development	0.025	4.8	0
2019 AM Peak with development	0.033	5.2	0
2019 PM Peak with development	0.073	5.6	0.5

The results show that the intersection would operate well below the maximum practical operating capacity of a give way intersection (i.e. DoS <0.80) during both the AM and PM peak hours in 2009 and the ten year design horizon of 2019. Detailed aaSIDRA outputs are included in Appendix B.

The recommended site access and intersection configuration is shown in Appendix C and shall be constructed to include the following components:

- the site entry and exit approach to the intersection shall be designed as if for a public roadway, with all necessary traffic control devices and intersection geometric design requirements in accordance with Queensland Department of Main Roads "Roads Planning and Design Manual – Chapter 13 'Intersections At Grade'";
- the entry and exit road requires kerb and channelling which is clearly recognised by road users and pedestrians; and
- the entry and exit road surface is required to match the existing road surface on North Street.

5.2 NORTH STREET

5.2.1 Frontage Works

Whilst it is acknowledged that frontage works are required along the site boundary with North Street, it is not expected that the proposed development is required to provide full kerb and channel frontage works along the entire western frontage of North Street for the following reasons:

- the existing frontage and road profile along both side of the southern section of North Street does not currently include kerb and channel;
- the southern section of North Street, to which the site has frontage, only generates traffic from 12 residential allotments from the opposing side and therefore does not warrant any further upgrade works;
- the proposed development is accessed by a two-way driveway located at the northern end of the site, whereby the only development related vehicles that would travel south on North Street would be emergency vehicles to access/egress the emergency access/egress driveway if required;
- all units within the development are accessed by vehicle and pedestrian amenity within the circulating roadway of the development and not along North Street; and
- Council has not indicated any future connectivity of North Street to Telegraph Street or Lawrence Street that would warrant the need to frontage works along North Street.

Pursuant to this, it is envisaged that any works required along the subject site frontage of North Street as part of this development would be only to retain the existing road profile.

The proposed development acknowledges that pedestrian amenity is required along the North Street frontage of the site to provide continuity with adjacent allotments and improve public pedestrian connectivity to the proposed open space south of the site. As a result, footpaths shall be included along the full length of the site frontage to North Street. Appendix D demonstrates the typical cross sections of the frontage works along North Street.

5.2.2 North Street Cul-De-Sac

Council had raised an the existing issue of service vehicles, particularly refuse vehicles, having difficulty turning around at the end of North Street after servicing allotments on the eastern side of North Street. Subsequently, Council has requested the proposed development assess any impacts and/or works required at the end of North Street as part of the development.

All refuse vehicles and service vehicles associated with the proposed development enter the subject site via the primary access opposite Fitzgibbon Street. Appendix E provides the required service vehicle swept paths. The swept paths demonstrate the ability for a Heavy Rigid Vehicle (HRV) to manoeuvre within the circulating roadway and exit the site in a forward gear in accordance with AS2890.2. Emergency access may be required to use the secondary access to the site, however the circulating roadway again provides sufficient areas for vehicles to turn around and exit the subject site in a forward gear.

As a result, the proposed development does not produce any additional vehicle movements along the southern end of North Street. It is therefore neither reasonable nor relevant that the proposed development provide any works or contributions to construct a turn-around facility at the southern end of North Street.

5.3 PEDESTRIAN ACCESS

A Pedestrian Network Plan, as demonstrated within Appendix F, has been developed for the site and provides both internal pedestrian facilities for residents as well as connectivity to the surrounding pedestrian network.

Pedestrian footpaths are provided along either side of the internal circulating roadway as well as between units to connect to recreational areas and open space. Zebra crossings are also provided at primary desire lines across the circulating roadway within the site.

Local destinations in proximity to the development include retail and convenience shops along Downs Street as well as the recently constructed Riverlink Shopping Centre, which is located approximately 800 metres south along Downs Street and/or Colvin Street.

A series of pedestrian footpaths have been incorporated within the open space. These footpaths provide key connections to the surrounding local pedestrian network and formalises new connections between North Street and Colvin Street. In addition, footpaths have been provided to connect to the west of the site for future development sites.

Pedestrian footpaths have been provided along the site frontage of North Street and Colvin Street in order to provide continuity between adjacent sites and the proposed open space. Pedestrian footpaths will also link directly from the residential units into the open space.

Pedestrian footpaths as part of the proposed development will be designed and constructed with maximum grades of 1:14, as to enable disability friendly access.

5.4 PUBLIC TRANSPORT

The proposed development is supported by public transport via two bus routes, namely Route 504 and Route 515, which stop within 350 metres of the site.

Route 504 provides approximately one hour service frequencies and connects to neighbouring local areas, schools as well as shopping centres at Ipswich Town Centre, Tivoli and Brassall.

Route 515 provides a weekend service that passes directly in front of the subject site via Fitzgibbon Street and North Street and travels from The Workshops Railway Museum south to through Ipswich Town Centre and onto University of Queensland, Ipswich Campus.

Both bus services provided connectivity to Ipswich Rail Station and the South-East Queensland rail network.

6. PARKING ASSESSMENT

6.1 PLANNING SCHEME REQUIREMENTS

6.1.1 Planning Scheme Parking Rates

According to the Ipswich City Council Planning Scheme, the following parking rates need to be applied to the townhouses within the proposed development:

- 1 covered space per dwelling for exclusive resident use;
- 0.5 spaces per dwelling for visitor parking;
- 0.5 spaces per dwelling (to be located in the common area) for use by both residents and visitors; plus
- 1 vehicle wash bay per 20 dwellings.

6.1.2 Required Parking Supply

The proposed development comprises of 118 townhouses that would require the following breakdown of parking spaces:

- 118 covered spaces;
- 59 visitor parking spaces;
- 59 parking spaces for use by both residents and visitors; and
- 6 covered vehicle wash bays.

Therefore, a total of 242 parking spaces are required for the proposed development.

6.1.3 Proposed Parking Supply

The plans supplied for the proposed development outline the number of parking spaces to be provided. The proposed parking supply includes:

- 118 covered spaces for residents use only;
- 118 visitor spaces on driveways;
- 32 spaces in common areas for use by both residents and visitors; and
- 6 covered vehicle wash bays.

Whilst the development does not provide all 59 commonly accessible spaces, the provision of one visitor space per unit is expected to greatly reduce the need for commonly accessible spaces. The development still provides 32 spaces for common use which is seen as an adequate parking amenity for the proposed development. In addition it is expected the covered wash bays would subsequently be utilised by visitors during evenings subsequently increasing the common visitor parking to 38 spaces.

The plans indicate a total proposed parking supply of 274 spaces, 32 more than the required number of parking spaces.

6.2 PARKING LAYOUT AND INTERNAL ROAD ASSESSMENT

The proposed car parking layout (refer Appendix A) has been assessed for compliance against relevant provisions in Australian Standard AS2890.1, with the following comments noted below:

- parking spaces and aisle dimensions conform to the relevant user class defined in the standard;
- suitable dead-end-aisle facilities have been provided; and
- appropriate access/egress points onto the internal circulation road are provided for in the at-grade parking areas.

In summary, the proposed car parking layout complies with provisions of the Ipswich City Council's Car Parking and Access Code and the relevant provisions of Australian Standard 2890.1.

6.2.1 Visitor Parking Geometry

Vehicle turn paths were completed for the visitor spaces using AutoTurn 2009 to check their manoeuvrability. All visitor parking bays provide adequate spaces in which vehicles can access/egress the parking bays whilst remaining on the common roadway. The swept paths for are provided in Appendix E.

6.2.2 Service and Refuge Vehicle

As previously mentioned, the service vehicle access for this development warrants the ability for a HRV to enter, exit and manoeuvre efficiently within the site. The proposed developments access and circulating roadway complies with AS2890.2 in regards to service vehicle access as demonstrated by vehicle swept paths within Appendix E.

Access to the six lots located at Colvin Street does not allow a HRV to enter and exit the site in a forward gear. However, in accordance with AS2890.2 it is permissible for one reverse movement on or off the street subject to safety and obstruction to other on-street traffic. The proposed site is located at the end of Colvin Street with minimal passing traffic. As result, for occasional occurrences such as removalist vehicles, reversing on/off the site is permissible. However, for weekly refuse vehicles it is envisaged that refuse collection be carried out along the frontage of Colvin Street.

7. CONCLUSION

This report has been prepared for the proposed residential development at North Street, North Ipswich. The following conclusions are made regarding traffic and parking matters associated with the proposed development:

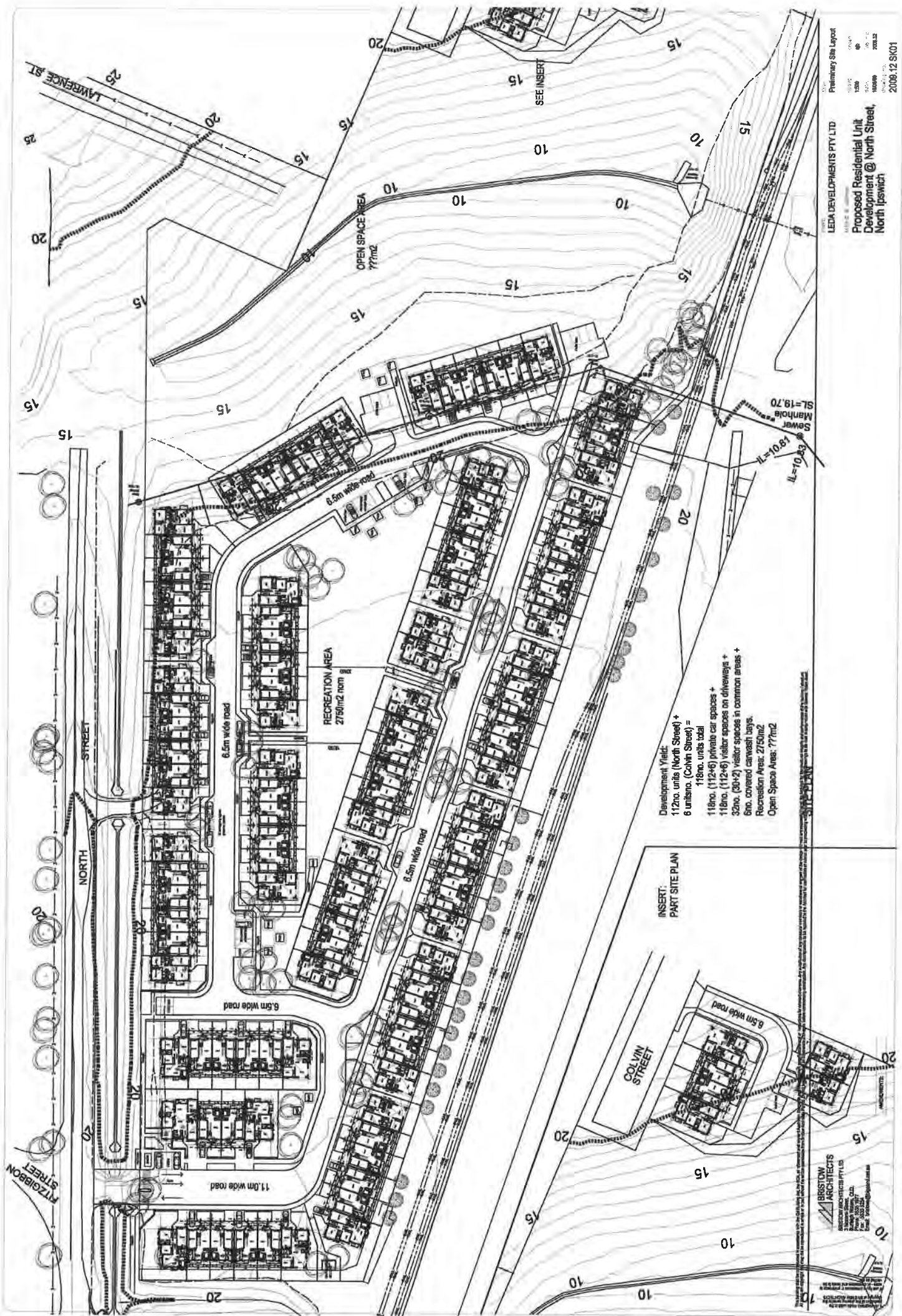
- the proposed development is estimated to generate 71 trips during each peak hour. These additional vehicle movements are considered to have a negligible effect on the operational performance of Downs Street/Ferguson Street and Downs Street/Fitzgibbon Street intersections as well as the surrounding local road network;
- the preferred access configuration to the site is to be at the intersection of North Street/Fitzgibbon Street making this intersection a four-way "give-way". The intersection is to be designed and constructed in accordance with Queensland's Department of Main Roads "Roads Planning and Design Manual – Chapter 13 'Intersections At Grade'" (see Appendix C);
- due to the existing frontage along both sides at the southern end of North Street and limited future activity along this section of North Street, it is not envisaged that kerb and channel works are required along the frontage of the subject site;
- the proposed development does not produce any additional vehicle movements along the southern end of North Street and it is neither reasonable nor relevant for Council to condition the proposed development to construct or pay contributions for a turn-around facility at the southern end of North Street;
- existing linemarking and signage at the Smith Street intersections with Fitzgibbon Street and Ferguson Street raises safety concerns and is recommended to be addressed by Council;
- a Pedestrian Network Plan (see Appendix F) for the proposed development provides internal pedestrian facilities as well as connecting the open space to the surrounding footpath network;
- the proposed development provides a total of 274 parking spaces which includes a garage and visitor spaces within each unit, 32 common visitor spaces and 6 covered wash bays;
- all parking spaces provided within the proposed development are designed in accordance with AS2890.1; and
- the proposed development provides adequate amenity for service vehicle access and manoeuvrability within the site in accordance with AS2890.2.

APPENDIX A

PROPOSED DEVELOPMENT SITE PLAN

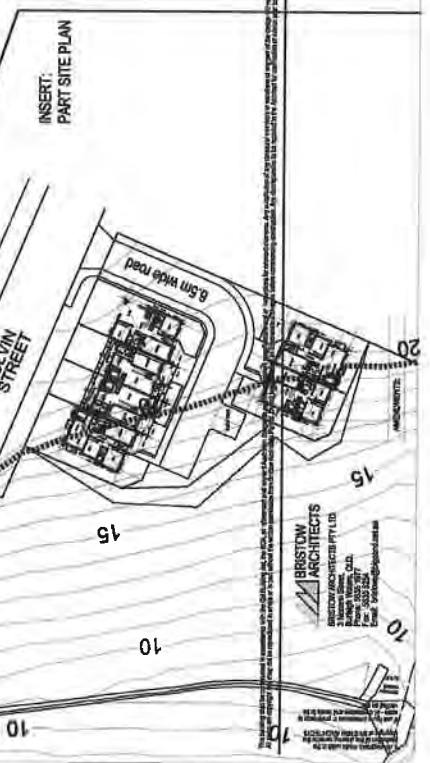


NO.	DESCRIPTION	DATE
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10



LEIDA DEVELOPMENTS PTY LTD
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich
 2008/12 SK101

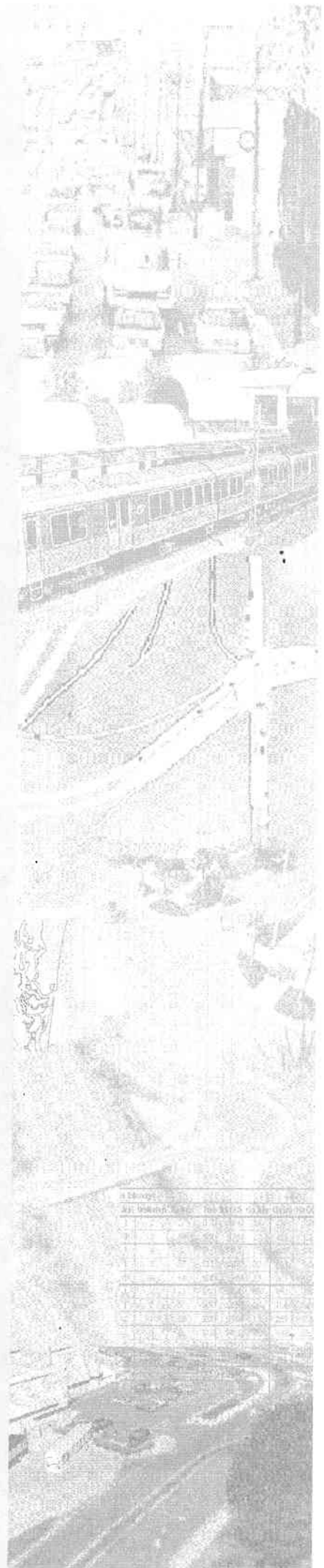
Development Yield:
 112no. units (North Street) +
 6 unitno. (Colvin Street) =
 118no. units total
 118no. (112x46) private car spaces +
 118no. (112x46) visitor spaces on driveways +
 32no. (30x2) visitor spaces in common areas +
 6no. covered carwash bays.
 Recreation Area: 2750m2
 Open Space Area: 777m2



BRISTOLW
 ARCHITECTS
 ARCHITECTS PTY LTD
 11/12-14/16
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 11/12-14/16
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 11/12-14/16

APPENDIX B

AASIDRA INTERSECTION ANALYSIS OUTPUTS



SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2009 AM Peak Traffic Volumes No Development

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	6	0.0	0.194	8.2	LOS A	0	0.00	0.67	49.0
2	T	377	0.0	0.197	0.0	LOS A	0	0.00	0.00	60.0
3	R	8	0.0	0.024	17.8	LOS C	1	0.77	0.93	40.2
Approach		391	0.0	0.197	0.5	LOS A	1	0.02	0.03	59.2
Ferguson Street										
4	L	9	0.0	0.055	21.2	LOS C	1	0.81	0.94	37.9
5	T	2	0.0	0.049	49.4	LOS E	1	0.92	0.97	25.4
6	R	2	0.0	0.049	50.8	LOS F	1	0.92	0.97	24.9
Approach		13	0.0	0.055	30.1	LOS D	1	0.84	0.95	32.8
Downs Street										
7	L	16	0.0	0.516	8.2	LOS A	0	0.00	0.67	49.0
8	T	978	0.0	0.510	0.0	LOS A	0	0.00	0.00	60.0
9	R	2	0.0	0.003	9.8	LOS A	0	0.42	0.61	47.1
Approach		996	0.0	0.510	0.2	LOS A	0	0.00	0.01	59.8
Ferguson Street										
10	L	1	0.0	0.003	10.2	LOS B	0	0.42	0.61	46.9
11	T	4	0.0	0.111	51.2	LOS F	3	0.92	0.97	24.8
12	R	5	0.0	0.111	52.5	LOS F	3	0.92	0.98	24.5
Approach		10	0.0	0.112	47.8	LOS E	3	0.87	0.94	25.9
All Vehicles		1410	0.0	0.516	0.9	Applicable	3	0.02	0.03	58.6

SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2009 PM Peak Traffic Volumes No Development

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	3	0.0	0.375	8.2	LOS A	0	0.00	0.67	49.0
2	T	727	0.0	0.374	0.0	LOS A	0	0.00	0.00	60.0
3	R	5	0.0	0.007	10.3	LOS B	0	0.46	0.65	46.7
Approach		735	0.0	0.374	0.1	LOS A	0	0.00	0.01	59.8
Ferguson Street										
4	L	3	0.0	0.009	10.7	LOS B	0	0.46	0.66	46.3
5	T	2	0.0	0.032	34.9	LOS D	1	0.87	0.95	30.6
6	R	2	0.0	0.032	36.3	LOS E	1	0.87	0.96	30.0
Approach		7	0.0	0.032	24.9	LOS C	1	0.70	0.83	35.5
Downs Street										
7	L	4	0.0	0.235	8.2	LOS A	0	0.00	0.67	49.0
8	T	446	0.0	0.231	0.0	LOS A	0	0.00	0.00	60.0
9	R	7	0.0	0.012	12.8	LOS B	0	0.60	0.76	44.4
Approach		457	0.0	0.231	0.3	LOS A	0	0.01	0.02	59.6
Ferguson Street										
10	L	3	0.0	0.012	14.1	LOS B	0	0.64	0.76	43.2
11	T	1	0.0	0.062	37.8	LOS E	2	0.88	0.95	29.3
12	R	6	0.0	0.062	39.1	LOS E	2	0.88	0.96	28.8
Approach		10	0.0	0.062	31.5	LOS D	2	0.81	0.90	32.1
All Vehicles		1209	0.0	0.375	0.6	Applicable	2	0.02	0.02	59.1

SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2019 AM Peak Traffic Volumes No Development

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	7	0.0	0.292	8.2	LOS A	0	0.00	0.67	49.0
2	T	558	0.0	0.290	0.0	LOS A	0	0.00	0.00	60.0
3	R	11	0.0	0.183	66.6	LOS F	4	0.97	0.99	21.1
Approach		576	0.0	0.290	1.4	LOS A	4	0.02	0.03	57.8
Ferguson Street										
4	L	12	0.0	0.333	117.2	LOS F	8	0.98	1.01	14.2
5	T	2	0.0	0.250	254.4	LOS F	6	0.99	1.00	7.5
6	R	2	0.0	0.250	255.8	LOS F	6	0.99	1.00	7.4
Approach		16	0.0	0.333	151.6	LOS F	8	0.98	1.01	11.6
Downs Street										
7	L	19	0.0	0.760	8.2	LOS A	0	0.00	0.67	49.0
8	T	1447	0.0	0.752	0.0	LOS A	0	0.00	0.00	60.0
9	R	2	0.0	0.003	11.0	LOS B	0	0.52	0.65	46.0
Approach		1468	0.0	0.752	0.1	LOS A	0	0.00	0.01	59.8
Ferguson Street										
10	L	1	0.0	0.003	11.8	LOS B	0	0.52	0.65	45.3
11	T	5	0.0	0.714	421.7	LOS F	18	1.00	1.05	4.7
12	R	6	0.0	0.750	423.0	LOS F	18	1.00	1.05	4.7
Approach		12	0.0	0.725	388.2	LOS F	18	0.96	1.02	5.1
All Vehicles		2072	0.0	0.760	3.9	Applicable	18	0.02	0.03	54.2

SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2019 PM Peak Traffic Volumes No Development

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	4	0.0	0.571	8.2	LOS A	0	0.00	0.67	49.0
2	T	1077	0.0	0.555	0.0	LOS A	0	0.00	0.00	60.0
3	R	6	0.0	0.009	12.1	LOS B	0	0.56	0.73	44.9
Approach		1087	0.0	0.554	0.1	LOS A	0	0.00	0.01	59.8
Ferguson Street										
4	L	4	0.0	0.015	13.1	LOS B	0	0.59	0.75	44.0
5	T	2	0.0	0.125	110.8	LOS F	3	0.97	0.99	14.8
6	R	2	0.0	0.125	112.2	LOS F	3	0.97	0.99	14.6
Approach		8	0.0	0.122	62.3	LOS F	3	0.78	0.87	22.1
Downs Street										
7	L	5	0.0	0.333	8.2	LOS A	0	0.00	0.67	49.0
8	T	661	0.0	0.342	0.0	LOS A	0	0.00	0.00	60.0
9	R	9	0.0	0.034	20.6	LOS C	1	0.82	0.94	38.3
Approach		675	0.0	0.342	0.3	LOS A	1	0.01	0.02	59.5
Ferguson Street										
10	L	4	0.0	0.030	25.4	LOS D	1	0.85	0.95	35.3
11	T	1	0.0	0.250	146.6	LOS F	7	0.98	1.00	11.9
12	R	7	0.0	0.280	147.9	LOS F	7	0.98	1.01	11.8
Approach		12	0.0	0.279	107.0	LOS F	7	0.93	0.99	15.2
All Vehicles		1782	0.0	0.571	1.2	Applicable	7	0.02	0.02	58.1

SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2009 AM Peak Traffic Volumes With Development

Give-way

Vehicle Movements

Mov ID	Tur n	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	6	0.0	0.194	8.2	LOS A	0	0.00	0.67	49.0
2	T	377	0.0	0.197	0.0	LOS A	0	0.00	0.00	60.0
3	R	8	0.0	0.024	17.8	LOS C	1	0.77	0.93	40.2
Approach		391	0.0	0.197	0.5	LOS A	1	0.02	0.03	59.2
Ferguson Street										
4	L	9	0.0	0.055	21.2	LOS C	1	0.81	0.94	37.9
5	T	2	0.0	0.049	49.4	LOS E	1	0.92	0.97	25.4
6	R	2	0.0	0.049	50.8	LOS F	1	0.92	0.97	24.9
Approach		13	0.0	0.055	30.1	LOS D	1	0.84	0.95	32.8
Downs Street										
7	L	16	0.0	0.516	8.2	LOS A	0	0.00	0.67	49.0
8	T	978	0.0	0.510	0.0	LOS A	0	0.00	0.00	60.0
9	R	2	0.0	0.003	9.8	LOS A	0	0.42	0.61	47.1
Approach		996	0.0	0.510	0.2	LOS A	0	0.00	0.01	59.8
Ferguson Street										
10	L	16	0.0	0.043	10.3	LOS B	1	0.43	0.68	46.7
11	T	4	0.0	0.111	51.2	LOS F	3	0.93	0.97	24.6
12	R	5	0.0	0.111	52.5	LOS F	3	0.93	0.98	24.2
Approach		10	0.0	0.112	47.8	LOS E	3	0.61	0.94	25.9
All Vehicles		1434	0.0	0.516	1.0	Not Applicable	3	0.03	0.04	58.4

SIDRA
INTERSECTION

Movement Summary

Downs Street/Ferguson Street Intersection

2009 PM Peak Traffic Volumes With Development

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street										
1	L	3	0.0	0.375	8.2	LOS A	0	0.00	0.67	49.0
2	T	727	0.0	0.374	0.0	LOS A	0	0.00	0.00	60.0
3	R	5	0.0	0.007	10.3	LOS B	0	0.46	0.65	46.7
Approach		735	0.0	0.374	0.1	LOS A	0	0.00	0.01	59.8
Ferguson Street										
4	L	3	0.0	0.009	10.7	LOS B	0	0.46	0.66	46.3
5	T	2	0.0	0.036	38.1	LOS E	1	0.89	0.95	29.2
6	R	2	0.0	0.036	39.5	LOS E	1	0.89	0.96	28.7
Approach		7	0.0	0.036	26.8	LOS D	1	0.71	0.83	34.5
Downs Street										
7	L	4	0.0	0.235	8.2	LOS A	0	0.00	0.67	49.0
8	T	446	0.0	0.231	0.0	LOS A	0	0.00	0.00	60.0
9	R	49	0.0	0.086	13.1	LOS B	3	0.62	0.88	44.0
Approach		499	0.0	0.231	1.4	LOS A	3	0.06	0.09	57.8
Ferguson Street										
10	L	16	0.0	0.063	14.4	LOS B	1	0.64	0.86	43.0
11	T	1	0.0	0.067	40.9	LOS E	2	0.89	0.96	28.2
12	R	6	0.0	0.068	42.2	LOS E	2	0.89	0.97	27.7
Approach		23	0.0	0.068	22.8	LOS C	2	0.72	0.89	36.8
All Vehicles		1264	0.0	0.375	1.2	Not Applicable	3	0.04	0.06	58.1

Movement Summary

Downs Street/Ferguson Street Intersection

2019 AM Peak Traffic Volumes With Development

Give-way

Vehicle Movements

Mov Turn ID	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street									
1 L	7	0.0	0.292	8.2	LOS A	0	0.00	0.67	49.0
2 T	558	0.0	0.290	0.0	LOS A	0	0.00	0.00	60.0
3 R	11	0.0	0.183	66.5	LOS F	4	0.97	0.99	21.1
Approach	576	0.0	0.290	1.4	LOS A	4	0.02	0.03	57.8
Ferguson Street									
4 L	12	0.0	0.333	117.2	LOS F	8	0.98	1.01	14.2
5 T	2	0.0	0.286	271.4	LOS F	6	0.99	1.00	7.1
6 R	2	0.0	0.286	272.8	LOS F	6	0.99	1.01	7.0
Approach	16	0.0	0.333	155.9	LOS F	8	0.98	1.01	11.3
Downs Street									
7 L	19	0.0	0.760	8.2	LOS A	0	0.00	0.67	49.0
8 T	1447	0.0	0.752	0.0	LOS A	0	0.00	0.00	60.0
9 R	11	0.0	0.017	11.1	LOS B	0	0.52	0.71	45.9
Approach	1477	0.0	0.752	0.2	LOS A	0	0.00	0.01	59.7
Ferguson Street									
10 L	16	0.0	0.052	12.0	LOS B	1	0.52	0.76	45.1
11 T	5	0.0	0.714	439.6	LOS F	19	1.00	1.05	4.6
12 R	6	0.0	0.750	440.9	LOS F	19	1.00	1.05	4.6
Approach	27	0.0	0.744	186.5	LOS F	19	0.72	0.88	9.8
All Vehicles	2096	0.0	0.760	4.1	Applicable	19	0.02	0.04	53.9

Movement Summary

Downs Street/Ferguson Street Intersection

2019 PM Peak Traffic Volumes With Development

Give-way

Vehicle Movements

Mov Turn ID	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street									
1 L	4	0.0	0.571	8.2	LOS A	0	0.00	0.67	49.0
2 T	1077	0.0	0.555	0.0	LOS A	0	0.00	0.00	60.0
3 R	6	0.0	0.009	12.1	LOS B	0	0.56	0.73	44.9
Approach	1087	0.0	0.554	0.1	LOS A	0	0.00	0.01	59.8
Ferguson Street									
4 L	4	0.0	0.015	13.1	LOS B	0	0.59	0.75	44.0
5 T	2	0.0	0.143	125.7	LOS F	3	0.97	0.99	13.4
6 R	2	0.0	0.143	127.1	LOS F	3	0.97	0.99	13.3
Approach	8	0.0	0.140	69.8	LOS F	3	0.78	0.87	20.5
Downs Street									
7 L	5	0.0	0.333	8.2	LOS A	0	0.00	0.67	49.0
8 T	661	0.0	0.342	0.0	LOS A	0	0.00	0.00	60.0
9 R	52	0.0	0.198	21.9	LOS C	6	0.85	0.96	37.4
Approach	718	0.0	0.342	1.6	LOS A	6	0.06	0.07	57.4
Ferguson Street									
10 L	17	0.0	0.129	26.1	LOS D	2	0.86	0.95	34.9
11 T	1	0.0	0.333	168.6	LOS F	8	0.98	1.01	10.6
12 R	7	0.0	0.318	169.9	LOS F	8	0.98	1.01	10.5
Approach	25	0.0	0.312	72.1	LOS F	8	0.90	0.97	20.1
All Vehicles	1838	0.0	0.571	2.0	Applicable	8	0.04	0.05	56.9

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2009 AM Peak Traffic Volumes No Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	7	0.0	0.155	9.8	LOS A	25	0.18	0.70	47.2
2	T	249	0.0	0.155	1.6	LOS A	25	0.18	0.16	57.4
3	R	19	0.0	0.205	70.9	LOS E	12	0.99	0.70	20.3
Approach		275	0.0	0.205	6.6	LOS A	25	0.24	0.21	50.8
Fitzgibbon Street										
4	L	16	0.0	0.172	70.5	LOS E	10	0.99	0.69	20.4
5	T	6	0.0	0.424	63.7	LOS E	25	1.00	0.73	21.8
6	R	35	0.0	0.424	72.0	LOS E	25	1.00	0.73	20.1
Approach		57	0.0	0.424	70.7	LOS E	25	1.00	0.72	20.3
Downs Street Nth										
7	L	68	0.0	0.119	12.2	LOS B	11	0.27	0.70	44.9
8	T	681	0.0	0.466	6.1	LOS A	113	0.42	0.38	51.4
Approach		749	0.0	0.466	6.6	LOS A	113	0.40	0.41	50.8
Fitzgibbon Street										
10	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
11	T	1	0.0	0.104	62.0	LOS E	6	0.98	0.66	22.2
12	R	8	0.0	0.103	70.3	LOS E	6	0.98	0.67	20.4
Approach		10	0.0	0.103	69.2	LOS E	6	0.98	0.66	20.6
All Vehicles		1091	0.0	0.466	10.5	LOS B	113	0.40	0.38	46.5

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2009 PM Peak Traffic Volumes No Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	4	0.0	0.471	10.5	LOS B	86	0.27	0.74	46.5
2	T	756	0.0	0.459	2.3	LOS A	86	0.27	0.25	56.4
3	R	9	0.0	0.097	70.0	LOS E	6	0.98	0.67	20.4
Approach		769	0.0	0.459	3.2	LOS A	86	0.28	0.25	55.2
Fitzgibbon Street										
4	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
5	T	1	0.0	0.063	61.2	LOS E	4	0.98	0.64	22.4
6	R	5	0.0	0.063	69.5	LOS E	4	0.98	0.65	20.5
Approach		7	0.0	0.063	68.1	LOS E	4	0.98	0.64	20.8
Downs Street Nth										
7	L	2	0.0	0.003	12.0	LOS B	0	0.26	0.66	45.0
8	T	452	0.0	0.309	5.1	LOS A	71	0.35	0.31	52.6
Approach		454	0.0	0.309	5.2	LOS A	71	0.35	0.31	52.6
Fitzgibbon Street										
10	L	2	0.0	0.022	68.6	LOS E	1	0.97	0.61	20.7
11	T	1	0.0	0.143	61.9	LOS E	9	0.98	0.67	22.2
12	R	13	0.0	0.142	70.2	LOS E	9	0.98	0.68	20.4
Approach		16	0.0	0.142	69.5	LOS E	9	0.98	0.68	20.5
All Vehicles		1246	0.0	0.471	5.1	LOS A	86	0.32	0.28	52.6

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2019 AM Peak Traffic Volumes No Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	5	0.0	0.226	9.9	LOS A	38	0.20	0.71	47.1
2	T	369	0.0	0.226	1.7	LOS A	38	0.20	0.18	57.3
3	R	23	0.0	0.248	71.2	LOS E	14	0.99	0.71	20.2
Approach		397	0.0	0.248	5.9	LOS A	38	0.25	0.21	51.7
Fitzgibbon Street										
4	L	19	0.0	0.205	70.8	LOS E	12	0.99	0.70	20.3
5	T	7	0.0	0.505	64.1	LOS E	29	1.00	0.74	21.7
6	R	42	0.0	0.506	72.4	LOS E	29	1.00	0.74	20.0
Approach		68	0.0	0.506	71.1	LOS E	29	1.00	0.73	20.2
Downs Street Nth										
7	L	83	0.0	0.146	12.3	LOS B	13	0.28	0.70	44.8
8	T	1008	0.0	0.689	8.2	LOS A	208	0.56	0.53	49.0
Approach		1091	0.0	0.689	8.5	LOS A	208	0.54	0.54	48.6
Fitzgibbon Street										
10	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
11	T	1	0.0	0.139	62.3	LOS E	8	0.98	0.67	22.1
12	R	11	0.0	0.139	70.6	LOS E	8	0.98	0.68	20.3
Approach		13	0.0	0.139	69.8	LOS E	8	0.98	0.67	20.5
All Vehicles		1569	0.0	0.689	11.0	LOS B	208	0.49	0.47	46.0

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2019 PM Peak Traffic Volumes No Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	5	0.0	0.654	11.5	LOS B	162	0.39	0.77	45.5
2	T	1119	0.0	0.678	3.4	LOS A	162	0.39	0.37	54.9
3	R	12	0.0	0.129	70.3	LOS E	8	0.98	0.68	20.4
Approach		1136	0.0	0.678	4.1	LOS A	162	0.39	0.37	53.9
Fitzgibbon Street										
4	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
5	T	1	0.0	0.073	61.3	LOS E	4	0.98	0.64	22.4
6	R	6	0.0	0.073	69.6	LOS E	4	0.98	0.66	20.5
Approach		8	0.0	0.073	68.4	LOS E	4	0.98	0.65	20.8
Downs Street Nth										
7	L	2	0.0	0.003	12.0	LOS B	0	0.26	0.66	45.0
8	T	668	0.0	0.457	6.0	LOS A	110	0.41	0.38	51.5
Approach		670	0.0	0.457	6.0	LOS A	110	0.41	0.38	51.5
Fitzgibbon Street										
10	L	2	0.0	0.022	68.6	LOS E	1	0.97	0.61	20.7
11	T	1	0.0	0.172	62.1	LOS E	11	0.99	0.68	22.2
12	R	16	0.0	0.173	70.4	LOS E	11	0.99	0.69	20.4
Approach		19	0.0	0.172	69.8	LOS E	11	0.99	0.68	20.5
All Vehicles		1833	0.0	0.678	5.8	LOS A	162	0.41	0.38	51.8

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2009 AM Peak Traffic Volumes With Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	15	0.0	0.162	10.0	LOS B	27	0.20	0.71	47.0
2	T	249	0.0	0.161	1.8	LOS A	27	0.20	0.17	57.1
3	R	19	0.0	0.205	70.9	LOS E	12	0.99	0.70	20.3
Approach		283	0.0	0.205	6.9	LOS A	27	0.25	0.23	50.4
Fitzgibbon Street										
4	L	16	0.0	0.148	68.9	LOS E	10	0.98	0.69	20.7
5	T	13	0.0	0.462	62.9	LOS E	29	1.00	0.74	22.0
6	R	35	0.0	0.463	71.2	LOS E	29	1.00	0.74	20.2
Approach		64	0.0	0.463	68.9	LOS E	29	0.99	0.73	20.7
Downs Street Nth										
7	L	68	0.0	0.122	12.5	LOS B	11	0.28	0.70	44.6
8	T	681	0.0	0.471	6.5	LOS A	116	0.43	0.39	50.9
Approach		749	0.0	0.471	7.0	LOS A	116	0.42	0.42	50.3
Fitzgibbon Street										
10	L	1	0.0	0.009	66.7	LOS E	1	0.96	0.59	21.1
11	T	6	0.0	0.438	63.0	LOS E	26	1.00	0.74	22.0
12	R	37	0.0	0.437	71.3	LOS E	26	1.00	0.74	20.2
Approach		44	0.0	0.437	70.0	LOS E	26	1.00	0.74	20.4
All Vehicles		1140	0.0	0.471	12.9	LOS B	116	0.43	0.40	44.3

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2009 PM Peak Traffic Volumes With Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	13	0.0	0.463	10.5	LOS B	87	0.27	0.74	46.5
2	T	756	0.0	0.464	2.3	LOS A	87	0.27	0.25	56.4
3	R	9	0.0	0.097	70.0	LOS E	6	0.98	0.67	20.4
Approach		778	0.0	0.464	3.3	LOS A	87	0.28	0.26	55.1
Fitzgibbon Street										
4	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
5	T	3	0.0	0.087	61.6	LOS E	5	0.98	0.65	22.3
6	R	5	0.0	0.087	69.9	LOS E	5	0.98	0.66	20.5
Approach		9	0.0	0.087	67.0	LOS E	5	0.98	0.65	21.1
Downs Street Nth										
7	L	2	0.0	0.003	12.0	LOS B	0	0.26	0.66	45.0
8	T	452	0.0	0.309	5.1	LOS A	71	0.35	0.31	52.6
Approach		454	0.0	0.309	5.2	LOS A	71	0.35	0.31	52.6
Fitzgibbon Street										
10	L	2	0.0	0.022	68.6	LOS E	1	0.97	0.61	20.7
11	T	1	0.0	0.215	62.5	LOS E	13	0.99	0.70	22.1
12	R	20	0.0	0.215	70.8	LOS E	13	0.99	0.70	20.3
Approach		23	0.0	0.215	70.2	LOS E	13	0.99	0.69	20.4
All Vehicles		1264	0.0	0.464	5.6	LOS A	87	0.32	0.29	52.0

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2019 AM Peak Traffic Volumes With Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	14	0.0	0.232	9.9	LOS A	39	0.20	0.71	47.1
2	T	369	0.0	0.232	1.8	LOS A	39	0.20	0.18	57.2
3	R	23	0.0	0.248	71.2	LOS E	14	0.99	0.71	20.2
Approach		406	0.0	0.248	6.0	LOS A	39	0.25	0.23	51.5
Fitzgibbon Street										
4	L	19	0.0	0.205	70.8	LOS E	12	0.99	0.70	20.3
5	T	14	0.0	0.592	65.0	LOS E	34	1.00	0.77	21.5
6	R	42	0.0	0.592	73.3	LOS E	34	1.00	0.77	19.8
Approach		75	0.0	0.592	71.1	LOS E	34	1.00	0.75	20.3
Downs Street Nth										
7	L	83	0.0	0.146	12.3	LOS B	13	0.28	0.70	44.8
8	T	1008	0.0	0.689	8.2	LOS A	208	0.56	0.53	49.0
Approach		1091	0.0	0.689	8.5	LOS A	208	0.54	0.54	48.6
Fitzgibbon Street										
10	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
11	T	1	0.0	0.139	62.3	LOS E	8	0.98	0.67	22.1
12	R	11	0.0	0.139	70.6	LOS E	8	0.98	0.68	20.3
Approach		13	0.0	0.139	69.8	LOS E	8	0.98	0.67	20.5
All Vehicles		1585	0.0	0.689	11.3	LOS B	208	0.49	0.47	45.8

Movement Summary

Downs Street/Fitzgibbon Street Intersection

2019 PM Peak Traffic Volumes No Development

Signalised - Fixed time Cycle Time = 120 seconds

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
Downs Street Sth										
1	L	14	0.0	0.686	11.6	LOS B	165	0.39	0.78	45.5
2	T	1119	0.0	0.684	3.4	LOS A	165	0.39	0.37	54.9
3	R	12	0.0	0.129	70.3	LOS E	8	0.98	0.68	20.4
Approach		1145	0.0	0.684	4.2	LOS A	165	0.40	0.38	53.8
Fitzgibbon Street										
4	L	1	0.0	0.011	68.2	LOS E	1	0.97	0.59	20.8
5	T	3	0.0	0.098	61.7	LOS E	6	0.98	0.66	22.3
6	R	6	0.0	0.097	70.0	LOS E	6	0.98	0.67	20.4
Approach		10	0.0	0.098	67.3	LOS E	6	0.98	0.66	21.0
Downs Street Nth										
7	L	2	0.0	0.003	12.0	LOS B	0	0.26	0.66	45.0
8	T	668	0.0	0.457	6.0	LOS A	110	0.41	0.38	51.5
Approach		670	0.0	0.457	6.0	LOS A	110	0.41	0.38	51.5
Fitzgibbon Street										
10	L	2	0.0	0.022	68.6	LOS E	1	0.97	0.61	20.7
11	T	2	0.0	0.258	62.8	LOS E	16	0.99	0.71	22.0
12	R	23	0.0	0.258	71.1	LOS E	16	0.99	0.71	20.2
Approach		27	0.0	0.258	70.3	LOS E	16	0.99	0.70	20.4
All Vehicles		1852	0.0	0.686	6.2	LOS A	165	0.41	0.38	51.3

Movement Summary

2009 AM North Street / Fitzgibbon Street No Development

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
2	T	5	0.0	0.008	1.2	LOS A	0	0.03	0.13	56.6
3	R	5	0.0	0.008	8.6	LOS A	0	0.03	0.70	47.3
Approach		10	0.0	0.008	4.9	LOS A	0	0.03	0.42	51.5
Fitzgibbon Street										
21	L	2	0.0	0.011	7.3	LOS A	0	0.07	0.61	42.4
23	R	8	0.0	0.011	6.2	LOS A	0	0.07	0.58	43.3
Approach		10	0.0	0.011	6.4	LOS A	0	0.07	0.58	43.1
North Street north										
7	L	4	0.0	0.003	6.6	LOS A	0	0.00	0.64	43.1
8	T	2	0.0	0.003	0.0	LOS A	0	0.00	0.00	50.0
Approach		6	0.0	0.003	4.4	LOS A	0	0.00	0.43	45.2
All Vehicles		26	0.0	0.011	5.4	Applicable	0	0.04	0.48	46.5

Movement Summary

2009 PM North Street / Fitzgibbon Street No Development

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
2	T	5	0.0	0.008	1.3	LOS A	0	0.08	0.12	56.0
3	R	5	0.0	0.008	8.6	LOS A	0	0.08	0.68	47.1
Approach		10	0.0	0.008	5.0	LOS A	0	0.08	0.40	51.2
Fitzgibbon Street										
21	L	5	0.0	0.017	7.4	LOS A	1	0.10	0.60	42.3
23	R	11	0.0	0.017	6.3	LOS A	1	0.10	0.57	43.2
Approach		16	0.0	0.017	6.6	LOS A	1	0.10	0.58	42.9
North Street north										
7	L	11	0.0	0.013	6.6	LOS A	0	0.00	0.64	43.1
8	T	11	0.0	0.013	0.0	LOS A	0	0.00	0.00	50.0
Approach		22	0.0	0.013	3.3	LOS A	0	0.00	0.32	46.3
All Vehicles		48	0.0	0.017	4.8	Applicable	1	0.05	0.42	46.0

Movement Summary

2019 AM North Street / Fitzgibbon Street no Development

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
2	T	7	0.0	0.012	1.2	LOS A	1	0.04	0.13	56.5
3	R	7	0.0	0.012	8.6	LOS A	1	0.04	0.70	47.2
Approach		14	0.0	0.012	4.9	LOS A	1	0.04	0.41	51.4
Fitzgibbon Street										
21	L	3	0.0	0.013	7.4	LOS A	0	0.08	0.60	42.4
23	R	9	0.0	0.013	6.3	LOS A	0	0.08	0.57	43.2
Approach		12	0.0	0.013	6.5	LOS A	0	0.08	0.58	43.0
North Street north										
7	L	6	0.0	0.005	6.6	LOS A	0	0.00	0.64	43.1
8	T	3	0.0	0.005	0.0	LOS A	0	0.00	0.00	50.0
Approach		9	0.0	0.005	4.4	LOS A	0	0.00	0.43	45.2
All Vehicles		35	0.0	0.013	5.3	Not Applicable	1	0.05	0.47	46.5

Movement Summary

2019 PM North Street / Fitzgibbon Street No Development

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
2	T	7	0.0	0.012	1.3	LOS A	1	0.10	0.12	55.8
3	R	7	0.0	0.012	8.7	LOS A	1	0.10	0.67	47.0
Approach		14	0.0	0.012	5.0	LOS A	1	0.10	0.40	51.0
Fitzgibbon Street										
21	L	7	0.0	0.025	7.5	LOS A	1	0.13	0.59	42.2
23	R	16	0.0	0.025	6.4	LOS A	1	0.13	0.57	43.1
Approach		23	0.0	0.025	6.7	LOS A	1	0.13	0.58	42.8
North Street north										
7	L	16	0.0	0.018	6.6	LOS A	0	0.00	0.64	43.1
8	T	16	0.0	0.018	0.0	LOS A	0	0.00	0.00	50.0
Approach		32	0.0	0.018	3.3	LOS A	0	0.00	0.32	46.3
All Vehicles		69	0.0	0.025	4.8	Not Applicable	1	0.06	0.42	45.9

Movement Summary

2009 AM North Street / Fitzgibbon Street / Site Access

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
1	L	1	0.0	0.011	7.5	LOS A	0	0.04	0.62	48.4
2	T	5	0.0	0.011	1.3	LOS A	0	0.04	0.14	56.5
3	R	5	0.0	0.011	8.6	LOS A	0	0.04	0.70	47.2
Approach		11	0.0	0.011	5.2	LOS A	0	0.04	0.44	51.2
Fitzgibbon Street										
21	L	2	0.0	0.019	7.4	LOS A	1	0.08	0.60	42.4
22	T	15	0.0	0.019	5.9	LOS A	1	0.08	0.53	43.5
23	R	8	0.0	0.019	6.2	LOS A	1	0.08	0.57	43.2
Approach		25	0.0	0.019	6.1	LOS A	1	0.08	0.55	43.3
North Street north										
7	L	4	0.0	0.012	6.7	LOS A	0	0.08	0.59	42.8
8	T	2	0.0	0.012	0.1	LOS A	0	0.08	0.01	49.2
9	R	7	0.0	0.012	6.9	LOS A	0	0.08	0.62	42.7
Approach		13	0.0	0.012	5.8	LOS A	0	0.08	0.51	43.6
Site Access										
10	L	19	0.0	0.033	5.3	LOS A	1	0.06	0.54	36.9
11	T	34	0.0	0.033	4.1	LOS A	1	0.06	0.43	37.6
12	R	1	0.0	0.033	5.7	LOS A	1	0.06	0.59	36.6
Approach		54	0.0	0.033	4.6	LOS A	1	0.06	0.47	37.3
All Vehicles		103	0.0	0.033	5.2	Applicable	1	0.07	0.49	40.6

Movement Summary

2009 PM North Street / Fitzgibbon Street / Site Access

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
1	L	1	0.0	0.011	7.6	LOS A	0	0.08	0.59	48.2
2	T	5	0.0	0.011	1.3	LOS A	0	0.08	0.14	56.0
3	R	5	0.0	0.011	8.6	LOS A	0	0.08	0.68	47.1
Approach		11	0.0	0.011	5.2	LOS A	0	0.08	0.42	50.9
Fitzgibbon Street										
21	L	5	0.0	0.023	7.5	LOS A	1	0.11	0.61	42.3
22	T	11	0.0	0.023	6.1	LOS A	1	0.11	0.52	43.4
23	R	11	0.0	0.023	6.4	LOS A	1	0.11	0.57	43.1
Approach		27	0.0	0.023	6.4	LOS A	1	0.11	0.55	43.1
North Street north										
7	L	11	0.0	0.065	6.7	LOS A	3	0.08	0.59	42.9
8	T	11	0.0	0.065	0.1	LOS A	3	0.08	0.01	49.3
9	R	42	0.0	0.065	6.9	LOS A	3	0.08	0.62	42.7
Approach		64	0.0	0.065	5.7	LOS A	3	0.08	0.51	43.8
Site Access										
10	L	14	0.0	0.015	5.4	LOS A	1	0.07	0.54	36.8
11	T	8	0.0	0.015	4.1	LOS A	1	0.07	0.43	37.6
12	R	1	0.0	0.015	5.7	LOS A	1	0.07	0.59	36.6
Approach		23	0.0	0.015	4.9	LOS A	1	0.07	0.50	37.1
All Vehicles		125	0.0	0.065	5.7	Applicable	3	0.08	0.51	42.7

Movement Summary

2019 AM North Street / Fitzgibbon Street/ Site Access

Enter subtitle

Give-way

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
1	L	1	0.0	0.015	7.5	LOS A	1	0.05	0.61	48.4
2	T	7	0.0	0.015	1.3	LOS A	1	0.05	0.14	56.4
3	R	7	0.0	0.015	8.6	LOS A	1	0.05	0.69	47.2
Approach		15	0.0	0.015	5.1	LOS A	1	0.05	0.43	51.2
Fitzgibbon Street										
21	L	3	0.0	0.021	7.4	LOS A	1	0.10	0.60	42.3
22	T	15	0.0	0.021	6.0	LOS A	1	0.10	0.52	43.4
23	R	9	0.0	0.021	6.3	LOS A	1	0.10	0.57	43.2
Approach		27	0.0	0.021	6.2	LOS A	1	0.10	0.55	43.2
North Street north										
7	L	6	0.0	0.014	6.7	LOS A	1	0.09	0.59	42.8
8	T	3	0.0	0.014	0.1	LOS A	1	0.09	0.01	49.2
9	R	7	0.0	0.014	6.9	LOS A	1	0.09	0.62	42.7
Approach		16	0.0	0.014	5.5	LOS A	1	0.09	0.49	43.8
Site Access										
10	L	19	0.0	0.033	5.4	LOS A	1	0.07	0.54	36.8
11	T	34	0.0	0.033	4.1	LOS A	1	0.07	0.43	37.6
12	R	1	0.0	0.033	5.7	LOS A	1	0.07	0.59	36.6
Approach		54	0.0	0.033	4.6	LOS A	1	0.07	0.47	37.3
All Vehicles		112	0.0	0.033	5.2	Applicable	1	0.08	0.49	41.0

Movement Summary

2019 PM North Street / Fitzgibbon Street/ Site Access

Enter subtitle

Give-way

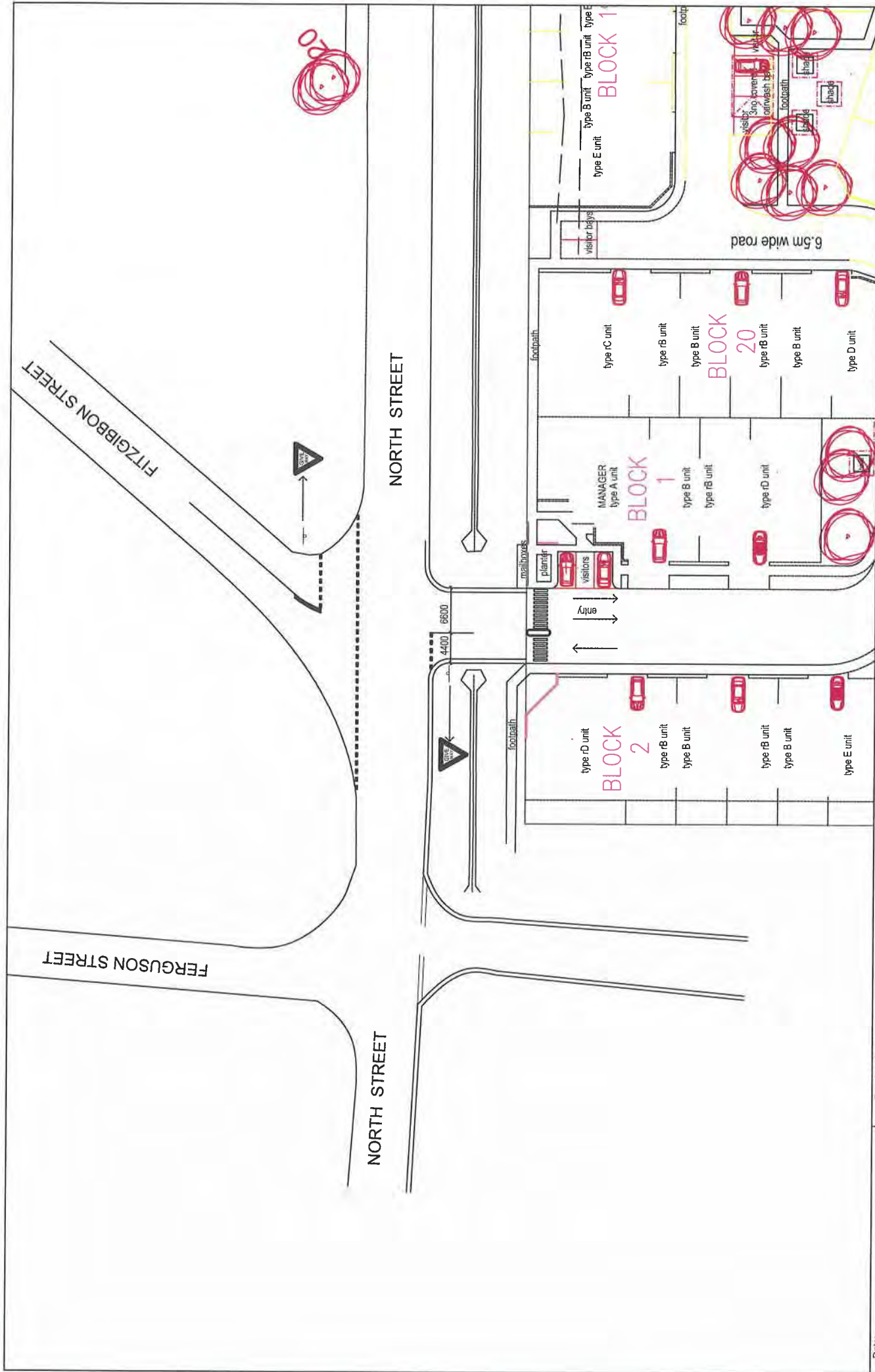
Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (m)	Prop. Queued	Eff. Stop Rate	Aver Speed (km/h)
North Street south										
1	L	1	0.0	0.016	7.6	LOS A	1	0.09	0.58	48.2
2	T	7	0.0	0.016	1.3	LOS A	1	0.09	0.14	55.8
3	R	7	0.0	0.016	8.7	LOS A	1	0.09	0.67	47.0
Approach		15	0.0	0.016	5.2	LOS A	1	0.09	0.42	50.9
Fitzgibbon Street										
21	L	7	0.0	0.031	7.6	LOS A	1	0.14	0.60	42.2
22	T	11	0.0	0.031	6.1	LOS A	1	0.14	0.50	43.3
23	R	16	0.0	0.031	6.4	LOS A	1	0.14	0.56	43.0
Approach		34	0.0	0.031	6.6	LOS A	1	0.14	0.55	42.9
North Street north										
7	L	16	0.0	0.073	6.7	LOS A	3	0.08	0.59	42.9
8	T	16	0.0	0.073	0.1	LOS A	3	0.08	0.01	49.3
9	R	42	0.0	0.073	6.9	LOS A	3	0.08	0.62	42.7
Approach		74	0.0	0.073	5.4	LOS A	3	0.08	0.48	44.0
Site Access										
10	L	14	0.0	0.015	5.4	LOS A	1	0.08	0.53	36.8
11	T	8	0.0	0.015	4.1	LOS A	1	0.08	0.42	37.6
12	R	1	0.0	0.015	5.8	LOS A	1	0.08	0.59	36.5
Approach		23	0.0	0.015	5.0	LOS A	1	0.08	0.50	37.1
All Vehicles		146	0.0	0.073	5.6	Applicable	3	0.09	0.49	43.1

APPENDIX C

PROPOSED SITE ACCESS INTERSECTION CONFIGURATION



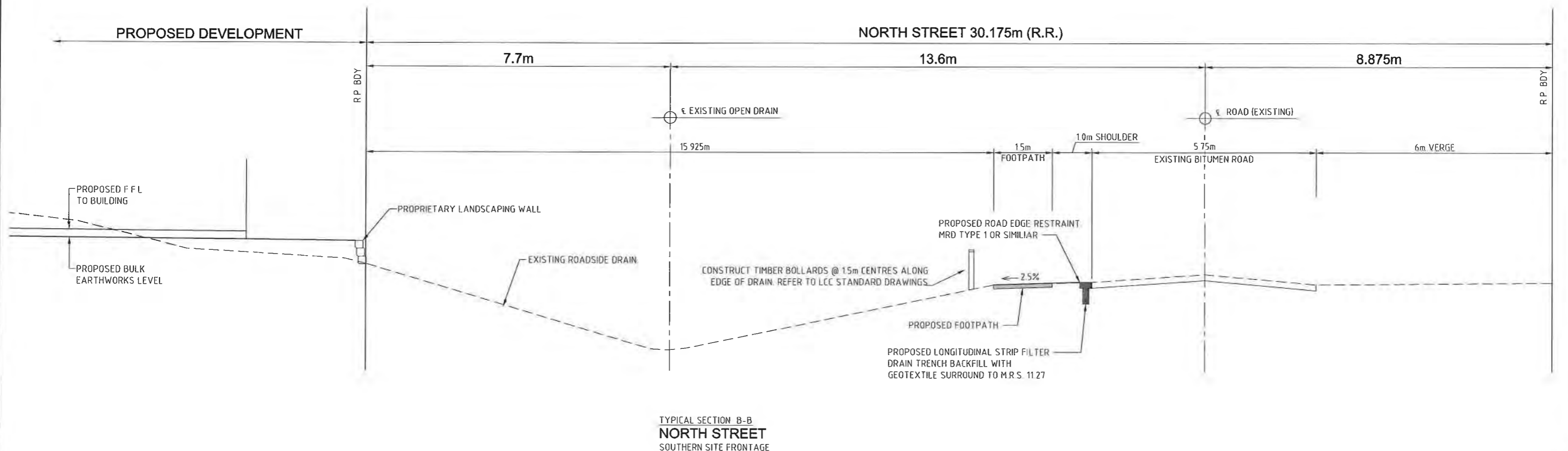
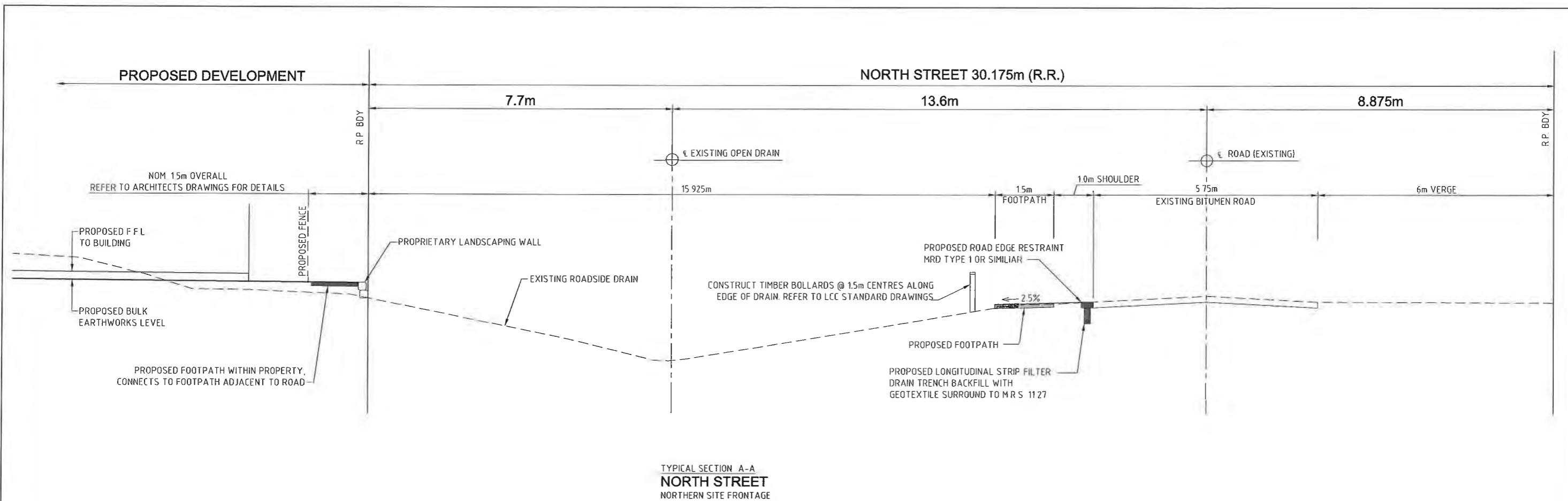


Date:	16/09/09	Drawing Name:	Site Access Intersection Configuration
Project No:	P0524	Project Name:	North Ipswich Townhouses T/A
		BITZIOS CONSULTING	
		Figure No: C.1	

APPENDIX D

NORTH STREET FRONTAGE CROSS SECTION





STATUS		FOR ISSUE	
REV	DESCRIPTION	DRAWN	DATE
B	AMENDMENTS TO EARTHWORKS	H V	25.09.09
A	ORIGINAL ISSUE	N M	16.09.09

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DRAWING IS NOT TO BE SCALED

SCALE (AT ORIGINAL SHEET SIZE)

SCALE 1:150

ORIGINAL SHEET SIZE

A1

CLIENT

LEDA
Developments Pty Ltd

PROJECT

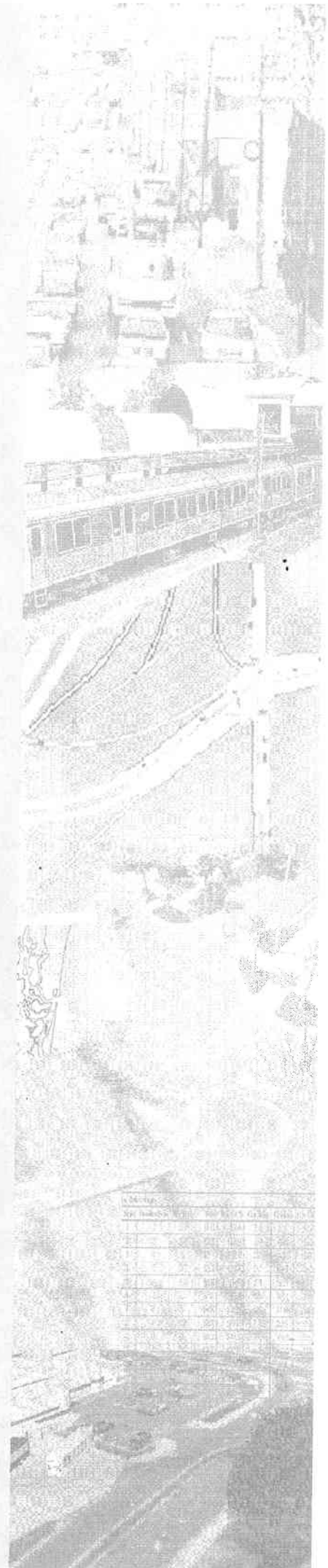
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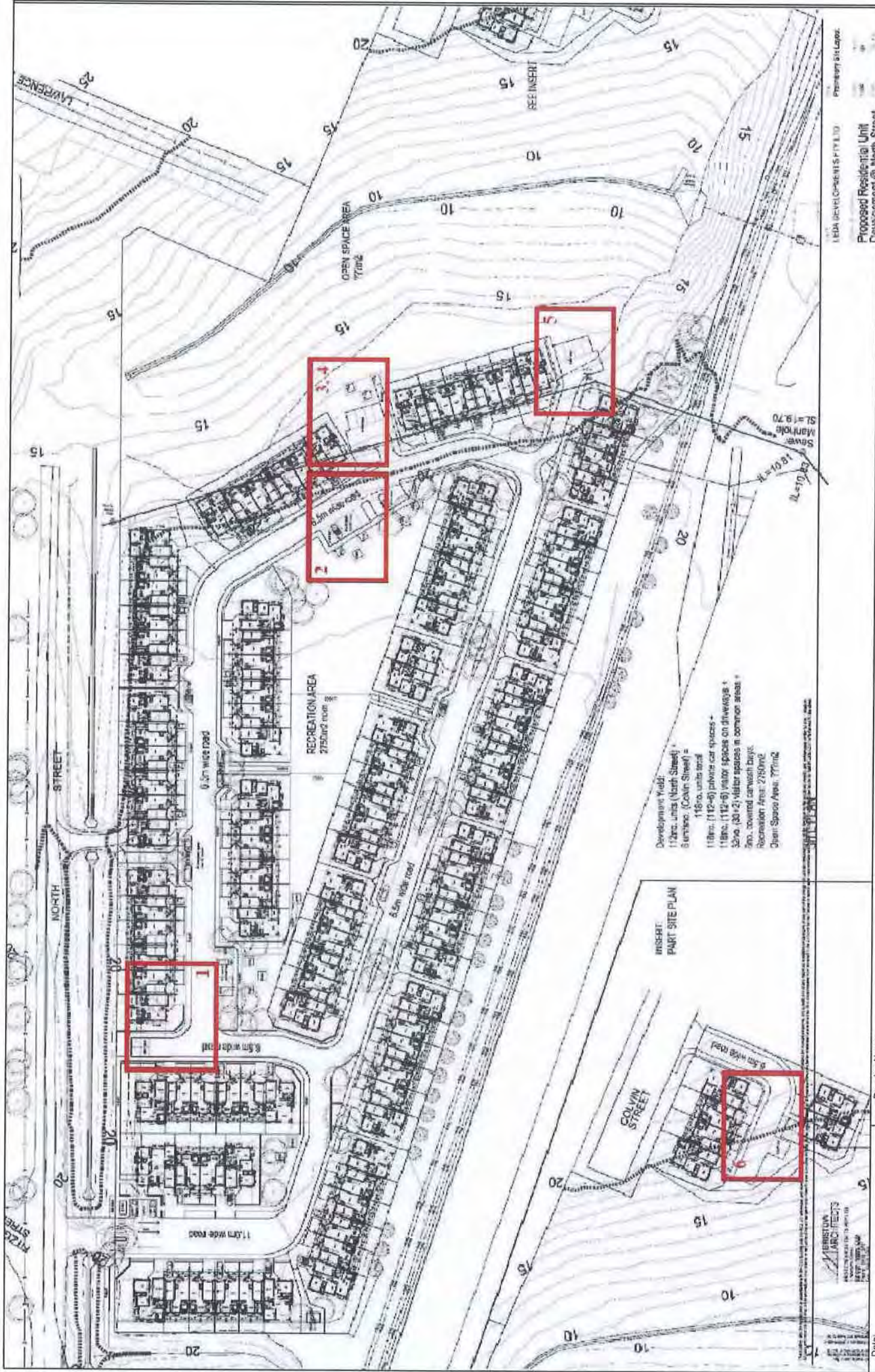
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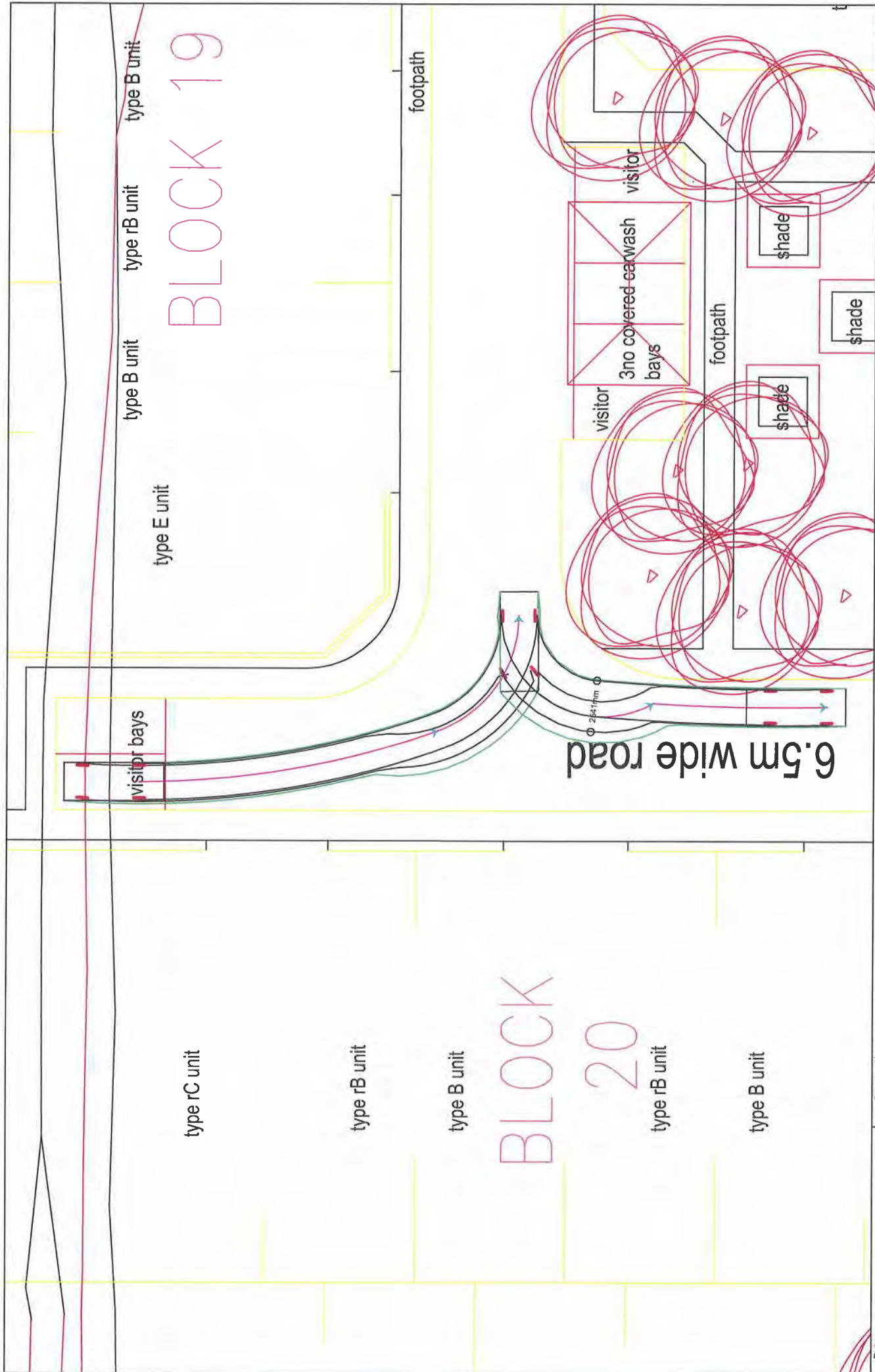
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DESIGN	H V		06.10.09		REVISION		
DRAWN	H V		06.10.09		YC0175-SK09		
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APPENDIX E

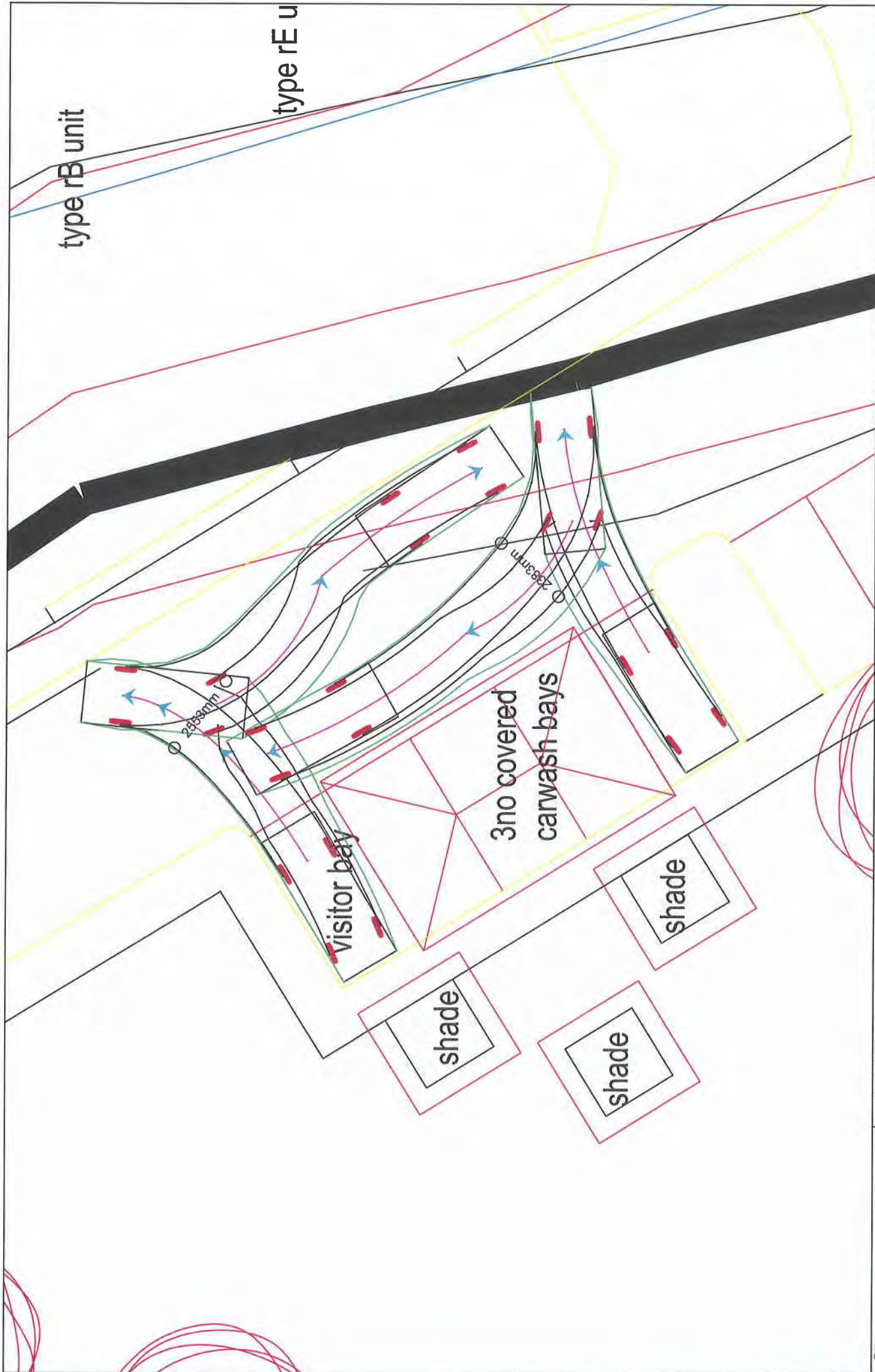
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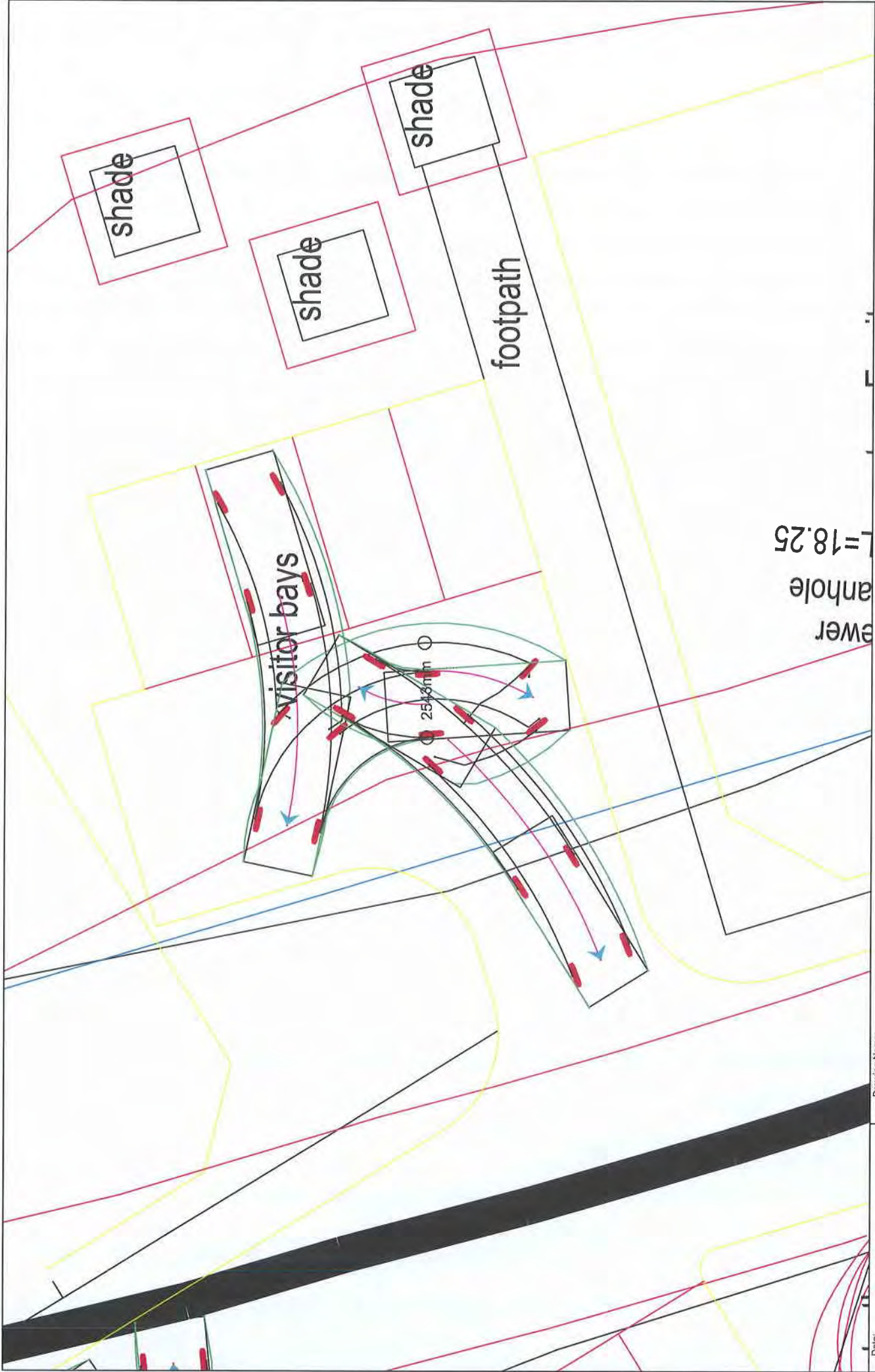




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Project No:	P0524	Project Name:	North Ipswich Townhouses TIA	Figure No: E.2

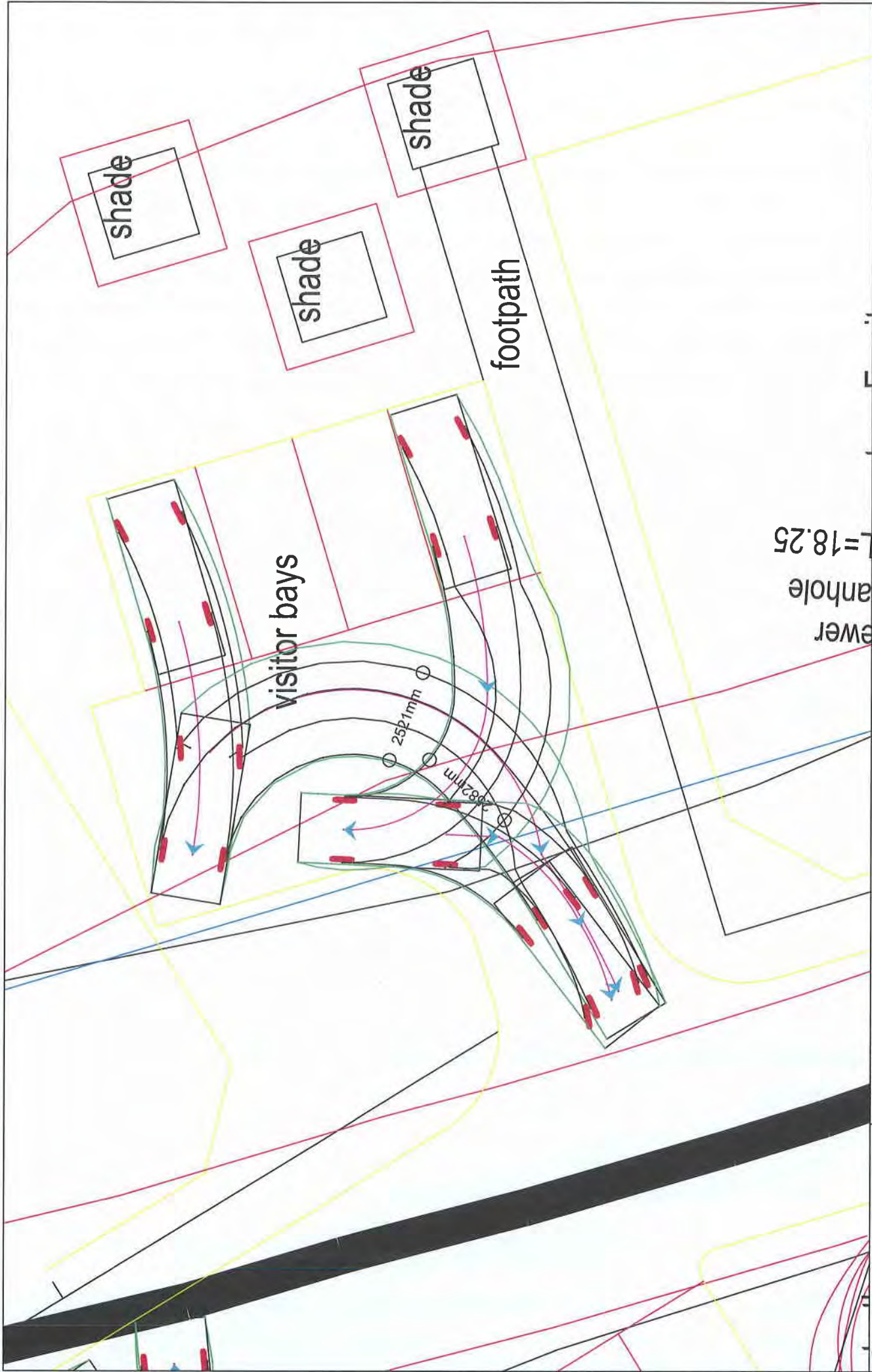


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		Figure No: E.3	



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Date: 16/09/09	Drawing Name: Visitor Bay Swept Path	BITZIOS <small>ARCHITECTS</small>
Project No: P0524	Project Name: North Ipswich Townhouses T/A	Figure No: E.4



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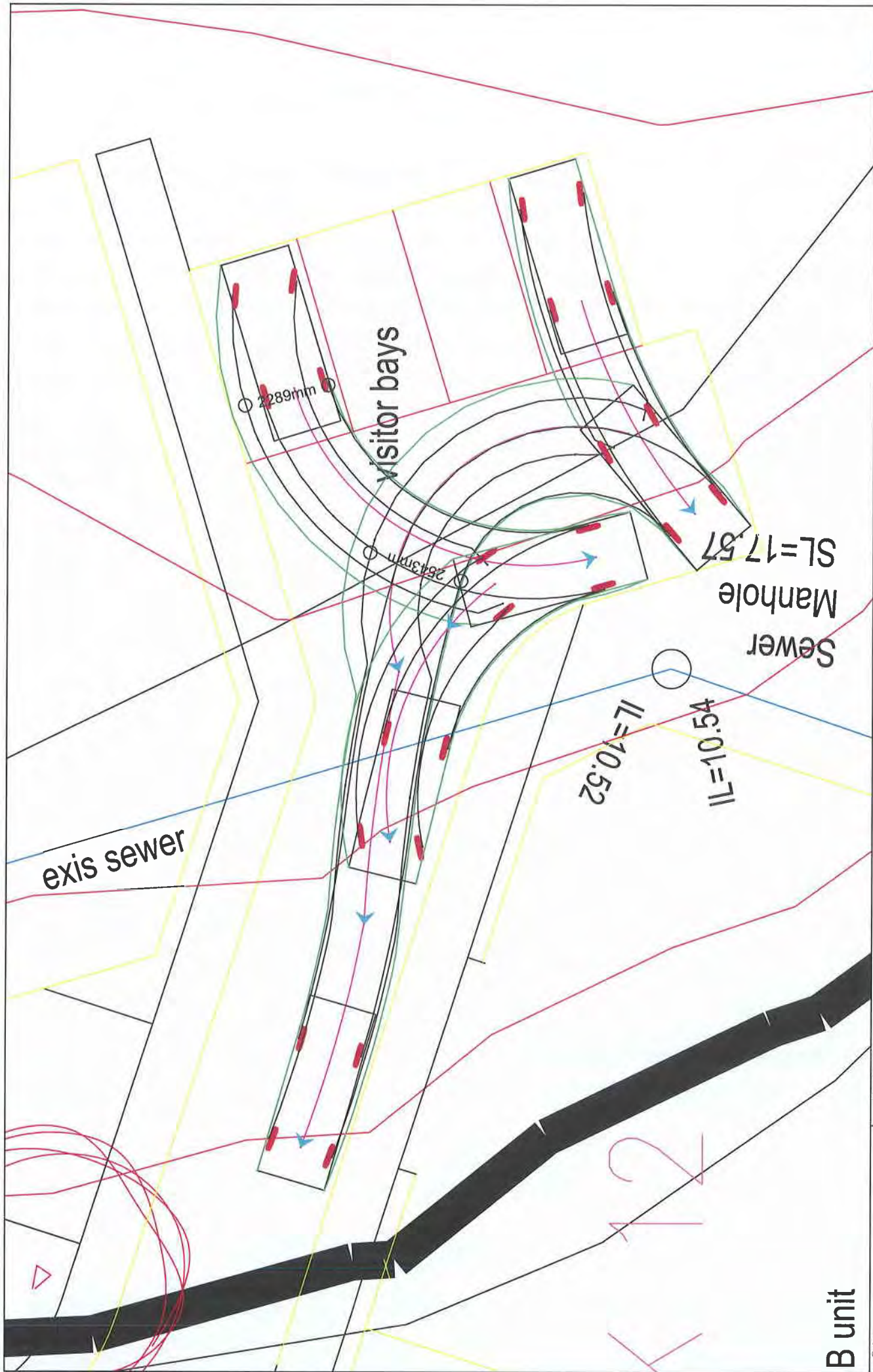
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Project No:

P0524

Project Name:

North Ipswich Townhouses TIA



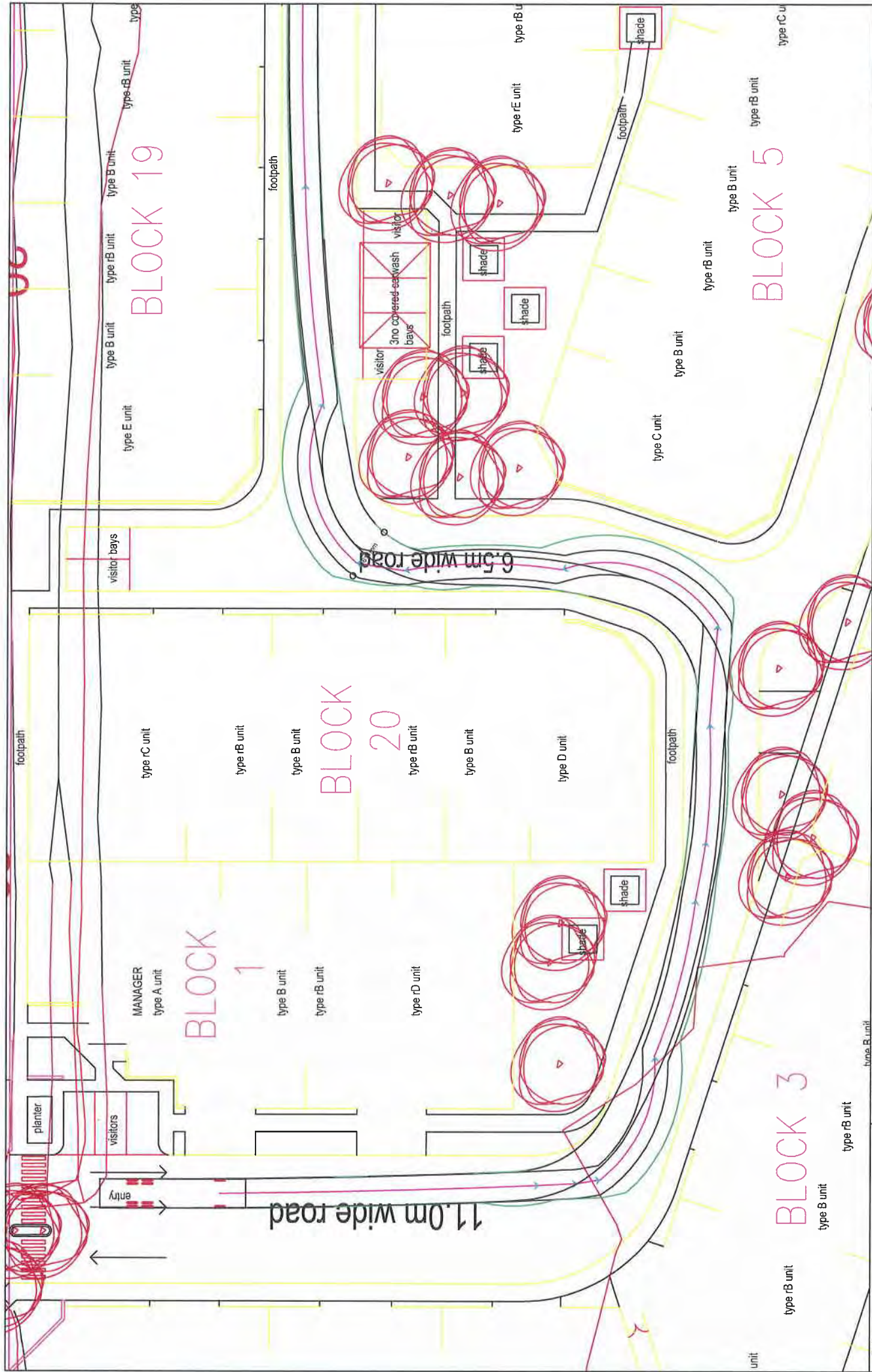
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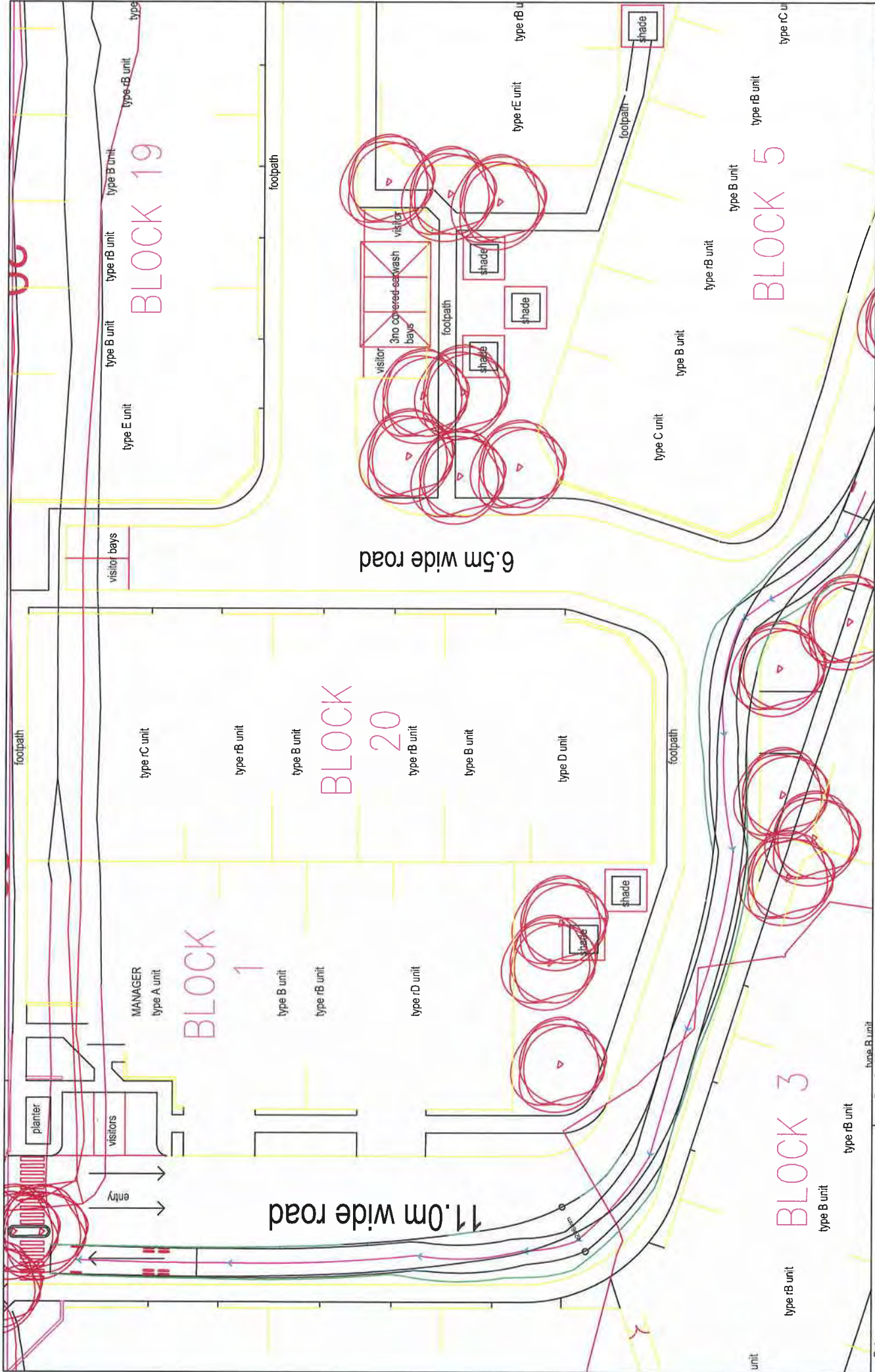
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 Project Name: North Ipswich Townhouses TIA



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Project No:	P0524	Project Name:	North Ipswich Townhouses TIA



BITZIOS <small>CONTRACTORS</small>	Service Vehicle Swept Path
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Project No: P0524	Project Name: North Ipswich Townhouses TIA

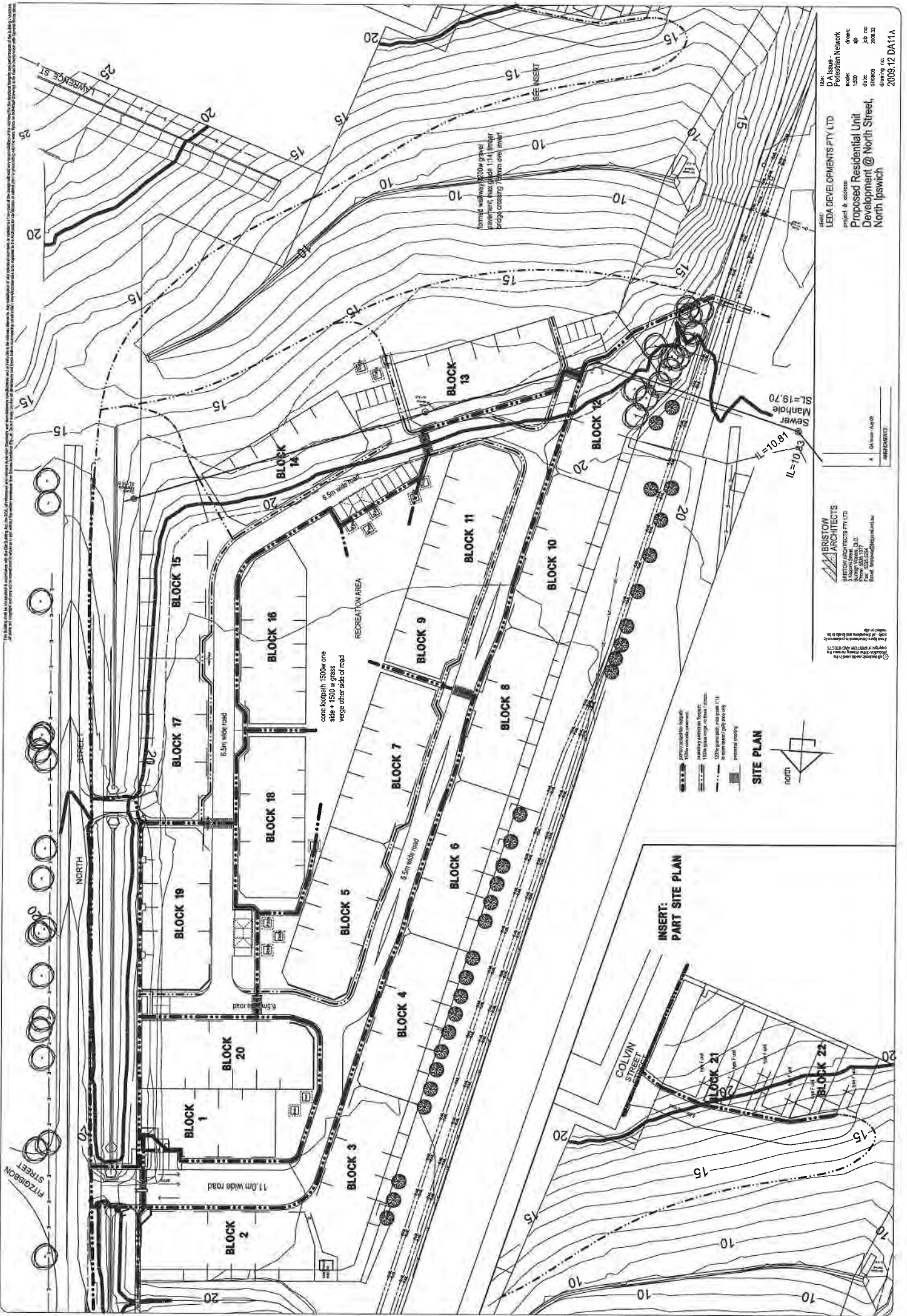


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Project No:	P0524	Project Name:	North Ipswich Townhouses T/A
		Figure No: E.9	

APPENDIX F

PEDESTRIAN NETWORK PLAN





The liability shall be accepted by the contractor and shall be the responsibility of the contractor. The contractor shall be responsible for the design and construction of the development. The contractor shall be responsible for the design and construction of the development. The contractor shall be responsible for the design and construction of the development.

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DRAWN: J. HARRIS
SCALE: 1:500
JOB NO: 2008.02
DATE: 2008.12
JOB NO: 2008.02

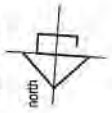
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PROJECT & ADDRESS:
Proposed Residential Unit
Development @ North Street,
North Ipswich

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BRISTOW ARCHITECTS PTY LTD
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Brisbane
Brisbane

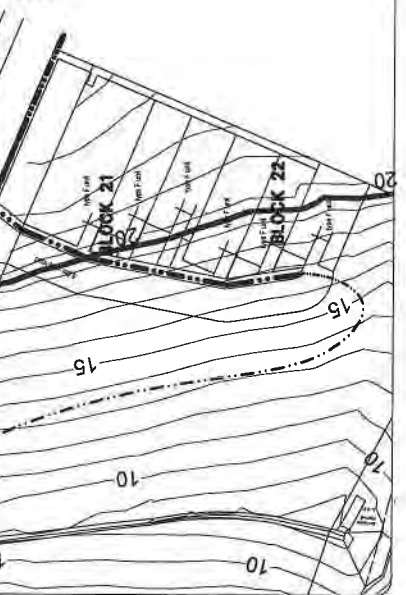
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- 1.0m wide road
- 6.5m wide road
- 8.5m wide road
- concrete path 1500w one side + 1500w grass verge other side of road
- RECREATION AREA
- FORMER WALKWAY 2700w gravel pavement, max grade 1:14, under bridge crossing 700mm over water
- SEE INSERT

SITE PLAN



INSERT: PART SITE PLAN



Appendix 5

Engineering Services Report.

CIVIL

WATER

STRUCTURAL

INFRASTRUCTURE

PROJECT DELIVERY

URBAN DEVELOPMENT



Engineering Services Report

RIVERLINK - NORTH STREET - IPSWICH
Residential Unit Development

LEDA HOLDINGS PTY LTD

OCTOBER 2009

REVISION 01

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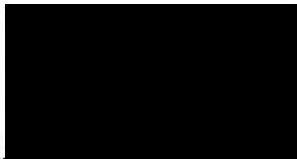
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This document has been reviewed and approved by the following appropriately qualified and experienced Registered Professional Engineer of Queensland (RPEQ)



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1 Introduction

1.1 Background

Yeats Consulting Pty Ltd (Yeats Consulting) has been engaged by Leda Holdings Pty Ltd (Leda) to undertake engineering investigations to provide supporting documentation for the development applications that are to be lodged for the proposed Riverlink Unit Development, North Street, Ipswich. The property included in the proposed development is Lot 55 on SP222487 at the Railway Historical Centre – North Street and Lawrence Street.

The proposed development is shown on Bristow Architects drawings included in Appendix A.

1.2 Scope

This report covers the following civil engineering elements associated with the proposed lot 6 over an area of 9.598Ha including:

- Earthworks and Allotment Gradings;
- Development Access and Roadworks;
- Stormwater Drainage;
- Water Supply; and
- Sewer Reticulation.

1.3 Site Location

The subject site is located at 20A Lawrence Street, Ipswich. The site is bounded by existing Lot 35 on SP175172 to the north, Queensland Rail Corridor to the west.

The northern part of the site fronts North Street along the eastern boundary. The southern part of the site fronts the northern end of Colvin Street.

The site location is shown in figures 1.1 and 1.2 below.

1.3.1 Existing Features and Topography

The majority of the site fronting North Street (the main location of the proposed development) grades gently down to the south (RL21.5m – RL20.0m) before steepening into the localised gully extending through the southern end of the site.

The gully receives runoff from the urban residential catchment (approx. 30ha) to the north east and is generally bounded by North Street to the west, Wyndham Street to the north, Downs Street to the east and Lawrence Street in the South. The gully invert is at approx RL13.0m at the eastern boundary of the site, falling to RL6.6m at the western end of the site, adjacent to the base of the steep railway embankment. Flows are conveyed beneath the railway line and elevated land west of the railway within a 2.5mx2.5m box culvert (approx. 145m in length), discharging into the Bremer River.

The land rises moderately from the base of the gully to the south (15-20% grades), reaching RL24.0m in the vicinity of Colvin Street at the southern corner of the site.

A large grassed swale with a concrete lined invert is located on the western side of North Street, adjacent to the site boundary. The swale flows from north to south and is culverted beneath a number of crossings before discharging into the main gully.



Figure 1.1 Site Location – Street Plan



Figure 1.2 Site Location – Satellite View

1.4 Site Description

The subject site's particulars are listed below:

Table 1.0 Site Descriptors

Street Address:	20A Lawrence Street, Ipswich
Lot and Plan No:	Lot 55 on SP222487
Development Name:	Riverlink – North Street - Ipswich
Local Authority:	Ipswich City Council (ICC)

2 Proposed Development

The proposal is for a townhouse residential development which will include a total of 118 townhouses.

For the purposes of this report, we have broken the site into 2 stages as outlined below:

STAGE 1 of the proposed development consists of the main 'northern' part of the development, located on the relatively flat terrace on the northern side of the gully, comprises a total of 112 units. It is proposed to provide access from North Street in the vicinity of Fitzgibbon Street at the northern end of the site with an internal road network providing access to the individual townhouses.

STAGE 2 consists of the 'southern' part of the development, located on the southern side of the gully and comprises a total of 6 units. It is proposed to provide access from Colvin Street adjacent to the southern boundary of the site, with a single internal road providing access to the individual townhouses.

Refer to Appendix A for the Bristow Architects proposed layout plan for the development.

3 Earthworks and Allotment Gradings

3.1 Design Requirements

Earthworks for the site would be designed generally in accordance with the requirements of the Ipswich City Council development guidelines.

Preliminary geotechnical investigations have been undertaken across the site providing a guide to the treatment of the site before and during the earthworks construction. Refer to the Soil Surveys report 'Geotechnical Investigation – Proposed Riverlink Ipswich Precinct Stage 2, North Ipswich' dated May 2006 and the Morrison Geotechnic report 'Geotechnical Analysis and Recommendations – Waste Disposal Cells, Site 1' dated December 2007 for further details.

For general site earthworks:

Level differences across the site would be accommodated at lot boundaries, road reserves and open space areas. Any building platforms resulting from cut / fill operations would comply with standard grading requirements for free drainage of allotments to the street at an absolute minimum slope of 1 in 150.

For retaining structures:

Retaining structures shall be designed in accordance with the relevant Australia Standard (i.e. AS4678).

Drainage at the retaining structure base may drain / discharge to the rear of allotment drainage system, to the street drainage system, or to other legal points of discharge.

Retaining structures shall not encroach onto any adjoining property or road reserve.

3.2 Contaminated Land

The proposed development site is currently underlain with significant quantities of contaminated material. The GHD report 'Site Contamination Assessment, North Ipswich Rail Yards and Workshops' dated May 1996 has been used to define the extent and makeup of this contaminated material. Refer to the GeoEnvironmental Consultants 'Remediation Plan' dated 1 October 2009, which provides a strategy to manage the contaminated soils being excavated and moved during the site redevelopment works.

Contaminated material depths typically range between 0.0m to 1.0m across the majority of the site however isolated pockets of material to depths of up to 3.5m have been encountered. Refer to Yeats Bulk Earthworks drawings– Contaminated Land Removal Layout Plan, Drawing YC0175-BE02 for further details.

It is proposed to remove all contaminated material from beneath the proposed development site, with disposal at approved locations within the wider site as required.

Preliminary assessment shows a total of between 11,000 and 32,660m³ of contaminated material to be relocated from the site – subject to further onsite validation works to be completed during the bulk earthworks phase.

3.3 Proposed Works

3.3.1 Stage 1 – North Street Site

The key element for the proposed earthworks for the Stage 1 site is the excavation and removal of the contaminated soils as outlined above. After the removal of the contaminated soil, imported fill is required to lift finished ground levels generally back to pre-development levels, tying into the existing ground levels surrounding the site (particularly the existing 3.5m wide electrical easement bounding the subject site to the west of the proposed development), provide positive drainage towards the main gully in the south and elevate building pads above flood levels.

Minor earthworks are proposed to the central drainage gully and typically involve reshaping of the batters to achieve maximum 1:6 grades within the drainage reserve to be vested to Council (Note: ICC Council require maximum 1:6 slopes within drainage reserves to enable maintenance).

Details of the preliminary earthworks volumes are shown below:

Table 3.2 Earthworks Volumes

Detail	Volume (m ³)
Stage 1 – North Street Site	
Cut – Contaminated Material	32,660
TOTAL Fill Required	27,590
Cut to Fill	7,523
Fill (Imported)	20,067

3.3.2 Stage 2 – Colvin Street Site

Earthworks on the Colvin Street site involve benching of the slope to achieve a generally level platform to accommodate the proposed building pads and access road. The preliminary bulk earthworks plans for the 'southern site' show temporary batter slopes (cut and fill) of 1V:2H, however it is envisioned that a number of retaining walls will be provided during the detailed design phase.

3.4 Sediment and Erosion Controls

Sediment and erosion control measures will be developed and implemented in accordance with the I.E. Australia's Sediment and Erosion Control Guidelines. Prior to construction commencing sediment and erosion control measures will be implemented to minimise disturbance and ensure water quality is maintained.

4 Roadworks

4.1 Existing Infrastructure

The development site fronts North Street to the east, which terminates at the northern edge of the main gully. Both Lawrence Street and Colvin Street border the site on the southern side of the gully, both terminating at the site boundary.

The existing site is generally accessed from North Street via 2 rural type accesses with 5m wide gravel pavements and culvert crossings over the North Street swale drain.

North Street is currently a 30.0m wide road reserve including a 6.0m wide pavement with no kerb and channel and a 2.0m wide swale which runs parallel to North Street on the western side of the road.

The southern end of the site is accessed via Colvin Street. Colvin Street currently exists as an informal one-way single lane street extending from Lennon Lane to the North. Colvin Street road reserve is 20.0m wide.

4.2 Design Requirements

The design of the internal road network and access driveway crossovers for the proposed development will be in accordance with the requirements of Ipswich City Council's Development Guidelines, Queensland Streets and the Australian Off-Street Car Parking Code (ASNZS 2890.1:2004).

4.3 Proposed external Roadworks

4.3.1 Stage 1 – North Street Site

Works to upgrade the North Street frontage are proposed along the length of the development. Proposed works involve the following:

- Construction of concrete edge strip to formalise the existing bitumen surface
- Concrete footpaths constructed between the open drain and the existing sealed road.

Refer to the Appendix C for the preliminary design of the North Street Upgrades and proposed external footpath network.

Access to the site from North Street is to be located at the northern end of the development opposite Fitzgibbon Street. A combined pedestrian and emergency vehicle access is to be provided at the existing southern crossing over the North Street swale. Extensions to the existing culverts will be required to accommodate the proposed accesses.

4.4 Stage 2 – Colvin Street Site

To provide suitable access to the Colvin Street site, the following upgrades are proposed to Colvin Street:

- Construction of a two way, 6.5m wide road with cul-de-sac head.
- One-way link to Lennon Lane
- One-way cross fall with kerb and channel and piped drainage discharging into the central gully to the North.

Refer to Yeats Bulk Earthworks drawing YC1075-BE22 for preliminary design details.

4.5 External Footpaths

Public footpaths are also proposed within the central drainage reserve, one linking North Street with the railway line to the west and another linking North Street to Colvin Street via Lawrence Street.

Proposed works involve the following:

- 1.5m wide concrete footpath
- Grade to be a maximum of 1:20 (5%) including provision of landings in accordance with AS1428.1-2001
- Footpath to have maximum 2.5% crossfall
- Footpath connection to rail crossing to be subject to Queensland Rail approvals and generally in accordance with their email dated 23 June 2009 (See Appendix E). Details of the Rail Crossing shall be provided by Queensland Rail.

4.6 Proposed Internal Roadworks

4.6.1 Stage 1 – North Street Site

The proposed internal road layout provides a two way loop road with one access / crossover point to North Street at the northern end of the site. This loop road provides direct access to the proposed unit development.

Preliminary design of the road network shows an 11.0m wide sealed entry road, with the proposed loop road 6.5m in width.

An inverted crown design is proposed for the internal loop road between the proposed units, with centre drainage points. This would eliminate the need for kerb and channel.

4.6.2 Stage 2 – Colvin Street Site

To provide access to the proposed 6 unit development from Colvin Street, a two way, 6.0m wide access road is proposed, a total length of approximately 76.0m. Refer to Yeats drawings YC1075-BE22 – BE24 for further details.

5 Stormwater Drainage

5.1 Existing Infrastructure

There is no stormwater infrastructure currently located within the site or within the North Street. North Street currently drains to a road swale fronting the subject site. The large grassed swale with concrete lined invert flows from north to south and is culverted beneath 2 crossings before discharging into the main gully adjacent to the eastern boundary.

A 1200mm diameter outlet currently discharges to the head of the main gully in the vicinity of the eastern site boundary. The gully flows to the southwest, entering a 2.5m diameter culvert conveying flows beneath the railway line.

5.2 Design Requirements

The site drainage design would be designed in accordance with both the requirements of the Ipswich City Council development guidelines and the Queensland Urban Drainage Manual.

5.3 Proposed Works

A Site Based Stormwater Management Plan has been prepared for the proposed unit development. The report addresses both stormwater quantity and quality issues and provides details of how these elements are to be managed.

6 Sewerage

6.1 Design Requirements

The proposed sewerage reticulation system shall be designed in accordance with Ipswich City Council guidelines and WSAA's Sewer Code.

6.2 Existing Infrastructure

6.2.1 Stage 1 – North Street Site

An existing 300mm diameter Council trunk main currently traverses through the southern part of the site. The main is significantly deep, approximately 7.0-8.0m below the existing ground levels. The trunk main is live, servicing the Railway Museum and the Queensland Rail Workshops to the North.

The trunk main comprises two manholes within the site boundary (SMH-02, SMH-03), with a third (SMH-04) located just outside the eastern boundary, within the western verge of North Street adjacent to the southern end. Details of the manholes are provided in Table 6.1 below.

Table 6.1 300mm Diameter Trunk Main – Manhole Details (Stage 1 – North Street Site)

Manhole ID	Surface Level (mAHD)	Invert Level (mAHD)	Depth (m)
SSMH-02	17.57	10.52	7.05
SSMH-03	18.25	10.38	7.87
SSMH-04	16.80	10.03*	6.77

**Levels taken from Ipswich City Council Infrastructure records – Surface levels from terrain model (vertical accuracy 0.50m), Invert levels derived from historic maps) All others from Michel Group Services Level and Feature Survey (Copy attached in Appendix B).*

As-constructed information received from Council shows the 300mm trunk main extending from SMH-04 towards the north-east (manhole located within Telegraph Lane).

Refer to the Services Plan in Appendix B for further details.

6.2.2 Stage 2 – Colvin Street Site

As-constructed information received from Council indicates an existing 150 mm diameter gravity sewer line traversing through the southern corner of the site in a north-east direction.

A single manhole is located within the site in the vicinity of the proposed development (SMH-06). Details of this manhole and the manholes both upstream and downstream are provided in Table 6.2 below

Table 6.2 150mm Diameter Main – Manhole Details (Stage 2 – Colvin Street Site)

Manhole ID	Surface Level (mAHD)	Invert Level (mAHD)	Depth (m)
SSMH-05	22.98	20.43	2.55
SSMH-06	19.40*	Not Found	Not Found
SSMH-07	18.98	17.67	1.31

**Levels taken from Ipswich City Council Infrastructure records – Surface levels from terrain model (vertical accuracy 0.50m), Invert levels derived from historic maps) All others from Michel Group Services Level and Feature Survey (Copy attached in Appendix B).*

6.3 Proposed Demand

Sewerage loading factors have been taken from the Ipswich Planning Scheme, Planning Scheme Policy 3 – General Works, with these factors used to determine the loading rates from the proposed development.

6.3.1 Stage 1 – North Street Site

Table 6.1 summarises the sewerage load parameters.

Table 6.3 North Street Site Sewerage Loads

Parameter	Adopted Value
Area of land	3.2 hectares
Development Type	Multiple Residential 2 Bed – 1.5 EP/dwelling 3 Bed – 1.75 EP/dwelling
No. of Lots/Dwellings	39-2 bed units 73-3 bed units (112 Units Total)
Equivalent Persons	186.25 EP
Average Dry Weather Flow	230 L/EP/day
Average Dry Weather Flow (ADWF)	42.84 kL/day or 0.50 L/s
Peak Wet Weather Flow (PWWF)	5 x ADWF = 214.20 kL/day or 2.48 L/s

The minimum gravity pipe required to service the North Street Site is a 150mm diameter pipe, which at the minimum grade of 1 in 200 has a capacity of 5.38 L/s (Equivalent Population Served = 404 EP). The existing 300mm line downstream from the site, assuming minimum grades of 1 in 420 would have a capacity of 43.03 L/s (Equivalent Population Served = 3233 EP)

6.3.2 Stage 2 - Colvin Street Site

Table 6.2 summarises the sewerage load parameters.

Table 6.4 Colvin Street Site Sewerage Loads

Parameter	Adopted Value
Area of land	0.24 hectares
Development Type	Multiple Residential 2 Bed – 1.5 EP/dwelling 3 Bed – 1.75 EP/dwelling
No. of Lots/Dwellings	4-2 bed units 2-3 bed units (6 Units Total)
Equivalent Persons	9.5 EP
Average Dry Weather Flow	230 L/EP/day

Average Dry Weather Flow (ADWF)	2.20 kL/day or 0.025 L/s
Peak Wet Weather Flow (PWWF)	5 x ADWF = 10.93 kL/day or 0.126 L/s

The minimum gravity pipe required to service the Colvin Street Site is a 150mm diameter pipe, which at the minimum grade of 1 in 200 has a capacity of 5.38 L/s (Equivalent Population Served = 404 EP).

6.4 Proposed Works

The internal sewer reticulation will be designed and documented by the project hydraulic engineer and will be submitted in a subsequent plumbing and drainage application.

6.4.1 Stage 1 – North Street Site

It is proposed to provide a connection to the Council system at the existing manhole (SSMH-04) located within the North Street verge adjacent to the eastern boundary of the site. The approximate invert level of this connection point is IL10.03 mAHD. This proposed connection will require preliminary approval from Council however given the reduced loading on the line from the reduced railway operations (now railway museum) upstream; the existing 300mm line is believed to have sufficient capacity to take the flows from the developed site.

The proposed development layout shows building pads located over the existing 300mm sewer line. The preferred solution involves building over the line, leaving the pipe work and existing manholes in-place. Based on geotechnical advice and our structural assessment - given the depth of the existing line (generally 8.0-9.0m below the proposed pad levels), strength of in-situ soils and the nature of the additional loads created at depth - the structural integrity of the existing pipe will not be compromised.

6.4.2 Stage 2 – Colvin Street Site

It is proposed to intercept the existing 150mm sewer main adjacent to the southern boundary of the site, realigning the sewer east around the boundary of the proposed Stage 2 development, connecting back into the existing main to the north (Refer to the Services Plan in Appendix B for indicative layout details).

This proposed connection will require preliminary approval from Council however given the small increases in flows from the proposed 6 unit development (PWWF = 0.126l/s), capacity of the downstream network is believed to be adequate.

Assessment of the proposed development design levels show that a gravity connection from the 6 unit development to the sewer main in Colvin Street will be possible however the location of the connection point will depend on the existing invert level within SSMH-06 (currently buried and levels unknown). A connection point further downstream may be required to provide additional fall to enable the gravity connection from the 6 unit development – to be determined during detailed design.

7 Water Supply

7.1 Existing Infrastructure

Infrastructure records received from Council show an existing 100mm diameter water main located within the eastern verge of North Street, extending the full length of the 'northern' site from Telegraph Street to the south. A series of 100mm diameter mains is also located on the southern side of Lawrence Street which links to a 300mm diameter main located on the western side of Downs Street.

Infrastructure records also show a 100mm main within the eastern verge of Colvin Street, extending north to Canning Street. A 150mm water main is located on the northern side of Canning Street, with a 100mm main on the southern side.

Refer to Appendix D for Council Water Infrastructure records in the vicinity of the site.

7.2 Proposed Demand

Potable water demand factors have been taken from the Ipswich Planning Scheme, Planning Scheme Policy 3 – General Works, with these factors used to determine the consumption rates for the proposed development.

7.2.1 Stage 1 – North Street Site

Table 7.1 Potable Water Demand Factors and Consumption Rates

Parameter	Adopted Value
Area of land	3.2 hectares
Development Type	Multiple Residential 2 Bed – 1.5 EP/dwelling 3 Bed – 1.75 EP/dwelling
No. of Lots/Dwellings	39-2 bed units 73-3 bed units (112 Units Total)
Equivalent Persons	186.25 EP
Average Day Demand (AD)	320 L/EP/Day
Unaccounted for Water (UFW)	50 L/EP/day
Average Day Flow (AD)	$AD \times EP + UFW = \mathbf{68.91 \text{ kL/day}}$
Mean Day Maximum Month (MDMM)	$1.5 \times AD + UFW = \mathbf{98.71 \text{ kL/day}}$
Maximum Day (MD)	$2.0 \times AD + UFW = \mathbf{128.51 \text{ kL/day}}$
Maximum Hour (MH)	$53.3 \text{ L/EP/hour} = \mathbf{9.93 \text{ kL/hour or } 2.76 \text{ L/s}}$

The water infrastructure to the Stage 1 Development Area will need to be of sufficient size to cater for the maximum hour demand of 2.76 L/s plus the fire flow demand of 15 L/s. Based on this total flow of 17.76 L/s and a maximum velocity of 2.5 m/s, the pipe to service the development would require a minimum internal diameter of 95 mm. It is proposed to provide a 100mm diameter water main to service all of the facilities within the proposed development.

7.2.2 Stage 2 – Colvin Street Site

Table 7.2 Potable Water Demand Factors and Consumption Rates

Parameter	Adopted Value
Area of land	0.24 hectares
Development Type	Multiple Residential 2 Bed – 1.5 EP/dwelling 3 Bed – 1.75 EP/dwelling
No. of Lots/Dwellings	4-2 bed units 2-3 bed units (6 Units Total)
Equivalent Persons	9.5 EP
Average Day Demand (AD)	320 L/EP/Day
Unaccounted for Water (UFW)	50 L/EP/day
Average Day Flow (AD)	$AD \times EP + UFW = 3.52 \text{ kL/day}$
Mean Day Maximum Month (MDMM)	$1.5 \times AD + UFW = 5.04 \text{ kL/day}$
Maximum Day (MD)	$2.0 \times AD + UFW = 6.56 \text{ kL/day}$
Maximum Hour (MH)	$53.3 \text{ L/EP/hour} = 0.51 \text{ kL/hour or } 0.14 \text{ L/s}$

The water infrastructure to the Stage 1 Development Area will need to be of sufficient size to cater for the maximum hour demand of 0.14 L/s plus the fire flow demand of 15 L/s. Based on this total flow of 15.14 L/s and a maximum velocity of 2.5 m/s, the pipe to service the development would require a minimum internal diameter of 90 mm. It is proposed to provide a 100mm diameter water main to service all of the units within the proposed development.

7.3 Proposed Works

The proposed water reticulation system would be designed in accordance with the guidelines for Council, and WSAA's Water Code.

A network analysis may be required to model pressures and flow rates within the development to demonstrate that Council's required levels of service can be provided to the development. This analysis will be prepared by either Council or the Civil Engineering Consultant, after obtaining flow and pressure test results.

7.3.1 Stage 1 – North Street Site

Subject to consultation with Council and detailed modelling of the water network, it is believed that to adequately service the North Street Site, provision of a new connection to the 300mm main on the western side of Downs Street will be required.

Indicatively a 100mm diameter water supply network to the existing 300mm diameter trunk water main is proposed, potentially extending east within Lawrence Street to Downs Street some 160m from the site boundary. In accordance with Council guidelines, where the water reticulation network is serving in excess of 20 lots, the site shall be served from two directions and not be in the form of a single dead end supply.

Additional hydraulic modelling will be required at detailed design stage of the North Street Site to firm up all internal and external potable water pipe sizes.

7.3.2 **Stage 2 – Colvin Street Site**

It is proposed to connect a 100mm diameter water supply network for the Stage 2 Colvin Street site to the existing 150mm diameter trunk water main that is located at the intersection of Colvin Street and Canning Street.

8 Conclusion

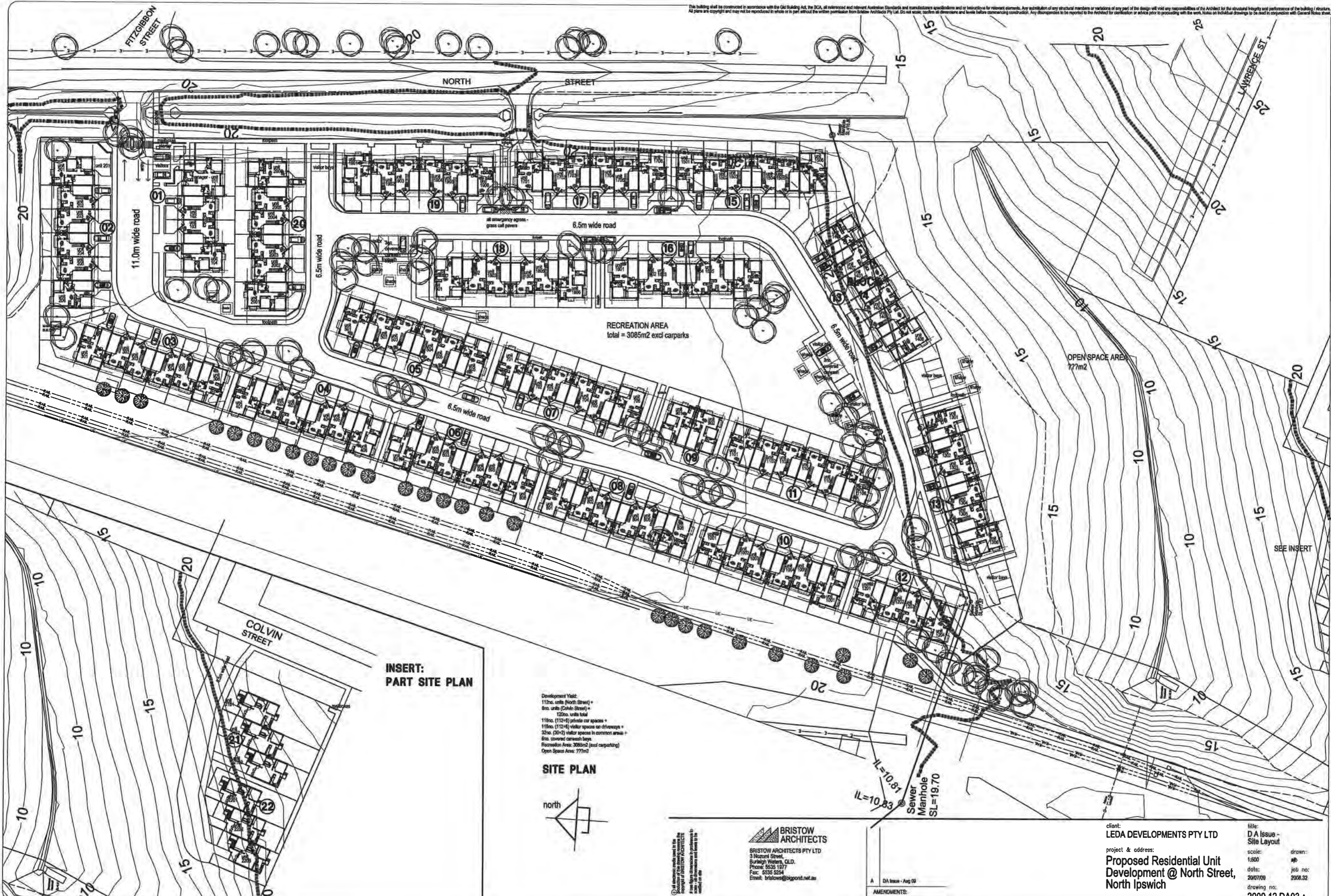
Preliminary analysis of the proposed Earthworks, Roadworks, Stormwater Drainage, Sewer and Water Reticulation, and connections to the Council infrastructure, appears to provide security of servicing for the proposed development to proceed.

Based on our experience and the information gathered and examined, Yeats Consulting Pty Ltd does not anticipate any major issues that would impede development of the site.



Appendix A
Development Layout Plan

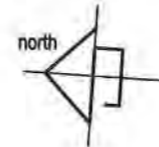
This building shall be constructed in accordance with the Qld Building Act, the BCA, all referenced and relevant Australian Standards and manufacturers specifications and or instructions for relevant elements. Any substitution of any structural members or variations of any part of the design will void any responsibility of the Architect for the structural integrity and performance of the building / structure. All plans are copyright and may not be reproduced in whole or in part without the written permission from Bristow Architects Pty Ltd. Do not scale, transfer all dimensions and levels before commencing construction. Any discrepancies to be reported to the Architect for clarification or advice prior to proceeding with the work. Notes on individual drawings to be read in conjunction with General Notes sheet.



**INSERT:
PART SITE PLAN**

Development Yield:
 112no. units (North Street) +
 6no. units (Colvin Street) =
 120no. units total
 118no. (112+6) private car spaces +
 115no. (110+5) visitor spaces on driveways +
 32no. (20+12) visitor spaces in common areas +
 6no. covered carwash bays
 Recreation Area: 3085m2 (excl carparks)
 Open Space Area: 777m2

SITE PLAN



BRISTOW ARCHITECTS
 BRISTOW ARCHITECTS PTY LTD
 3 Nazart Street,
 Burleigh Waters, QLD,
 Phone: 5535 1977
 Fax: 5535 5254
 Email: brislowe@bigpond.net.au

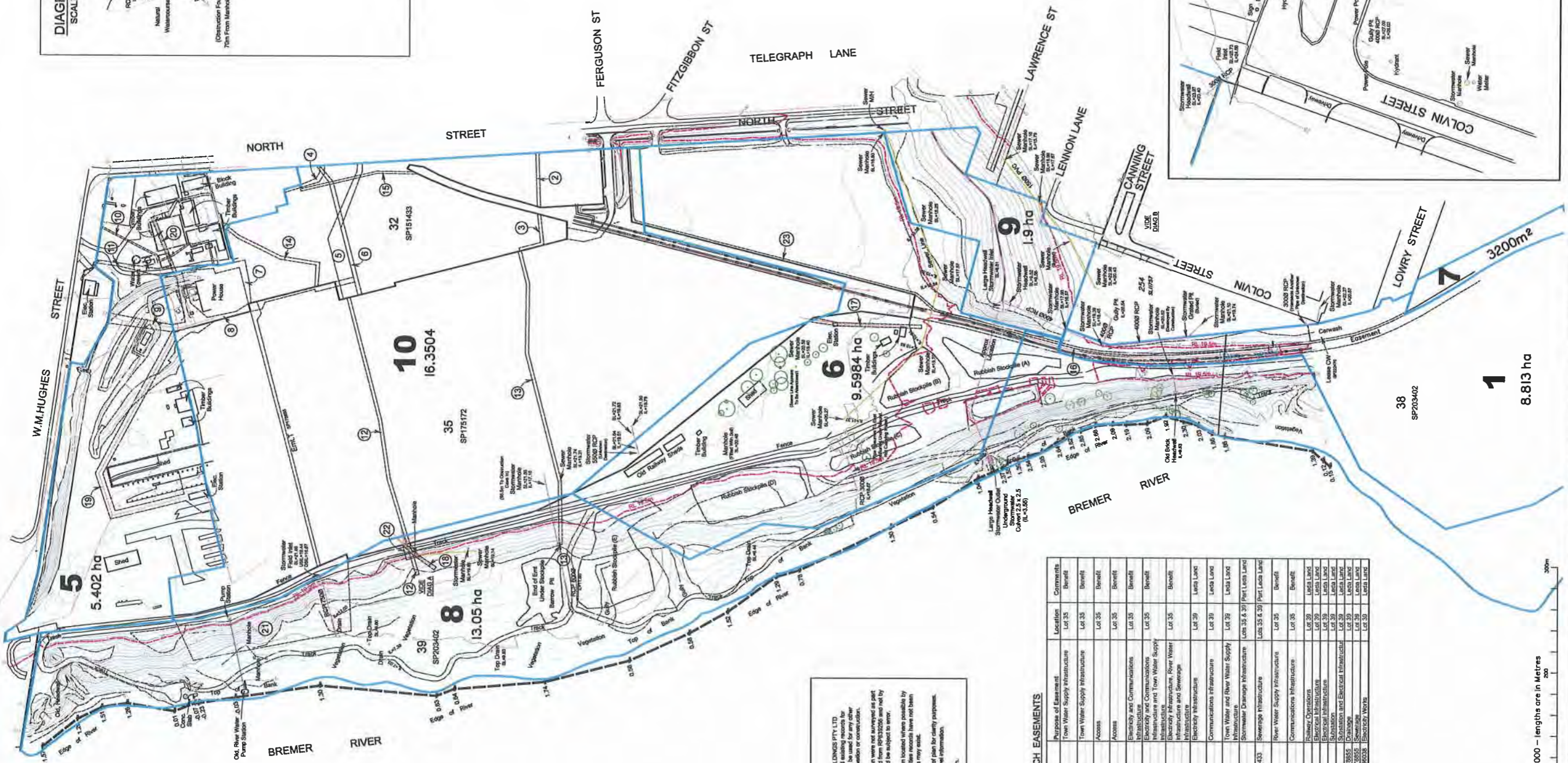
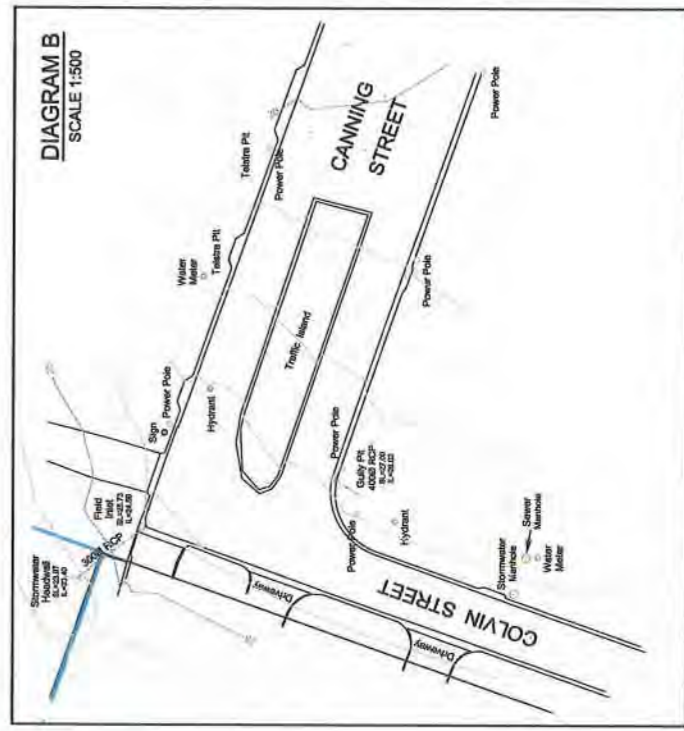
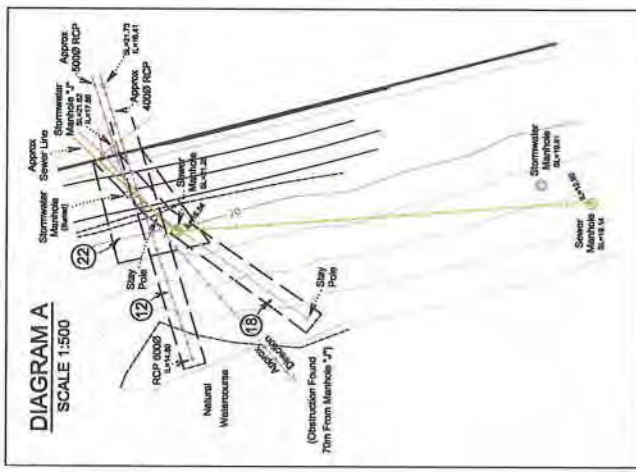
A DA Issue - Aug 09
 AMENDMENTS:

client: LEDA DEVELOPMENTS PTY LTD
 project & address:
**Proposed Residential Unit
 Development @ North Street,
 North Ipswich**
 title: D A Issue -
 Site Layout
 scale: 1:500
 date: 2007/09
 drawing no.: 2008.02
 drawn: [signature]
 job no.: 2008.02
 drawing no.: 2009.12 DA03 A

Appendix B

Existing Services

- Michel Group Services Survey Plan – Ref 8742-11 F
- Yeats Consulting Engineers – Existing Services Plan – YC0175-SK01 A



IMPORTANT NOTE

This plan was prepared by LEDA HOLDINGS PTY LTD for the purpose of DESIGN and is not to be used for any other purpose, particularly demolition, excavation or construction.

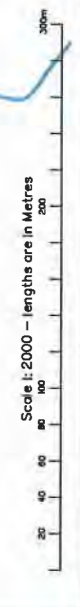
The site boundaries shown on this plan were not surveyed or set out by LEDA HOLDINGS PTY LTD. The boundaries shown on this plan have been obtained from the cadastral records of the Department of Natural Resources and Environment and are not to be used for any other purpose. The boundaries shown on this plan have been obtained from the cadastral records of the Department of Natural Resources and Environment and are not to be used for any other purpose.

Survey levels not shown on the base of plan for clarity purposes. Please refer to topographic maps for all level information.

This note is an integral part of this plan.

IPSWICH EASEMENTS

No.	Description	Purpose of Easement	Location	Comments
2	Easement B in Lot 32 on SP151433	Town Water Supply Infrastructure	Lot 35	Benefit
3	Easement D in Lot 32 on SP151433	Town Water Supply Infrastructure	Lot 35	Benefit
4	Easement E in Lot 32 on SP151433	Access	Lot 35	Benefit
5	Easement F in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
6	Easement G in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
7	Easement H in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
8	Easement I in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
9	Easement J in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
10	Easement K in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
11	Easement L in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
12	Easement M in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
13	Easement N in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
14	Easement O in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
15	Easement P in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
16	Easement Q in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
17	Easement R in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
18	Easement S in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
19	Easement T in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
20	Easement U in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
21	Easement V in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
22	Easement W in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit
23	Easement X in Lot 32 on SP151433	Electricity and Communications Infrastructure	Lot 35	Benefit



Client: LEDA DEVELOPMENTS PTY LTD

Title: Plan of Overall Level & Feature Survey of Railway Area & Adjoining Surrounds Ipswich Riverlink Central

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County of: Stanley

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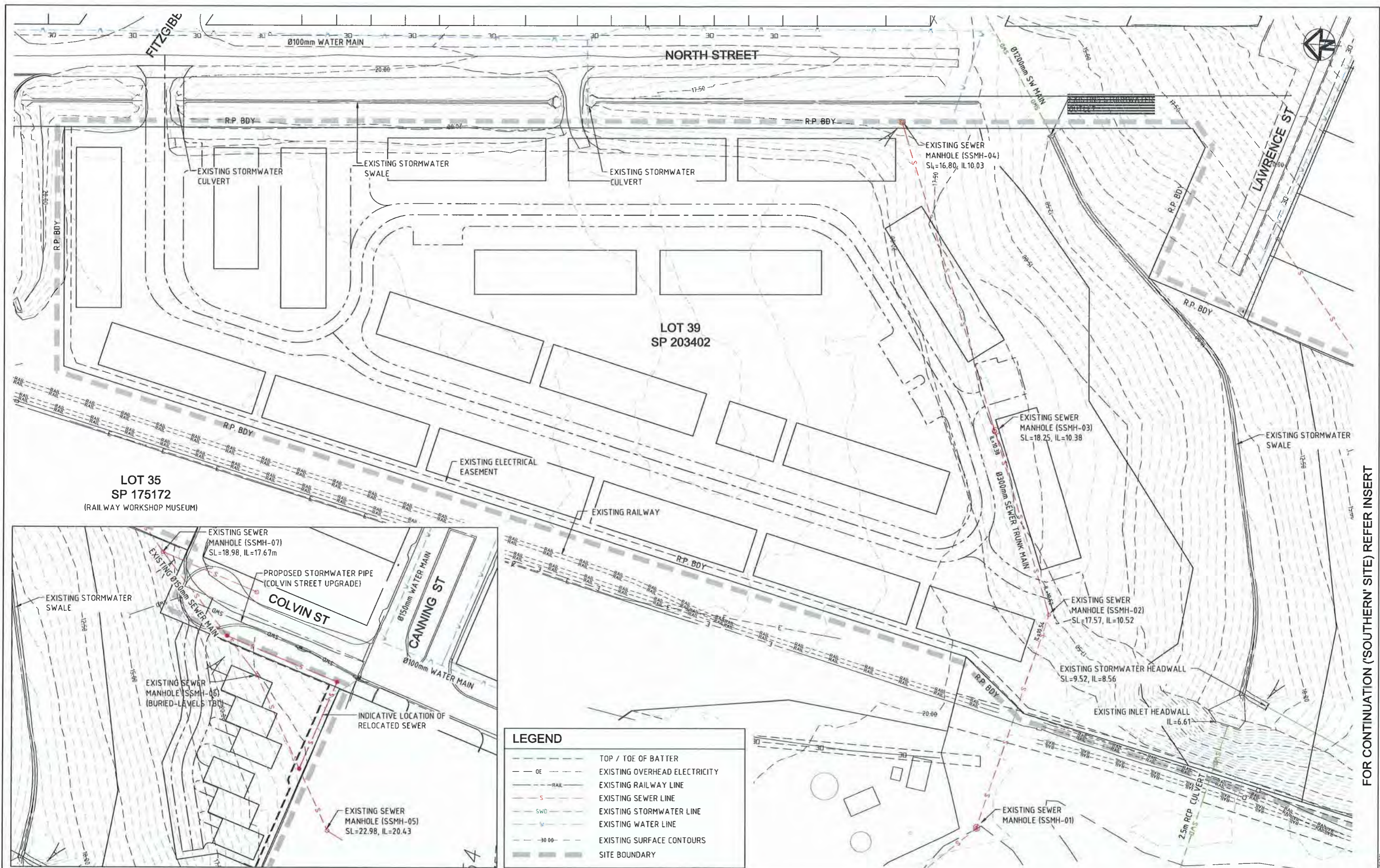
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DATE: 13/10/2005
JOB NO: 8742-02
AUTOCAD: 8742-11F
SECURITY: 87425, 46 & 83
SURVEYED BY: [Name]
DTM/AGE: AD 19/02/09

Scale: 1:2000

Sheet of: 1
Reference #: 8742-11
F

23 CORON DRIVE
REGISTERED QUINSLAND SURVEYORS
LAND, ENGINEERING & GPS SURVEYING
HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES
TEL: 07 5502 2500
FAX: 07 5502 4850
EMAIL: info@michele.com.au
WWW: www.michele.com.au



FOR CONTINUATION ('SOUTHERN' SITE) REFER INSERT

STATUS		FOR ISSUE	
A	ORIGINAL ISSUE	H.V.	25.09.09
REV	DESCRIPTION	DRAWN	DATE

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SCALE (AT ORIGINAL SHEET SIZE)

SCALE 10 0 10 20 1500

ORIGINAL SHEET SIZE

A1

CLIENT

LEDA
Developments Pty Ltd

PROJECT

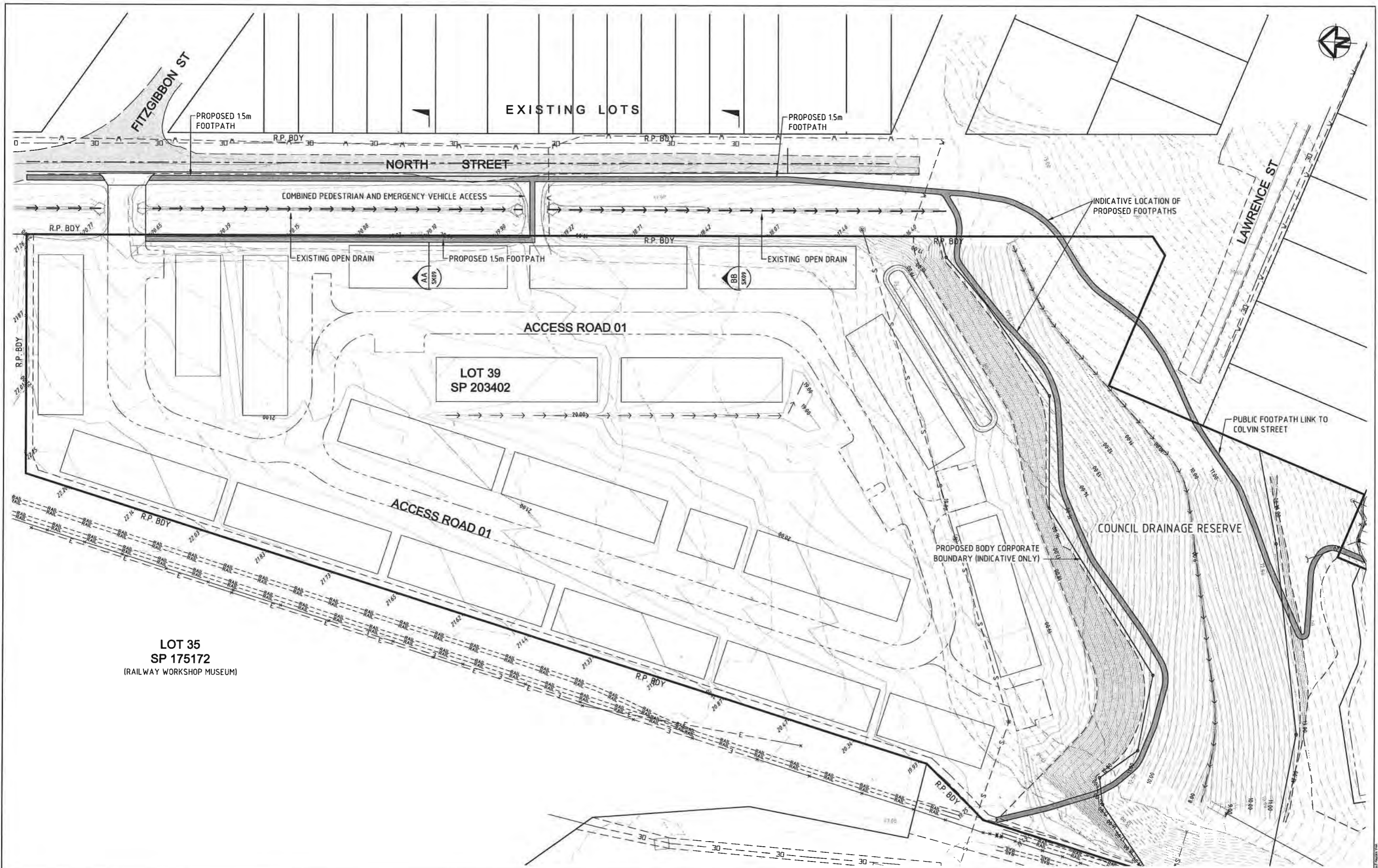
RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA
T 07 5570 4877 F 07 5570 4977 info@yeats.com.au www.yeats.com.au

TITLE					EXISTING SERVICES PLAN	
TASK	BY	INITIAL	DATE	APPROVED	RPEO No 7825	
REVIEW	B.Y.		25.09.09		DRAWING NUMBER	REVISION
DESIGN	H.V.		25.09.09		YC0175-SK01	A
DRAWN	H.V.		25.09.09			

Appendix C
External Road Details

North Street Civil Works – Preliminary Design



STATUS FOR ISSUE

REV	DESCRIPTION	DRAWN	DATE
B	AMENDMENTS TO EARTHWORKS	H.V.	25.09.09
A	ORIGINAL ISSUE	N.M.	16.09.09

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RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

YEATS
CONSULTING ENGINEERS

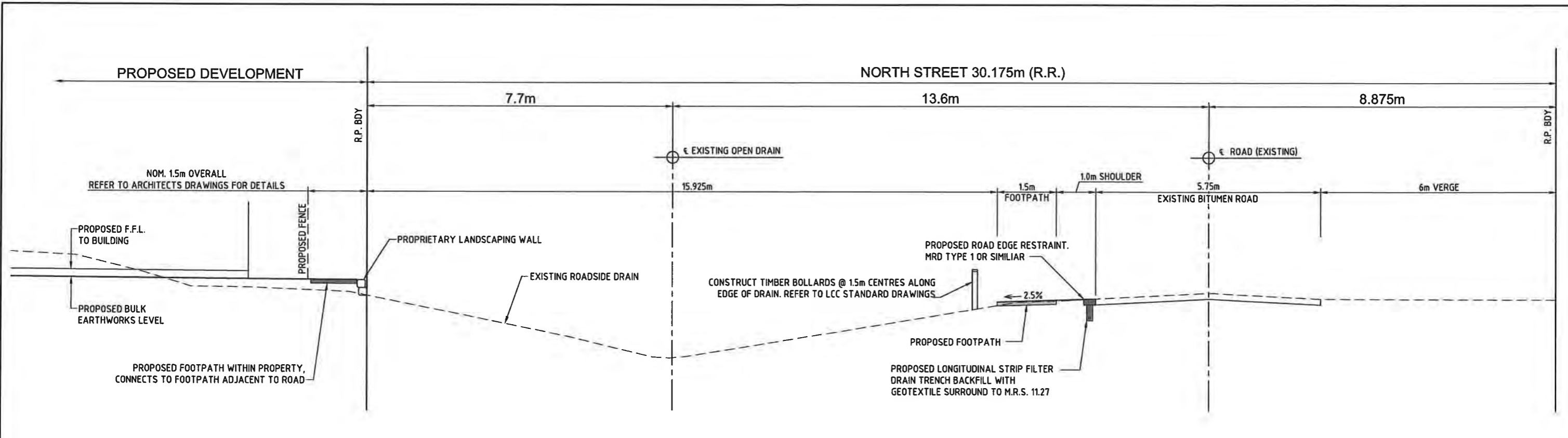
LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA
T 07 5570 4877 F 07 5570 4877 info@yeats.com.au www.yeats.com.au

TITLE NORTH STREET - CIVIL WORKS LAYOUT PLAN

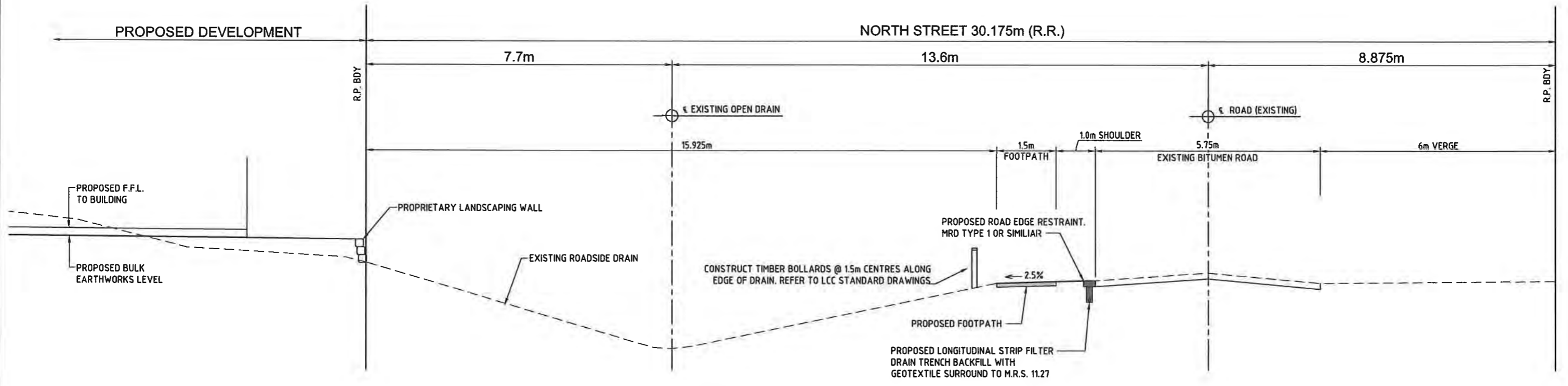
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REVIEW	C.W.		16.09.09			
DESIGN	C.W.		16.09.09			
DRAWN	N.M.		16.09.09			

DRAWING NUMBER YC0175-SK08

REVISION B



TYPICAL SECTION A-A
NORTH STREET
NORTHERN SITE FRONTAGE



TYPICAL SECTION B-B
NORTH STREET
SOUTHERN SITE FRONTAGE

STATUS FOR ISSUE			
B	AMENDMENTS TO EARTHWORKS	H.V.	25.09.09
A	ORIGINAL ISSUE	N.M.	16.09.09
REV	DESCRIPTION	DRAWN	DATE

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ORIGINAL SHEET SIZE
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CLIENT

LEDA
Developments Pty Ltd

PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA
T 07 5570 4877 F 07 5570 4877 info@yeats.com.au www.yeats.com.au

TITLE NORTH STREET - CIVIL WORKS TYPICAL CROSS SECTIONS					
TASK	BY	INITIAL	DATE	APPROVED	RPEQ No 7825
REVIEW	B.Y.		06.10.09		
DESIGN	H.V.		06.10.09		
DRAWN	H.V.		06.10.09		
				DRAWING NUMBER	REVISION
				YC0175-SK09	B

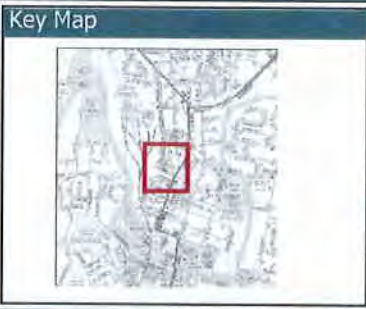
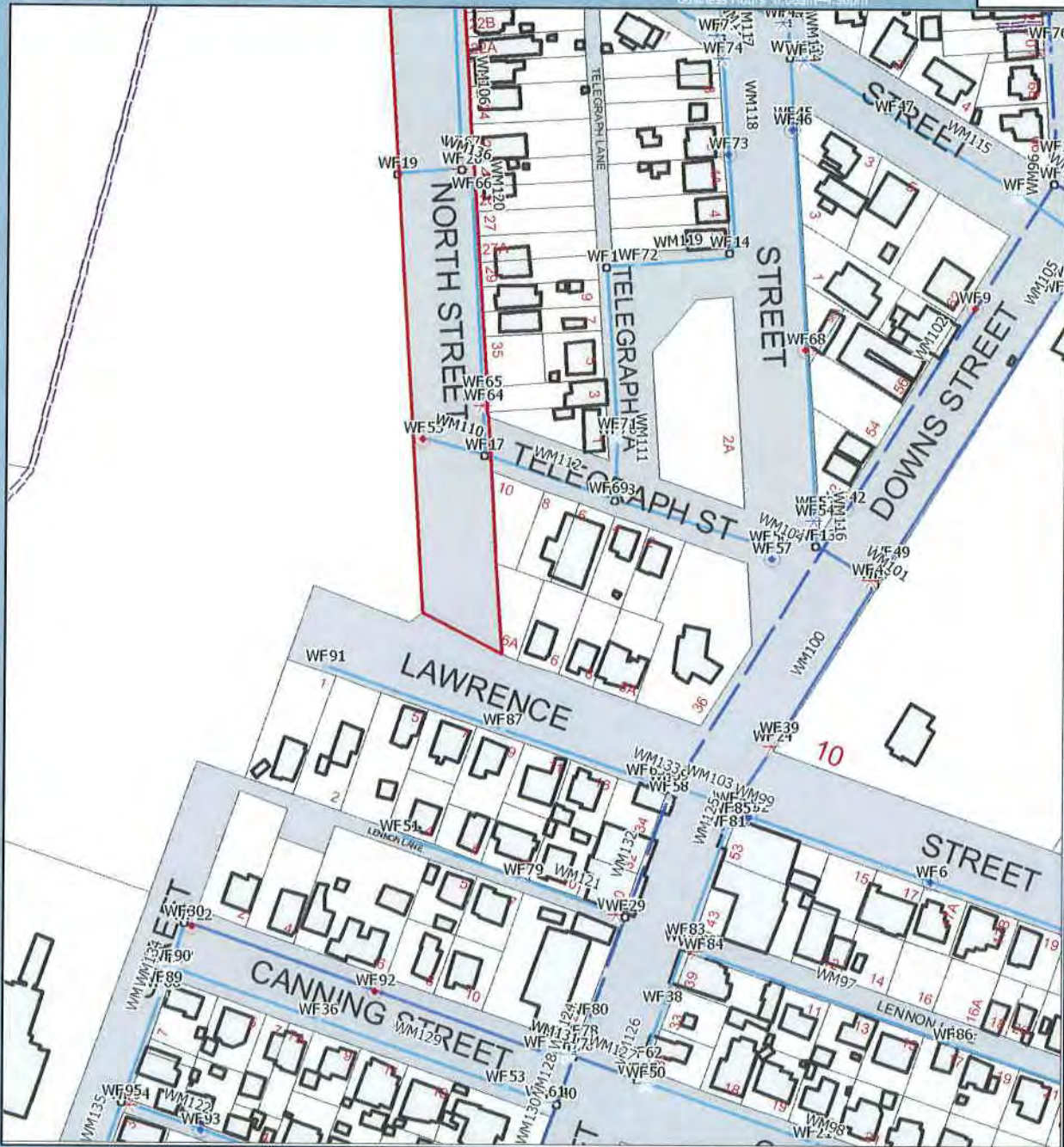
Appendix D

Ipswich Water Infrastructure Records



Water Infrastructure

Ipswich Water
 Shop 101 Ipswich City Square
 Bell Street IPSWICH QLD 4305
 Tel: (07) 3810 7855 Fax: (07) 3810 7964
 Email: ipswichwater@ipswich.qld.gov.au
 Web: www.ipswichwater.com.au
 Business Hours: 8:00am-4:30pm



Property Details

Address: NORTH STREET
 Suburb: NORTH IPSWICH
 Lot Plan:
 Area: 0m²

Reference Details

ICC Search No.: 45134
 External No.: North St

Map Scale

Scale: 1:2500

Map Datums

Horizontal: GDA94
 Height: Australian Height Datum

DISCLAIMER: Ipswich City Council Data - While every care is taken by the Ipswich City Council (ICC) to ensure the accuracy of this data, ICC makes no representations 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 damages) and costs which may be incurred as a result of the data being inaccurate or incomplete in any way and for any reason. Based on Data provided with permission of the Council.

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Infrastructure Attribute Listings

These assets appear within the defined area of the map.

Water Fittings

Map Ref	Asset	Owner	Fitting Type	Fitting Size (mm)	SL (AHD m)	Obvert Level	Date Constructed	Horizontal Accuracy	Vertical Accuracy	Vertical Accuracy Obvert	Easting	Northing
WF1	309940	Ipswich Water	Fire Hydrant	150x80	36.53	0.00		Photogrammetry	Photogrammetry		476,608.63	6,946,890.36
WF2	336041	Ipswich Water	Valve Sluice		37.20	0.00		Indicative	DTM 2005		476,611.99	6,946,895.67
WF3	309937	Ipswich Water	Valve Sluice	300	37.12	0.00		Photogrammetry	Photogrammetry		476,607.60	6,946,946.38
WF4	309912	Ipswich Water	Valve Sluice	100	36.08	0.00		Photogrammetry	Photogrammetry		476,592.76	6,946,930.95
WF5	332279	Ipswich Water	Node		36.88	0.00		Indicative	DTM 2005		476,607.18	6,946,935.49
WF6	337062	Ipswich Water	Fire Hydrant		28.22	0.00	27/6/2002	Survey ICC	Survey ICC		476,559.72	6,946,654.64
WF7	332289	Ipswich Water	Node		34.09	0.00		Indicative	DTM 2005		476,536.54	6,946,774.60
WF8	332264	Ipswich Water	Node		21.67	0.00		Indicative	DTM 2005		476,473.15	6,946,993.60
WF9	309883	Ipswich Water	Fire Hydrant		35.83	0.00		Indicative	DTM 2005		476,575.67	6,946,885.73
WF10	328244	Ipswich Water	Valve Sluice	100	19.81	0.00		Indicative	DTM 2005		476,368.61	6,946,940.32
WF11	328245	Ipswich Water	Valve Sluice	100	21.40	0.00		Survey ICC	Survey ICC		476,470.68	6,946,994.99
WF12	332262	Ipswich Water	Node		24.92	0.00		Indicative	DTM 2005		476,500.38	6,946,985.66
WF13	332263	Ipswich Water	Node		31.98	0.00		Indicative	DTM 2005		476,512.39	6,946,789.91
WF14	332265	Ipswich Water	Node		22.97	0.00		Indicative	DTM 2005		476,476.90	6,946,907.49
WF15	332266	Ipswich Water	Node		17.94	0.00		Indicative	DTM 2005		476,427.41	6,946,901.49
WF16	332259	Ipswich Water	Node		24.51	0.00		Indicative	DTM 2005		476,498.99	6,946,999.71
WF17	332167	Ipswich Water	Node		16.22	0.00		Indicative	DTM 2005		476,379.05	6,946,825.10
WF18	332168	Ipswich Water	Node		21.81	0.00		Indicative	DTM 2005		476,431.44	6,946,807.22
WF19	333930	Ipswich Water	Node		20.84	0.00		Indicative	DTM 2005		476,343.40	6,946,938.31
WF20	340559	Ipswich Water	Tee	100x100	19.79	0.00	1/6/1980	Indicative	DTM 2005	Indicative	476,369.05	6,946,940.18
WF21	309774	Ipswich Water	Fire Hydrant	100x80	25.67	0.00		Photogrammetry	Photogrammetry		476,512.75	6,946,549.76
WF22	328236	Ipswich Water	Fire Hydrant		26.69	0.00		Indicative	DTM 2005		476,262.45	6,946,635.87
WF23	328237	Ipswich Water	Valve Sluice	100	31.57	0.00		Indicative	DTM 2005		476,433.04	6,946,641.20
WF24	328238	Ipswich Water	Valve Sluice		32.26	0.00		Indicative	DTM 2005		476,495.53	6,946,708.94
WF25	332299	Ipswich Water	Node		29.77	0.00		Indicative	DTM 2005		476,441.67	6,946,574.65
WF26	332297	Ipswich Water	Node		30.46	0.00		Indicative	DTM 2005		476,416.32	6,946,583.95
WF27	332287	Ipswich Water	Node		31.96	0.00		Indicative	DTM 2005		476,455.63	6,946,692.63
WF28	332290	Ipswich Water	Node		30.89	0.00		Indicative	DTM 2005		476,460.32	6,946,628.18
WF29	332293	Ipswich Water	Node		31.46	0.00		Indicative	DTM 2005		476,436.26	6,946,640.06
WF30	332294	Ipswich Water	Node		26.47	0.00		Indicative	DTM 2005		476,259.50	6,946,636.86
WF31	337060	Ipswich Water	Valve Sluice		31.38	0.00	27/6/2002	Survey ICC	Survey ICC		476,484.37	6,946,680.95
WF32	337061	Ipswich Water	Fire Hydrant		31.32	0.00	27/6/2002	Survey ICC	Survey ICC		476,485.83	6,946,680.41
WF33	337064	Ipswich Water	Tee		31.72	0.00	27/6/2002	Field Completed	DTM 2005		476,479.78	6,946,684.40
WF34	337066	Ipswich Water	Bend		31.64	0.00	27/6/2002	Field Completed	DTM 2005		476,481.65	6,946,681.82
WF35	340558	Ipswich Water	Tee	100x100	27.02	0.00	1/6/1984	Indicative	DTM 2005	Indicative	476,253.79	6,946,618.78
WF36	309387	Ipswich Water	Fire Hydrant	100x80	29.86	0.00		Photogrammetry	Photogrammetry		476,313.38	6,946,597.83

(GDA94, Zone 56)

Water Fittings

(GDA94, Zone 56)

Map Ref	Asset	Owner	Fitting Type	Fitting Size (mm)	SL (AHD m)	Obvert Level	Date Constructed	Horizontal Accuracy	Vertical Accuracy	Vertical Accuracy Obvert	Easting	Northing
WF37	309317	Ipswich Water	Fire Hydrant	100x80	27.05	0.00		Photogrammetry	Photogrammetry		476,255.70	6,946,618.20
WF38	309672	Ipswich Water	Fire Hydrant	100x80	30.36	0.00		Field Completed	DTM 2005		476,451.67	6,946,603.71
WF39	309744	Ipswich Water	Fire Hydrant	150x80	31.74	0.00		Photogrammetry	Photogrammetry		476,497.84	6,946,712.53
WF40	332302	Ipswich Water	Node		30.07	0.00		Indicative	DTM 2005		476,409.41	6,946,564.66
WF41	337065	Ipswich Water	Bend 45		31.70	0.00	27/6/2002	Field Completed	DTM 2005		476,480.56	6,946,684.06
WF42	309793	Ipswich Water	Fire Hydrant		32.71	0.00		Survey ICC	Survey ICC		476,524.63	6,946,805.03
WF43	309761	Ipswich Water	Valve Sluice	100	25.38	0.00		Survey ICC	Survey ICC		476,506.45	6,946,984.76
WF44	309745	Ipswich Water	Valve Sluice		24.04	0.00		Survey ICC	Survey ICC		476,498.13	6,947,000.05
WF45	309755	Ipswich Water	Valve Sluice		25.02	0.00		Survey ICC	Survey ICC		476,501.93	6,946,959.47
WF46	309756	Ipswich Water	Fire Hydrant		25.09	0.00		Survey ICC	Survey ICC		476,502.11	6,946,956.45
WF47	309822	Ipswich Water	Fire Hydrant	100x80	29.69	0.00		Photogrammetry	Photogrammetry		476,543.03	6,946,962.15
WF48	309815	Ipswich Water	Valve Sluice	150	34.00	0.00		Indicative	DTM 2005		476,535.17	6,946,775.57
WF49	309818	Ipswich Water	Fire Hydrant		33.39	0.00		Photogrammetry	Photogrammetry		476,541.93	6,946,783.21
WF50	309662	Ipswich Water	Valve Sluice		29.21	0.00		Photogrammetry	Photogrammetry		476,445.38	6,946,573.33
WF51	309473	Ipswich Water	Fire Hydrant	100x80	28.55	0.00		Field Completed	DTM 2005		476,345.72	6,946,671.77
WF52	309772	Ipswich Water	Fire Hydrant		31.38	0.00		Survey ICC	Survey ICC		476,511.75	6,946,802.64
WF53	309570	Ipswich Water	Fire Hydrant	100x80	29.71	0.00		Photogrammetry	Photogrammetry		476,389.15	6,946,571.26
WF54	309773	Ipswich Water	Valve Sluice		31.66	0.00		Survey ICC	Survey ICC		476,512.00	6,946,799.72
WF55	309499	Ipswich Water	Fire Hydrant	100x80	16.52	0.00		Indicative	DTM 2005		476,354.65	6,946,832.00
WF56	309735	Ipswich Water	Valve Sluice	100	30.67	0.00		Photogrammetry	Photogrammetry		476,493.61	6,946,789.24
WF57	309740	Ipswich Water	Fire Hydrant	100x80	31.05	0.00		Survey ICC	Photogrammetry		476,494.58	6,946,784.54
WF58	309675	Ipswich Water	Fire Hydrant	300x80	31.88	0.00		Photogrammetry	Photogrammetry		476,453.44	6,946,688.50
WF59	309676	Ipswich Water	Valve Sluice	100	31.62	0.00		Photogrammetry	Photogrammetry		476,453.93	6,946,693.00
WF60	309586	Ipswich Water	Fire Hydrant	150x80	30.22	0.00		Photogrammetry	Photogrammetry		476,404.17	6,946,585.63
WF61	309589	Ipswich Water	Valve Sluice	100	29.18	0.00		Photogrammetry	Photogrammetry		476,404.91	6,946,565.86
WF62	309658	Ipswich Water	Valve Sluice		29.90	0.00		Field Completed	DTM 2005		476,444.04	6,946,581.50
WF63	309660	Ipswich Water	Fire Hydrant	100x80	31.92	0.00		Photogrammetry	Photogrammetry		476,444.15	6,946,695.19
WF64	309551	Ipswich Water	Valve Sluice		16.89	0.00		Indicative	DTM 2005		476,378.05	6,946,844.83
WF65	309552	Ipswich Water	Fire Hydrant	100x80	17.15	0.00		Field Completed	DTM 2005		476,377.87	6,946,850.40
WF66	309542	Ipswich Water	Fire Hydrant	100x80	19.08	0.00		Photogrammetry	Photogrammetry		476,373.26	6,946,930.37
WF67	309534	Ipswich Water	Fire Hydrant	100x80	19.39	0.00		Photogrammetry	Photogrammetry		476,368.65	6,946,946.58
WF68	309762	Ipswich Water	Fire Hydrant		27.57	0.00		Indicative	DTM 2005		476,507.68	6,946,868.02
WF69	309621	Ipswich Water	Fire Hydrant		21.60	0.00		Photogrammetry	Photogrammetry		476,428.50	6,946,808.24
WF70	309627	Ipswich Water	Fire Hydrant	100x80	19.18	0.00		Photogrammetry	Photogrammetry		476,431.74	6,946,831.67
WF71	309628	Ipswich Water	Valve Sluice	100	19.10	0.00		Photogrammetry	Photogrammetry		476,431.67	6,946,833.63
WF72	309648	Ipswich Water	Fire Hydrant	100x80	18.82	0.00		Field Completed	DTM 2005		476,439.89	6,946,902.04
WF73	309705	Ipswich Water	Fire Hydrant	100x80	22.75	0.00		Survey ICC	Survey ICC		476,476.22	6,946,947.17
WF74	309703	Ipswich Water	Valve Sluice		21.91	0.00		Survey ICC	Survey ICC		476,473.79	6,946,985.21
WF75	309698	Ipswich Water	Valve Sluice	100	21.45	0.00		Survey ICC	Survey ICC		476,471.19	6,946,994.33

Water Fittings

(GDA94, Zone 56)

Map Ref	Asset	Owner	Fitting Type	Fitting Size (mm)	SL (AHD m)	Obvert Level	Date Constructed	Horizontal Accuracy	Vertical Accuracy	Vertical Accuracy Obvert	Eastings	Northing
WF76	309934	Ipswich Water	Fire Hydrant		36.46	0.00		Photogrammetry	Photogrammetry		476,604.52	6,946,991.76
WF77	309600	Ipswich Water	Valve Sluice	150	30.50	0.00		Digitised	DTM 2005		476,414.32	6,946,584.53
WF78	309606	Ipswich Water	Valve Sluice	300	30.47	0.00		Photogrammetry	Photogrammetry		476,418.31	6,946,590.03
WF79	309579	Ipswich Water	Fire Hydrant	100x80	31.96	0.00		Photogrammetry	Photogrammetry		476,395.29	6,946,654.68
WF80	309609	Ipswich Water	Fire Hydrant	300x80	30.51	0.00		Photogrammetry	Photogrammetry		476,421.64	6,946,598.83
WF81	309704	Ipswich Water	Fire Hydrant	100x80	31.60	0.00		Field Completed	DTM 2005		476,476.66	6,946,674.70
WF82	309690	Ipswich Water	Valve Sluice		30.78	0.00		Indicative	DTM 2005		476,465.40	6,946,626.31
WF83	309683	Ipswich Water	Valve Sluice	100	30.94	0.00		Digitised	DTM 2005		476,461.25	6,946,630.78
WF84	309695	Ipswich Water	Fire Hydrant	100x80	30.06	0.00		Photogrammetry	Photogrammetry		476,468.19	6,946,625.27
WF85	309710	Ipswich Water	Valve Sluice		31.66	0.00		Field Completed	DTM 2005		476,478.65	6,946,680.11
WF86	309872	Ipswich Water	Fire Hydrant	100x80	24.63	0.00		Field Completed	DTM 2005		476,568.45	6,946,589.72
WF87	309564	Ipswich Water	Fire Hydrant	100x80	26.74	0.00		Photogrammetry	Photogrammetry		476,387.18	6,946,715.05
WF88	309305	Ipswich Water	Fire Hydrant	100x80	27.07	0.00		Photogrammetry	Photogrammetry		476,250.07	6,946,608.54
WF89	309309	Ipswich Water	Valve Sluice	100	26.99	0.00		Photogrammetry	Photogrammetry		476,250.86	6,946,610.87
WF90	309315	Ipswich Water	Valve Sluice	100	26.99	0.00		Photogrammetry	Photogrammetry		476,253.92	6,946,619.13
WF91	309396	Ipswich Water	Fire Hydrant	100x80	15.39	0.00		Photogrammetry	Photogrammetry		476,315.61	6,946,739.91
WF92	309416	Ipswich Water	Fire Hydrant	100x80	30.98	0.00		Indicative	DTM 2005		476,336.50	6,946,609.92
WF93	328234	Ipswich Water	Fire Hydrant		27.28	0.00		Survey ICC	Survey ICC		476,266.68	6,946,553.91
WF94	328235	Ipswich Water	Valve Sluice		26.61	0.00		Indicative	DTM 2005		476,238.32	6,946,563.76
WF95	332295	Ipswich Water	Node		26.37	0.00		Indicative	DTM 2005		476,235.15	6,946,564.98

Number of records: 95

Water Mains

Map Ref	Asset	Owner	Diameter (mm)	Pipe Type	Pipe Class	Depth (m)	Length (m)	Date Constructed
WM96	354107	Ipswich Water	300	C/CL		0.00	202.09	1/6/1968
WM97	354142	Ipswich Water	100	C/CL		0.00	209.89	1/6/1975
WM98	355964	Ipswich Water	100	CI		0.00	205.24	1/6/1963
WM99	359662	Ipswich Water	100	uPVC	16	0.00	208.39	27/6/2002
WM100	354122	Ipswich Water	150	C/CL		0.00	106.57	1/6/1976
WM101	354123	Ipswich Water	150	C/CL		0.00	28.60	1/6/1976
WM102	354119	Ipswich Water	300	C/CL		0.00	286.27	1/6/1968
WM103	354130	Ipswich Water	100	C/CL		0.00	25.51	1/6/1977
WM104	354134	Ipswich Water	100	CI		0.00	69.89	1/6/1963
WM105	359132	Ipswich Water	150	C/CL		0.00	149.89	1/6/1976
WM106	354223	Ipswich Water	100	C/CL		0.00	120.58	1/6/1965
WM107	354073	Ipswich Water	100	C/CL		0.00	132.06	1/6/1976
WM108	354077	Ipswich Water	100	C/CL		0.00	29.34	1/6/1976
WM109	354118	Ipswich Water	300	C/CL		0.00	20.52	1/6/1968
WM110	354132	Ipswich Water	100	C/CL		0.00	25.36	1/6/1980

Printed: 03 Aug 2009 10:34 AM

ICC Search No: 45134

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Water Mains

Map Ref	Asset	Owner	Diameter (mm)	Pipe Type	Pipe Class	Depth (m)	Length (m)	Date Constructed
WM111	354133	Ipswich Water	100	C/CL		0.00	94.41	1/6/1968
WM112	353936	Ipswich Water	100	CI		0.00	55.36	1/6/1963
WM113	354222	Ipswich Water	100	CI		0.00	128.15	1/6/1963
WM114	354078	Ipswich Water	100	C/CL		0.00	14.12	1/6/1976
WM115	354079	Ipswich Water	100	C/CL		0.00	138.20	1/6/1974
WM116	354080	Ipswich Water	100	C/CL		0.00	196.12	1/6/1976
WM117	354081	Ipswich Water	100	C/CL		0.00	17.69	1/6/1968
WM118	354082	Ipswich Water	100	C/CL		0.00	86.88	1/6/1968
WM119	354083	Ipswich Water	100	C/CL		0.00	50.99	1/6/1968
WM120	354224	Ipswich Water	100	C/CL		0.00	117.27	1/6/1980
WM121	354136	Ipswich Water	100	C/CL		0.00	95.93	1/6/1975
WM122	354140	Ipswich Water	100	CI		0.00	164.77	1/6/1963
WM123	354138	Ipswich Water	100	C/CL		0.00	56.94	1/6/1984
WM124	354141	Ipswich Water	300	C/CL		0.00	59.55	1/6/1968
WM125	354124	Ipswich Water	100	C/CL		0.00	59.51	1/6/1976
WM126	354143	Ipswich Water	100	C/CL		0.00	56.69	1/6/1976
WM127	354148	Ipswich Water	150	C/CL		0.00	27.00	1/6/1963
WM128	354149	Ipswich Water	300	C/CL		0.00	20.49	1/6/1968
WM129	354150	Ipswich Water	100	CI		0.00	164.78	1/6/1963
WM130	354151	Ipswich Water	300	C/CL		0.00	57.93	1/6/1968
WM131	354147	Ipswich Water	150	CI		0.00	166.01	1/6/1963
WM132	354131	Ipswich Water	300	C/CL		0.00	56.07	1/6/1968
WM133	354135	Ipswich Water	100	C/CL		0.00	148.09	1/6/1979
WM134	354137	Ipswich Water	100	C/CL		0.00	19.03	1/6/1984
WM135	354139	Ipswich Water	100	C/CL		0.00	81.73	1/6/1984
WM136	358788	Ipswich Water	100	C/CL		0.00	25.71	1/6/1965

Number of records: 41

Appendix E
Queensland Rail Correspondence

[REDACTED]

From: John Adams [REDACTED]
Sent: Tuesday, 23 June 2009 3:00 PM
To: [REDACTED]
Cc: Joanne Pocock
Subject: FW: North Ipswich Development - Proposed Track Crossings

Thanks Jo.
[REDACTED] for noting.

Regards
John Adams | City Planner
IPSWICH CITY COUNCIL
PO Box 191 Ipswich Queensland 4305 Australia
T| [REDACTED]
E| [REDACTED] W| www.ipswich.qld.gov.au

From: Joanne Pocock
Sent: Tuesday, 23 June 2009 2:57 PM
To: John Adams
Subject: FW: North Ipswich Development - Proposed Track Crossings

Please see response from Trevor Andrews below.

Regards
Jo Pocock | Team Coordinator - Central West
IPSWICH CITY COUNCIL
PO Box 191 Ipswich Queensland 4305 Australia
T| [REDACTED]
E| [REDACTED] W| www.ipswich.qld.gov.au

@ Please consider the environment before printing this email

From: [REDACTED]
Sent: Tuesday, 23 June 2009 9:00 AM
To: Joanne Pocock
Subject: North Ipswich Development - Proposed Track Crossings

Good morning Jo

High level estimates are as follows:-

1. One side only-maze set, auto gate for pedestrians/bikeway; \$120k
2. One side only - maze set, auto gates for pedestrians/bikeway plus boom gates for a roadway; \$250k
3. Both sides with auto gates (one each side of the roadway) for pedestrians/bikeway plus boom gates for a roadway; \$365k

29/09/2009

The estimates are for active protection (gates on the pedestrian crossings and boom gates on the road crossing) which is key operated by the train operator after the train has come to a stop at the approach to the crossing.

These estimates include an allowance to upgrade the track so that there will not be any track disturbing works for at least 20 years.

Track upgrade is for approx 20 m level crossing width (roadway plus 2 ped crossings) and to bitumen seal the crossing to approx 1 metre outside of the rail.

The location of the crossing is where there is one track only to be crossed.

More accurate estimates can be provided when Council's requirements are known and signalling design work has been completed.

Please call me if you wish to discuss further.

Regards

[Redacted Name]

Senior Technical Officer
Network Asset Manager SEQ Office
SEQ Division

Ph [Redacted] | Public [Redacted]
Fax [Redacted] | Public [Redacted]

QR Network Pty Ltd ACN 132 181 116
20th Floor, Pipenetworks House
127 Creek Street Brisbane Q 4000

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Yeats Consulting Pty Ltd
Level 2, 9 Ouyan Street
Bundall Qld 4217
Email: info@yeats.com.au

Appendix 6

Correspondence regarding railway crossing.

Tim Riches

From: [REDACTED]
Sent: Monday, 14 September 2009 3:21 PM
To: [REDACTED]
Subject: FW: North Ipswich Development - Proposed Track Crossings
Attachments: @

From: John Adams [REDACTED]
Sent: Tuesday, 23 June 2009 3:00 PM
To: [REDACTED]
Cc: Joanne Pocock
Subject: FW: North Ipswich Development - Proposed Track Crossings

Thanks Jo.
[REDACTED] for noting.

Regards
John Adams | City Planner
IPSWICH CITY COUNCIL
PO Box 191 Ipswich Queensland 4305 Australia
T| [REDACTED]
E| [REDACTED] [W| www.ipswich.qld.gov.au](http://www.ipswich.qld.gov.au)

From: Joanne Pocock
Sent: Tuesday, 23 June 2009 2:57 PM
To: John Adams
Subject: FW: North Ipswich Development - Proposed Track Crossings

Please see response from Trevor Andrews below.

Regards
Jo Pocock |Team Coordinator - Central West
IPSWICH CITY COUNCIL
PO Box 191 Ipswich Queensland 4305 Australia
T| [REDACTED]
E| [REDACTED] [W| www.ipswich.qld.gov.au](http://www.ipswich.qld.gov.au)

@ Please consider the environment before printing this email

From: Andrews, Trevor [REDACTED]
Sent: Tuesday, 23 June 2009 9:00 AM
To: Joanne Pocock
Subject: North Ipswich Development - Proposed Track Crossings

Good morning Jo

High level estimates are as follows:-

1. One side only-maze set, auto gate for pedestrians/bikeway; \$120k

30/09/2009

- 2. One side only - maze set, auto gates for pedestrians/bikeway plus boom gates for a roadway; \$250k
- 3. Both sides with auto gates (one each side of the roadway) for pedestrians/bikeway plus boom gates for a roadway; \$365k

The estimates are for active protection (gates on the pedestrian crossings and boom gates on the road crossing) which is key operated by the train operator after the train has come to a stop at the approach to the crossing.

These estimates include an allowance to upgrade the track so that there will not be any track disturbing works for at least 20 years.

Track upgrade is for approx 20 m level crossing width (roadway plus 2 ped crossings) and to bitumen seal the crossing to approx 1 metre outside of the rail.

The location of the crossing is where there is one track only to be crossed.

More accurate estimates can be provided when Council's requirements are known and signalling design work has been completed.

Please call me if you wish to discuss further.

Regards

Trevor Andrews
Senior Technical Officer
Network Asset Manager SEQ Office
SEQ Division



QR Network Pty Ltd ACN 132 181 116
20th Floor, Pipenetworks House
127 Creek Street Brisbane Q 4000

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Appendix 7

**Remediation Plan addressing contaminated
land issues.**

REMEDIATION PLAN (2nd October 2009)

LOTS: 51-55

PLAN: SP222487

RIVERLINK PROJECT, NORTH IPSWICH, QLD

**Prepared for LEDA Developments
By GeoEnvironmental Consultants**

1. INTRODUCTION

This Remediation Plan has been prepared for Lots 51-55 on SP222487, formerly Lot 39 on SP203402 covering a total area of 26.1165 hectares. The lots are included on the Environmental Management Register (EMR) but not the Contaminated Land Register (CLR). The Remediation Plan presents a classification of existing stockpiles and soil types across Lot 53, Lot 54 and Lot 55 on SP222487 and nominates destinations and management requirements for the stockpiles and soil types. The two smaller Lots 51 and 52 on SP222487 located on higher ground in the north east corner of the site are not currently subject to any proposed remediation.

The subject site has been assessed across three areas referred to as Hughes Street (Lot 53), the Riverbank Area (Lot 54) and North Street (Lot 55). The lot layout is shown on the attached plan SP222487 (Page 1 of 4) and nominated assessment and management areas are shown on Drawing No. 1.

1.1 Purpose

This Remediation Plan presents an approach whereby excavation and stockpile movement across the entire site is to be supervised by a Suitably Qualified person with oversight by the appointed Third Party Reviewer (TPR) to ensure that any suspected or unforeseen contamination issues are appropriately addressed. The purpose of this Remediation Plan is to outline the bulk handling of contaminated soil so that future development can proceed with appropriate controls in place.

1.2 Objective

The objective of the Remediation Plan is to provide a strategy to manage contaminated soils being excavated and moved during site redevelopment in a manner that protects human health and the environment. The intent is to remove contaminated soil and stockpiles from Hughes Street and North Street and to incorporate the material into the bulk earthworks occurring in the Riverbank area. This approach could result in Hughes Street (Lot 53) and North Street (Lot 55) being removed from the EMR while retaining the Riverbank (Lot 54) on the EMR under an approved Site Management Plan (SMP).

2. BACKGROUND

Lot 39 (now Lots 51-55) has been used in the past for rail purposes. In the last few years stockpiles of soil have been added to the Riverbank area, Hughes Street area and at the southern end of the North Street area. The stockpiles have been sourced from excavation works on the southern rail yards during redevelopment by Leda.

This Remediation Plan has been based on the following assessment documents and information:

- GeoEnvironmental Letter Report *Ipswich Riverlink Project – Northern Region, North Street Sampling Results Update* dated 3rd April 2009 Ref: 6062/01;
- GeoEnvironmental Letter Report *Ipswich Riverlink Project – Northern Region, Hughes Street Sampling Results Update* dated 6th April 2009 Ref: 6062/01;
- GeoEnvironmental Letter Report *Results of “SQ” (Medical Centre) Stockpile Soil Sampling, Riverlink Project, North Ipswich, Qld* dated 4th June 2009 Ref: 6062/01;
- GeoEnvironmental Letter *Preliminary Review of Soil Volumes and Classification, Riverlink Project, North Ipswich, Qld* dated 30th July 2009 Ref: 6062/01;

3. SOIL CLASSIFICATION

The following project specific classifications have been adopted for application to soil that is to be managed at this site:

- Clean** = Not contaminated, suitable for use in any location without capping.
- Class 1** = Slightly contaminated, mostly clay/silt/sand/rock, minor ash, aesthetically good, suitable for use immediately below capping concrete, asphalt and designed landscape areas and below 0.5m depth when covered by clean material in unsealed areas.
- Class 2** = Moderately contaminated, mostly clay/silt/sand/rock, some ash and fine rubble, aesthetically reasonable, suitable for use below 1.0m beneath capping concrete, asphalt and designed landscaped areas.
- Class 3** = Heavily contaminated, clay/silt/sand/rock, common ash and/or rubble, aesthetically poor, suitable for use below 1.0m of Clean or Class 1 material in concrete or asphalt capped and designed landscaped areas.
- Class 4** = Heavily contaminated, clay/silt/sand/rock, common ash and/or rubble, aesthetically poor, not suitable for retention on site, dispose offsite.

4. VOLUMES

Riverbank Stockpiles are defined in attached Table No. 1. The following table summarises all contaminated soil, both insitu requiring excavation and in stockpiles across all areas of Lots 53, 54 and 55 on SP 222487.

Area	Location	Classification					
		Clean m ³ (loose)	Class 1 m ³ (loose)	Class 2 m ³ (loose)	Class 3 m ³ (loose)	Class 4 m ³ (loose)	Separated Rubble
North Street	Stockpile	6,000					
	In situ			15,000	500		
Hughes Street	Stockpiles				5500		
	In situ			22,000			
Riverbank	Stockpiles	6,500	87,500	20,000	4,000	0	9,000
	In situ				17,500*		
Totals		12,500	87,500	57,000	27,500	0	9,000

- * 17,500 is the estimated volume of fill to be excavated from the Wide Gully steep batter stabilisation.

The total volume of contaminated soil that is to be excavated from North Street and Hughes Street areas and from all stockpiles is estimated to be approximately 190,000 m³ (loose).

Separated rubble is material comprising coarse building, construction and demolition waste and other coarse materials such as railway sleepers that can be physically screened, sorted and separated. It is expected that most of this material, with the exception of possibly some concrete will not be suitable for retention on site and will require offsite disposal to landfill or other acceptable destination.

4. BULK EARTHWORKS PRELIMINARY PLAN

The bulk earthworks preliminary plan broadly involves the creation of an extended platform along the upper riverbank by placement and compaction of fill up to between RL 19.5m AHD and RL 20.5 mAHD. The current plan for each Lot is discussed in more detail below.

There is scope to win clean clay material from borrow pits along the lower riverbank terraces for use in areas where clean clay capping is required and to make up any shortfall in required fill quantities. Engineering estimates indicate that up to 79,000m³ (compacted) of clean clay will be required in selected areas including the batter stabilisation program along the Wide Gully area towards the new Medical Centre development at the south end.

Old "QR Fill" located beneath Stockpiles SA to SQ along the Riverbank Area and in the southern Wide Gully area is considered to be contaminated and by default it is to be allocated to **Class 3**.

In accordance with the soil classes specified above in Section 3, there will be no **Class 4** material retained on site. **Class 2** and **Class 3** material will be placed in areas where there will be at least 1.0m of **Clean** or **Class 1** material placed over the top. **Class 3** material will be placed as deep as possible to achieve a covering layer of greater than 1.0m when practical.

Class 1 material will be placed in areas that are to be covered with concrete, asphalt or designed landscape areas. Designed landscaping can include a minimum 0.5m of clean soil cover or contained planter boxes of lesser depth. In areas without concrete, asphalt or designed landscape areas, **Class 1** material will be placed so that there will be a minimum cover of at least 0.5m of **Clean** material. This will apply on stabilised batter areas.

4.1 Lot 53 – W.M. Hughes St.

The existing contaminated material (27,500 m³ approx) will be removed / scraped off the site with the resultant uncontaminated surface being validated prior to filling back (using Clean material) to the finished earthworks levels shown on Yeats Bulk Earthworks Plans YC0716 – BE00 to BE15.

The contaminated material (predominantly Class 2 and some Class 3) will be removed and compacted into the "extended Riverbank Platform" on Lot 54 at depths set out in the "Soil Classification" section of this Remediation Plan.

4.2 Lot 54 (Part) – Southern Area and Wide Gully/Riverbank area.

The existing river bank is to be re-profiled as per VDM engineering drawings – C3574:04 – SK020 – SK026, by removing contaminated material and placing it in the “extended Riverbank Platform”. The resultant exposed surface will then be capped with at least 0.5m of Clean or Class 1 material with a minimum cover of at least 0.5m Clean Clay.

These remediation works will achieve the “Remediation Plan objectives” by capping the old QR Fill Class 3 material with a minimum 1.0m of Class 1 and Clean material.

4.3 Lot 54 (Part) – “Extended River Platform”.

These works are shown on VDM Bulk Earthworks Plans C3574:03 – SK01 – SK16. It is proposed to expand the existing borrow pit on the lower river terraces to win the required Clean clay capping material. This borrow area and the base of the extended Terrace will be filled with compacted Class 2 and Class 3 contaminated material to create the sub-profile shown on the VDM drawings. The Class 3 material will be placed as deep as possible with progressively cleaner material placed higher (closer to the surface) in the fill area. This sub profile will then be capped by the Clean material in accordance with the VDM drawings.

4.4 Lot 55 – North St

The existing contaminated material (21,500 m³ approx) will be removed / scraped off the site with the resultant uncontaminated surface being validated prior to filling back (using Clean material) to the finished earthworks levels shown on Yeats Bulk Earthworks plans – YC0175-BE00 to BE24.

The contaminated material (predominantly Class 2 and some Class 3) will be removed and compacted into the “extended Riverbank Platform” on Lot 54 at depths set out in the “Soil Classification” section of this Remediation Plan.

4.5 Underground Services

The objective for Hughes Street (Lot 53) and North Street (Lot 55) is to remove contaminated soil and achieve removal of the lots from the EMR. In the event that removal from the EMR is achieved, underground services will be located within validated clean soil. Should some areas such as the existing electricity easement (Emt M) along the western side of Lot 55 not be fully remediated, management of any shallow and deep service trenches in these areas will be managed under a revised Site Management Plan (SMP) for the relevant Lots once design details are defined.

In the Riverbank Area (Lot 54) the implemented Remediation Plan will enable future shallow underground services to be placed in Clean or Class 1 material in the top 1.0m. Where underground services are required to be installed below 1.0m depth, Class 2 and/or Class 3 material may be intersected. The management of shallow and deep service trenches will be managed under a revised SMP for Lot 54 once design details are defined.

5. CLOSING

All works will be validated by GeoEnvironmental Consultants and approved by the TPR.

All remediation works will be completed in conjunction with other works and control plans, including the Erosion and Sediment Management plan prepared by Yeats Engineers. The Erosion and Sediment Management Plan addresses transport routes, designed gravel pads or other devices, vegetated areas and grass filter strips, sediment fences, dust control, runoff chutes and temporary bunds, and monitoring requirements.

All check dams and sediment basins will be located in non-contaminated areas where possible or otherwise designed to prevent the spread of contaminated soil. Landscaping and revegetation in accordance with the Landscape Plan will be conducted to achieve the objectives of the Remediation Plan.

Post-development management of Lots that remain on the EMR due to the presence of retained contaminated material will be achieved through a Site Management Plan (SMP) to be approved by DERM. The SMP will specify monitoring and cap maintenance requirements.

Attachments:

1. Ipswich Riverlink – Northern Region, Riverbank Stockpile Classification Table
2. Plan SP222487 (Page 1 of 4)
3. Drawing No. 1. Hughes Street Remediation Plan
4. Drawing No. 2. North Street Remediation Plan
5. Drawing No. 3. River South Remediation Plan
6. Drawing No. 4. River Central Remediation Plan
7. Drawing No. 5. River North Remediation Plan

IPSWICH RIVERLINK - NORTHERN REGION

For LEDA Developments

2-Oct-09

RIVERBANK STOCKPILE CLASSIFICATION

by GeoEnvironmental Consultants

Stockpile Name	Length ~m	Width ~m	Max Height ~m	Average Height ~m	Approx Volume m3	Characteristics/Comments	Fines Content %	Fines Volume m3	Sampling Results	Class Clean, 1, 2, 3, 4
SA	80	6	3	2	960	Recently crushed concrete	NA	NA	Not sampled	Clean
SB	22	10	2.2	2	440	Silt, clay, ash, old slag, rubble, metal	100	440	Relatively high total copper, lead, zinc. TCLP lead leachable, ASLP lead not readily leachable	3
SC	25	6	3	2.5	375	Recently crushed concrete	NA	NA	Not sampled	Clean
SD	120	20	2.5	1.8	4320	Clay, silt, sand, ash, slag, metal, concrete, rubble ~30% screen out ~1300m3.	70	3024	Moderate to low total copper, lead, zinc. TCLP lead leachable, ASLP lead not readily leachable	2
SE	70	25	3	2	3500	Placed by QR as cap over underground fire. Clay, silt, ash, metal, fine rubble	100	3500	Relatively high total PAH, copper, lead, zinc. TCLP lead readily leachable, ASLP lead not readily leachable	3
SF	40	20	3.5	2	1600	Silt, sand, gravel, ash, rubble ~20% screen out ~320m3.	80	1280	South end (SF1, SF2) with elevated total copper, lead, zinc. TCLP and ASLP lead not readily leachable.	2
SG	80	20	1.5	1	1600	Clay, sand, gravel and reworked concrete rubble, some scrap metal. Appears to have been disturbed recently as weed growth is new. Concrete/rubble ~30% screen out ~480m3. Most of 480m3 should be larger concrete.	70	1120	Moderate to low total copper, lead, zinc. TCLP and ASLP expected to have low leachability	2
SH	60	20	3.5	2.5	3000	clay, silt, sand, ash, concrete, steel, pipes, sleepers, <50% fines, old fill in steep grass covered pile. Rubble >50% screen out ~1500m3	50	1500	Moderate to low total copper, lead, zinc. TCLP metals not readily leachable, ASLP metals not readily leachable	2
SI	95	15	3.5	2	2850	Concrete, soil, ash, rubble, timber, >50% fines, centre ridge to 3.5m high. Rubble ~30% or more screen out ~855m3.	70	1995	Moderate to low total copper, lead, zinc. TCLP metals not readily leachable, ASLP metals not readily leachable.	2

SJ	220	50	6	5.5	60500	"Ayers Rock" commercial fill, soil, sand, some asphalt, minor ash and some rubble.	100	60500	Low total copper, lead, zinc. TCLP and ASLP metals not readily leachable.	1
SK	105	40	3	2	8400	Large flat topped pile, soil, concrete, plastic, rubble, asphalt, Rubble ~20% screen out ~1680m3	80	6720	Generally low total copper, lead, zinc with north east corner (SK16 to SK19) higher. TCLP and ASLP metals not readily leachable.	2 large proportion could be Category 1
SL	40	25	3	1.5	1500	Former stockpile that appears to have been pushed westwards down the embankment creating an area level with the road. Soil and rubble in embankment. Volume estimate is a best guess as underlying contours unknown.	100	1500	Moderate to low total copper, lead, zinc. TCLP lead leachable, ASLP metals not readily leachable	2
SM	85	35	4	2	5950	Sand, silt, clay, rubble, bricks, concrete, steel, not screened, large pieces, Steep west face to ~4m high. Volume estimate is a best guess as underlying contours unknown. Rubble ~50% screen out ~2975m3	50	2975	Moderate to low total copper, lead, zinc. TCLP and ASLP metals not readily leachable	2
SN	70	50	2	1.5	5250	Large concrete blocks, steel, not screened or sorted, minor fines. Rubble concrete ~100% or 5250m3	NA	NA	Not sampled	clean
SO	90	40	5	4	14400	Clay,silt, sand, gravel with minor ash and minor rubble, crest to ~5m above road level, Steep west face. Volume estimate is a best guess as underlying contours unknown. Separate out small percentage of rubble.	100	14400	Moderate to low total copper, lead, zinc. TCLP and ASLP metals not readily leachable	1

SP	50	40	4	4	8000	Clay, silt, sand, gravel with minor ash and minor rubble metal bricks, crest to ~4m above road level, Steep west face. Volume estimate is a best guess as underlying contours unknown. Separate out small percentage of rubble.	100	8000	Low to negligible total copper, lead, zinc. TCLP and ASLP metals not readily leachable	1
SQ	65	20	4	3.5	4550	Clay, silt with minor ash and minor metal rubble, on top of Stockpile SJ. Recently sourced from Medical Centre excavations in southern shopping centre area. Separate out small percentage of rubble.	100	4550	Low to negligible total copper and lead. TCLP and ASLP leachable metals expected to be low, not analysed.	1
Borrow						From natural riverbank unfilled areas				Clean
Old QR Fill						From old filled areas typified by ash, slag, metal				3

~ TOTAL 127195

111504

NOTES:

Clean = Not contaminated, suitable for use in any location without capping.

Class 1 - Slightly contaminated, mostly clay/silt/sand/rock, minor ash, aesthetically good, suitable for use immediately below capping concrete, asphalt and designed landscaped areas and below 0.5m depth when covered by clean material in unsealed areas.

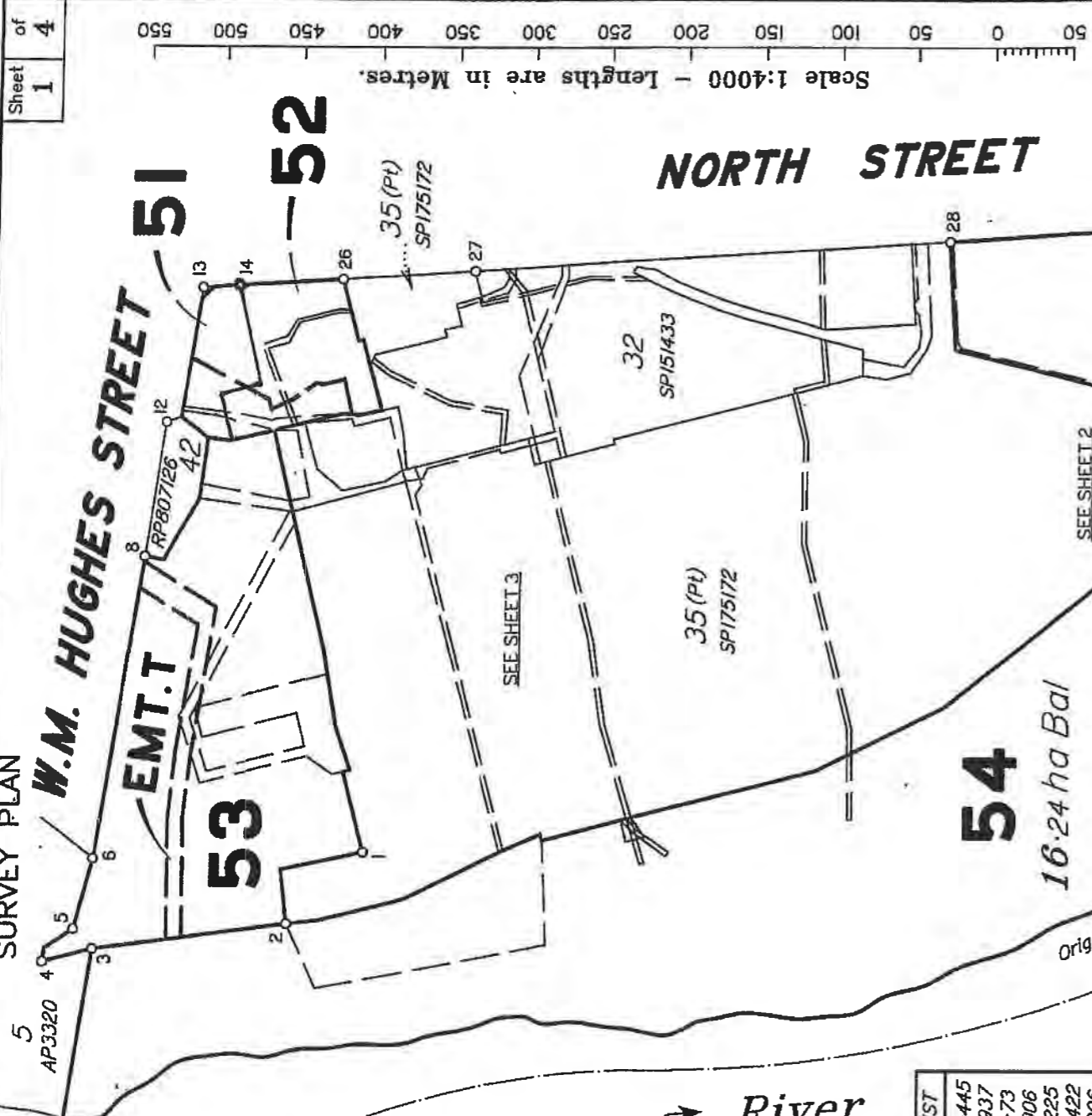
Class 2 - Moderately contaminated, mostly clay/silt/sand/rock, some ash and fine rubble, aesthetically reasonable, suitable for use below 1.0m depth beneath capping concrete, asphalt and designed landscaped areas.

Class 3 - Heavily contaminated, clay, silt, sand, rock, common ash and fine rubble, aesthetically poor, suitable for use below 1.0m of Clean or Category 1 material in concrete or asphalt capped and designed landscaped areas.

Class 4 - Heavily contaminated, clay, silt, sand, rock, common ash and/or rubble, aesthetically poor, not suitable for retention on site, dispose offsite.

VOLUMES (Estimated)

	m3	
Clean	6585	Clean includes the concrete stockpiles SA, SC and SN.
Class 1	87450	
Class 2	20114	
Class 3	3940	
Class 4	0	
Separated Rubble	9110	Rubble would include some proportion requiring offsite disposal to landfill and some suitable for retention onsite.
Total	127199	



Scale 1:4000 - Lengths are in Metres.

Orig HWM Vide SL3927
Mihi Creek
County of Churchill
Parish of Brassall

- Original information compiled from SL3927 & SP203402 in the Department of Environment & Resource Management.
- No mark placed at stations 49d-49f (under stockpiles).
- Drill hole in brick placed at station 14.
- Nail in concrete placed at station 29a.
- Drill hole in conc placed at all corners between stations 48 & 49 inclusive and at station 39a.
- GI Nail in bitumen placed at stations 15a, 15b, 39b, 39c, 47, 49a-49c & 49g.
- Peg placed at all other new corners.
- See Sheet 4 for Permanent Marks Table

STN	TO	ORIGIN	BEARING	DIST
1	O. Screw	12/DP170533	93°13'	33.445
2	OIP	11/DP170533	154°10'	0.937
3	O. Screw	7/DP216929	329°38'10"	13.73
4	OIP gone	SL3927	98°33'10"	1.006
4	O. Screw	6/DP216929	221°23'10"	7.225
4	Nail in Conc		327°43'30"	18.422
6	OIP gone	4/1S120186	8°33'10"	1.006
6	O. Screw	3/DP216929	37°36'10"	6.542
6	Nail in Conc		60°32'30"	6.315
7	Nail in Conc		80°27'10"	6.434
8	O. Spike		20°18'35"	13.515
9	O. Bolt (not searched)	2/DP212631	43°33'10"	2.0
10	O. GI Pipe (not searched)	8/RP807126	319°10'10"	1.56
11	D/H in Conc	7/RP807126	83°46'	21.65
12	OIP not fd (Under Conc)	SL3927	341°26'10"	1.131
13	Nail in Kb		67°31'30"	16.937
13b	O. Nail gone	1/SP151433	114°37'	3.937
14	D/H in Kb		27°09'	5.256
15	Pin		55°46'38"	9.882
16	GI Nail in Bit		48°20'10"	15.425
17	O. GI Nail	8/SP151433	82°13'	2.806
20	Pin		158°16'10"	14.982
20	Pin		265°22'30"	31.807
21	Pin		185°07'20"	9.697
24	Pin		94°39'10"	27.82
25	Pin		34°40'50"	13.49
26	O. Nail hole		77°34'	3.636
27	O. Nail	2/SP151433	104°06'	3.892
28	O. Nail	1/SP175172	132°4'55"	23.392
28	OIP gone	7/DP170534	343°30'30"	1.08
29	Pin		227°09'	38.805
30	OIP	2/SP175172	170°43'	1.834
31	O. Screw	16/1S120186	280°14'	1.765
31	Pin		96°58'	8.325
32	OIP	4/SP203402	234°24'	1.78
33	OIP	37/SP203402	260°49'	4.056
34	OIP not fd	6/DP170534	343°06'30"	1.165
35	OIP	6a/DP170534	265°22'35"	0.82
38	OIP gone	7/DP170534	343°30'30"	1.08
41	OIP gone	8/DP170534	253°13'30"	0.72
42	OIP	8a/DP170534	76°34'30"	0.777
43	O. Nail	14/SP222470	245°13'10"	11.019
44	OIP gone	17/SP196038	288°05'45"	0.996
45	OIP	15/SP196038	347°06'	0.858
46	OIP	16/SP196038	199°55'50"	12.314
49	D/H in Conc		178°01'10"	12.444
50	GI Nail in Bit		84°39'20"	10.63
50a	OIP	14/SL3927	199°21'50"	0.604
51	GI Nail in Bit		248°44'15"	11.647
52	OIP		110°28'	1.0
53	GI Nail in Bit		229°30'25"	27.245

MICHEL GROUP SERVICES PTY. LTD. (ABN 53 841 801 835) hereby certify that the land comprised in this plan was surveyed by the corporation, by Geoffrey Scott GREEN, Cadastral Surveyor, for whose work the corporation accepts responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 16/11/2009.



Director

Date 13/7/2009

Plan of Lots 51-55, Easement T in Lot 53 & Easement F in Lot 38 on SP203402

Cancelling Lot 39 on SP203402

PARISH: CHUWAR COUNTY: Stanley

Meridian: SP196038

F/N's:

No

Plan Status:

Scale: 1:4000
Format: STANDARD

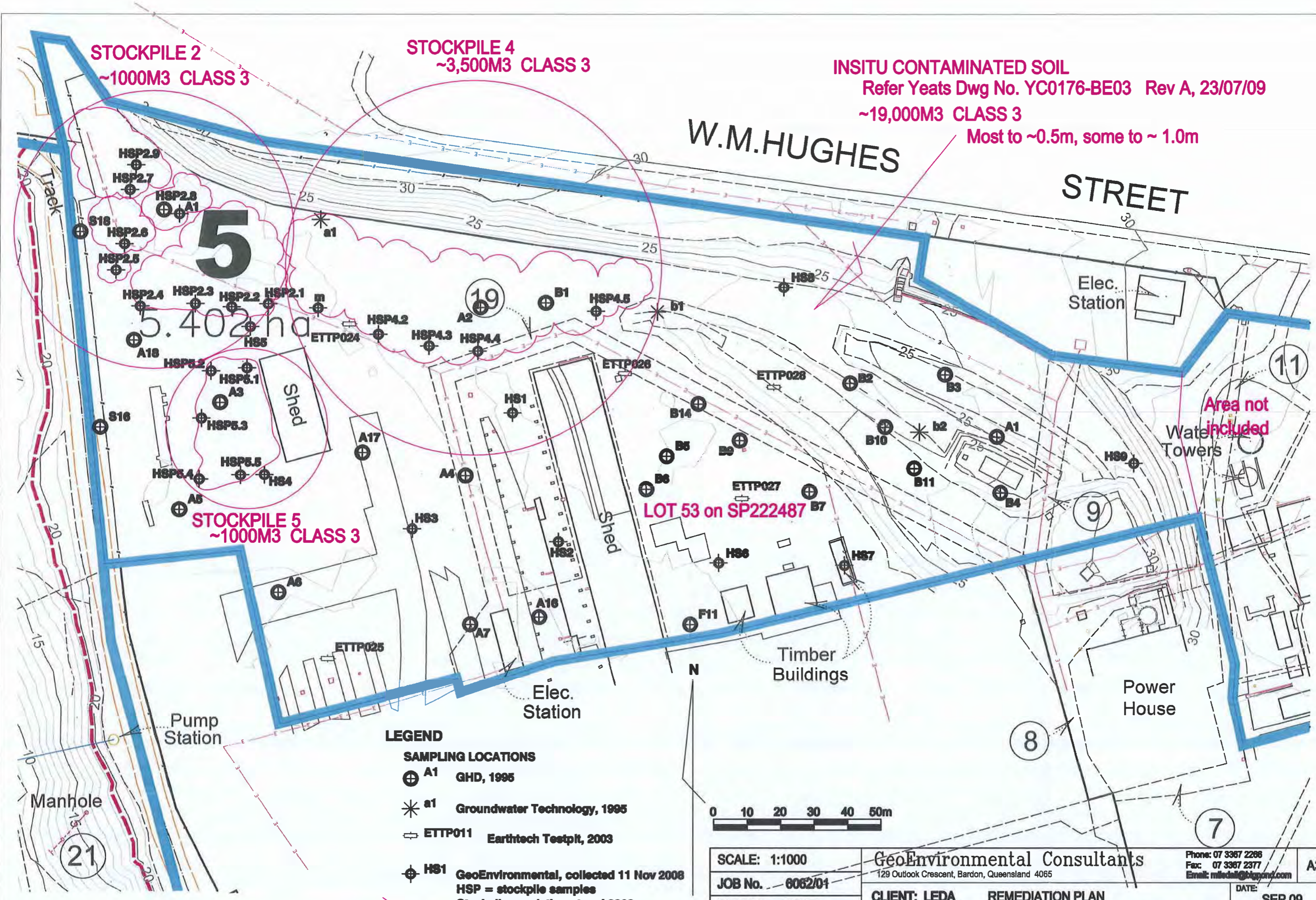


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Amendments by Michel Group Services SP203402
By Lt. J. of 7/18/2009.
K. Brooker
Cadastral Surveyor & Director.

EMT.F
SEE SHEET 4

8742-02, AS



W.M. HUGHES STREET

STREET

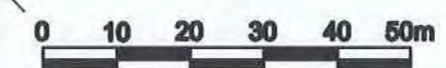
5

STOCKPILE 5
~1000M3 CLASS 3

LOT 53 on SP222487

LEGEND

- SAMPLING LOCATIONS**
- A1 GHD, 1995
 - a1 Groundwater Technology, 1995
 - ETTP011 Earthtech Testpit, 2003
 - HS1 GeoEnvironmental, collected 11 Nov 2008
HSP = stockpile samples
Stockpiles - existing at end 2008



SCALE: 1:1000	GeoEnvironmental Consultants	Phone: 07 3367 2266	A3
JOB No. 6062/01	129 Outlook Crescent, Bardon, Queensland 4065	Fax: 07 3367 2377	
DRAWN: MWT	CLIENT: LEDA REMEDIATION PLAN	Email: mleda@leda.com.au	DATE: SEP 09
CHECKED: MWT	HUGHES STREET LAYOUT AND SAMPLING LOCATIONS		DRAWING No. 1
	FORMER RAIL SITE, HUGHES STREET, NORTH IPSWICH, QLD		

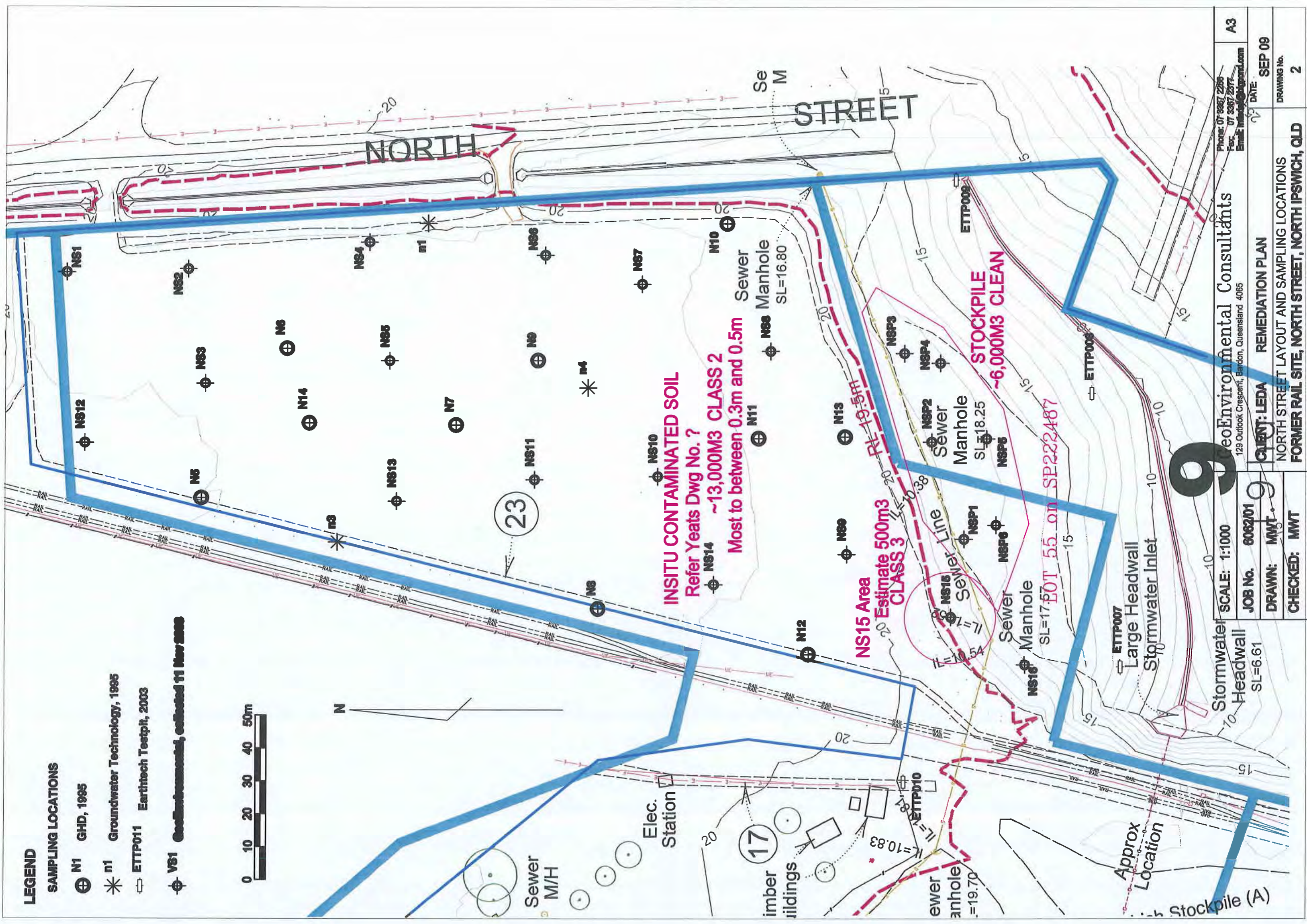
LEGEND

SAMPLING LOCATIONS

- ⊕ N1 GHD, 1995
- * n1 Groundwater Technology, 1995
- ⊕ ETPP011 Earthtech Teetpfl, 2003
- ⊕ VS1 GeoEnvironmental, collected 11 Nov 2008



N



INSITU CONTAMINATED SOIL
Refer Yeats Dwg No. ?

~13,000M3 CLASS 2
Most to between 0.3m and 0.5m

NS15 Area
Estimate 500m3
CLASS 3

STOCKPILE
~6,000M3 CLEAN

9

Stormwater
SCALE: 1:1000
JOB No. 6062/01
DRAWN: MWT
CHECKED: MWT

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Phone: 07 3967 2266
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A3
DATE: SEP 09
REMEDICATION PLAN
NORTH STREET LAYOUT AND SAMPLING LOCATIONS
FORMER RAIL SITE, NORTH STREET, NORTH IPSWICH, QLD
DRAWING No. 2

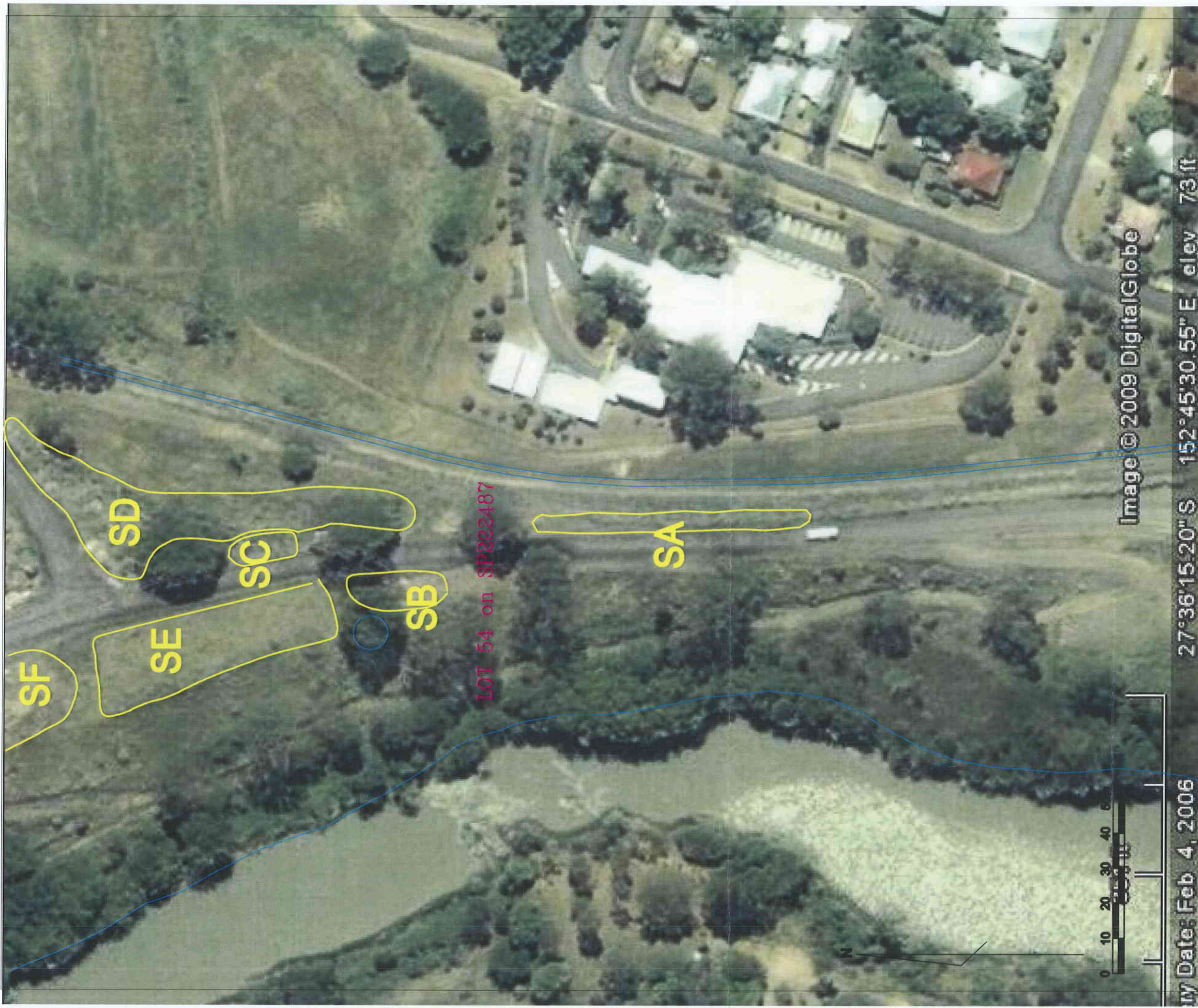


Image © 2009 DigitalGlobe

Image Date: Feb 4, 2006 27°36'15.20" S 152°45'30.55" E elev 73 ft

LEGEND

SAMPLING LOCATIONS

- ⊕ N1 GHD, 1995
- * n1 Groundwater Technology, 1995
- ⊕ ETPP011 Earthtech Testpit, 2003
- ⊕ VS1 GeoEnvironmental

SCALE: 1:1000	GeoEnvironmental Consultants 129 Outlook Crescent, Bardon, Queensland 4065	Phone: 07 3367 2286 Fax: 07 3367 2377 Email: info@geoglobal.com
JOB No. 6062/01	CLIENT: LEDA	DATE: SEP 09
DRAWN: MWT	REMEDICATION PLAN	
CHECKED: MWT	RIVER SOUTH LAYOUT FORMER RAIL SITE, NORTH STREET, NORTH IPSWICH, QLD	

A3	
DRAWING No.	3



LOT 54 on SP222487



- Legend
- Stockpiles - existing at site
- Stockpiles - proposed
- ETTP
- GeoEnvironmental Consultants
- Nov 2008
- HSP = stockpile site

SCALE: 1:1000	GeoEnvironmental Consultants	Phone: 07 3367 2266	A3
JOB No. 6062/04	129 Outlook Crescent, Barron, Queensland, 4085	Fax: 07 3367 2377	
DRAWN: MWT	CLIENT: LED	REMEDICATION PLAN	DATE: SEP 09
CHECKED: MWT	RIVER CENTRAL LAYOUT		DRAWING No.
	FORMER RAIL SITE, HUGHES STREET, NORTH IPSWICH, QLD		



LOT 54 on SP223487

SP

SO

SN

SM

SL

Image © 2009 DigitalGlobe



LEGEND

SAMPLING LOCATIONS

FO 4, 2003

27°35'55.96" S 152°45'21.90" E elev 63 ft

* n1 Groundwater Technology, 1985

⇨ ETPP011 Earthtech Teetpit, 2003

⊕ V51 GeoEnvironmental

SCALE: 1:1000

JOB No. 6062/01

DRAWN: MWT

CHECKED: MWT

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CLIENT: LEDA

REMEDICATION PLAN

RIVER NORTH LAYOUT

FORMER RAIL SITE, NORTH STREET, NORTH IPSWICH, QLD

DATE SEP 09

DRAWING No. 5

A3

Appendix 8

Flood Report.



RIVERLINKS CENTRAL

FLOOD STUDY

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Document Control

Version	Date	Author		Reviewer	
		Name	Initials	Name	Initials
1	1 October 2009	Zach Sample	ZS	Martin Giles	MG
2	6 October 2009	Zach Sample	ZS	Martin Giles	MG

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**RIVERLINKS CENTRAL
FLOOD STUDY**

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REFERENCE DRAWINGS

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APPENDIX B	Bremer River Flood Levels

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Figure 1	Site Location
Figure 2	Hydrologic Catchment Extents
Figure 3	XP-SWMM Hydraulic Model

1. INTRODUCTION

The Riverlinks Central residential development is located between North Street and the Bremer River in North Ipswich, as shown on Figure 1. Works proposed on the site include the development of two residential subdivision areas with some slight associated works within the existing gully to the south east of the development.

The proposed development layout is shown on Bristow Architects drawing number 2009.12 DA02A, attached in the reference drawing section of this report.

Runoff from the site and the surrounding catchment drains to the Bremer River via a culvert under the existing railway that forms the south-western boundary of the site. The site is therefore subject to both local flooding and regional flooding from the Bremer River.

This report investigates any hydraulic impact the proposed development may have on local flooding. In addition, a regional flooding assessment has been undertaken to verify that the proposed works will not have an impact on Bremer River flood levels.

2. SITE CHARACTERISTICS

2.1 Existing

The Riverlink Central subdivision is located in North Ipswich adjacent to North Street, as shown on Figure 1. The development site is approximately 5.42 ha and is bounded by neighbouring lots to the south-east, the Bremer River to the West; and the Queensland Railway Museum site to the north. Access to the existing site is via North Street.

The site is predominately open grassland with native vegetation in the steeper sections of the site.

The ultimate receiving waters for the site are that of the Bremer River via the gully that runs through the site and the culvert under the existing railway. A 1200mm Ipswich City Council stormwater pipeline discharges into the gully approximately 180 metres upstream of the railway culvert. The catchment extents for the existing gully are shown in Figure 2. The catchment that drains to the existing gully is predominately external to the site.

The site varies from relatively flat terrain to the north of the existing gully, to steeper terrain adjacent to and within the existing gully.

2.2 Proposed Development

The proposed development layout has been provided by Leda Holdings. This layout plan indicates that the overall proposed development will consist of two areas of residential development and some slight modification of the open space area containing the gully.

The proposed site plan including the gully redesign is included in the reference section of this report.

3. DATA

The hydraulic assessment has been based on site specific data as follows:

- Topographic Survey (2005), used to delineate the surrounding catchments;
- Contour and stormwater drainage information supplied by Council; and
- Proposed development layout information supplied by Yeats Consulting and Leda Developments.

4. WATER QUANTITY (HYDROLOGY AND HYDRAULICS)

4.1 General

A hydrologic and hydraulic assessment was undertaken to determine peak flood levels within the gully that runs through the proposed development site. The details and results of the hydrologic and hydraulic assessment are presented below.

4.2 Hydrologic Assessment

The hydrologic analysis was undertaken using the hydrologic module of XP-SWMM Version 2009 in accordance with 'Australian Rainfall and Runoff' (1998) and the 'Queensland Urban Drainage Manual' (2007).

The hydrologic assessment considered the following scenarios:

- **Pre-Development Case:** The site and external sub-catchment land uses and areas are based on the existing survey data, aerial photos and two site visits. This model is calibrated to Rational Method Calculations for the site.
- **Post-Development Case:** The post-development model utilises the calibrated pre-development case and modifies the percentage of fraction impervious and catchment areas in catchments that includes the site, in accordance with the proposed layout for the entire site.

The hydrologic model was set up for the existing gully catchment covering an approximate area of 36.14 ha and the extents are shown on Figure 2. The catchment extents were defined based on existing survey and contour data.

The XP-SWMM model was used to generate the local catchment hydrographs for the 100 year Average Recurrence Interval (ARI) and for the full range of storm durations from 10 to 360 minutes.

The initial and continuing losses adopted for the 100 year ARI event in the hydrologic component of the XP-SWMM model are shown in Table 4-1.

Table 4-1 Adopted XP-SWMM Parameters

Pervious		Impervious	
Initial Loss (mm)	Continuing Loss (mm/hr)	Initial Loss (mm)	Continuing Loss (mm/hr)
5	2.5	0	0

The adopted fraction imperviousness for the developed land use is listed in Table 4-2. The fraction impervious values were assumed based on the table of fraction impervious vs. development category provided in QUDM (2007). The existing railway and open space including roadway fraction impervious percentages were estimated based on aerial photos and site visits.

Table 4-2 Fraction Impervious for Site Land Uses

Land Use Category	Fraction Impervious
Commercial	90%
Residential	65%
Railway	10%
Open Space including Roadway	5%
Open Space	0%

4.3 Hydraulic Assessment

The hydraulic assessment was undertaken using the hydrodynamic component of XP-SWMM (v2009). The XP-SWMM model was run for the 100 year ARI flood event, for durations ranging from 10 to 360 minutes.

The intensity-frequency-duration (IFD) data and temporal patterns utilised in the XP-SWMM models were created using AR&R (1998) and AusIFD version 2.0 for Ipswich.

4.3.1 Pre-Development Case Model

The XP-SWMM model cross sections were extracted from the Triangular Interpolated Network (TIN) constructed from the existing topographic survey. A Manning's 'n' of 0.05 was adopted for the gully and main overland flow path, based on a site visit which identified generally grass with some scattered shrubs. A Manning's n of 0.015 was adopted for the culverts and pipework.

The gully, roadside channel and upper reach have been modelled based on the existing survey data. A 1,200 mm diameter stormwater pipe discharges into the gully approximately 180 metres upstream of the railway culvert.

Inflows to the model were adopted from the hydrologic component of the XP-SWMM model. The obvert was adopted as the fixed tail water depth at the downstream boundary condition at cross-section 'OUT'.

4.3.2 Post-Developed Case Model

Yeats Consulting Engineers provided updated cross sections in digital format. The updated cross sections have been integrated into the XP-SWMM model. The developed case has modified the existing cross section from MAIN 11 to MAIN 16. The modification includes some filling in the upper sections of each cross section along the northern edge of the channel down to the stream center line for cross sections MAIN11 to MAIN 14 and includes some modification on the south side of the stream center line for cross sections MAIN 15 and MAIN 16.

Flow boundary conditions are based on post developed flows from the hydrologic component of XP-SWMM as discussed in Section 4.2.

4.3.3 Hydraulic Results

Table 4-3 summarises the predicted existing and development peak 100 year ARI flood levels. Cross-section locations are shown on Figure 3.

Table 4-3 Peak Flood Levels, 100 Year Event

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.68	19.68
Main 4	17.78	17.78
Main 5	17.37	17.37
Main 6	17.37	17.37
Main 7	17.36	17.36
Main 8	17.34	17.34
Main 9	17.11	17.11
Main 10	14.89	14.90
Channel 4	19.86	19.85
Channel 5	19.85	19.85
Channel 6	21.15	21.15
Channel 7	20.93	20.93
Channel 8	20.85	20.85
Channel 9	19.81	19.81
Channel 10	19.53	19.49
Channel 11	18.04	17.95
Channel 12	17.50	17.43
Main 11	11.98	12.04
Main 12	11.67	11.87
Main 13	11.03	11.49
Main 14	9.76	10.11
Main 15	9.52	10.09
Main 16	8.76	9.35
Culvert Inlet	7.98	8.25

The results presented in Table 4-3 indicate that the proposed development (both in terms of the impact of development upon hydrology and changes to ground levels) will not adversely impact the flood levels upstream of the proposed development. The impacts at Main 11 through Main 16 are all contained within the site and will not significantly impact any adjacent properties. The decrease in peak flood level at Channel 12 reflects the reduction in catchment area discharging to the roadside channel due to the proposed development.

As noted in Section 4.2, the analysis for the developed case did not include a detention basin to ameliorate the impact of development. Although the peak discharge from the site will increase as a result of development, it will occur more rapidly than previously. The peak runoff from the site therefore has the opportunity to drain to the river prior to the peak occurring from the remainder of the catchment.

As part of the analysis, the flood levels produced by lesser events were modelled. The calculated flood levels for the lesser events (2 to 50 years) are shown in Appendix A.

As per the 100 year case, an increase in level was obtained in the open space area upstream of the culvert (i.e. MAIN 16 to MAIN 11). The resultant levels will not result in the flooding of any private property and are considerably lower than the corresponding Bremer River flood level (18.41 mAHD- refer Section 4.4).

It can be noted that an increase in flood level is also predicted at location MAIN10 (located immediately upstream of the open space area) for events less than the 100 year event. Although an increase is predicted, it is important to note that the resultant levels do not impact on any existing properties.

4.4 Hydraulic Sensitivity Assessment

The sensitivity of the calculated flood levels for local catchment flooding was assessed by the consideration of two scenarios.

- **Tailwater Level Variation and Coincident Bremer River Flooding**

As noted in Section 4.3.1, A tailwater level equal to the obvert of the pipe beneath the railway was adopted. This was considered to be reasonable given the relatively short response time of the local catchment compared to that of the Bremer River. At the time that the local catchment peaks, the level in the river would be expected to be relatively low.

As a sensitivity analysis, the flooding in the local catchment produced by the critical storm duration for the flooding of Bremer River (the Bremer River 1,080 minute duration storm) was modelled. The stage hydrograph estimated by the MIKE-11 model of the Bremer River was applied as the tailwater condition for the analysis.

Table 4-4 summarises the flood levels predicted for the 100 year event for this scenario. With reference to the table, the proposed development will have no impact on local flood levels for this scenario.

- **Blockage**

Drainage of the local catchment is achieved by a large culvert beneath the railway. If the culvert were to be blocked, an increase in flood level could occur. Consideration was given to the reasonable extent of blockage that could be foreseen. Given the size of the culvert and the level of development within the catchment, the potential for the culvert to be blocked (for instance by branches) was assessed as relatively low. Certainly, a scenario involving the complete blockage of the culvert was considered to be overly conservative.

As a sensitivity analysis, the impact of 50 percent blockage of the culvert was modelled. The resultant flood levels for the 100 year event are listed in Table 4-4. With reference to the table, it can be noted that a localised increase in flood level occurs within the existing gully. However, the increase and resultant levels occur in a region where flooding is dominated by regional river flooding (18.41 mAHD) and therefore do not affect the reclamation levels applicable to the development. Given this outcome, it can be concluded that no change is required with respect to the flood levels adopted for the development to account for potential blockage effects.

Table 4-4 Peak 1080 Minute Duration and 50 percent blockage Storm Flood Levels

Cross Section I.D.	1,080 Minute (Bremer River) Storm Event		50 Percent Blockage of Downstream Culvert	
	Existing Case Peak Flood Level (mAHD)	Developed Case Peak Flood Level (mAHD)	Developed Case Peak Flood Level, No Blockage (mAHD)	Developed Case Peak Flood Level with 50 Percent Blockage (mAHD)
Main 3	19.60	19.60	19.68	19.68
Main 4	18.41	18.41	17.78	17.78
Main 5	18.41	18.41	17.37	17.37
Main 6	18.41	18.41	17.37	17.37
Main 7	18.41	18.41	17.36	17.36
Main 8	18.41	18.41	17.34	17.34
Main 9	18.41	18.41	17.11	17.11
Main 10	18.41	18.41	14.90	14.90
Channel 4	19.44	19.44	19.85	19.85
Channel 5	19.44	19.44	19.85	19.85
Channel 6	20.97	20.97	21.15	21.15
Channel 7	20.78	20.77	20.93	20.93
Channel 8	20.71	20.71	20.85	20.85
Channel 9	19.36	19.36	19.81	19.81
Channel 10	19.25	19.25	19.49	19.49
Channel 11	18.41	18.41	17.95	17.95
Channel 12	18.41	18.41	17.43	17.43
Main 11	18.41	18.41	12.04	12.04
Main 12	18.41	18.41	11.87	11.87
Main 13	18.41	18.41	11.49	11.49
Main 14	18.41	18.41	10.11	10.14
Main 15	18.41	18.41	10.09	10.13
Main 16	18.41	18.41	9.35	9.94
Culvert Invert	18.41	18.41	8.25	9.96

5. REGIONAL FLOODING IMPACT

Some minor earthworks are proposed within the existing gully area at levels less than the regional Bremer River flood level.

A regional flood assessment was performed to analyse the impact of filling the gully on regional flood levels in the Bremer River. For the analysis, it was conservatively assumed that the entire gully was filled to above flood level. The analysis was completed using the Ipswich City Council Ipswich Rivers MIKE-11 Model.

As the gully is not part of the existing case model, the existing case model was modified to reflect the storage available in the gully. The storage differential between existing conditions and post development conditions was established and applied as additional storage at the Mike 11 branch adjacent to the gully in the base case hydraulic model.

For the developed case, the storage was removed from the model. Further, the developed case considered the bank profile modelled as part of the Cardno report *Riverside Central Flood Study* (August 2009).

For the analysis, the following events in the Bremer River were considered:

- Bremer River: 2, 5, 10, 20, 50 and 100 year; and
- Brisbane: 5, 10, 20, 50 year.

It can be noted that following the revision of rainfall intensities, the 50 year event is considered to have a recurrence interval similar to the 100 year event.

The results of the analysis are presented in Appendix B. With reference to Appendix B, it can be noted that the loss of the entire storage area would not result in an increase in flood level in the Bremer River.

6. CONCLUSION

A detailed flood assessment of the proposed Riverlinks Central residential development has been undertaken.

The assessment considered the following:

- the increase in runoff produced by the development; and
- the proposed earthworks in the open space area adjacent to the development.

The assessment has indicated that the proposed development and associated earthworks will create no adverse impact on peak flood levels in existing developed areas upstream of the development. The analysis has therefore determined that the development can occur without the need for the construction of a detention basin to offset the impact of development.

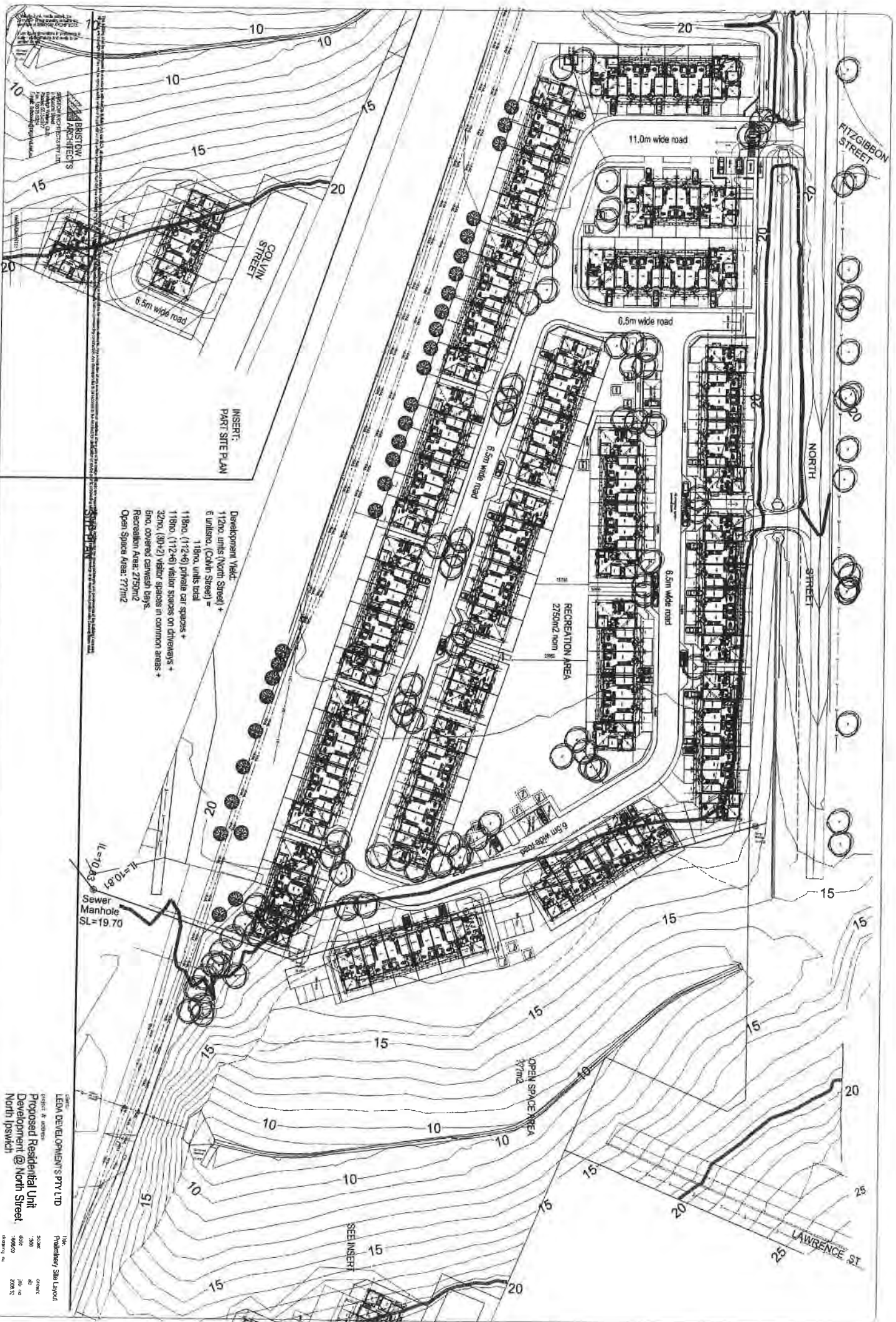
A regional flooding assessment has also been undertaken. The assessment indicated that the proposed works will have no discernable adverse impact on flood levels in the Bremer and Brisbane Rivers.

7. REFERENCES

Institution of Engineers Australia, 1998, 'Australian Rainfall and Runoff, A guide to Flood Estimation'.

Department of Natural Resources and Water, 2007, "*Queensland Urban Drainage Manual*".

Reference Drawings



- Development Yield:**
- 11200 units (North Street) +
 - 6 units (Colvin Street) =
 - 11800 units total
 - 11800 (11246) private car spaces +
 - 11800 (11246) visitor spaces on driveways +
 - 3200 (30+2) visitor spaces in common areas +
 - Recreation Area: 2750m²
 - Open Space Area: 2770m²

Sewer Manhole
SL=19.70

LEDA DEVELOPMENT'S PTY LTD
 PROJECT & ADDRESS
 Proposed Residential Unit
 Development @ North Street
 North Ipswich

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LEGEND

- PROPOSED MAIN EARTHWORKS (HATCH)
- PROPOSED MINOR EARTHWORKS (HATCH)
- EXISTING SURFACE CONTOURS
- STAGE BOUNDARY
- STORMWATER DRAIN

**BULK EARTHWORKS
CENTRAL GULLY LAYOUT PLAN**

DATE	BY	REVISION	APPROVED	BY
2020/06/24	YJ	ISSUED FOR PERMIT	[Signature]	YJ
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RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

LEDA
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FOR ISSUE

DATE: 2020/06/24
 SCALE: AS SHOWN (NOT TO SCALE)
 DRAWING NO: A1

NO.	REVISION	DATE
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2	ISSUED FOR PERMIT	2020/06/24
3	ISSUED FOR PERMIT	2020/06/24
4	ISSUED FOR PERMIT	2020/06/24



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Existing R.L. 9.861

40.000
Datum 30
Existing R.L. 10.76
Existing R.L. 10.775

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Datum 30
Existing R.L. 10.75
Existing R.L. 10.765

0.000
Datum 31
Existing R.L. 11.87
Existing R.L. 11.87

DATE FOR ISSUE		SCALE		PROJECT	
REV	DATE	1:1	AS SHOWN	RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH	
1	08/07/2011	1:1	AS SHOWN	LEDA Developments Pty Ltd	
2	09/07/2011	1:1	AS SHOWN	A1	
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BULK EARTHWORKS
CENTRAL GULLY CROSS SECTIONS
SHEET 1 OF 3

NO.	DATE	BY	CHECKED	APPROVED	SHEET NO.	TOTAL SHEETS
1	08/07/2011	1	3
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 Checked: R.L. 8/58

Drawn: R.L. 8/37
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RIVERLINK - PROPOSED RESIDENTIAL
 UNIT DEVELOPMENT AT
 NORTH STREET, NORTH IPSWICH



BULK EARTHWORKS
 CENTRAL GULLY CROSS SECTIONS
 SHEET 2 OF 3

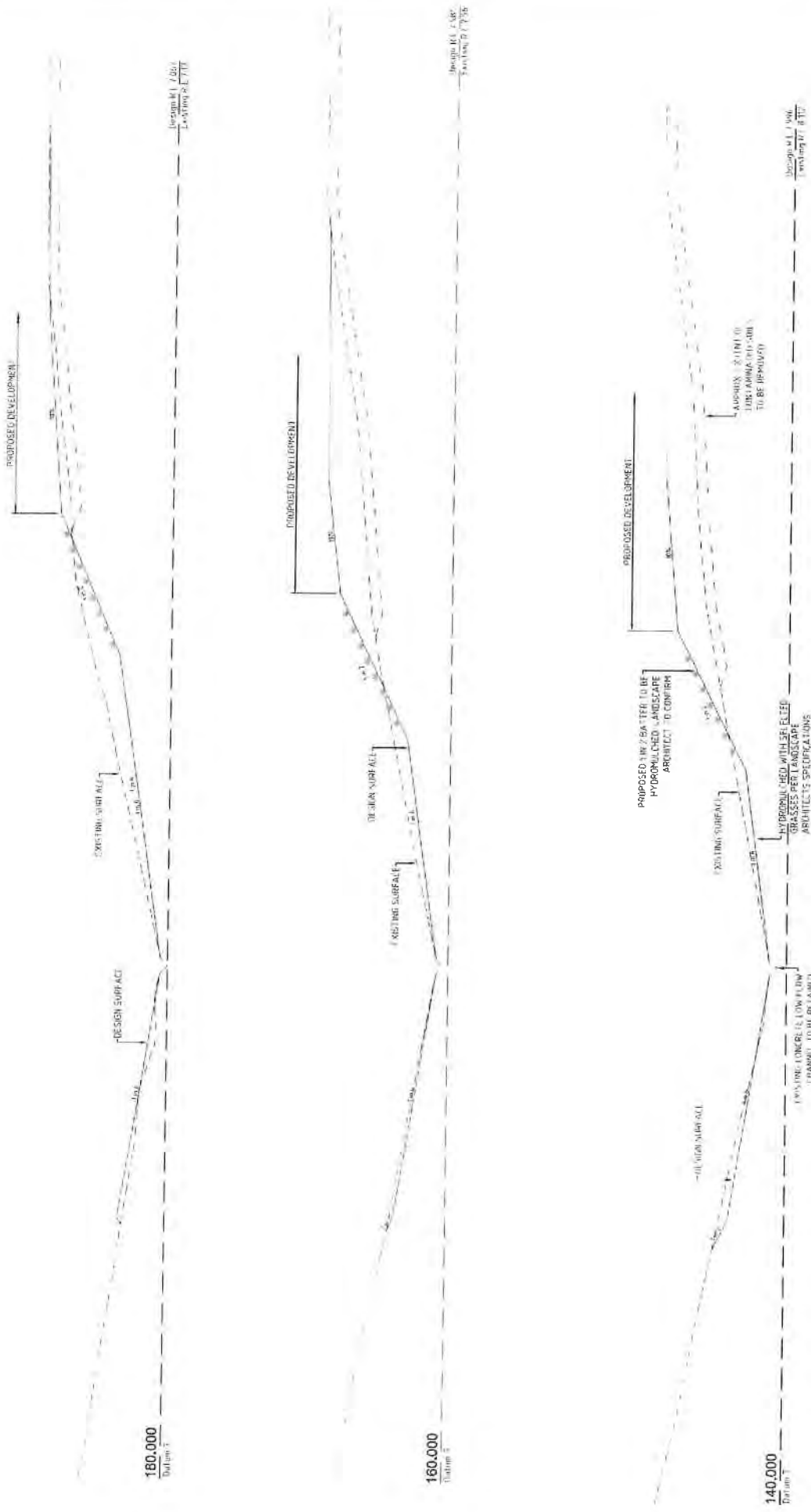
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2	1	15/08/20	R.L.	R.L.	ISSUED FOR PERMIT

15/08/20 R.L. 8/37 R.L. 8/38
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PROJECT

PROJECT

PROJECT: RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH
 SHEET: SHEET 2 OF 3
 DRAWING NUMBER: YC0175-BE20



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CLIENT: LEDA Developments Pty Ltd	CLIENT: LEDA Developments Pty Ltd	CLIENT: LEDA Developments Pty Ltd	CLIENT: LEDA Developments Pty Ltd
DESIGNER: YEATS CONSULTING ENGINEERS	DESIGNER: YEATS CONSULTING ENGINEERS	DESIGNER: YEATS CONSULTING ENGINEERS	DESIGNER: YEATS CONSULTING ENGINEERS

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BULK EARTHWORKS
CENTRAL GULLY CROSS SECTIONS
SHEET 3 OF 3

NO.	DATE	BY	CHKD	APP'D	REVISED
1	10/05/2024	Y. JONES	J. SMITH	M. BROWN	
2					
3					
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APPENDIX A

50 Year-2 Year Peak Flood Levels- Local Flooding

Appendix A - 50 Year ARI Peak Flood Level

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.67	19.67
Main 4	17.75	17.75
Main 5	17.33	17.33
Main 6	17.33	17.33
Main 7	17.32	17.32
Main 8	17.31	17.31
Main 9	17.09	17.09
Main 10	14.81	14.85
Channel 4	19.80	19.79
Channel 5	19.79	19.79
Channel 6	21.13	21.13
Channel 7	20.91	20.91
Channel 8	20.84	20.84
Channel 9	19.75	19.74
Channel 10	19.49	19.45
Channel 11	17.96	17.89
Channel 12	17.48	17.42
Main 11	11.93	11.98
Main 12	11.62	11.81
Main 13	10.99	11.45
Main 14	9.73	10.04
Main 15	9.46	10.02
Main 16	8.70	9.27
Culvert Invert	7.80	8.03

Appendix A - 20 Year ARI Peak Flood Level

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.64	19.64
Main 4	17.72	17.72
Main 5	17.27	17.27
Main 6	17.27	17.27
Main 7	17.27	17.27
Main 8	17.26	17.26
Main 9	17.02	17.02
Main 10	14.65	14.78
Channel 4	19.74	19.74
Channel 5	19.74	19.74
Channel 6	21.12	21.12
Channel 7	20.90	20.90
Channel 8	20.83	20.83
Channel 9	19.69	19.69
Channel 10	19.45	19.41
Channel 11	17.89	17.83
Channel 12	17.46	17.41
Main 11	11.87	11.91
Main 12	11.56	11.74
Main 13	10.94	11.39
Main 14	9.70	9.95
Main 15	9.36	9.92
Main 16	8.63	9.18
Culvert Invert	7.58	7.75

Appendix A - 10 Year ARI Peak Flood Level

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.63	19.63
Main 4	17.69	17.69
Main 5	17.23	17.23
Main 6	17.23	17.23
Main 7	17.22	17.22
Main 8	17.21	17.21
Main 9	16.94	16.94
Main 10	14.17	14.70
Channel 4	19.68	19.68
Channel 5	19.68	19.67
Channel 6	21.10	21.10
Channel 7	20.88	20.88
Channel 8	20.81	20.81
Channel 9	19.62	19.62
Channel 10	19.41	19.38
Channel 11	17.82	17.76
Channel 12	17.43	17.39
Main 11	11.82	11.85
Main 12	11.52	11.68
Main 13	10.91	11.34
Main 14	9.67	9.88
Main 15	9.29	9.83
Main 16	8.59	9.12
Culvert Invert	7.42	7.55

Appendix A - 5 Year ARI Peak Flood Level

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.61	19.61
Main 4	17.66	17.66
Main 5	17.19	17.19
Main 6	17.19	17.19
Main 7	17.19	17.19
Main 8	17.18	17.18
Main 9	16.89	16.89
Main 10	13.45	13.94
Channel 4	19.63	19.63
Channel 5	19.63	19.63
Channel 6	21.08	21.08
Channel 7	20.87	20.87
Channel 8	20.80	20.80
Channel 9	19.57	19.56
Channel 10	19.37	19.34
Channel 11	17.76	17.71
Channel 12	17.41	17.37
Main 11	11.78	11.80
Main 12	11.47	11.62
Main 13	10.87	11.31
Main 14	9.65	9.79
Main 15	9.21	9.74
Main 16	8.55	9.09
Culvert Invert	7.28	7.39

Appendix A - 2 Year ARI Peak Flood Level

Cross Section I.D.	Existing Peak WSL (mAHD)	Developed Peak WSL (mAHD)
Main 3	19.58	19.58
Main 4	17.61	17.61
Main 5	17.13	17.13
Main 6	17.13	17.13
Main 7	17.13	17.13
Main 8	17.13	17.13
Main 9	16.79	16.79
Main 10	12.76	12.85
Channel 4	19.54	19.54
Channel 5	19.54	19.53
Channel 6	21.05	21.05
Channel 7	20.84	20.84
Channel 8	20.77	20.77
Channel 9	19.46	19.46
Channel 10	19.30	19.28
Channel 11	17.65	17.61
Channel 12	17.36	17.33
Main 11	11.69	11.71
Main 12	11.39	11.50
Main 13	10.77	11.21
Main 14	9.61	9.70
Main 15	9.07	9.58
Main 16	8.50	8.99
Culvert Invert	7.03	7.16

APPENDIX B

Bremer River Flood Levels

BREMER RIVER FLOODS - Predicted Impacts to Peak Flood Levels Due to RiverLinks Development combined with Loss of Valley Storage

M11 XS BREM	BREM 100 year ARI Flood			BREM 50 year ARI Flood			BREM 20 year ARI Flood			BREM 10 year ARI Flood			BREM 5 year ARI Flood			BREM 2 year ARI Flood		
	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)
1010020	19.12	19.07	-51	17.17	17.13	-46	12.68	12.59	-100	12.68	12.59	-100	8.29	8.25	-46	4.52	4.52	0
1010090	19.06	19.01	-53	17.11	17.06	-47	12.54	12.43	-105	12.54	12.43	-105	8.17	8.12	-49	4.52	4.52	0
1010150	19.00	18.96	-35	17.05	17.02	-29	12.43	12.37	-67	12.43	12.37	-67	8.07	8.02	-51	4.52	4.52	0
1010250	18.99	18.97	-25	17.05	17.03	-20	12.42	12.37	-53	12.42	12.37	-53	8.06	8.01	-51	4.52	4.52	0
1010340	18.93	18.85	-76	16.98	16.92	-57	12.37	12.36	-3	12.37	12.36	-3	7.96	7.90	-53	4.52	4.52	0
1010430	18.87	18.78	-91	16.93	16.87	-64	12.36	12.36	-3	12.36	12.36	-3	7.91	7.85	-54	4.52	4.52	0
1010510	18.78	18.70	-75	16.84	16.80	-48	12.36	12.36	-2	12.36	12.36	-2	7.80	7.76	-45	4.52	4.52	0
1010590	18.57	18.53	-45	16.67	16.65	-21	12.35	12.35	-1	12.35	12.35	-1	7.65	7.65	0	4.52	4.52	0
1010645	18.60	18.57	-25	16.67	16.66	-8	12.35	12.35	-1	12.35	12.35	-1	7.65	7.65	0	4.52	4.52	0
1010700	18.45	18.43	-21	16.55	16.55	-5	12.35	12.35	-1	12.35	12.35	-1	7.65	7.65	0	4.52	4.52	0
1010890	18.16	18.14	-23	16.31	16.30	-6	12.34	12.34	-1	12.34	12.34	-1	7.65	7.65	0	4.52	4.52	0
1010915	18.06	18.04	-25	16.22	16.21	-6	12.34	12.34	-1	12.34	12.34	-1	7.65	7.65	0	4.52	4.52	0
1010950	17.99	17.98	-8	16.16	16.17	8	12.34	12.34	-1	12.34	12.34	-1	7.65	7.65	0	4.52	4.52	0
1010985	17.99	17.98	-11	16.16	16.16	6	12.34	12.33	-1	12.34	12.33	-1	7.65	7.65	0	4.52	4.52	0
1011040	17.98	17.95	-35	16.15	16.13	-13	12.33	12.33	-1	12.33	12.33	-1	7.64	7.64	0	4.52	4.52	0
1011090	17.93	17.90	-27	16.10	16.10	-6	12.33	12.33	-1	12.33	12.33	-1	7.64	7.64	0	4.52	4.52	0
1011185	17.86	17.81	-46	16.04	16.01	-25	12.33	12.33	-1	12.33	12.33	-1	7.64	7.64	0	4.52	4.52	0
1011320	17.81	17.78	-29	15.98	15.97	-13	12.33	12.33	0	12.33	12.33	0	7.64	7.64	0	4.52	4.52	0
1011465	17.66	17.65	-17	15.85	15.84	-2	12.32	12.32	0	12.32	12.32	0	7.64	7.64	0	4.52	4.52	0
1011575	17.49	17.49	5	15.69	15.69	-4	12.32	12.32	0	12.32	12.32	0	7.64	7.64	0	4.52	4.52	0
1011700	17.26	17.28	25	15.50	15.50	5	12.32	12.32	0	12.32	12.32	0	7.64	7.64	0	4.52	4.52	0
1011790	17.11	17.09	-23	15.36	15.34	-21	12.31	12.31	-1	12.31	12.31	-1	7.64	7.64	0	4.52	4.52	0
1011810	17.04	17.02	-14	15.31	15.29	-18	12.30	12.30	-1	12.30	12.30	-1	7.64	7.64	0	4.52	4.52	0
1011930	16.88	16.86	-27	15.16	15.14	-20	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	4.52	4.52	0
1012045	16.79	16.79	0	15.08	15.08	0	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	4.52	4.52	0
1012050	16.84	16.84	0	15.13	15.12	0	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	4.52	4.52	0
1012070	16.82	16.82	0	15.10	15.10	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	4.52	4.52	0
1012200	16.75	16.75	0	15.04	15.04	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	4.52	4.52	0
1012870	16.71	16.71	0	15.01	15.01	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	4.52	4.52	0
1013380	16.66	16.66	0	14.95	14.95	0	12.28	12.28	0	12.28	12.28	0	7.64	7.64	0	4.52	4.52	0
1013700	16.62	16.62	0	14.92	14.92	0	12.28	12.28	0	12.28	12.28	0	7.64	7.64	0	4.52	4.52	0
1014220	16.43	16.43	0	14.74	14.74	0	12.28	12.28	0	12.28	12.28	0	7.63	7.63	0	4.52	4.52	0

BRISBANE RIVER FLOODS - Predicted Impacts to Peak Flood Levels Due to RiverLinks Development combined with Loss of Valley Storage

M11 XS BREM	BRIS 50 year ARI Flood			BRIS 20 year ARI Flood			BRIS 10 year ARI Flood			BRIS 5 year ARI Flood		
	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)	Exist mAHD	Dev mAHD	Afflux (mm)
1010020	18.42	18.38	-37	16.39	16.34	-51	13.72	13.66	-61	11.23	11.17	-51
1010090	18.37	18.33	-37	16.33	16.28	-52	13.65	13.59	-62	11.15	11.10	-53
1010150	18.32	18.30	-23	16.29	16.25	-37	13.61	13.56	-48	11.09	11.05	-42
1010250	18.32	18.30	-15	16.28	16.25	-30	13.60	13.56	-42	11.09	11.05	-39
1010340	18.26	18.21	-52	16.23	16.17	-57	13.53	13.48	-54	11.01	10.97	-42
1010430	18.22	18.16	-61	16.19	16.13	-62	13.51	13.45	-58	10.99	10.95	-44
1010510	18.15	18.10	-47	16.12	16.07	-49	13.44	13.40	-48	10.93	10.89	-37
1010590	17.99	17.97	-23	15.99	15.96	-29	13.32	13.29	-31	10.82	10.79	-22
1010645	18.01	18.00	-9	15.98	15.96	-21	13.30	13.28	-28	10.79	10.77	-21
1010700	17.90	17.89	-6	15.90	15.88	-18	13.24	13.21	-27	10.73	10.71	-20
1010890	17.69	17.68	-8	15.71	15.69	-19	13.07	13.04	-28	10.57	10.55	-21
1010915	17.61	17.60	-9	15.64	15.62	-20	13.01	12.98	-28	10.51	10.49	-20
1010950	17.56	17.57	3	15.60	15.59	-9	12.97	12.95	-21	10.48	10.46	-18
1010985	17.56	17.57	1	15.60	15.59	-11	12.97	12.95	-21	10.47	10.45	-17
1011040	17.56	17.54	-16	15.59	15.57	-25	12.95	12.92	-31	10.45	10.43	-21
1011185	17.52	17.51	-10	15.56	15.54	-19	12.93	12.90	-27	10.44	10.42	-20
1011090	17.47	17.44	-24	15.51	15.47	-32	12.87	12.84	-30	10.38	10.36	-21
1011320	17.43	17.42	-12	15.46	15.44	-22	12.82	12.80	-15	10.32	10.31	-4
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1011575	17.20	17.21	7	15.25	15.24	-14	12.64	12.63	-11	10.16	10.16	-3
1011700	17.05	17.07	18	15.10	15.10	-8	12.51	12.50	-8	10.05	10.04	-5
1011790	16.96	16.94	-12	15.00	14.98	-26	12.42	12.40	-18	9.95	9.95	-7
1011810	16.91	16.90	-9	14.97	14.95	-14	12.38	12.36	-11	9.91	9.90	-3
1011930	16.82	16.80	-16	14.86	14.85	-14	12.26	12.25	-2	9.78	9.79	6
1012045	16.77	16.77	0	14.81	14.81	0	12.21	12.21	0	9.73	9.73	0
1012050	16.80	16.80	0	14.84	14.84	0	12.24	12.23	0	9.76	9.76	0
1012070	16.79	16.79	0	14.82	14.82	0	12.15	12.15	0	9.68	9.68	0
1012200	16.75	16.75	0	14.78	14.78	0	12.11	12.11	0	9.64	9.64	0
1012870	16.73	16.73	0	14.76	14.76	0	12.09	12.09	0	9.61	9.61	0
1013380	16.70	16.70	0	14.72	14.72	0	12.03	12.03	0	9.55	9.55	0
1013700	16.68	16.68	0	14.69	14.69	0	12.00	12.00	0	9.52	9.52	0
1014220	16.58	16.58	0	14.56	14.56	0	11.88	11.88	0	9.41	9.41	0

FIGURES

- Figure 1 Site Location**
- Figure 2 Hydrologic Catchment Extents**
- Figure 3 XP-SWMM Hydraulic Model**



LEGEND
— Site Boundary



Scale 1:4000 (A3)
FIGURE 1
SITE LOCATION

Project No.: 3503-70
PRINT DATE: 07 October 2009 - 08:00m

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LEGEND

- █ Site Boundary
- █ Catchment Boundary
- Existing Major Contour
- Existing Minor Contour

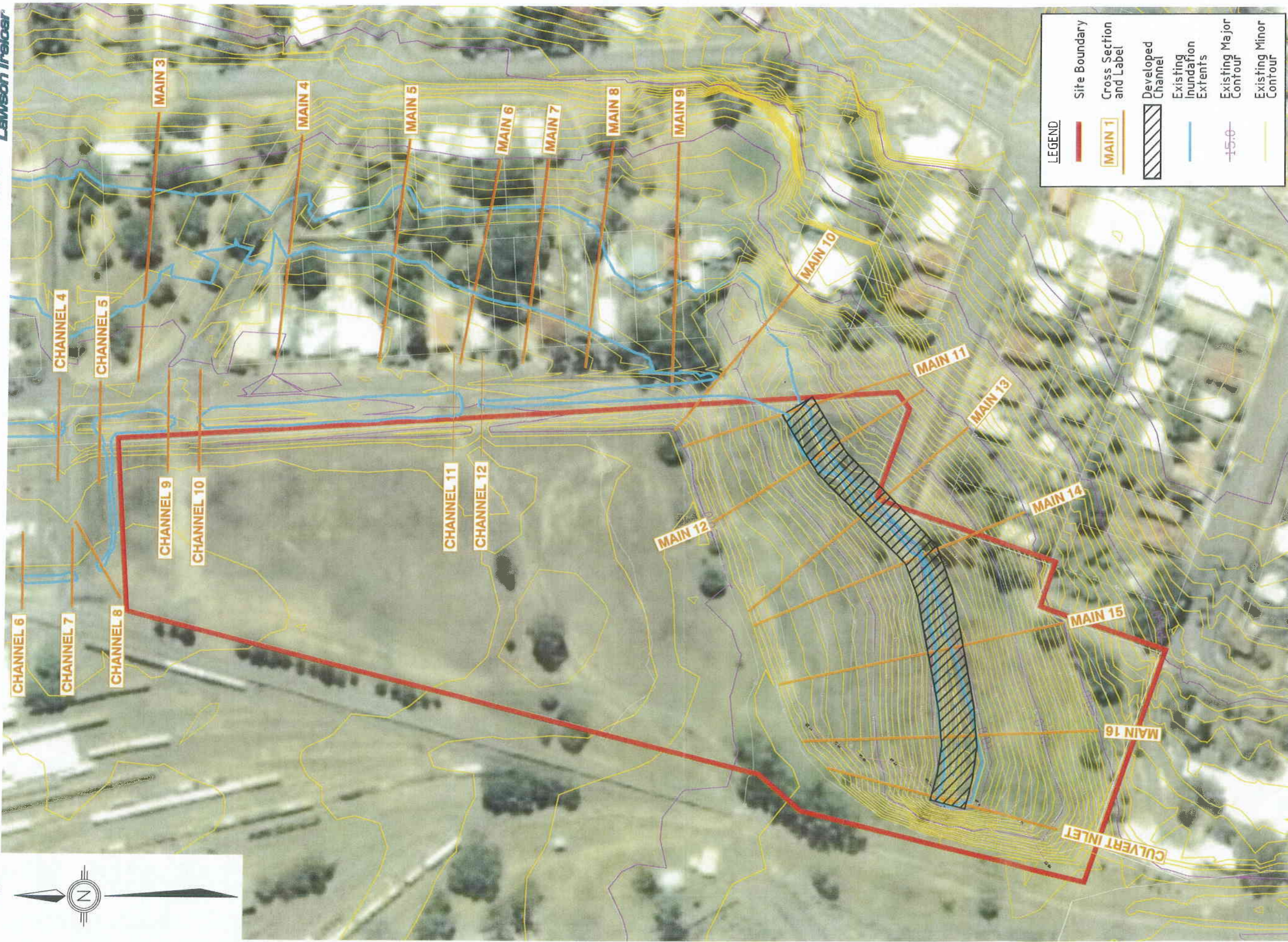
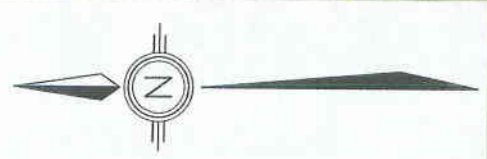


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FIGURE 2

HYDRAULIC CATCHMENT EXTENTS

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LEGEND	
	Site Boundary
	Cross Section and Label
	Developed Channel
	Existing Inundation Extents
	Existing Major Contour
	Existing Minor Contour

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FIGURE 3
XP-SWMM HYDRAULIC MODEL

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Appendix 9

Site Based Stormwater Management Plan.

CIVIL

WATER

STRUCTURAL

INFRASTRUCTURE

PROJECT DELIVERY

URBAN DEVELOPMENT



Site Based Stormwater Management Plan

RIVERLINK – NORTH STREET – IPSWICH
Residential Unit Development

LEDA HOLDINGS PTY LTD

OCTOBER 2009

REVISION 01

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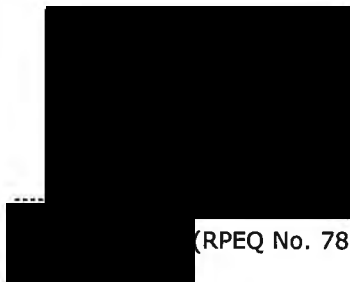
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This document has been reviewed and approved by the following appropriately qualified and experienced Registered Professional Engineer of Queensland (RPEQ)



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- C Rational Method Calculations
- D Stormwater Management Plan
- E Water Quality Treatment Strategy and Details
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1 Introduction

1.1 Background

Yeats Consulting Pty Ltd (Yeats Consulting) has been engaged by Leda Holdings Pty Ltd (Leda) to undertake engineering investigations to provide supporting documentation for the development applications that are to be lodged for the proposed Riverlink Unit Development – North Street. The property included in the proposed development is Lot 55 on SP222487 at the Railway Historical Centre – North Street and Lawrence Street.

1.2 Scope

This plan addresses the proposed stormwater management strategy for the site, including:

- Pre and post development flows for the 2, 5, 10, 20, 50 and 100 year return interval storms;
- Assessment of water quantity objectives
- Nomination of the legal point of discharge;
- MUSIC Modelling to demonstrate that water quality objectives can be achieved;
- Details of the stormwater quality treatment strategy; and
- Maintenance schedules and techniques for each stormwater quality improvement device.

1.3 Site Location

The subject site is located at 20A Lawrence Street, Ipswich. The site is bounded by existing Lot 35 on SP175172 to the north and an existing Rail Corridor to the west and south. Access to the development is proposed to be taken from North Street at the eastern boundary. The site location is shown in figures 1.1 and 1.2 below.

1.3.1 Existing Features and Topography

The majority of the site fronting North Street (the main location of the proposed development) is generally flat, grading gently down to the south (RL21.5m – RL20.0m) before steepening into the localised gully extending through the southern end of the site.

The gully receives runoff from the urban residential catchment (approx. 30ha) to the north east and is generally bounded by North Street to the west, Wyndham Street to the north, Downs Street to the east and Lawrence Street in the South. The gully invert is at approx RL13.0m at the eastern boundary of the site, falling to RL6.6m at the western end of the site, adjacent to the base of the steep railway embankment. Flows are conveyed beneath the railway line and elevated land west of the railway within a 2.5mx2.5m box culvert (approx. 145m in length), discharging into the Bremer River.

The land rises moderately from the base of the gully to the south (15-20% grades), reaching RL24.0m in the vicinity of Canning Street at the southern corner of the site.

A large grassed swale with a concrete lined invert is located on the western side of North Street, adjacent to the site boundary. The swale flows from north to south and is culverted beneath a number of crossings before discharging into the main gully adjacent to the eastern boundary.



Figure 1.1 Site Location – Street Plan



Figure 1.2 Site Location – Satellite View

1.4 Site Description

The subject site's particulars are listed below:

Table 1.0 Site Descriptors

Street Address:	20A Lawrence Street, Ipswich
Lot and Plan No:	Lot 55 on SP222487
Development Name:	Riverlink – North Street - Ipswich
Local Authority:	Ipswich City Council (ICC)

2 Proposed Development

The proposal is for a townhouse residential development which will include a total of 118 townhouses.

For the purposes of this report, we have broken the site into 2 stages as outlined below:

STAGE 1 of the proposed development consists of the main 'northern' part of the development, located on the relatively flat terrace on the northern side of the gully, comprises a total of 112 units. It is proposed to provide access from North Street in the vicinity of Fitzgibbon Street at the northern end of the site with an internal road network providing access to the individual townhouses.

STAGE 2 consists of the 'southern' part of the development, located on the southern side of the gully and comprises a total of 6 units. It is proposed to provide access from Colvin Street adjacent to the southern boundary of the site, with a single internal road providing access to the individual townhouses.

Refer to Appendix A for the Bristow Architects proposed layout plan for the development.

3 Stormwater Quantity

3.1 Hydrologic Objectives

Hydrologic objectives for the site have been set in accordance with Ipswich City Council (ICC) Planning Scheme Policy 3, and Queensland Urban Drainage Manual (QUDM), and are summarised below:

- The design of the proposed drainage system is to ensure that the upstream drainage is not adversely affected and that the downstream drainage system is capable of adequately catering for the discharge of the additional flow produced as a result of the development.
- The proposed development shall result in no adverse impact external to the subject site and/or the existing drainage system either from redirection and/or concentration of flows during storm events.
- The proposed development shall ensure that all stormwater drainage is directed to a Lawful Point of Discharge in accordance with QUDM Section 3.02.
- Implementation of Stormwater Quality Best Management Practices; and
- Integration of water quantity, water quality and waterway corridor issues into the design of both permanent and temporary water quality control measures;

3.2 Pre-Development Hydrology

The pre-development hydrology of the site has been assessed using the Rational Method, in accordance with the QUDM Section 4.

The Site has been divided into three catchments A, B and C with a total site area of 51,894m². Refer to Appendix B for catchment plans.

The pre-developed time of concentration (t_c) values of 24.6, 10.8 and 7.7 minutes (catchments A, B & C respectively) were derived from Friends equation for overland flow and Mannings Equation for pipe flow travel time in accordance with section 4.06 of QUDM. Refer to Appendix C for rational method calculations.

The pre-development co-efficient of runoff has been determined using the Fraction Impervious (f_i) method from section 4.05 of QUDM. Table 4.05.3(b) gives a C_{10} value of 0.66 (Good grass cover, medium soil permeability, $^1I_{10} = 60-64$ mm/hr).

Table 3.1 summarises the pre-developed peak flow rates discharging from the site for the 25min time of concentration storm event for the total site.

Table 3.1 Pre-Development Catchment Peak Flow Summary

Catch ID	Catch Area (Ha)	Q2 (m ³ /s)	Q5 (m ³ /s)	Q10 (m ³ /s)	Q20 (m ³ /s)	Q50 (m ³ /s)	Q100 (m ³ /s)
A	3.1744	0.360	0.522	0.628	0.771	1.009	1.190
B	1.7803	0.202	0.293	0.352	0.432	0.566	0.667
C	0.2347	0.027	0.039	0.046	0.057	0.075	0.088
TOTAL	5.1894	0.589	0.854	1.026	1.260	1.650	1.945

3.3 Post-Development Hydrology - Unmitigated

The post-developed time of concentration (t_c) value of 15.0 minutes has been adopted for site which is the sum of standard inlet time (5.0 min) and pipe flow travel time consistent with section 4.06 of QUDM.

The post-development scenario has adopted a C_{10} value of 0.85 in accordance with Section 4.05 of QUDM, assuming High Density Urban Residential Development ($f_i = 0.80$). Analysis of the proposed impervious areas within the developed site also confirms a fraction impervious of approximately 80% within Catchments A and C.

It has been assumed that no development will occur within catchment B.

Table 3.2 summarises the unmitigated post-developed peak flow rates discharging from the site for the 15min storm event.

Table 3.2 Post-Development Catchment Peak Flow Summary – Unmitigated

Catch ID	Catch Area (Ha)	Q2 (m ³ /s)	Q5 (m ³ /s)	Q10 (m ³ /s)	Q20 (m ³ /s)	Q50 (m ³ /s)	Q100 (m ³ /s)
A	3.1744	0.593	0.856	1.026	1.255	1.638	1.889
B	1.7803	0.258	0.373	0.447	0.546	0.713	0.839
C	0.2347	0.044	0.063	0.076	0.093	0.121	0.140
TOTAL	5.1894	0.895	1.292	1.549	1.894	2.472	2.868
% Increase	-	52.0%	51.3%	51.0%	49.8%	49.3%	46.8%

Table 3.2 above shows increases in peak flows in the order of 50% as a result of the proposed development.

3.4 Detailed Modelling of the Drainage System

Detailed hydrologic and hydraulic modelling of the full catchment draining to the central gully and the drainage channels has been undertaken by Cardno

The report provides an assessment of the pre and post-development flows, and the corresponding effect on the flood levels within the central gully.

In accordance with the findings of the Cardno report, the proposed development will not adversely affect the flood levels upstream of the proposed development with the increases in flood levels contained within the site boundaries. Also, in accordance with the Cardno report, no additional onsite detention of the stormwater from the developed site (outside of the central gully) has been proposed.

3.5 Minor Drainage System

In accordance with the Ipswich Planning Scheme, the minor drainage system is to be piped throughout the development.

A 10 year Minor System ARI is proposed for the development in accordance with QUDM Table 7.02.1 (Minor System Design ARI – Urban Residential High Density, greater than 20 dwelling units/ha).

3.6 Legal Point of Discharge

The legal point of discharge for the site has been taken as the inlet to the existing 2.5mx2.5m box culvert located at the south-western corner of the site. The culvert discharges beneath the railway line and into the Bremer River approximately 140m downstream.

3.7 Secondary Overland Flow Paths and Flood Levels

Secondary overland flow paths shall be provided across the development designed to convey the major Q100 event with adequate freeboard to habitable floor levels.

Within the developed areas, the road network will generally be utilised to convey overland flows. Proposed bulk earthworks levels have been established to direct overland flows within the northern development site to the southern end of the site, discharging directly to the central gully. The overland flow path shall also be designed to bypass the bio-retention treatment basin – the bio-retention basin should only receive flows from the minor drainage network.

In accordance with modelling undertaken by Cardno, the Q100 maximum peak flood level within the Bremer River at the point of discharge from the gully has been set at **18.31mAHD**.

Cardno modelling has also undertaken an assessment of the open drain/swale network traversing the northern and eastern boundary of the site. All proposed building pads adjacent to the drain have been set above these Q100 flood levels, with minimum 300mm freeboard provided.

3.7.1 Railway Overflow

In the event of a catastrophic failure of the drainage network, involving complete blockage of the 2.5m diameter culvert discharging beneath the railway embankment, flows will back up within the upstream basin before overtopping the railway embankment. Consideration of this event in relation to the design flood level for the site is considered overly conservative.

A review of the railway line long-section however shows a low point at 18.79mAHD to the south of the main drain alignment. Assuming broad crested weir flow, a flood level of 19.20mAHD is required to convey a Q100 flow over the railway and into the Bremer River to the west.

The proposed bulk earthworks design (refer Table 3.3 below) does however ensure habitable building floors are elevated above this level across the Riverlink development.

A summary of the key design levels is shown in table 3.3 below:

Table 3.3 Key Design Levels

Description	Level
Bremer River Q100 Maximum Peak WSL (Cardno)	18.31 mAHD
DESIGN 100 YEAR ARI FLOOD LEVEL	
Railway Embankment overland flow level	18.79 mAHD
Q100 Flow over Railway Line	19.20 mAHD
Adopted Minimum Earthworks Pad Level	19.20 mAHD

4 Water Quality Objectives

4.1 Relevant Water Quality Objectives

Ipswich City Council (ICC) objectives have been used for the basis of the water quality design.

Table 4.1 Load Based Reduction Objectives

Pollutant Indicator	Objectives
Total Suspended Solids (TSS)	80% reduction in average annual load of pollutants leaving the developed unmitigated scenario compared to the developed mitigated scenario.
Total Phosphorous (TP)	60% reduction in average annual load of pollutants leaving the developed unmitigated scenario compared to the developed mitigated scenario.
Total Nitrogen (TN)	45% reduction in average annual load of pollutants leaving the developed unmitigated scenario compared to the developed mitigated scenario.
Gross Pollutants (GP)	90% reduction in average annual load of pollutants leaving the developed unmitigated scenario compared to the developed mitigated scenario.

The following section discusses the appropriate techniques that will be adopted within the development to promote best practise water quality management.

4.2 Proposed Treatment Measures

Refer to Appendix D for the proposed stormwater management plan and WSUD treatment strategy. The following treatment measures are proposed:

4.2.1 Rainwater Tanks

Individual 3,000l rainwater tanks are proposed for each townhouse for collection of roof water runoff. The collected roof water will be used for re-use for grey water applications, reducing demand on the town water supply.

The rainwater tanks will also serve as a minor treatment node, acting as a settling pond and allowing the settlement of coarse sediments and solids which would otherwise have entered that natural water course.

4.2.2 Bio-retention Basin (Northern Site)

It is proposed to utilise a single bio-retention basin to treat runoff from the 'northern site' prior to discharge into the existing gully and drainage channel to the south. The bio basin will accept flow from the underground piped drainage system only, retaining this runoff within a defined extended detention depth (0.3m) and percolate this water through the filter media (sandy loam topsoil).

Filtered stormwater is then recovered at the base of the filter media via a drainage layer containing perforated pipes. The surface of the bio basin is to be densely planted out with locally occurring native ground cover species and shrubs. The vegetation should be selected in consultation with a landscape architect and the approved landscaping plan for the site. A typical section of a bio basin is presented in Figure 4.1.

The major drainage system (i.e. overland flows) shall be directed directly to the central drainage gully, bypassing the bio-retention basin.

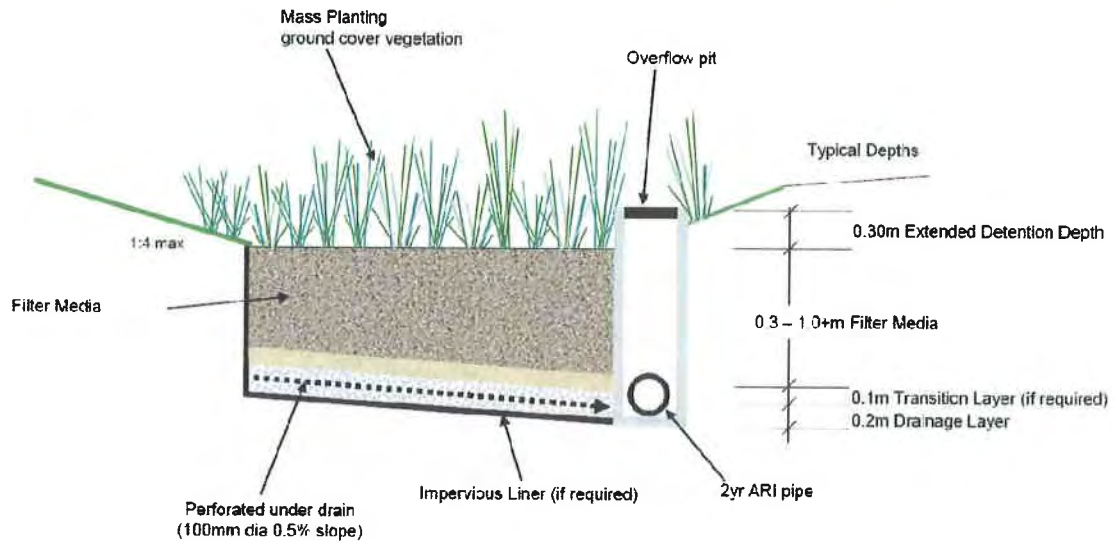


Figure 4.1 Bio Basin – Typical Section
 (Source: GCCC WSUD Engineering Guidelines – Figure 13.6.B)

Treatment of the stormwater occurs both on the surface of the bio basin and within the filter media. When large storm inflows cause temporary ponding on the surface of the basin, pollutants are removed from the stormwater through sedimentation and particulate adhesion onto the stems and leaves of the vegetation. The agitation of the surface layer of the soil caused by movement of the vegetation and the growth of root systems prevents the accreted sediments clogging the filter media. As stormwater percolates through the filter media, fine particulates and some soluble pollutants are removed through processes such as adhesion on to the surface of the filter media particles, biological transformation of pollutants by bio-films growing on the surface of the filter media particles, and bio-mass uptake of nutrients and metals through the root systems of the vegetation growing in the basin.

4.2.3 Bio-retention Swale (Southern Site)

It is proposed to provide a Bio-retention swale to treat runoff from the 'southern site' before discharging into the central drainage gully. Flows from the minor piped drainage network will be directed to a vegetated swale located adjacent to the access road, with a bio-retention system installed in the base of the swale.

Overland flows shall be directed directly into the central drainage gully, bypassing the Bio-retention swale.

The bioretention swale treatment process operates by filtering stormwater runoff through surface vegetation associated with the swale and then percolating the runoff through a prescribed filter media, forming the bioretention component which provides treatment through fine filtration, extended detention treatment and some biological uptake.

4.3 MUSIC Modelling

A proposed treatment strategy is shown in Appendix D. A treatment train approach has been adopted with the details described in the following sections.

4.3.1 Meteorological Data

The meteorological data utilised by MUSIC to simulate catchment hydrology processes includes rainfall data (at intervals relevant to the time step being modelled) and average areal potential evapo-transpiration (measured in millimetres per day).

Meteorological data was obtained using the default rainfall set (6 minute time step) within the MUSIC program.

4.3.2 Source Nodes

Source node properties were obtained from GCCC MUSIC Guidelines and are tabulated below:

Table 4.2 Mean EMC Values for Source Nodes

Mean EMC (mg/L)							
Land Use		TSS		TP		TN	
		Storm Flow	Base Flow	Storm Flow	Base Flow	Storm Flow	Base Flow
Urban	Mean	2.18	1.00	-0.47	-0.97	0.26	0.20
	Std Deviation	0.39	0.34	0.31	0.31	0.23	0.20
Roof	Mean	1.30	1.00	-0.89	-0.97	0.26	0.20
	Std Deviation	0.39	0.34	0.31	0.31	0.23	0.20

4.4 Performance Assessment

The site has been modelled as a number of source nodes (roof and urban), discharging into rainwater tanks and bio-filtration devices. MUSIC model parameters were adopted according to the Brisbane City – Guidelines for Pollutant Export Modelling in Brisbane, Version 7 and the Gold Coast City Council MUSIC Modelling Guidelines. The parameters adopted for the MUSIC model are outlined in Table 4.3.

Table 4.3 Adopted MUSIC Model Parameters

Parameter	Value
Rainfall data setup	01/01/1985 to 31/12/1994
Model time step	6 Minute
Soil properties (Runoff generation parameter)	Roof & Urban (GCCC MUSIC Modelling Guidelines)
Site Data	
Catchment A (110 Dwellings)	1.1314 Ha – Roof 2.0430 Ha – Urban
Catchment C (6 Dwellings)	0.0603 Ha – Roof 0.1744 Ha – Urban

Parameter	Value
Treatment Devices	
CATCHMENT A	
Bio-Retention Basin	Filter media – sandy loam Median particle diameter = 0.45mm Saturated hydraulic conductivity = 180mm/hr Seepage Loss = 0.00mm/hr Storage surface area = 350.0m ² Filter media surface area = 220.0m ² Filter Media Depth = 0.60m
Rainwater Tanks	Volume = 330kL (3kL tank/dwelling) Surface area = half the tank volume = 165m ² Daily re-use demand = 35.86 kL/day (0.326kL/household/day) Equivalent Overflow Pipe Diameter = 944mm (Assumed 90mm outlet on each tank)
CATCHMENT C	
Swale Component	Length = 25.0m Bed Slope = 0.50% (1V:200H) Base Width = 1.0m Side Slopes = 1V:4H Depth = 0.30m Vegetation Height = 0.075m (Grassed – mowed) Low Flow By-pass = 0.001 m ³ /s
Bio-Retention Component of Swale	Filter media – sandy loam Median particle diameter = 0.45mm Saturated hydraulic conductivity = 180mm/hr Seepage Loss = 0.00mm/hr Extended Detention Depth = 0 m Filter media surface area = 25.0m ² Filter Media Depth = 0.50m
Rainwater Tank	Volume = 330kL (3kL tank/dwelling) Surface area = half the tank volume = 165m ² Daily re-use demand = 35.86 kL/day (0.326kL/household/day) Equivalent Overflow Pipe Diameter = 944mm (Assumed 90mm outlet on each tank)

4.5 Load Based Objectives Performance

Table 4.4 and 4.5 below summarises the load reduction by MUSIC for the proposed WSUD strategy.

Table 4.4 MUSIC Pollutant Load Assessment Catchment A

Parameter	Post-Development	Post-Development (Mitigated)	Reduction (%)
Total Suspended Solids (kg/yr)	3280	707	78.4
Total Phosphorous (kg/yr)	8.01	2.73	65.9
Total Nitrogen (kg/yr)	59.3	30.5	48.5
Gross Pollutants (kg/yr)	559	0.00	100.0

Table 4.5 MUSIC Pollutant Load Assessment Catchment C

Parameter	Post-Development	Post-Development (Mitigated)	Reduction (%)
Total Suspended Solids (kg/yr)	245	30.9	87.4
Total Phosphorous (kg/yr)	0.574	0.173	69.9
Total Nitrogen (kg/yr)	4.07	2.22	45.4
Gross Pollutants (kg/yr)	37.9	0.00	100.0

As Tables 4.4 and 4.5 illustrate, the Ipswich City Council water quality load based reduction objectives of 80% for Total Suspended Solids, 60% for Total Phosphorous, 45% for Total Nitrogen and 90% for Gross Pollutants have generally been achieved for the post-developed catchment.

Note: Catchment A's reduction in TSS (78.4%) has not quite achieved the objective of 80% reduction. The treatment achieved is however considered adequate given the additional polishing of runoff across the site (grass buffers, swales etc), that has not been included within the MUSIC model.

4.6 Monitoring and Maintenance

4.6.1 Monitoring

As only proven Stormwater Quality Best Management Practices (SQBMPs) are proposed for this development, it is not considered necessary that ongoing water quality monitoring be undertaken.

4.6.2 Maintenance

Proper maintenance of rainwater tanks and the bio-retention devices is critical in ensuring that filtering capacity of the system will not be reduced. This will be primarily achieved by maintaining complete vegetation covering of the soil throughout the buffer and bio swale areas of the system, and prevent activities that could compact the soil and limit the infiltration rate of water through it. Other maintenance works will include:

- Watering, replanting and weeding to maintain vegetation cover especially during establishment;
- Mowing of the grassed surface; and
- Removal of litter and debris from the bio-retention basin and swales

Maintenance works, including but not limited to the collection of litter, mowing of the grass buffers and maintenance of the bio-retention basin, will be the responsibility of the Developer during the construction and on maintenance period and the responsibility of the Body Corporate thereafter.

5 Erosion and Sediment Management

The objective of Erosion and Sediment Management is to limit soil erosion and control sediment discharge from the proposed development by using suitable control devices during the four (4) primary phases, Pre-development, Bulk Earthworks, Construction and the Post-development.

Typical erosion and sediment control measures that will be incorporated into these development phases are highlighted in Sections 4.2 & 4.3 respectively.

5.1 Erosion and Sediment Management during Development Phases

5.1.1 Pre-development

Prior to construction commencing, the following sediment and erosion control measures will be implemented to minimise disturbance and ensure water quality is maintained.

- Designation of transport routes to ensure minimal vegetation disturbance. Transport routes will have construction exits in accordance with IEAust Guidelines;
- Maximise vegetated open space areas to reduce soil disturbance and provide filter strip treatment for runoff;
- Construction entry/exit to be installed and will comprise of a designed gravel pad or placement of hardwood logs in accordance with the IEAust Guidelines;
- Install sediment fences around the proposed bulk earthworks site (along toe of batter alignment); and
- Install dust control fences adjacent to the proposed bulk earthworks site (along property boundary).

5.1.2 Bulk Earthworks

Filling during the bulk earthworks phase is to occur so as to direct runoff towards sediment and erosion controls. The following measures will be implemented:

- Construct chutes to control runoff over earthworks batters;
- Construction of temporary bund at the top of all earthwork batters to ensure runoff is directed to chutes and away from exposed batters;
- Sediment fences will be installed at all down slope areas of material stockpile bases; and
- All batters to be topsoiled and seeded immediately upon reaching finished earthworks levels.

5.1.3 Construction

The following measures will be undertaken to mitigate water quality impacts during construction phase:

- Sediment fences to be erected at the base of all batters and stockpiles to prevent sediment transportation off site;
- Grass filter strips to be placed along all road verges;
- Re-vegetation of all disturbed areas within two weeks of completion;

- All sediment control structures to be maintained in an effective manner and inspected after each storm event. No structure is to accumulate sediment above 40% of its capacity; and
- Regular monitoring of water quality to determine the effectiveness of the sediment and erosion control measures.

5.1.4 Post-development

Once construction is completed and the development has been certified "On-Maintenance" the following strategies will be implemented to limit soil erosion and control sediment discharge leaving the site:

- A monitoring program will be established for the stormwater treatment devices as outlined in stormwater management plan;
- All monitoring activities associated with the operation of the vegetated treatment areas, including weed inundation, erosion, vegetation density, determination and inappropriate access shall be included in the general monitoring of the landscaped areas;
- The Developer will be responsible for all monitoring activities associated with the operation of the trenches/swales during the maintenance period (minimum 2 year period) with the Body Corporate responsible following the maintenance period; and
- A report shall be prepared for Council submission following the maintenance period containing all erosion & sediment monitoring results and a brief description of the same (including any incidences of non-compliance and corrective actions implemented).

5.2 Erosion Controls

The time of disturbance on-site should be kept to a minimum by ensuring that construction works immediately follow the earthworks phase. Consideration to staging works should be given to minimise the area of exposed works at any given time.

Areas that may be subject to concentrated flow and that have been cleared may require turfing to ensure gully erosion does not start.

Any overburden that is not to be taken off-site should be stockpiled nearby and covered to prevent the mobilization of any particles in to the drainage system.

The remaining exposed areas of the site are to be damped down as deemed necessary by the site supervisor to prevent dust. All batters are to have mulch or erosion control mats installed immediately after achieving final level.

Dust fencing is to be installed around the perimeter of earthworks to prevent wind velocities at ground level over the site.

The site is to be landscaped and revegetated in accordance with the Landscape Plan immediately after completion of construction activities to minimise the risk of erosion from exposed earthworks.

5.3 Sediment Controls

With reference to the IEAust Guidelines and Current Best Practice, there are eight fundamental sediment control principles that have been identified for use during construction:

1. Construction Exit
2. Sediment Fences
3. Buffer Zones
4. Sediment Basins
5. Sediment Barriers
6. Turfed Filter Strips
7. Check Dams

5.3.1 Construction Exit

A dedicated construction exit is to be located at the sites entry and exit point for vehicles. This exit will be established to facilitate the removal of soil, mud, dust and debris from the tyres of vehicles prior to leaving the construction site. The construction exit can comprise of a gravel pad designed or placement of hardwood logs, constructed and maintained in accordance with the IEAust Guidelines. Alternatively, a vibratory grid system can be hired or constructed. The advantages of the grid system include ease of movement and they can be used for several years.

5.3.2 Sediment Fences

Sediment fencing is to be established down slope of any exposed earthworks where there is a risk of contaminated water leaving the site prior to clearing and earthworks commencing. Sediment fencing may be required at regular spacing down the disturbed grade to limit rutting caused by concentration of sheet flow. Sediment fences shall be used to protect any temporary stockpile areas on an as-needs basis. Sediment collected from sediment barriers is to be regularly removed and either taken off site as part of the earthworks phase of the proposed development or stockpiled for use during revegetation.

5.3.3 Buffer Zones

Buffer zones consisting of the existing grassed areas down slope of all bulk earthworks and around the existing vegetated area to the east of the site are to be fenced off. Buffer zones are corridors of vegetation that separate disturbed land from adjacent receiving environments. No vegetation is to be removed from this area whilst construction is in progress as it aids in the slowing and filtering of runoff.

5.3.4 Sediment Basins

A sedimentation basin is generally required where:

- The development is greater than 1 hectare;
- The disturbed soils are dispersive; and
- Where the site discharges, either directly or indirectly, to a receiving water course.

As the disturbed area within the site will be greater than 1 hectare and given the proximity of the site to the Bremer River, a sedimentation basin will be required on site. The sedimentation

basin shall utilise the future Bio-retention basin located at the top of the slope into the central gully.

The sedimentation basin shall be designed using the standard approach as outlined in IEAust Sediment and Erosion Control Guidelines for Queensland.

5.3.5 Sediment Barriers

Sediment barriers are to be constructed around all stormwater drainage inlet pits where contaminated water may drain to. This will aid in ensuring sediments are settled out prior to flows entering the underground stormwater drainage system. Sediment barriers are to be gravel wrapped in geotextile 'sausage' or similar.

5.3.6 Turf Filter Strips

Turf filter strips approximately 600mm wide are to be placed adjacent to all paved areas where possible. These will act in conjunction with the sediment fences to further treat any overland flow from the site. Turf filter strips are to be constructed and maintained in accordance with the IEAust Guidelines.

5.3.7 Check Dams

Check dams are to be installed in all open channels and are to be maintained until adequate vegetative cover is established. The primary purpose of the check dams is to control flow velocity in channels until a suitable vegetative cover is established. A secondary purpose is to entrap sediment in a similar way to sediment barriers.

5.4 Monitoring and Maintenance

The following monitoring and maintenance procedures are to be undertaken by the site supervisor during all phases of the development:

1. Inspections of Stormwater, Sediment and Erosion Controls are to be conducted at the end of each construction day and after each rainfall event (>25mm). This should include, but not be limited to the measures outlined in the sediment and erosion control plan and drawing presented in Appendix I.
2. If any validated complaints or evidence of water quality deterioration is reported downstream of the site the following actions are to be taken:
 - a. locate source of water quality deterioration.
 - b. construct temporary controls to prevent continuing short term deterioration.
 - c. repair existing controls, modify procedures or construct additional controls to prevent further deterioration.

6 Strategy Summary and Conclusions

A stormwater management strategy has been developed to manage potential impacts due to the proposed Riverlink Residential Development at North Street, Ipswich. The stormwater management strategy has the following components:

- Maintain existing drainage regime through minimal disturbance and impact to the existing lay of the land;
- Best practise stormwater management consisting of swales, bio-retention devices and rainwater tanks; and
- Implementation of typical erosion and sediment control devices during the four (4) primary phases of the proposed development.

It is considered that the development, with the implementation of the stormwater management strategy developed in this report, will result in no significant worsening in flooding conditions both upstream and downstream of the site and will meet the water quality objectives as described in the Ipswich Planning Scheme.

7 References

Ipswich Planning Scheme, Planning Scheme Policy 3 – General Works, Part 2 – Stormwater Drainage

Brisbane City Council, 2000a. Brisbane City Council's Water Quality Management Guidelines, Version 1

Brisbane City Council, 2000b. Guideline on Identifying and Applying Water Quality Objectives in Brisbane City, Version 1

Brisbane City Council, 2000c. Guidelines for Pollutant Export Modelling in Brisbane, Version 7

Healthy Waterways, Water Sensitive Urban Design – Technical Design Guidelines for South East Queensland, Version 1, June 2006

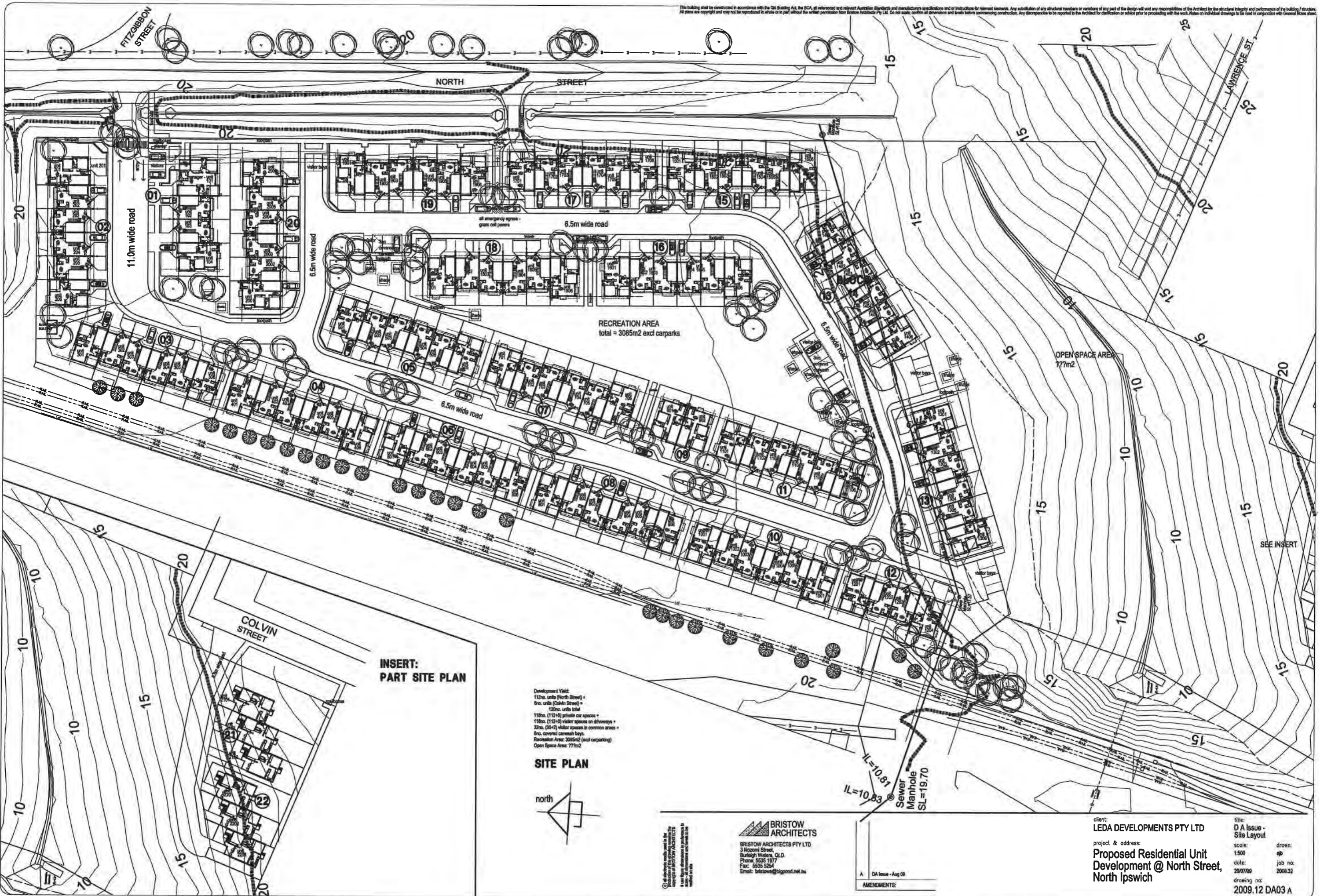
"Queensland Urban Drainage Design Manual (QUDM)", Volume 1, Second Edition 2007



Appendix A
Proposed Development

BRISTOW ARCHITECTS PTY LTD

This building shall be constructed in accordance with the Qld Building Act, the BCA, all referenced and relevant Australian standards and manufacturers specifications and or instructions for relevant elements. Any substitution of any structural members or variations of any part of the design will void any responsibilities of the Architect for the structural integrity and performance of the building structure. All plans are copyright and may not be reproduced in whole or in part without the written permission from Bristow Architects Pty Ltd. Do not scale, verify all dimensions and levels before commencing construction. Any discrepancies to be reported to the Architect for clarification or advice prior to proceeding with the work. Notes on individual drawings to be read in conjunction with General Notes sheet.



11.0m wide road

6.5m wide road

6.5m wide road

RECREATION AREA
total = 3085m2 excl carparks

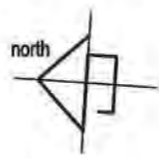
OPEN SPACE AREA
177m2

COLVIN STREET

INSERT:
PART SITE PLAN

Development Yield:
112no. units (North Street) +
6no. units (Colvin Street) =
118no. units total
118no. (112+6) private car spaces +
118no. (112+6) visitor spaces on driveways +
32no. (30+2) visitor spaces in common areas +
6no. covered carwash bays.
Recreation Area: 3085m2 (incl carparking)
Open Space Area: 177m2

SITE PLAN



IL=10.81
IL=10.83
Sewer Manhole
SL=19.70

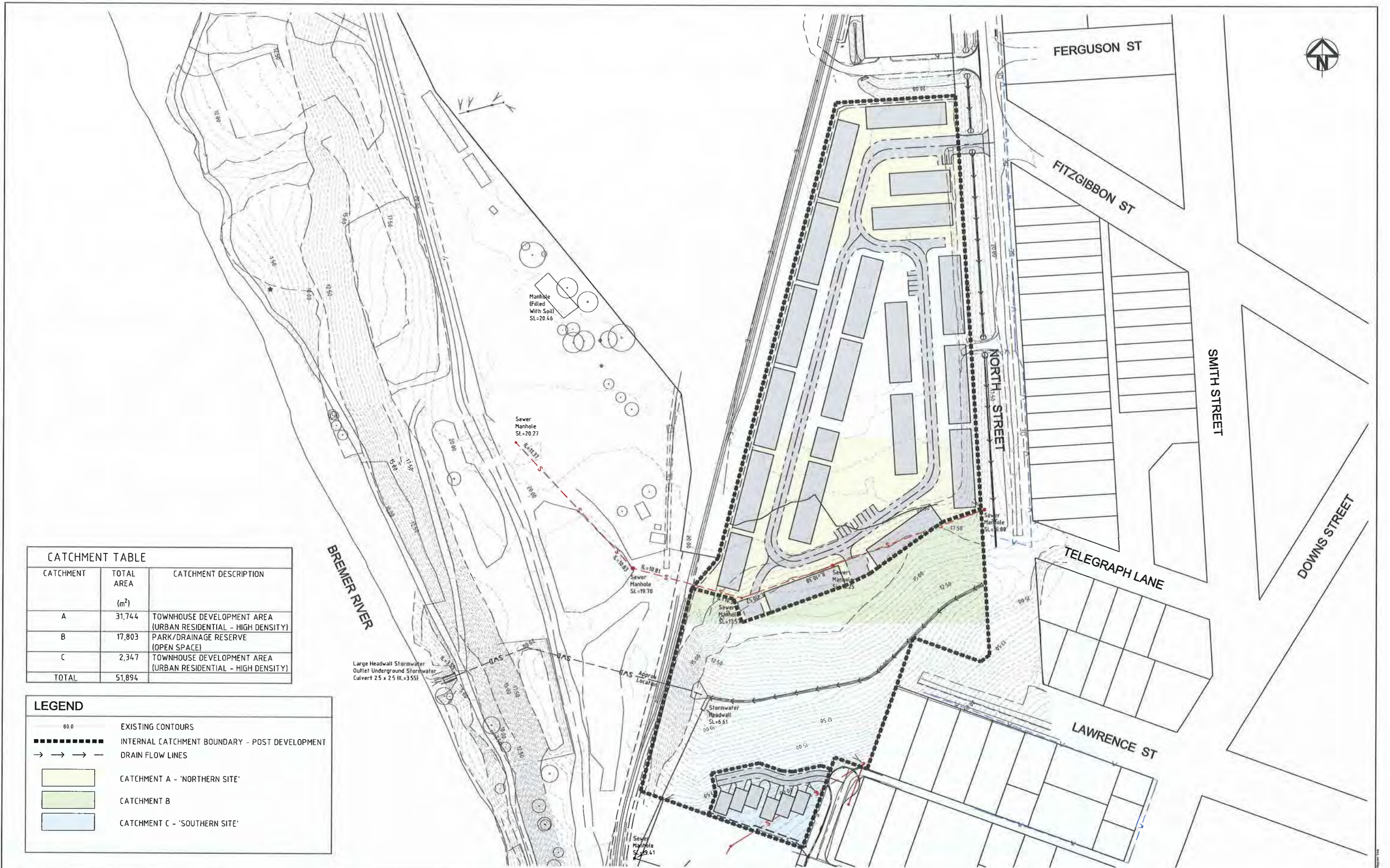
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A DA Issue - Aug 08
AMENDMENTS:

client:
LEDA DEVELOPMENTS PTY LTD
project & address:
**Proposed Residential Unit
Development @ North Street,
North Ipswich**
title:
D A Issue -
Site Layout
scale:
1:500
date:
29/07/08
drawing no:
2008.32
2009.12 DA03 A

Appendix B
Catchment Plan



STATUS **FOR ISSUE**

REV	DESCRIPTION	H.V.	DATE
A	ORIGINAL ISSUE		25.09.09

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DRAWING IS NOT TO BE SCALED

SCALE (AT ORIGINAL SHEET SIZE)

SCALE 10 0 10 20 30 40 50 1:1000

ORIGINAL SHEET SIZE **A1**

CLIENT **LEDA**
Developments Pty Ltd

PROJECT **RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH**

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TITLE **SITE CATCHMENT PLAN**

TASK	BY	INITIAL	DATE	APPROVED	RPEQ No	N/A
REVIEW	B.Y.		25.09.09			
DESIGN	H.V.		25.09.09			
DRAWN	H.V.		25.09.09			

DRAWING NUMBER **YC0175-SK001**

Appendix C
Rational Method Calculations

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Pre Developed Catchment



YEATS
CONSULTING ENGINEERS

PARAMETERS

VALUE

Catchment Name	A
Catchment Size	3.1744 ha
C10 Coefficient of Runoff	0.66

Friends Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - t_c = (107 \times n \times L^{1.4833}) / S^{0.7}$$

Horton's roughness coefficient (n)	0.045
Overland stream flow path length (L)	80 m
Slope of the surface (S)	1.5 %
Time of concentration (tc)	19.1 mins

Stream Flow for catchments less than 5km2

Table 4.06.5 from QUDM

Stream Length (L)	230 m
Catchment Slope %	2.0 %
Velocity (m/s)	0.7 m/s
Time of concentration (tc)	5.5 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	0.0 m
Inlet Time (min)	0.0
Pipe Flow Time of concentration (tc)	0.0 mins

Total Time of Concentration

Overland flow tc (E12) + Stream flow tc (E20)

Total time of Concentration (tc)	25.0 mins
----------------------------------	-----------

Rational Method for Peak Catchment flow

$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.130
1	56.01	23.34	0.80	0.53	0.261
2	72.76	30.32	0.85	0.56	0.360
5	94.43	39.35	0.95	0.63	0.522
10	107.98	44.99	1.00	0.66	0.628
20	126.10	52.54	1.05	0.69	0.771
50	150.83	62.85	1.15	0.76	1.009
100	170.42	71.01	1.20	0.79	1.190

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Pre Developed Catchment



PARAMETERS

VALUE

Catchment Name	B
Catchment Size	1.7803 ha
C10 Coefficient of Runoff	0.66

Friends Equation for Time of Concentration of Overland Flow QUDM 4.06.6 - $t_c = (107 \times n \times L^{0.333}) / S^{0.2}$

Horton's roughness coefficient (n)	0.035
Overland stream flow path length (L)	50 m
Slope of the surface (S)	15 %
Time of concentration (tc)	8.0 mins

Stream Flow for catchments less than 5km² Table 4.06.5 from QUDM

Stream Length (L)	150 m
Catchment Slope %	5.0 %
Velocity (m/s)	0.9 m/s
Time of concentration (tc)	2.8 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	0.0 m
Inlet Time (min)	0.0
Pipe Flow Time of concentration (tc)	0.0 mins

Total Time of Concentration Overland flow tc (E12) + Stream flow tc (E20)

Total time of Concentration (tc)	25.0 mins
----------------------------------	-----------

Rational Method for Peak Catchment flow $Q = 0.00278 \times C \times I \times A$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.073
1	56.01	23.34	0.80	0.53	0.146
2	72.76	30.32	0.85	0.56	0.202
5	94.43	39.35	0.95	0.63	0.293
10	107.98	44.99	1.00	0.66	0.352
20	126.10	52.54	1.05	0.69	0.432
50	150.83	62.85	1.15	0.76	0.566
100	170.42	71.01	1.20	0.79	0.667

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Pre Developed Catchment



PARAMETERS

VALUE

Catchment Name	C
Catchment Size	0.2347 ha
C10 Coefficient of Runoff	0.66

Friends Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - t_c = (107 \times n \times L^{0.555}) / S^{0.2}$$

Horton's roughness coefficient (n)	0.035
Overland stream flow path length (L)	45 m
Slope of the surface (S)	15 %
Time of concentration (t _c)	7.7 mins

Stream Flow for catchments less than 5km²

Table 4.06.5 from QUDM

Stream Length (L)	0 m
Catchment Slope %	0.5 %
Velocity (m/s)	0.3 m/s
Time of concentration (t _c)	0.0 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	0.0 m
Inlet Time (min)	0.0
Pipe Flow Time of concentration (t _c)	0.0 mins

Total Time of Concentration

Overland flow t_c (E12) + Stream flow t_c (E20)

Total time of Concentration (t _c)	25.0 mins
---	-----------

Rational Method for Peak Catchment flow

$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	F _y	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.010
1	56.01	23.34	0.80	0.53	0.019
2	72.76	30.32	0.85	0.56	0.027
5	94.43	39.35	0.95	0.63	0.039
10	107.98	44.99	1.00	0.66	0.046
20	126.10	52.54	1.05	0.69	0.057
50	150.83	62.85	1.15	0.76	0.075
100	170.42	71.01	1.20	0.79	0.088

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Post Developed Catchment



PARAMETERS

VALUE

Catchment Name	A
Catchment Size	3.1744 ha
C10 Coefficient of Runoff	0.85

Friends Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - t_c = (107 \times n \times L^{0.553}) / S^{0.2}$$

Horton's roughness coefficient (n)	0
Overland stream flow path length (L)	0 m
Slope of the surface (S)	1 %
Time of concentration (tc)	0.0 mins

Stream Flow for catchments less than 5km2

Table 4.06.5 from QUDM

Stream Length (L)	0 m
Catchment Slope %	0.5 %
Velocity (m/s)	0.3 m/s
Time of concentration (tc)	0.0 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	350.0 m
Inlet Time (min)	5.0
Pipe Flow Time of concentration (tc)	14.7 mins

Total Time of Concentration

Overland flow tc (E12) + Stream flow tc (E20)

Total time of Conentration (tc)	15.0 mins
---------------------------------	-----------

Rational Method for Peak Catchment flow

$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.216
1	71.89	17.97	0.80	0.68	0.431
2	93.16	23.29	0.85	0.72	0.593
5	120.17	30.04	0.95	0.81	0.856
10	136.94	34.23	1.00	0.85	1.026
20	159.44	39.86	1.05	0.89	1.255
50	190.06	47.52	1.15	0.98	1.638
100	214.24	53.56	1.20	1.00	1.889

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Post Developed Catchment



PARAMETERS

VALUE

Catchment Name	B
Catchment Size	1.7803 ha
C10 Coefficient of Runoff	0.66

Friends Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - tc = (107 \times n \times L^{0.383}) / S^{0.2}$$

Horton's roughness coefficient (n)	0
Overland stream flow path length (L)	0 m
Slope of the surface (S)	1 %
Time of concentration (tc)	0.0 mins

Stream Flow for catchments less than 5km2

Table 4.06.5 from QUDM

Stream Length (L)	150 m
Catchment Slope %	5.0 %
Velocity (m/s)	0.9 m/s
Time of concentration (tc)	2.8 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	0.0 m
Inlet Time (min)	0.0
Pipe Flow Time of concentration (tc)	0.0 mins

Total Time of Concentration

Overland flow tc (E12) + Stream flow tc (E20)

Total time of Conentration (tc)	15.0 mins
---------------------------------	------------------

Rational Method for Peak Catchment flow

$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.094
1	71.89	17.97	0.80	0.53	0.188
2	93.16	23.29	0.85	0.56	0.258
5	120.17	30.04	0.95	0.63	0.373
10	136.94	34.23	1.00	0.66	0.447
20	159.44	39.86	1.05	0.69	0.546
50	190.06	47.52	1.15	0.76	0.713
100	214.24	53.56	1.20	0.79	0.839

RATIONAL METHOD CALCULATIONS

Project:	River Link Development - North Street
Date:	21-Sep-09
Designed:	H.Vink
Comments:	Post Developed Catchment



PARAMETERS

VALUE

Catchment Name	C
Catchment Size	0.2347 ha
C10 Coefficient of Runoff	0.85

Friends Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - t_c = (107 \times n \times L^{0.583}) / S^{0.2}$$

Horton's roughness coefficient (n)	0.035
Overland stream flow path length (L)	0 m
Slope of the surface (S)	1 %
Time of concentration (tc)	0.0 mins

Stream Flow for catchments less than 5km2

Table 4.06.5 from QUDM

Stream Length (L)	0 m
Catchment Slope %	0.0 %
Velocity (m/s)	0.3 m/s
Time of concentration (tc)	0.0 mins

Pipe Flow

Pipe Flow Velocity (m/s)	0.6 m/s
Pipe Flow Length (m)	50.0 m
Inlet Time (min)	5.0
Pipe Flow Time of concentration (tc)	6.4 mins

Total Time of Concentration

Overland flow tc (E12) + Stream flow tc (E20)

Total time of Conentration (tc)	15.0 mins
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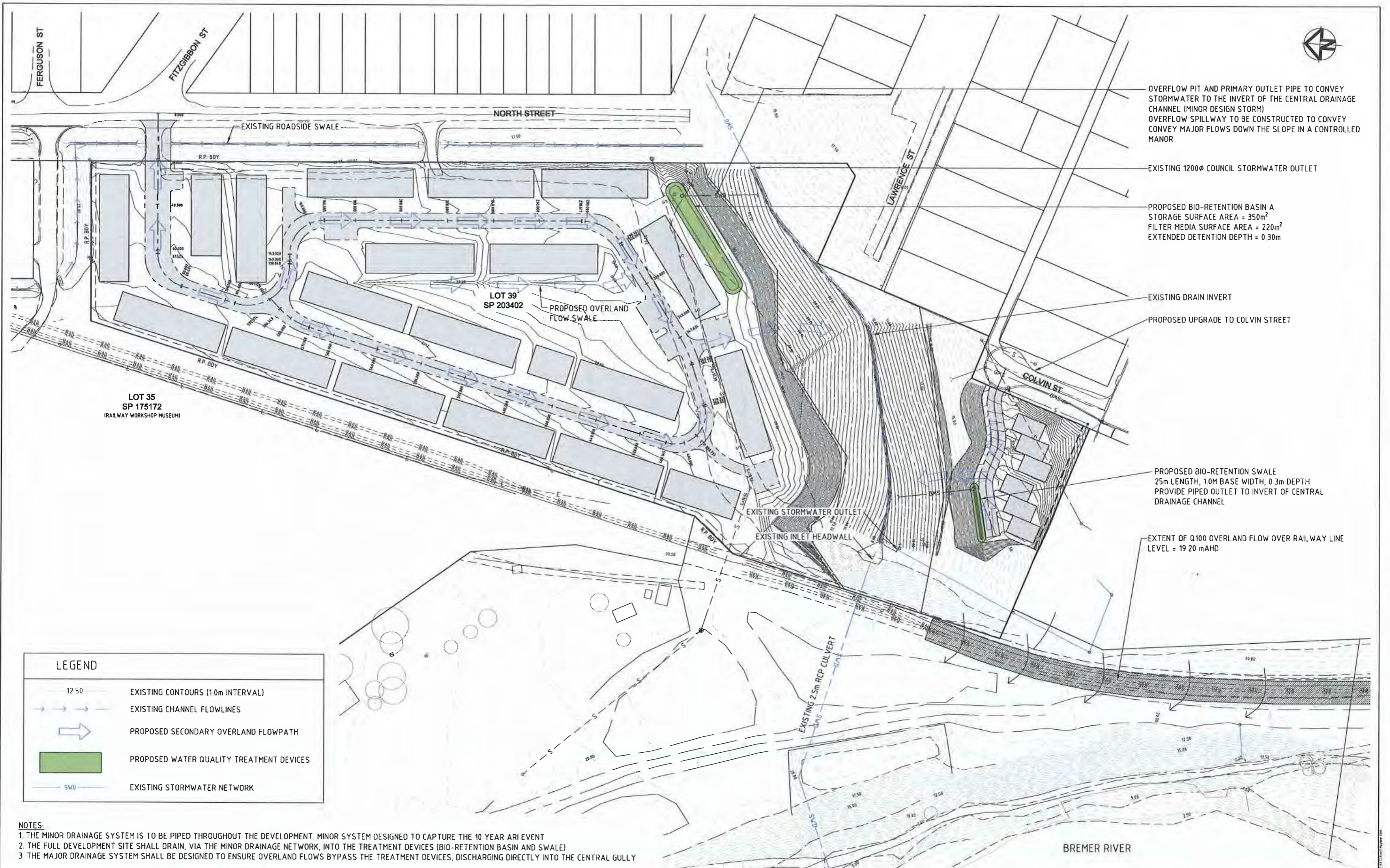
Rational Method for Peak Catchment flow

$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m ³ /s)
3 month					0.016
1	71.89	17.97	0.80	0.68	0.032
2	93.16	23.29	0.85	0.72	0.044
5	120.17	30.04	0.95	0.81	0.063
10	136.94	34.23	1.00	0.85	0.076
20	159.44	39.86	1.05	0.89	0.093
50	190.06	47.52	1.15	0.98	0.121
100	214.24	53.56	1.20	1.00	0.140



Appendix D
Stormwater Management Plan



- OVERFLOW PIT AND PRIMARY OUTLET PIPE TO CONVEY STORMWATER TO THE INVERT OF THE CENTRAL DRAINAGE CHANNEL (MINOR DESIGN STORM)
- OVERFLOW SPILLWAY TO BE CONSTRUCTED TO CONVEY CONVEY MAJOR FLOWS DOWN THE SLOPE IN A CONTROLLED MANOR
- EXISTING 1200Ø COUNCIL STORMWATER OUTLET
- PROPOSED BIO-RETENTION BASIN A
STORAGE SURFACE AREA = 350m²
FILTER MEDIA SURFACE AREA = 220m²
EXTENDED DETENTION DEPTH = 0.30m
- EXISTING DRAIN INVERT
- PROPOSED UPGRADE TO COLVIN STREET
- PROPOSED BIO-RETENTION SWALE
25m LENGTH, 1.0M BASE WIDTH, 0.3m DEPTH
PROVIDE PIPED OUTLET TO INVERT OF CENTRAL DRAINAGE CHANNEL
- EXTENT OF 0.100 OVERLAND FLOW OVER RAILWAY LINE LEVEL = 19.20 mAHd

LEGEND	
	EXISTING CONTOURS (1.0m INTERVAL)
	EXISTING CHANNEL FLOWLINES
	PROPOSED SECONDARY OVERLAND FLOWPATH
	PROPOSED WATER QUALITY TREATMENT DEVICES
	EXISTING STORMWATER NETWORK

- NOTES:**
1. THE MINOR DRAINAGE SYSTEM IS TO BE PIPED THROUGHOUT THE DEVELOPMENT. MINOR SYSTEM DESIGNED TO CAPTURE THE 10 YEAR ARI EVENT
 2. THE FULL DEVELOPMENT SITE SHALL DRAIN, VIA THE MINOR DRAINAGE NETWORK, INTO THE TREATMENT DEVICES (BIO-RETENTION BASIN AND SWALE)
 3. THE MAJOR DRAINAGE SYSTEM SHALL BE DESIGNED TO ENSURE OVERLAND FLOWS BYPASS THE TREATMENT DEVICES, DISCHARGING DIRECTLY INTO THE CENTRAL GULLY

STATUS FOR ISSUE	
A	ORIGINAL ISSUE
REV	DESCRIPTION
H.V.	25.09.09
DRAWN	DATE

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SCALE (AT ORIGINAL SHEET SIZE)

SCALE

ORIGINAL SHEET SIZE **A1**

CLIENT

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PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

YEATS
CONSULTING ENGINEERS

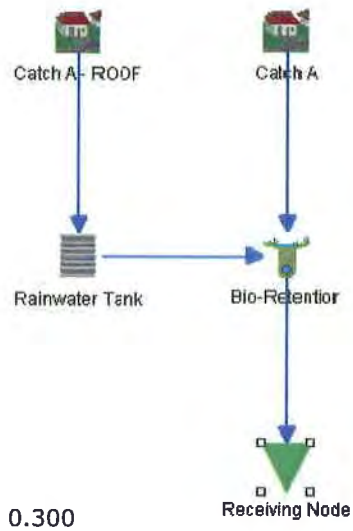
LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA
T 07 5570 4877 F 07 5570 4877 info@yeats.com.au www.yeats.com.au

TITLE STORMWATER MANAGEMENT PLAN				
TASK	BY	INITIAL	DATE	APPROVED
REVIEW	B.Y.		25.09.09	RPEO No 7825
DESIGN	H.V.		25.09.09	DRAWING NUMBER
DRAWN	H.V.		25.09.09	YC0175-SK02
				REVISION A



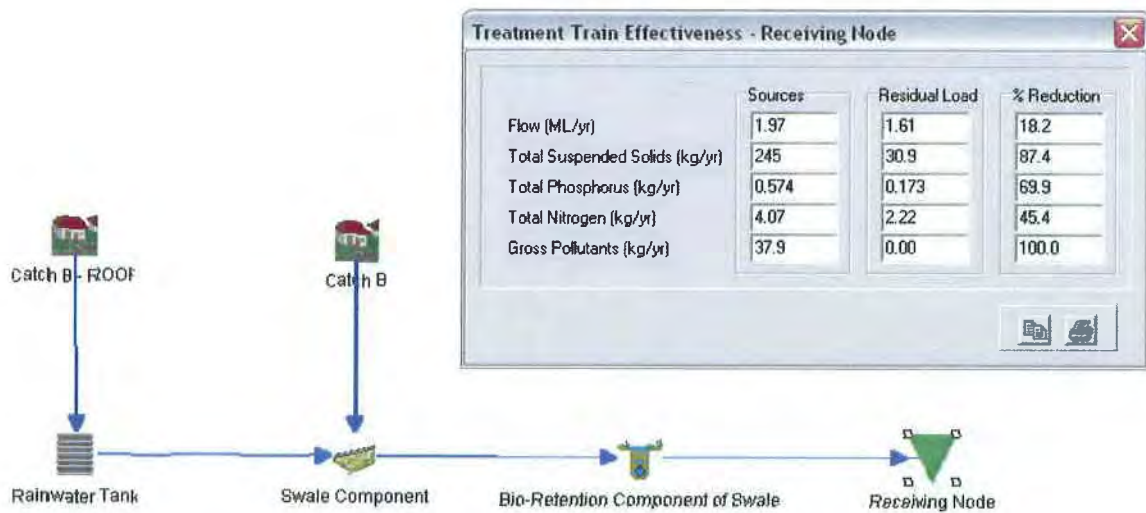
Appendix E

**Water Quality Treatment Strategy and
Details**



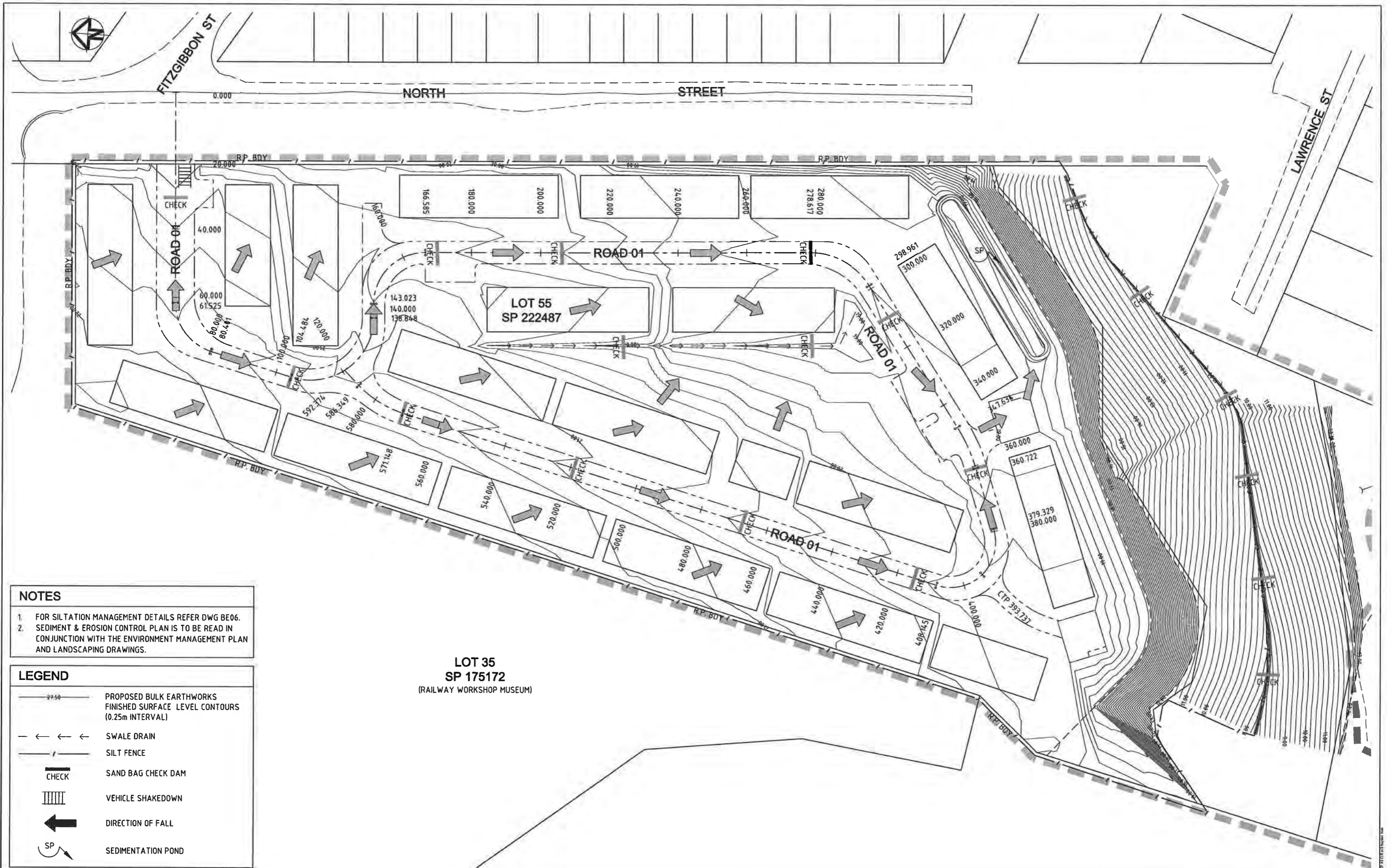
	Sources	Residual Load	% Reduction
Flow (ML/yr)	28.5	21.8	23.4
Total Suspended Solids (kg/yr)	3.28E3	707	78.4
Total Phosphorus (kg/yr)	8.01	2.73	65.9
Total Nitrogen (kg/yr)	59.3	30.5	48.5
Gross Pollutants (kg/yr)	559	0.00	100.0

Catchment A MUSIC Model



Catchment C MUSIC Model

Appendix F
Sediment and Erosion Control Plan



NOTES

- FOR SILTATION MANAGEMENT DETAILS REFER DWG BE06.
- SEDIMENT & EROSION CONTROL PLAN IS TO BE READ IN CONJUNCTION WITH THE ENVIRONMENT MANAGEMENT PLAN AND LANDSCAPING DRAWINGS.

LEGEND

- 0.25m — PROPOSED BULK EARTHWORKS FINISHED SURFACE LEVEL CONTOURS (0.25m INTERVAL)
- ← ← ← SWALE DRAIN
- / — SILT FENCE
- CHECK SAND BAG CHECK DAM
- ||||| VEHICLE SHAKEDOWN
- ← DIRECTION OF FALL
- SP SEDIMENTATION POND

**LOT 35
SP 175172**
(RAILWAY WORKSHOP MUSEUM)

STATUS FOR ISSUE		N.M.		05.08.09	
REV	DESCRIPTION	DATE			
A	ORIGINAL ISSUE				

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SCALE 10 0 10 20 1500

ORIGINAL SHEET SIZE **A1**

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TITLE BULK EARTHWORKS EROSION & SEDIMENT CONTROL PLAN					
TASK	BY	INITIAL	DATE	APPROVED	RPEQ No 7825
REVIEW	C.W.		05.08.09		
DESIGN	N.M.		05.08.09		
DRAWN	N.M.		05.08.09		
DRAWING NUMBER YC0175-BE16				REVISION	A

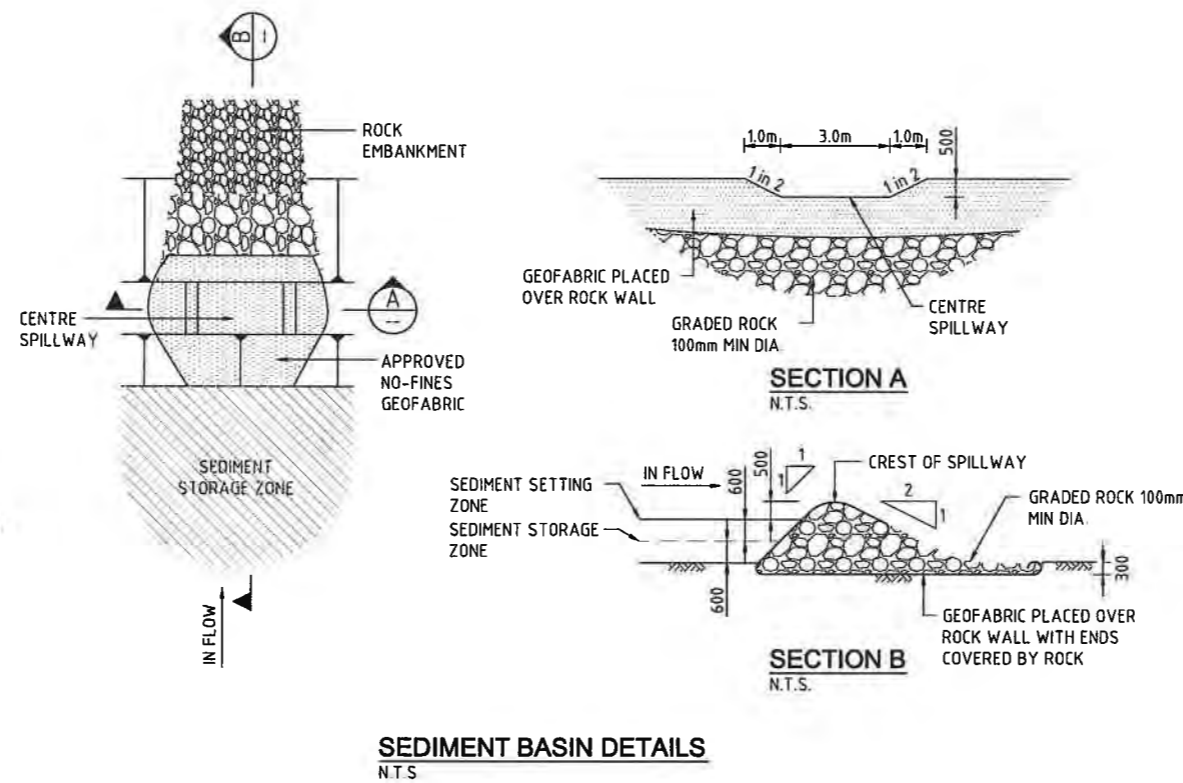
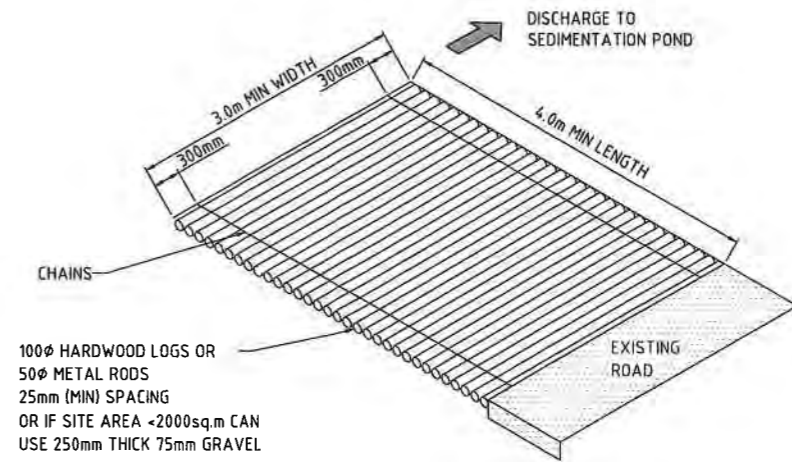
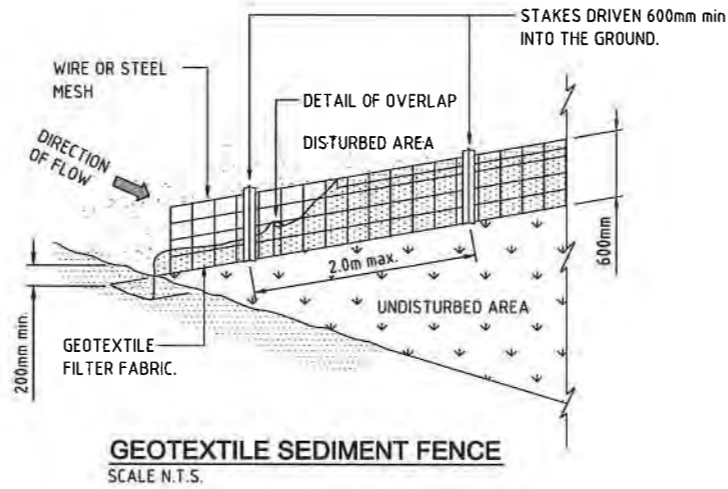
SILT MANAGEMENT PROGRAM

PHASE	DESCRIPTION
ALL WORKS	• SILT FENCES TO BE ERECTED ALONG TOE OF FILL BATTERS OR AS DIRECTED BY SUPERINTENDENT
SEWER/WATER STORMWATER/SERVICES,	• EXCAVATED MATERIAL TO BE PLACED ON HIGH SIDE OF TRENCH IN ORDER TO PROTECT PIPE WORK AND DIRECT SURFACE FLOW AWAY FROM EXCAVATIONS
ROADWORKS	• MEASURES ARE TO BE TAKEN TO PREVENT SILT INGRESS TO STORMWATER SYSTEM
MAINTENANCE PERIOD	• EROSION CONTROL MEASURES ARE TO BE INSPECTED AFTER MAJOR EVENTS (> 25mm) ANY REPAIRS REQUIRED ARE TO BE EFFECTED IMMEDIATELY.

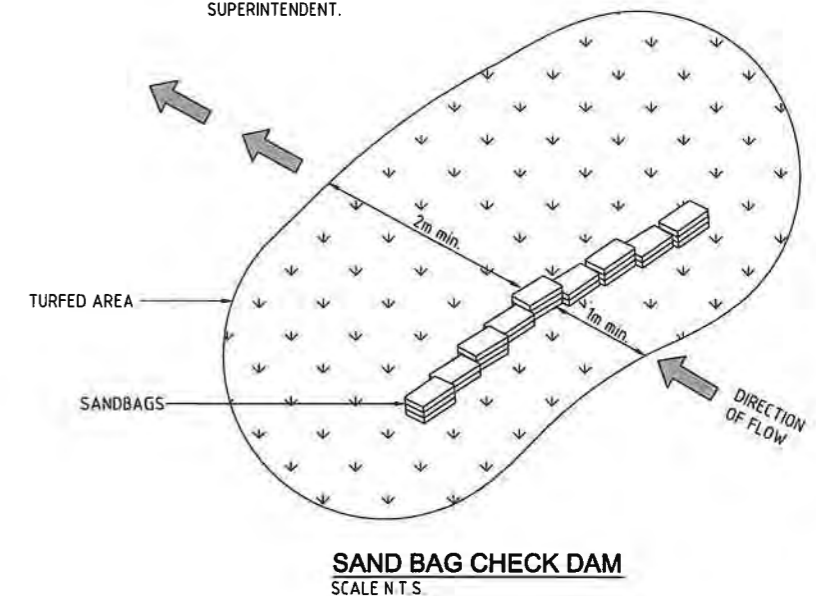
GENERAL NOTES

- THE CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO CONTROL EROSION AND DOWNSTREAM SEDIMENTATION DURING ALL STAGES OF CONSTRUCTION INCLUDING THE MAINTENANCE PERIOD.
- ALL SEDIMENT CONTROL DEVICES SHALL BE MONITORED, CLEANED AND/OR REPAIRED WHENEVER THE ACCUMULATED SEDIMENT REDUCES THE CAPACITY BY 50%
- ALL PERIMETER BANK/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
- THE EXTENT OF GRASSING SHALL BE DETERMINED BY THE SUPERINTENDENT AND SHALL BE SEEDED, AS SPECIFIED, WITHIN SEVEN DAYS OF FINAL TRIMMING
- EXTENT AND POSITION OF SILT FENCE CONTROL MEASURES TO BE DETERMINED ON SITE BY SUPERINTENDENT. MEASURES SHOWN ON THIS DRAWING ARE MINIMUM REQUIREMENTS ONLY
- SCOUR PROTECTION AND SILT MANAGEMENT MEASURES TO BE PROVIDED AT STORMWATER OUTLET HEADWALLS
- PROVISION TO BE MADE FOR DIRT/SAND REMOVAL FROM CONSTRUCTION VEHICLES PRIOR TO TRAVEL ON PUBLIC ROADS METHOD TO BE APPROVED BY SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORK.
- ANY SILT OR SEDIMENT CAUSED BY THE MOVEMENT OF CONSTRUCTION TRAFFIC ON EXISTING ROADS IS TO BE REMOVED DAILY
- THE APPLICANT SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL PROCEDURES DURING CONSTRUCTION AND MAINTENANCE STAGES OF THE DEVELOPMENT AND SHALL TAKE ALL NECESSARY ACTIONS TO COMPLY WITH THE POLICY OBJECTIVES OF THE GOLD COAST CITY COUNCIL LOCAL PLANNING POLICY - EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE DAILY REMOVAL OF SILT FOR THE DURATION OF THE CONSTRUCTION AND MAINTENANCE PERIOD, THAT HAS BEEN BLOWN, WASHED OR TRACKED FROM THE SITE ONTO COUNCIL ROADS OR INTO COUNCIL DRAINAGE SYSTEMS, WATERCOURSES AND ANY PRIVATE PROPERTY.
- THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE CONTROL OF DUST EMANATING FROM THE SITE AT ALL TIMES, INCLUDING ON WEEKENDS AND PUBLIC HOLIDAYS, FOR THE DURATION OF THE CONSTRUCTION AND MAINTENANCE PERIOD.
- ALL RUBBISH, WASTE MATERIALS, OILS AND FUELS ARE TO BE CONTAINED APPROPRIATELY
- OIL AND FUEL SPILLS ARE NOT TO ENTER ANY DRAINAGE SYSTEM OR WATERCOURSE
- THE CONTRACTOR IS TO ENSURE THAT NO SILT REACHES THE DOWNSTREAM WATER COURSE AND IS TO PROVIDE ADEQUATE PROTECTION TO PREVENT THIS OCCURRING
- WHERE TOPSOIL STOCKPILES ARE TO REMAIN IN PLACE FOR A PERIOD OF MORE THAN 14 DAYS, THE STOCKPILE SHALL BE GRASSED WITH A SUITABLE QUICK STRIKING CEREAL GRASS PROVIDE A DIVERSION DRAIN OR BUND ON THE UPHILL SIDE AND A SEDIMENT FENCE ON THE DOWNHILL SIDE OF ALL STOCKPILES

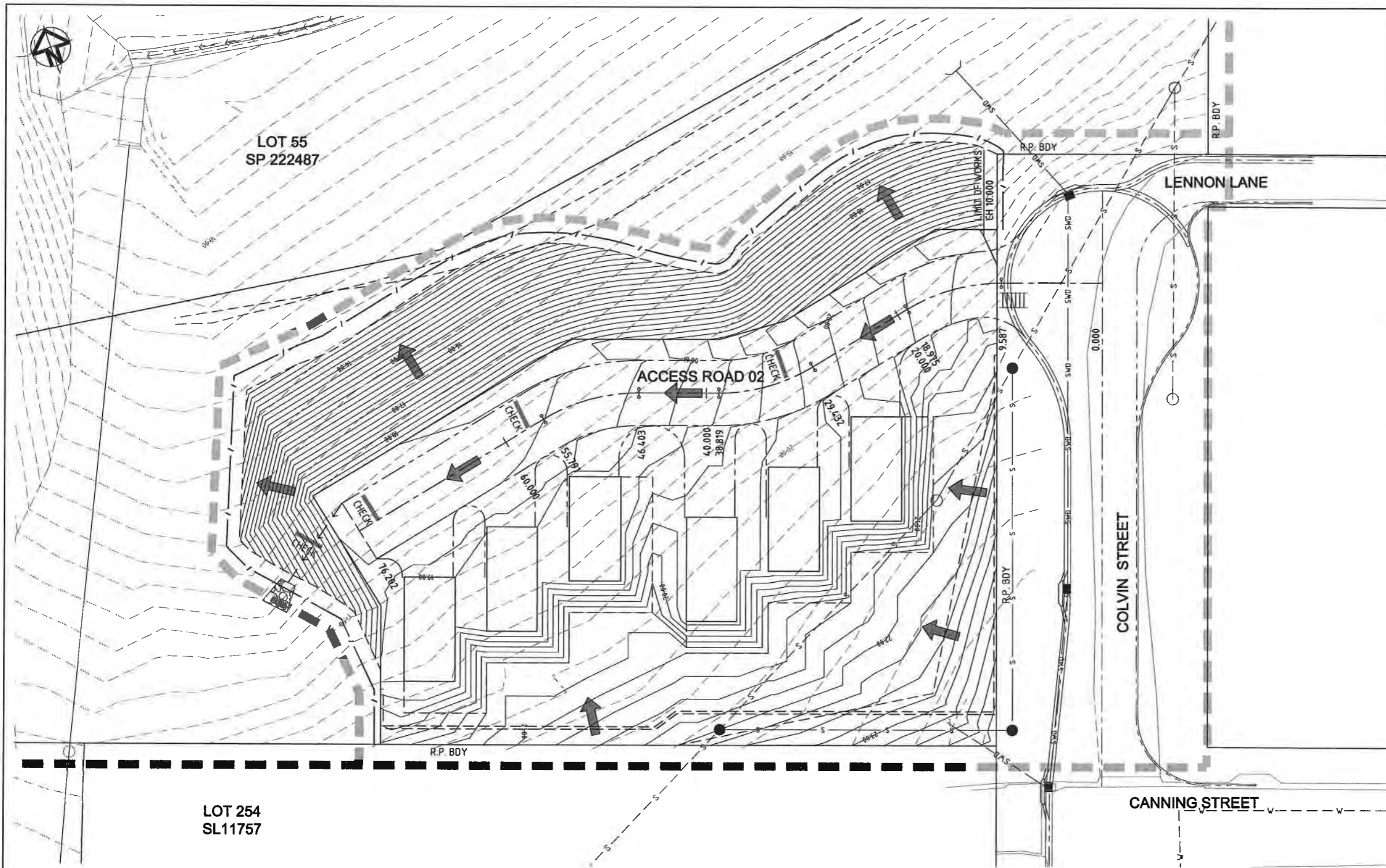
DRAINAGE AREA 0.6ha MAX. SLOPE GRADIENT 1:2 MAX
SLOPE LENGTH 60m MAX.



PROVIDE SAND BAGS ACROSS FLOW PATH. PROVIDE TURF AROUND SAND BAGS, TO A MINIMUM OF 1m IN FRONT AND 2m BEHIND EXTENT TO BE DETERMINED ON SITE BY SUPERINTENDENT.



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		DRAWING IS NOT TO BE SCALED			RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH	BULK EARTHWORKS EROSION & SEDIMENT CONTROL DETAILS		
		SCALE (AT ORIGINAL SHEET SIZE)				TASK BY INITIAL DATE APPROVED RPEQ No 7825 REVIEW C.W. 05.08.09 DESIGN N.M. 05.08.09 DRAWN N.M. 05.08.09		DRAWING NUMBER YC0175-BE17
A	ORIGINAL ISSUE	N.M.	05.08.09	A1	LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA T 07 5570 4877 F 07 5570 4977 info@yeats.com.au www.yeats.com.au		APPROVED YC0175-BE17	
REV	DESCRIPTION	DRAWN	DATE					



LEGEND	
	NOMINAL ROAD EDGE
	PROPOSED ROAD CENTRE LINE
	PROPOSED FINISHED SURFACE CONTOURS (0.25m INTERVAL)
	EXISTING SURFACE CONTOURS
	LIMIT OF BULK EARTHWORKS
	STAGE BOUNDARY
	TEMPORARY SWALE DRAIN
	SILT FENCE
	CHECK
	SAND BAG CHECK DAM
	VEHICLE SHAKEDOWN
	DIRECTION OF FALL

NOTES

- FOR SILTATION MANAGEMENT DETAILS REFER DWG BE06.
- SEDIMENT & EROSION CONTROL PLAN IS TO BE READ IN CONJUNCTION WITH THE ENVIRONMENT MANAGEMENT PLAN AND LANDSCAPING DRAWINGS.

PLAN
SCALE 1:200

STATUS FOR ISSUE			
REV	DESCRIPTION	DATE	BY
A	ORIGINAL ISSUE	31.07.09	N.M.

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SCALE (AT ORIGINAL SHEET SIZE)

SCALE 2 1 0 2 4 6 8 10 1:200

ORIGINAL SHEET SIZE **A1**

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PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

YEATS
CONSULTING ENGINEERS

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TITLE BULK EARTHWORKS EROSION & SEDIMENT CONTROL PLAN - STAGE 2 COLVIN STREET						
TASK	BY	INITIAL	DATE	APPROVED	RPEQ No	7825
REVIEW	C.W.		31.07.09			
DESIGN	N.M.		31.07.09			
DRAWN	N.M.		31.07.09			
DRAWING NUMBER					YC0175-BE23	REVISION
						A

Yeats Consulting Pty Ltd
Level 2, 9 Ouyan Street
Bundall Qld 4217
Email: info@yeats.com.au

Appendix 10

Assessment against Planning Scheme Codes.

SPECIAL OPPORTUNITY ZONE CODE

Lipoma Pty Ltd – MCU.
North Street, North Ipswich.
Our Ref. 874206.

Specific Outcomes	Probable Solutions	Development Response
4.21.2 Overall Outcomes for Special Opportunity Zone		
<p>The overall outcomes sought for the Special Opportunity Zone are the following—</p> <p>(a) The Special Opportunity Zone caters for—</p> <p>(i) land where the future use cannot be definitively stated at this time;</p> <p>(ii) the use and management of sites which perform a land use transition or buffering role;</p> <p>(iii) the recognition of various opportunities over large, infill or broad hectare parcels of land; or</p> <p>(iv) promoting a flexible approach to uses and works on land which is constrained.</p> <p>(b) Uses and works provide for the continuation of the existing or approved use or the protection of the intended use, however, were these uses to cease, the site's locational and physical attributes present opportunities for different development forms which require further detailed investigation.</p> <p>(c) Uses and works within the Special Opportunity Zone are located, designed and managed to—</p> <p>(i) be compatible with the amenity and character of surrounding lands;</p> <p>(ii) facilitate the development of the Sub Areas comprising the zone for their approved use or intended use;</p> <p>(iii) maintain townscape character and amenity;</p> <p>(iv) maintain the safety of people, buildings and works; and</p> <p>(v) avoid significant adverse effects on the natural environment.</p>		<p>In this instance the preferred use of the site has been established through the preliminary approval granted over the site (Riverlink Preliminary Approval) as well as subsequent ROL approvals to create management lots for development in accordance with the preliminary approval. The proposal is consistent with these approvals.</p>
4.21.3 Effects of Development – General		
<p>Character and Amenity Specific Outcomes</p> <p>(a) Uses and works reflect the local character,</p>	<p>Probable Solutions – for sub-section (1)(a)</p> <p>(a) Buildings are generally up to two storeys in height unless otherwise specified for a Sub</p>	<p>Compliance is achieved, as the maximum height proposed is 2 storeys.</p>

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<p>the amenity of the surrounding area and protect and enhance views along important view corridors and landmark features having regard to—</p> <ul style="list-style-type: none"> (i) building height; (ii) places of cultural significance or streetscape value; (iii) boundary clearances/buffers and in particular the possible implications for adjoining lands, including the potential restriction on the current or future use of such land; (iv) building setbacks from the road network in particular along Designated Roads; (v) avoiding large expanses of blank wall, particularly where visually prominent; and (vi) the form, scale, bulk, style and siting of buildings. <p>(b) Uses and works do not have a significant detrimental impact on the amenity of nearby residents or the surrounding area, including through the—</p> <ul style="list-style-type: none"> (i) emission of odours, noise, dust, waste products, light, electrical interference or otherwise; or (ii) generation of traffic travelling to or from the site. 	<p>Area.</p> <p>(b) Additional storeys are not provided unless appropriate with—</p> <ul style="list-style-type: none"> (i) the scale of adjoining development; and (ii) the extent of fall across the land; and (iii) the character and amenity of the area and overall townscape. <p>(c) Buildings are setback a minimum of 6 metres from the street alignment, unless otherwise specified for a Sub Area.</p>	
<p>Plan of Development Specific Outcomes All land included in the Special Opportunity Zone is developed in accordance with a Plan of Development indicating—</p> <ul style="list-style-type: none"> (a) the type and location of uses on the site; and (b) the density and/or intensity of uses and works and where known, the size and location of proposed buildings and other structures and details regarding vehicle 		<p>As indicated above the proposed development is generally consistent with the relevant approvals granted by Council and the preferred development outcome as specified by Council.</p>

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access and movement onto and through the site.		
<p>Operation of Road Network and Access Specific Outcomes Uses are located and designed to—</p> <ul style="list-style-type: none"> (a) ensure the safe and efficient operation of the road network; (b) avoid access to Designated Roads (and in particular avoid the creation of multiple access points along a Designated Road) unless the premises do not have an alternative frontage to a dedicated road or other alternative access; (c) avoid the creation of a new traffic hazard or increase an existing traffic hazard; and (d) avoid significant adverse effects (e.g. by noise or dust generated) from use of the road network. 		<p>Suitable access to the development can be achieved via North Street. The traffic report prepared in support of the development addresses the traffic issues associated with the proposal (refer Appendix 4).</p>
<p>Provision of Infrastructure Specific Outcomes Infrastructure is—</p> <ul style="list-style-type: none"> (a) integrated with existing systems; (b) provided to service the approved use for each Sub Area (including suitable road access, electricity, telecommunications and adequate water supply or on-site potable water storage); (c) provided to meet appropriate standards, in particular that roads providing access to each Sub Area are constructed to a bitumen road standard; (d) comprised of components and materials that are readily accessible and available from local sources. 	<p>Probable Solutions – for sub-section (5) Infrastructure is provided to the standards stated in Planning Scheme Policy 3—General Works.</p>	<p>The following points should be noted with regard to provision of infrastructure:</p> <ul style="list-style-type: none"> ▪ The proposed development is capable of being serviced by existing water and sewerage infrastructure (refer to engineering services report in Appendix 5). ▪ Electricity and telecommunications services are available to the site and will be extended as required to service the proposed units. ▪ On-site water storage for each unit will be undertaken in accordance with the requirements of the BCA and QDC. ▪ Suitable road access is available via North Street.
<p>Effluent Treatment and Disposal Specific Outcome Uses are able to be—</p> <ul style="list-style-type: none"> (a) connected to the reticulated sewerage 		<p>Compliance is achieved as the site is to be connected to the reticulated sewerage network.</p>

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network; or(b) provided with adequate on-site effluent treatment and disposal ¹⁸⁴ .		
<p>Vegetation/Landscaping Specific Outcome (a) Appropriate landscaping, including street trees, is used to soften building outlines and enhance the overall appearance of the area. (b) All significant trees are retained, where possible.</p>		The proposed development will incorporate adequate landscaping.
<p>Operational Airspace – Wildlife Hazards Specific Outcome (a) Particular attention is given to the covering or containment of food and waste sources so as not to attract wildlife (particularly birds or bats) that are likely to affect the operational airspace within 8km of RAAF Base Amberley. (b) Turf farming and fruit farming are managed within 8km of RAAF Base Amberley to avoid the attraction of wildlife (particularly birds or bats) that is likely to affect the operational airspace of RAAF Base Amberley.</p>	<p>Probable Solution – for sub-section (9)(b) Turf farming and fruit farming are avoided within 3km of RAAF Base Amberley.</p>	The nature of the use is such that it will not impact on the operations of the Amberley air base.
<p>4.21.4 Effects of Development within Sub Areas - (2) Sub Area SA2 – North Ipswich Railyards</p>		
<p>Specific Outcomes NOTE 4.21.4C The Sub Area is highly significant in a townscape context as it— (a) is situated in a prominent position, particularly when viewed from Denmark Hill, the Woodend Road ridgeline and the elevated areas to the north along Pine Mountain Road; (b) straddles or adjoins significant view corridors, along the traverser, both towards and away from the summit and northern slopes of Denmark Hill, towards the City Centre, along the river and along Downs Street; (c) adjoins the main northern approach route to the City Centre; and (d) contains a number of landmark buildings,</p>		<p>As reflected within the Specific Outcome, this locality is highly significant in a townscape context. The current proposal is seeking to develop a small section of the land owned by Leda in accordance with the Riverlink Preliminary Approval (note that the development of the remainder of Leda’s land will be dealt with via separate development applications). The design of the current proposal has sought to integrate with the adjoining railway workshops and the existing residential development to the east of the site, while maintaining the visual amenity of the locality.</p> <p>In terms of the preferred use of the sub area the following points should be noted:</p> <ul style="list-style-type: none"> ▪ The subject site does not form part of the Ipswich Railway Museum or Workshops Precinct, therefore the intended use for this area is not applicable to the proposal. ▪ The proposal involves the development of an urban village comprising 118 units and represents the first stage of the re-development of the land owned by Leda. Subsequent stages will deal with the development of the land adjacent to the

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<p>particularly the gatehouse, the powerhouse and the historic water towers.</p> <p>(a) The Sub Area is developed for one or more of the following—</p> <p>(i) a major tourism precinct, based on a railways/technology interactive museum and historic research and archives centre, together with art and craft markets, cottage industries, and visitor accommodation;</p> <p>(ii) a major convention/recreation/entertainment/sport and leisure complex, with indoor and outdoor facilities (perhaps including a sporting hall of fame, a sports academy and an aquatic centre);</p> <p>(iii) an arts complex (perhaps including a film studio, a film and multimedia training centre and a community arts centre);</p> <p>(iv) a business/technology/innovation centre catering for specialist research, multi-media and information technology and telecommunications businesses;</p> <p>(v) an urban village comprising a mixed use development with medium density housing, art and craft markets, community arts centre, cottage industries, studio apartments and other home based businesses;</p> <p>(vi) educational uses; and</p> <p>(vii) the continued use of the Licence Issuing Centre.</p> <p>(b) Office uses located in this Sub Area have a direct link with uses set out in (a) above and do not comprise government departments, financial institutions or professional offices which are more appropriately located within the Ipswich CBD.</p> <p>(c) The Sub Area is not developed as a rival office or retail location to the CBD.</p> <p>(d) All buildings and structures are below</p>		<p>Bremer River.</p> <ul style="list-style-type: none"> ▪ The proposal will not impact on the continued operation of the Licence Issuing Centre. ▪ The proposed units will be substantially lower than RL48m AHD. ▪ The proposal involves the construction of buildings with a maximum height of 2 storeys to ensure the consistency of the proposal with nearby heritage buildings. ▪ The proposal does not involve the demolition of buildings with cultural significance. ▪ The design of the proposed development seeks to replicate the 'saw tooth' roof line of the Railway Workshops to ensure that the proposal is sympathetic to the heritage character of the locality. ▪ Construction materials and colours have been chosen to compliment the nearby heritage buildings ▪ The design of the development ensures that blank walls are not presented to public roads or adjoining properties. ▪ The proposal will not impact on the direct rail linkage to the CBD. ▪ The proposal will not impact on existing trunk sewer infrastructure and maintains the ongoing function of stormwater drainage paths. ▪ Works to address the contamination of the site will be undertaken in accordance with the requirements of DERM's Contaminated Land Unit.

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<p>RL48m AHD (i.e. below the roofline of the North Ipswich Primary School), which is the dominant landmark in the area.</p> <p>(e) New buildings are generally limited to a maximum height of 4 storeys where they are located outside the heritage areas.</p> <p>(f) New buildings are setback from the street an equal or greater distance to the heritage buildings located in this Sub Area.</p> <p>(g) Uses and works maintain the important view corridors along the traverser axis and at the southern end of Downs Street, across the river towards Denmark Hill.</p> <p>(h) All places of cultural significance or streetscape value are conserved, with such places adaptively reused.</p> <p>(i) New uses are sympathetic and respectful to places of cultural heritage significance and maximise opportunities to create interesting courtyard spaces between buildings.</p> <p>(j) The layout of the original roundhouse is interpreted in the redevelopment of the site, potentially by way of special landscaping or carparking surface treatment.</p> <p>(k) The placement of buildings maintains views towards major historic landmark buildings such as the powerhouse, water towers and gatehouse, and along the traverser, along Downs Street, and across the river to Denmark Hill.</p> <p>(l) New buildings minimise the extent of blank walls, particularly in situations where such walls are visually prominent.</p> <p>(m) Infill development between heritage buildings is consistent with the height and roof form of heritage buildings.</p> <p>(n) Mature trees are conserved, particularly the large fig trees near the administration</p>		

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<p>buildings in the railyards.</p> <p>(o) Uses and works in the vicinity of the western end of W.M. Hughes Street, adjoining the Bremer River, protect a possible future transport corridor link across the river.</p> <p>(p) Development within the Sub Area is integrated with—</p> <p>(i) the CBD utilising a pedestrian/bicycle connection constructed on the North Ipswich Railway Bridge;</p> <p>(ii) Woodend Park to the west; and</p> <p>(iii) the adjoining open space to the west and south.</p> <p>(q) The direct rail linkage between the CBD and the Sub Area is retained.</p> <p>(r) Uses and works avoid the alignment of the trunk sewers and major stormwater drainage paths.</p> <p>(s) Comprehensive site contamination investigations are undertaken together with necessary decontamination works which are commensurate with the desired future use for each specific part of the Sub Area.</p>		

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<p>12.6.3 The overall outcomes sought for the Residential Code are the following—</p> <ul style="list-style-type: none"> (a) Residential uses and works— (i) create a pleasant, safe and attractive living environment; (ii) maintain, and where possible enhance, residential amenity both internal and external to the site; (iii) blend new development into existing streetscapes and neighbourhoods; (iv) conserve places of cultural significance or streetscape value; (v) promote greater housing choice with sufficient flexibility to accommodate the diverse housing needs of the community; and (vi) provide for privacy, day lighting, ventilation and natural climate control. <ul style="list-style-type: none"> (b) The character, scale and density of development are— (i) commensurate with the intent of the zone or Sub Area in which the development is proposed; (ii) compatible with the physical characteristics of the site and its surroundings; and (iii) compatible with the desired character of the local area. 	<p>Probable Solutions – for sub-section (1)</p> <p>Dwelling Density, Height and Setbacks</p> <ul style="list-style-type: none"> (a) The dwelling density, height and setbacks conform to those specified for the relevant zone, Sub Area or precinct. <p>Building Height</p> <ul style="list-style-type: none"> (b) Where no building height provisions are specified for the zone, sub area or precinct, 	<p>It is argued that the design and layout of the development achieves compliance with the specific outcomes sought as follows:</p> <ul style="list-style-type: none"> (a) The provision of adequate private and communal open space as well as suitable landscaped areas ensures that a pleasant living environment will be provided. Adequate opportunities for passive surveillance ensures that a safe living environment will be provided while the design of proposed units and landscaped areas will ensure that an attractive living environment is provided. (b) The proposal will improve the amenity of the locality through the construction of a use consistent with the surrounding pattern of development; screening part of the railway workshops from existing residences; improving North Street; improving the large drainage line and construction of extensive landscaped areas to soften the built form of the development. (c) The orientation of the development towards North Street and provision of pedestrian access areas will ensure that the development will blend into the streetscape. (d) The proposal will not impact on places of cultural significance or streetscape value. (e) The proposed development will provide greater housing choice than the typical detached dwellings on low density residential lots which prevails in the locality. (f) The use of fencing and landscaping will ensure privacy, while the layout of the development will ensure that adequate day lighting, ventilation and natural climate control can be achieved. (g) The proposal is consistent with the planning intent for the site established through a preliminary approval. (h) The residential nature of the development and the maximum height of 2 storeys ensures that the development is consistent with the physical characteristics of the surrounding pattern of development. (i) The proposed residential development is consistent with the character of the local area. <p>Dwelling Density, Height and Setbacks</p> <p>The current proposal is in accordance with the Riverlink Preliminary Approval as well as the provisions of the Special Opportunity Zone.</p> <p>Building Height</p> <p>The maximum height proposed is 2 storeys which is consistent with the surrounding pattern of development.</p> <p>Building Setbacks</p>
<p>Density and Character</p> <p>Specific Outcomes</p> <p>Uses and works reflect the desired built character, maintain amenity and protect and enhance important townscape and landscape elements having regard to—</p> <ul style="list-style-type: none"> (a) dwelling density; (b) building height; (c) lot sizes and dimensions; 	<p>Probable Solutions – for sub-section (1)</p> <p>Dwelling Density, Height and Setbacks</p> <ul style="list-style-type: none"> (a) The dwelling density, height and setbacks conform to those specified for the relevant zone, Sub Area or precinct. <p>Building Height</p> <ul style="list-style-type: none"> (b) Where no building height provisions are specified for the zone, sub area or precinct, 	<p>Dwelling Density, Height and Setbacks</p> <p>The current proposal is in accordance with the Riverlink Preliminary Approval as well as the provisions of the Special Opportunity Zone.</p> <p>Building Height</p> <p>The maximum height proposed is 2 storeys which is consistent with the surrounding pattern of development.</p> <p>Building Setbacks</p>

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<p>(d) boundary clearances and the provision of space around buildings;</p> <p>(e) the location and design of parking areas;</p> <p>(f) the provision of recreation space;</p> <p>(g) access to natural light and ventilation;</p> <p>(h) privacy;</p> <p>(i) noise attenuation;</p> <p>(j) vegetation protection;</p> <p>(k) landscape treatment;</p> <p>(l) places of cultural significance or streetscape value; and</p> <p>(m) the form, scale, bulk, style, siting, orientation, roof lines, materials and detailing of buildings.</p>	<p>buildings are limited to one</p> <p>(1) storey in height, unless appropriate with—</p> <p>(i) the scale of adjoining development; and</p> <p>(ii) the extent of fall across the site; and</p> <p>(iii) the character and amenity of the area and the overall townscape.</p> <p>Building Setbacks</p> <p>(c) Where no building setbacks are specified for the zone, sub area or precinct, the building setbacks conform to Schedule 5.</p> <p>(d) Windows in habitable rooms do not face directly into habitable rooms in another dwelling on the same site closer than nine (9) metres except that at ground level such minimum separation may be—</p> <p>(i) three (3) metres where screen fences or walls are provided or where the windows are above 1.6 metres from the floor; and</p> <p>(ii) six (6) metres where existing vegetation or new plantings prevent views between windows.</p>	<p>No specific setbacks are specified for the zone applicable to the site and therefore the provisions of Schedule 5 are applicable. The following points address these provisions:</p> <ul style="list-style-type: none"> ▪ <i>Minimum 6 metre road frontage setback</i> – All buildings achieve compliance with the 6 metre setback from the North Street road frontage. ▪ <i>Minimum side and rear setback 1.5 metres where the building height is 4.5 metres or less</i> – All side and rear boundary setbacks exceed 1.5 metres and therefore compliance is achieved. ▪ <i>Minimum side and rear setback 2 metres where the building height is between 4.5 and 7.5 metres</i> - All side and rear boundary setbacks exceed 2 metres and therefore compliance is achieved.
<p>Building Scale and Articulation Specific Outcomes</p> <p>(a) Building design, detailing and finish provide an appropriate scale to the street and add visual interest and differentiation between residential buildings when viewed from streets, or a public thoroughfare.</p> <p>(b) In low density residential areas, new residential buildings are designed with clearly distinguishable parts of similar scale to existing dwellings.</p> <p>(c) Large expanses of blank walls are avoided, particularly in situations where such walls are likely to be visually prominent.</p> <p>(d) New buildings take into account the image presented by the backs and sides of buildings</p>	<p>Probable Solutions – for sub-section (3)</p> <p>(a) Building street facades do not exceed—</p> <p>(i) 14 metres in length within a 20 metre wide frontage;</p> <p>(ii) 10 metres in length within a 15 metre wide frontage; or</p> <p>(iii) 7 metres in length within a 10 metre wide frontage.</p> <p>(b) Building wall lengths in excess of 15m are articulated by use of verandahs, balconies, bay windows, window hoods or wall offsets (minimum 1m deep), or physical separation into detached buildings.</p> <p>(c) Buildings are detailed or articulated to enable individual dwellings to be identified from public streets and communal areas.</p>	<p>The proposal involves construction of units in groups/terraces of either 4 or 6 units for the most part. The length of a typical row of 4 units is 35 metres while the length of a typical row of 6 units is 45 metres. The design achieves compliance with the probable solutions sought as follows:</p> <ul style="list-style-type: none"> ▪ Articulation of the units and use of balconies ensures that the wall is not on a single plane. ▪ The use of differing heights, articulation of the units and clearly identifiable 'front doors' ensures that individual dwellings can be identified.

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<p>so as to ensure an attractive townscape.</p> <p>Building Orientation Specific Outcomes (a) Buildings address the street frontage or frontages rather than being aligned at right angles or diagonal to the street. (b) Buildings are designed so that overlooking and opportunities for casual surveillance of public spaces, pedestrian paths and car parking areas are provided. (c) Generally, as much as practical of the habitable parts of a building are located towards the street, in order to develop a strong relationship between private accommodation and the street. (d) Buildings are sited and designed to provide a clearly delineated transition space from public spaces (e.g. the street or communal open space) to dwellings and associated private use areas. (e) The site layout ensures that the front entrance of each dwelling is easily found, and that amenity is maintained between dwellings.</p> <p>Corner Sites Specific Outcomes Buildings on corner sites— (a) contribute to the clear definition of the street intersection and entrances to the building; (b) address both street frontages, in terms of— (i) orientation of habitable rooms; and (ii) location of balconies, verandahs and entrances; and (c) use high quality, appropriate materials and detailing.</p> <p>Building Entrances Specific Outcomes</p>	<p>Probable Solutions – for sub-section (5) (a) There are no blank walls along street frontages. (b) Habitable rooms of dwellings that are located near the street frontage are oriented towards the street, and have verandahs or balconies adjoining, or oriented to the street.</p>	<p>Compliance is achieved as no blank walls are presented to North Street and the living areas of those units fronting North Street have been oriented towards the road frontage.</p>
<p>Corner Sites Specific Outcomes Buildings on corner sites— (a) contribute to the clear definition of the street intersection and entrances to the building; (b) address both street frontages, in terms of— (i) orientation of habitable rooms; and (ii) location of balconies, verandahs and entrances; and (c) use high quality, appropriate materials and detailing.</p> <p>Building Entrances Specific Outcomes</p>		<p>N/A as the site is not located on a corner.</p>
		<p>The following points should be noted with regard to the proposals compliance with the specific outcomes sought:</p>

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<p>(a) Entries to buildings are exposed to the main street frontage and are clearly delineated/legible.</p> <p>(b) Building identification and numbering is prominent.</p> <p>(c) Entrances to buildings are emphasized by—</p> <p>(i) a size of entrance of an appropriate scale and presence on the street; and</p> <p>(ii) use of high quality materials and high levels of detailing around the entrance.</p> <p>Skyline Elements/Roof Top Design</p> <p>Specific Outcomes</p> <p>(a) The design of the roof form is consistent with the predominant existing character or the desired character of roofs in the area.</p> <p>(b) The design of roof forms ensure that—</p> <p>(i) plant rooms and equipment are appropriately concealed; and</p> <p>(ii) appropriately coloured roof treatments are used and contrasting coloured roof treatments are avoided.</p> <p>Building Materials</p> <p>Specific Outcomes</p> <p>(a) External materials are high quality, attractive, durable and need minimal maintenance.</p> <p>(b) Use of highly reflective materials in facades or on roofs (e.g. unpainted zincalume) is avoided or limited to locations where they do not detract from the amenity and character of adjacent development and public or semi-public spaces.</p> <p>(c) Colours are used to unify buildings which form part of a group, and colour schemes are appropriate to the style of the building.</p> <p>(d) Previously unpainted surfaces are not painted where the original finish (e.g. face</p>		<ul style="list-style-type: none"> ▪ The main entrance to the development will be clearly identifiable and provides adequate separation for vehicles and pedestrians. ▪ Direct pedestrian access from North Street to several units has been provided which is also clearly identifiable. ▪ Prominent numbering will be used throughout the development. ▪ The design of the individual units includes appropriate entrances. <p>The proposal achieves compliance with the specific outcomes sought as follows.</p> <ul style="list-style-type: none"> ▪ The roof form has been designed in a 'saw tooth' fashion to ensure consistency with the nearby railway workshops. ▪ No roof-top machinery is proposed. ▪ The proposed colour pallet will compliment the locality and provide adequate contrast.
		<p>The following points should be noted with regard to the building materials proposed:</p> <ul style="list-style-type: none"> ▪ High quality materials needing minimal maintenance are proposed. ▪ It is not intended to use highly reflective materials. ▪ Face brick, painted cladding, rendered and painted block work or blue board will be used for external walls while colourbond will be used for roofs. A colour palette is included within the proposal plans, which has been selected to compliment the heritage buildings found within the locality.

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<p>brickwork) is an important part of the building's character.</p> <p>Site Amalgamation</p> <p>Specific Outcomes</p> <p>Where the site for the proposed development comprises more than one lot, all lots are amalgamated by survey into one parcel prior to the submission of an application for the approval of building works.</p> <p>Site Suitability and Amenity</p> <p>Specific Outcomes</p> <p>(a) Residential uses or works are designed and sited to maximise site potential, minimise risk and provide a high degree of amenity in a residential environment, suited to the community's needs.</p> <p>(b) Residential uses and works do not cause unreasonable, detrimental impacts on the amenity of adjacent uses, streets, or other public or semipublic spaces with respect to—</p> <p>(i) overshadowing or loss of sunlight or natural daylight;</p> <p>(ii) noise; and</p> <p>(iii) loss of privacy.</p> <p>(c) Mixed use developments incorporating residential accommodation (for short or long term residents) are designed to ensure that residents are afforded reasonable standards of on-site convenience and amenity, and safe and secure access.</p> <p>(d) Habitable rooms in dwellings are situated above the adopted flood level.</p> <p>(e) Residential building sites have proven, suitable surface and sub-surface stability characteristics having regard to past, present and likely future mining activity.</p> <p>(f) Residential uses are sited within a lot so that the future development of the balance</p>		<p>N/A as the site is currently on a single title.</p>
		<p>It is argued that the proposal complies with the specific outcomes sought as follows:</p> <p>a) The design of the development maximizes the use of the developable area and ensures that the amenity of the locality is not impacted upon.</p> <p>(b) The nature of the use itself (i.e. residential based), the maximum height of 2 storeys and physical separation to existing residences ensures that the proposal will not generate impacts on the locality in terms of noise, overshadowing or loss of privacy.</p> <p>(c) N/A as the proposal does not involve mixed uses.</p> <p>(d) The floor levels of all dwellings are located above the defined flood level.</p> <p>(e) The site is not located within an area subject to undermining.</p> <p>(f) The proposal will not compromise the future development of adjoining or nearby sites.</p>

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<p>area of the lot (if any) is facilitated.</p> <p>Privacy Specific Outcomes Direct overlooking of main internal living areas of other dwellings is minimised by building layout, location of entrances, location and design of windows and balconies, screening devices and landscaping or by physical separation.</p>	<p>Probable Solutions – for sub-section (13) (a) Dwellings are designed to face a street frontage or towards the interior of a site, rather than across side or rear boundaries to adjoining land. (b) A minimum 9m separation (or 12 m where above first floor level) is provided between the windows of habitable rooms of facing dwellings. (c) Direct views between living area windows of adjacent dwellings are screened or obscured. (d) Direct views from living rooms of dwellings into the principal area of private recreation space of another dwelling are screened or obscured. (e) Screening is provided by— (i) 1.8 m high solid fences or walls between ground floor level windows; or (ii) window screens that have a maximum area of 25% openings, which are permanently fixed and made of durable materials; or (iii) landscaping, including existing dense vegetation or new planting. (f) Each dwelling is provided with a private entrance at ground level, or alternatively, where there are shared access paths to entries, overlooking into habitable rooms is prevented by the use of screen walls or the location of windows above 1.6 metres from the floor.</p>	<p>The design of the proposal addresses the issues raised within the probable solution as follows:</p> <ul style="list-style-type: none"> ▪ The location of the site itself and layout of the proposed units ensures that the units will not overlook nearby residential development. ▪ Use of fencing and landscaping will ensure that any potential direct views between living areas are adequately screened. ▪ The design ensures that there will be no direct views from living rooms into the private recreation space of another dwelling. ▪ It is anticipated that conditions of approval will specify the allowable materials and methods to facilitate screening where required. ▪ The design ensures that each dwelling is provided with a private entrance at ground level.
<p>Noise Specific Outcomes (a) Site layout and building design protect internal living and sleeping areas from high levels of external noise. (b) Active recreation facilities, including</p>		<p>An acoustic report has been prepared by TTM Consulting that addresses the acoustic issues associated with the development.</p> <p>It is argued that the layout of the proposal is such that significant impacts from the use of the various facilities by residents will not impact on individual units.</p>

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<p>swimming pools, spas, tennis courts and barbecue areas and equipment and machinery such as garbage chutes, pumps, compressors, air conditioning and other plant which generate high noise levels, are located away from habitable rooms in nearby dwellings or are enclosed or otherwise acoustically treated.</p> <p>(c) Where possible, driveways and parking areas are located away from the windows of habitable rooms in adjacent dwellings at the same level, or are screened to minimise noise.</p> <p>(d) Residential buildings are either—</p> <p>(i) not exposed to unacceptable transport noise (particularly from main roads or rail corridors); or</p> <p>(ii) designed and constructed so that acceptable living conditions are created within the dwelling.</p> <p>Lighting</p> <p>Specific Outcomes</p> <p>Lighting is—</p> <p>(a) provided in public streets and public/municipal spaces, along pedestrian and cyclist paths and within car parking areas;</p> <p>(b) located such that mature planting does not reduce its effectiveness;</p> <p>(c) aesthetically integrated into the total design with building, landscaping, signage, streetscape and public space design;</p> <p>(d) used to illuminate buildings, public and communal areas and other areas that may be susceptible to criminal activity, but avoids 'light spill' which would detract from the amenity of nearby areas (particularly residential uses) or contribute to hazardous</p>		
<p>(a) provided in public streets and public/municipal spaces, along pedestrian and cyclist paths and within car parking areas;</p> <p>(b) located such that mature planting does not reduce its effectiveness;</p> <p>(c) aesthetically integrated into the total design with building, landscaping, signage, streetscape and public space design;</p> <p>(d) used to illuminate buildings, public and communal areas and other areas that may be susceptible to criminal activity, but avoids 'light spill' which would detract from the amenity of nearby areas (particularly residential uses) or contribute to hazardous</p>	<p>Probable Solutions – for sub-section (16)</p> <p>(a) Illumination levels parallel to and at a distance of 1.5 m outside the boundary of the lot do not exceed 8 lux in either the vertical or horizontal plane for a height of 10m above ground level.</p> <p>(b) Security lighting is consistent with Australian Standard AS 4282 (1997) – The Control of Obtrusive Effects of Outdoor Lighting.</p> <p>(c) Principal pedestrian and bicycle movement routes, public spaces and outdoor signage in public spaces is lit to the minimum Australian Standard of AS1158 (Public Lighting Code) so that these areas become the focus of legitimate pedestrian activity after dark.</p> <p>(d) Areas which are heavily used by pedestrians, such as major pedestrian routes,</p>	<p>The nature of nearby uses is such that light emissions will not impact on the proposed development.</p> <p>It is anticipated that conditions of approval will reflect Council's requirements for internal lighting throughout the development.</p>

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<p>traffic conditions;</p> <p>(e) appropriately placed to avoid shadows and glare which might put pedestrians at risk (i.e. shielded light at eye level);</p> <p>(f) not directed onto nearby properties;</p> <p>(g) downward directed;</p> <p>(h) appropriately shielded at its source;</p> <p>(i) provided to vehicular and pedestrian movement areas, including roads, paths and carparks, in order to provide visibility and safety at night; and</p> <p>(j) provided for entry ways, and includes point-to-point lighting for pedestrian walkways.</p>	<p>entries to buildings and entries to public toilets are lit with the power of 50 – 100 lux (lumens).</p> <p>(e) Areas not intended for night-time use are not lit or are closed off to avoid giving a false impression of safety.</p> <p>(f) Photoelectric cells are provided rather than time switches for night lighting.</p>	
<p>Climate Control</p> <p>Specific Outcomes</p> <p>(a) Uses and works are sited, designed and constructed to respond to Ipswich's climate in a manner which minimises reliance on non-renewable energy sources for heating, cooling or ventilation.</p> <p>(b) Habitable rooms, occupants, streets and public/communal spaces are capable of receiving adequate daylight and ventilation which maximizes access to winter sunshine and summer breezes.</p> <p>(c) Windows and doors in buildings are located, sized and shaded and the building layout and materials chosen to facilitate energy conservation.</p> <p>(d) Building design incorporates architectural features such as extended eaves, awnings, pergolas and verandahs to protect windows and doorways from summer sun, glare and rain, and to provide shelter for outdoor living areas.</p> <p>(e) Habitable rooms receive adequate daylight for the carrying out of daily tasks and</p>	<p>Probable Solutions – for sub-section (18)</p> <p>(a) The main living areas within dwellings are oriented between 30 degrees west to 90 degrees east of due north.</p> <p>(b) Dwellings are sited, designed and constructed with windows—(i) to face a court or other outdoor space open to the sky, or an open verandah; or</p> <p>(ii) to be placed not less than a horizontal distance of 1.5m from any facing building.</p> <p>(c) Any wall situated opposite an existing habitable room window is setback from that window by a minimum distance of half the height of that wall.</p> <p>(d) Eaves, with a minimum width of 450mm, are provided to the exterior of all dwellings.</p>	<p>It is argued that the design of the units responds to the probable solutions sought.</p>

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<p>private recreation space receives adequate sunlight, having regard to both on-site and adjacent development.</p> <p>(f) Buildings are sited and designed—</p> <p>(i) to maximise use of prevailing breezes for natural ventilation; and</p> <p>(ii) so that openings (windows and doors) are located in opposite and adjacent walls wherever possible to facilitate capture of prevailing breezes and cross ventilation.</p> <p>Overshadowing and Wind Turbulence Specific Outcome</p> <p>The height and placement of buildings is designed to ensure that there is minimal overshadowing and creation of wind turbulence on adjoining properties, particularly where containing public or communal spaces, which would have a detrimental impact upon the amenity of those properties.</p>	<p>21) Probable Solution – for sub-section (20)</p> <p>All ground level, private recreation space areas on the site and adjoining sites affected by shadow from an existing or proposed building are capable of receiving sunlight for a minimum of 4 hours on 21 June.</p>	<p>The position and dimensions of private recreation areas is such that adequate sunlight is available.</p>
<p>Recreation Space Specific Outcomes</p> <p>(a) Communal recreation space and associated facilities are provided onsite to suit anticipated user needs, taking into account—</p> <p>(i) the overall housing density;</p> <p>(ii) the quality and extent of alternative public open space or private recreation space;</p> <p>(iii) the relationship to other, nearby, recreation or open space areas;</p> <p>(iv) the need to distinguish communal recreation space clearly from public open space or private recreation space; (v) the type of activity permitted on the communal recreation space;</p> <p>(vi) future maintenance requirements;</p> <p>(vii) the need to maintain the privacy of nearby dwellings; and</p>	<p>Probable Solutions – for sub-section (22)</p> <p>(a) Recreation space is provided at a rate of—</p> <p>(i) 45m² for one bedroom in each dwelling; plus</p> <p>(ii) 15m² for each additional bedroom in each dwelling.</p> <p>(b) Recreation space may be communal, or private, or a combination thereof.</p> <p>(c) Communal recreation space—</p> <p>(i) does not include areas used for driveways, carparking, clothes drying, storage or refuse collection; (ii) has a minimum dimension of 5 metres;</p> <p>(iii) where comprising between 10 and 30 dwellings, provides at least one area with a minimum dimension of 10 metres;</p> <p>(iv) where comprising more than 30 dwellings provides at least one area with a minimum</p>	<p>The 'Development Details' sheet (Sheet DA01A) included with the proposal plans includes an assessment of the proposal against the open space provisions of the Planning Scheme. As indicated, each unit has been provided with a private recreation area while a communal recreation area of 3,085m² is also proposed. The total recreation areas provided exceed the Planning Scheme requirements by 1,530 m².</p> <p>The following points should also be noted with regard to the open space provided;</p> <ul style="list-style-type: none"> ▪ The communal recreation area includes a suitable 'kick around' area that has a minimum dimension exceeding 20 metres. ▪ The private recreation space for each unit exceeds 35m², has a minimum dimension of 3 metres, a slope less than 5% and is screened by suitable fencing.

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<p>(viii) the need for landscaping to enhance a sense of enclosure, while allowing informal surveillance and meeting security needs.</p> <p>(b) Private recreation space is provided for each dwelling to suit projected user needs by—</p> <ul style="list-style-type: none"> (i) being clearly defined for private use; (ii) being suitable for intended use, with particular regard to slope; (iii) being directly accessible from a main living area; (iv) having dimensions capable of accommodating some outdoor recreational needs and some space for service functions; and (v) taking account of requirements for privacy, security, outlook and maximum year-round use. 	<p>dimension of 20 metres.</p> <p>(d) Private recreation space, where provided at ground level—</p> <ul style="list-style-type: none"> (i) has a minimum area of 35m² with a minimum dimension of 3 metres; (ii) includes a principal area having— <ul style="list-style-type: none"> (A) a minimum area of 16m²; (B) a slope no greater than 1 in 20 (5%); and (C) direct access from a living room of the dwelling; (iii) is oriented between 30 degrees west to 90 degrees east of due north; and (iv) is screened with a 1.8 metre high wall or screen fence with no gaps along the common boundary to adjoining dwellings or communal areas (see Figure 12.6.1). (e) Where private recreation space is not provided at ground level, each dwelling has a balcony or verandah with— <ul style="list-style-type: none"> (i) a minimum area of 8m²; (ii) a minimum dimension of 2.4 metres; (iii) an orientation between 30 degrees west or 90 degrees east of due north; and (iv) direct access from a living room of the dwelling (see Figure 12.6.1). 	
<p>Landscaping</p> <p>Specific Outcomes</p> <p>(a) Landscaping for residential uses is designed and constructed to—</p> <ul style="list-style-type: none"> (i) compliment the existing or intended streetscape character and appearance and thereby to assist with the integration of the development into the streetscape; (ii) an appropriate scale, relative to both the street reserve width and the building bulk; (iii) be sensitive to site attributes, such as cultural landscapes, natural landform, existing vegetation, views, land capability, availability 	<p>Probable Solutions – for sub-section (24)</p> <ul style="list-style-type: none"> (a) Buildings on stumps/piers are provided in preference to slab on ground construction, within vegetated areas and on steeply sloping land [i.e. land with a slope greater than 20% (1 in 5)]. (b) Shrubbery and low-level planting associated with footpaths do not exceed 0.5m in height where abutting footpaths. (c) Trees in vulnerable settings do not have branches below 1.5m. 	<p>Landscaping throughout the development will be designed to achieve compliance with the outcomes sought by the Planning Scheme. Note that a landscaping and fencing plan will be provided to Council throughout the assessment process.</p>

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<p>of water on site, and drainage;</p> <ul style="list-style-type: none">(iv) incorporate significant existing vegetation, where possible;(v) improve privacy and minimize overlooking into private spaces;(vi) promote safety and casual surveillance;(vii) assist in microclimate management and energy conservation and efficiency, with particular regard to maximising summer shade and providing access to winter sunshine for outdoor living and recreation areas and providing protection from winter winds and westerly aspects;(viii) accommodate stormwater flows and maximize absorptive landscaped areas for on-site infiltration of stormwater;(ix) integrate and form linkages with parks, reserves and transport corridors;(x) reinforce desired traffic speed and behaviour;(xi) enhance opportunities for pedestrian comfort;(xii) consider lines of sight for pedestrians, cyclists and vehicles;(xiii) provide attractive and coordinated street furniture and facilities to meet user needs;(xiv) effectively screen storage and service areas from views from outside the site;(xv) achieve easy and cost effective maintenance, which is not overly dependent on the city's reticulated water supply and utilises stored rainwater and recycled treated wastewater where practicable; and(xvi) avoid damage to building foundations and overhead and underground utility services. <p>(b) Landscaping is designed to promote safety through—</p>		

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<p>(i) the provision of shade and shelter which encourages the use of public and communal areas; and</p> <p>(ii) planting which supports informal surveillance and does not obscure doors and windows overlooking public/communal spaces and isolated areas.</p> <p>Fences and Walls</p> <p>Specific Outcomes</p> <p>(a) Fence types are designed giving consideration to—</p> <p>(i) the appropriateness of the fence design in its local context;</p> <p>(ii) the role of the fence;</p> <p>(iii) the definition of the property boundary;</p> <p>(iv) uses on the site and on adjoining sites;</p> <p>(v) existing or planned lighting and landscaping; and</p> <p>(vi) site security and access identification and restriction.</p> <p>(b) Front fences and walls—</p> <p>(i) enable some outlook from buildings to the street for safety and surveillance;</p> <p>(ii) assist in highlighting entrances and in creating a sense of community identity within the streetscape;</p> <p>(iii) are designed and detailed to provide visual interest to the streetscape;</p> <p>(iv) comprise materials and colours compatible with the buildings and landscaping on site, and with attractive visual examples of fences and walls in the streetscape to offer a sense of continuity, and</p> <p>(v) are compatible with facilities in the street frontage area, such as mail boxes and garbage collection areas.</p> <p>(c) Retaining walls are terraced and landscaped, or otherwise detailed, to be</p>	<p>Probable Solutions – for sub-section (26)</p> <p>(a) Front fences and walls have a maximum height of—</p> <p>(i) 1.2m high if of solid appearance; and</p> <p>(ii) 1.8m high if the fence has openings or materials which make it not less than 30% transparent.</p> <p>(b) Fences do not exceed 10 m in length without some form of articulation or detailing (e.g. a gateway or recessed garden) to provide visual interest.</p>	<p>A variety of fencing styles and construction materials will be used throughout the development. Note that a landscaping and fencing plan will be provided to Council throughout the assessment process.</p>

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<p>visually attractive and not to appear to be overbearing.</p> <p>Footpaths</p> <p>Specific Outcomes</p> <p>(a) Footpaths are designed and constructed to—</p> <ul style="list-style-type: none"> (i) provide safe and convenient access to dwellings and communal facilities; (ii) discourage use of the site as a pedestrian through-route for non-residents; and (iii) provide privacy to interior dwelling spaces and private recreation space from passersby. <p>(b) All footpaths have a hard and non-slip surface and are well drained.</p> <p>Paving Materials and Street Furniture</p> <p>Specific Outcomes</p> <p>The materials and colours used for footpath paving and street furniture are consistent with those identified in the local government's adopted standards.</p> <p>Safety and Security</p> <p>Specific Outcomes</p> <p>(a) Overall Design/Legibility</p> <ul style="list-style-type: none"> (i) Uses and works are designed and managed to ensure that users are aware of how to safely gain access to, around and within the premises, with a particular emphasis on vulnerable groups, vulnerable elements and vulnerable settings. (ii) The design increases people's awareness of their environment and potential risks to their safety. (iii) The design promotes the use, construction and maintenance of an urban environment which is user friendly and safe to live and move in at any time of day or night. (iv) Where possible, the use or works 	<p>Probable Solutions – for sub-section (28)</p> <p>(a) Where the development involves up to 20 dwellings the sealed carriageway within the internal driveway may be used to provide pedestrian access to the dwellings.</p> <p>(b) Where the development involves more than 20 dwellings, pedestrian access to each dwelling is provided by a minimum 1.5m wide footpath which is separate to, but may adjoin, an internal driveway.</p>	<p>As the development exceeds 20 dwellings, separate internal pedestrian paths have been provided to each unit with the exception of block 19 as these units have a direct pedestrian access from North Street.</p>
		<p>It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction standards and materials for the proposed footpaths and associated facilities.</p>
<p>Safety and Security</p> <p>Specific Outcomes</p> <p>(a) Overall Design/Legibility</p> <ul style="list-style-type: none"> (i) Uses and works are designed and managed to ensure that users are aware of how to safely gain access to, around and within the premises, with a particular emphasis on vulnerable groups, vulnerable elements and vulnerable settings. (ii) The design increases people's awareness of their environment and potential risks to their safety. (iii) The design promotes the use, construction and maintenance of an urban environment which is user friendly and safe to live and move in at any time of day or night. (iv) Where possible, the use or works 	<p>Probable Solutions – for sub-section (31)(b)</p> <p>(a) No blank building facade is presented to any street frontage.</p> <p>(b) Front fences and walls are no more than 1.2 metre high if solid, or up to 1.8m high if the fence has openings or materials which make it not less than 30% transparent.</p>	<p>The following points should be noted in response to the specific outcomes sought:</p> <p>Overall Design/Legibility</p> <ul style="list-style-type: none"> ▪ Entrances to the proposed dwellings are clearly visible as are the pedestrian paths proposed throughout the development. ▪ The layout of the development, use of lighting and opportunities for passive surveillance will ensure the provision of a safe environment. <p>Surveillance and Sightlines</p> <ul style="list-style-type: none"> ▪ The design of the pedestrian network within the development ensures that suitable sightlines are available. ▪ The position of units adjacent to open space and extensive use of windows ensures that opportunities for informal surveillance are available. ▪ Fencing will be designed to facilitate passive surveillance. ▪ The development does not include spaces where there would be a perceived risk to personal safety. ▪ Landscaping adjacent to the pedestrian paths will be designed to maintain visibility.

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<p>Specific Outcomes</p> <p>improves the opportunities to be seen through reduction in isolation, improved mix and intensity of land use and increased legitimate use of spaces.</p> <p>(v) Buildings, spaces and infrastructure are designed to assist legibility (i.e. orientation and navigation through a site or area) reducing the need to depend on signs in order for a person to find their way around.</p> <p>(vi) The layout minimises the potential for crime, vandalism and fear and enhances personal safety and the individual's perception of personal safety.</p> <p>(vii) An easy to understand pedestrian network is provided so that people can easily find their way through, and connections to, important destinations.</p> <p>(viii) The design of areas, buildings, accessways and spaces enables people to find building entrances and exits as well as services such as public transport, phones and public toilets without undue signage.</p> <p>(b) Surveillance and Sightlines</p> <p>(i) The development provides unimpeded sightlines, particularly along pedestrian/bicycle routes.</p> <p>(ii) The development encourages informal surveillance from surrounding buildings and land uses.</p> <p>(iii) Front fences and walls enable some outlook from buildings to the street to achieve safety and surveillance.</p> <p>(iv) Visibility is provided into spaces where risk to personal safety is perceived to be high, including stairwells, elevators, car parks, lobby entrances and bicycle parking facilities.</p> <p>(v) The design of the use or works avoids—</p>	<p>Clear Definition of Ownership/Boundaries</p> <ul style="list-style-type: none"> ▪ Fencing and landscaping will be designed to clearly separate communal areas from areas set aside as private open space. ▪ Clear and concise numbering will be used throughout the development. <p>Concealment Reduction</p> <ul style="list-style-type: none"> ▪ The development is unlikely to result in the creation of specific concealment points. ▪ Security lighting will be provided throughout the development in accordance with Council's requirements. <p>Streetscape Design</p> <ul style="list-style-type: none"> ▪ The internal streetscape will be designed to ensure safety of users through provision of opportunities for passive surveillance as well as free movement throughout the site by pedestrians. ▪ All surfaces will be designed to be free of trip hazards and obstructions. <p>Building Design for Public Safety</p> <ul style="list-style-type: none"> ▪ It is argued that the design of the development and extensive opportunities for passive surveillance will minimize opportunities and incentives to commit crime. ▪ As indicated above the design provides adequate opportunities for passive surveillance. ▪ The design is such that building entrances are clearly defined. Landscaping design will also assist in this regard.

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<p>(A) 'blind' corners (including on stairs, in corridors or other situations where movement can be predicted);</p> <p>(B) sudden changes of grade on pathways which reduce sightlines;</p> <p>(C) concealment points (unless they can be secured after hours); and</p> <p>(D) pedestrian tunnels, excepting that where unimpeded sightlines or the absence of concealment points cannot be reasonably achieved, hardware (such as security mirrors) and good lighting is provided to restore visibility.</p> <p>(vi) All barriers (including landscaping features) along principal bicycle and pedestrian routes are visually permeable (i.e. can be easily seen through) to reduce concealment points.</p> <p>(vii) Windows, verandahs, balconies and activities in buildings are directed to overlook pedestrian routes, open space areas and carparks.</p>		
<p>(c) Clear Definition of Ownership/Boundaries</p> <p>(i) Uses and works are designed and constructed to clearly define ownership, boundaries and legitimate use of private, semi-private and public/communal space (see Figure 12.6.2).</p> <p>(ii) Landscaping, building features, changes of level and low to medium height fencing are used to delineate ownership boundaries.</p> <p>(iii) Street names and building identification (e.g. numbers) are clearly displayed using reflective materials, with numbers clearly located on the kerb, and building frontage.</p>		

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<p>(d) Concealment Reduction</p> <ul style="list-style-type: none">(i) Potential concealment points adjacent to main pedestrian routes are eliminated.(ii) Where a concealment point is unavoidable, aids to visibility such as convex mirrors and good lighting are provided.(iii) The design of the development avoids the creation of concealment points such as—<ul style="list-style-type: none">(A) dark areas adjacent to a main/designated pedestrian route;(B) dead-end alleyways; and(C) areas that are isolated after dark.(iv) Security lighting is provided along principal movement routes, in building entrances, site entries, car parking areas and other movement areas used after dark.(v) Access to loading docks, storage areas and other restricted areas is controlled by—<ul style="list-style-type: none">(A) solid, secure materials; and(B) locking the facilities after hours. <p>(e) Streetscape Design</p> <ul style="list-style-type: none">(i) Streetscape design—<ul style="list-style-type: none">(A) creates safe public places;(B) encourages pedestrian flow; and(C) designates safe resting places.(ii) Paving materials, surfaces and spaces are free of trip hazards and obstructions for the safe movement of the elderly and people with mobility difficulties.(iii) Where appropriate, street furniture is provided which—<ul style="list-style-type: none">(A) does not obscure the views of users, obstruct sightlines along the street, or provide opportunities for concealment; and(B) provides shade and encourages use and informal surveillance.		

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<p>(f) Building Design for Public Safety</p> <p>(i) Building design removes, as much as is possible, the opportunity and incentive to commit crime and improves personal perception and the physical reality of a useable, comfortable and safe environment.</p> <p>(ii) Buildings are designed and constructed, including through the location of windows, verandahs and balconies and the location of habitable rooms to support informal surveillance of the street reserve, nearby open space and other vulnerable areas.</p> <p>(iii) Building entrances are designed so that they—</p> <p>(A) are clearly defined;</p> <p>(B) well lit and face the street; (C) do not create concealment points; and</p> <p>(D) provide clear sightlines from the building foyer so that occupants can see outside before leaving the building.</p> <p>(iv) Ramps and elevator entrances are provided in areas which are not isolated.</p> <p>(v) Windows at street level, are secured.</p> <p>(vi) Buildings are designed to minimise access between roof, balconies and windows of adjoining dwellings.</p>	<p>Probable Solutions – for sub-section (33)</p> <p>(a) Where the development involves 12 or more dwellings direct vehicular access is obtained from a public road with a sealed carriageway of not less than 7.5 metres in width.</p> <p>(b) The minimum pavement widths for those sections of internal driveways which do not provide direct access to parking spaces (i.e. including driveway entries and cross overs from a street reserve) are—</p> <p>(i) 3 metres for up to 12 dwellings; and</p>	<p>The following points address the proposals compliance with the probable solutions sought:</p> <ul style="list-style-type: none"> ▪ The proposed upgrades to North Street will ensure that it is of a suitable construction standard to service the development. ▪ The internal road width proposed is 6.5 metres. ▪ It is anticipated that conditions of approval will reflect Council's requirements for construction of the internal roadways including preferred construction materials. ▪ Visitor car parking has been scattered throughout the development including a single visitor space on the driveway of each unit; clusters of car parks adjacent to the communal open space areas and parallel parking throughout the internal roads.
<p>Carparking and Vehicular Access Specific Outcomes</p> <p>(a) The site has vehicle access from a street or road with adequate capacity for the traffic volumes expected to be generated.</p> <p>(b) Garages, carports and other parking structures are sited and designed so as not to dominate the street frontage.</p> <p>(c) Garages, carports and other parking structures are compatible with the design of the main building(s) on site, particularly in terms of materials, detailing, colours and roof</p>		

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<p>form.</p> <p>(d) Open car parking areas (including visitor parking) are not located between the building and the street alignment, unless softened with landscaping or some other appropriate form of low screening.</p> <p>(e) Access points and driveways avoid existing street trees, as well as mature or significant vegetation on site.</p> <p>(f) The visual impact of driveways and open parking areas is reduced through the appropriate use of tints, textures, gravel or pavers.</p> <p>(g) Large expanses of bitumen and concrete are avoided.</p> <p>(h) The prominence of driveway and carpark access into sites is minimized through limiting the width and number of driveways.</p> <p>(i) Shared driveways are utilised, where possible, to reduce the visual impact on the streetscape of large expanses of driveway crossovers.</p> <p>(j) The paving apron and turning area is kept to the minimum area necessary.</p> <p>Service Facilities Specific Outcomes Provision is made for refuse collection and storage areas, laundry and clothes drying facilities, mail boxes and external storage facilities, which are— (a) of useable size; (b) suitably located for convenient use; and (c) designed to be visually attractive or screened.</p>	<p>(ii) 5.6 metres for more than 12 dwellings.</p> <p>(c) Internal driveways, and in particular open car parking spaces, are of a non-bituminous appearance to enhance the visual amenity on the site and to differentiate between internal driveways and public roads.</p> <p>(d) The minimum boundary setback for any carport or garage is— (i) six (6) metres from any road boundary; and (ii) 1.5 metres from any other site boundary.</p> <p>(e) The minimum setback for any open car parking space is— (i) three (3) metres from any road boundary; (ii) 1.5 metres from any other site boundary; and (iii) 1.5 metres from any residential building on site.</p> <p>(f) Visitor car parking is provided— (i) in discrete areas with small clusters of no more than five (5) spaces; (ii) at regular intervals in the internal driveway system; and (iii) within easy walking distance (i.e. 50 metres) of each dwelling.</p> <p>Probable Solutions – for sub-section (35) (a) A mail box structure— (i) is provided adjacent to the street frontage alignment of the main pedestrian access to the site; and (ii) includes, where the development involves more than one dwelling, one lockable mail box per dwelling, plus one additional mail box for use by a body corporate or management entity. (b) Each dwelling is provided with its own laundry and clothes drying facilities, or alternatively communal facilities are provided within 50 metres of each dwelling.</p>	<p>Compliance with the probable solution sought is achieved as follows:</p> <ul style="list-style-type: none"> ▪ A communal mail box structure is proposed adjacent to the entrance to the development. ▪ Clothes drying areas are available for each unit with the private open space areas. ▪ Storage areas have been included within the garages of each unit. ▪ Each unit will be provided with a wheeled bin for disposal of waste which will be collected in the usual manner.

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Specific Outcomes	Probable Solutions	Development Response
<p>Fire Fighting Specific Outcomes Residential uses are designed with adequate water supply and access for fire fighting purposes.</p>	<p>(c) Each dwelling is provided with a secure storage area, of at least three cubic metres, which is capable of being accessed from the exterior of the dwelling. (d) The external storage area may form part of a garage or carport, but not a laundry.</p> <p>Probable Solution for Sub-Section (37) (a) All dwellings are located within the fire appliance access distances shown in Diagram A below; or (b) (i) The water supply service to the development is sized for the provision of fire fighting flows via hydrants and a metered bypass across a check valve in accordance with AS2419.1, such that new fire hydrants are installed to enable all dwellings to achieve the fire appliance access distances shown in Diagram A below; and (ii) vehicular access, through the site is via— (A) a minimum 3 metre wide concrete driveway; (B) with a minimum 3 metres in horizontal clearance and 4.5 metres in vertical clearance; and (C) with a sufficient hard stand turnaround area or through route configuration to enable fire fighting vehicles to enter and leave the site in a forward gear.</p>	<p>It is anticipated that Council's requirements for fire fighting infrastructure will be reflected through conditions of approval. It is noted however that the layout of the site provides suitable manoeuvring areas for service vehicles including fire fighting vehicles.</p>

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<p>12.9.3 Overall Outcomes for the Parking Code The overall outcomes sought for the Parking Code are the following— Off-street parking areas and loading and unloading facilities are designed, constructed and maintained to— (a) provide a safe environment for both pedestrians and vehicles; (b) reduce traffic congestion by ensuring adequate off street facilities are provided by developments which are likely to generate traffic; (c) ensure that high standards of practicability, personal safety and aesthetic value are incorporated into the construction of off street parking areas and loading and unloading facilities; (d) encourage integration with public transport facilities and non-motorised forms of transport and shared use of parking facilities in order to reduce the overall demand for parking facilities for private motor vehicles; (e) provide parking facilities for people with disabilities; (f) provide facilities for the parking of bicycles and motorcycles; and (g) protect the amenity of nearby users, particularly residents.</p>		<p>It is argued that the design of the development achieves compliance with the specific outcomes sought as follows: (a) The separation of pedestrian pathways and vehicle access areas ensures safety for pedestrians while the provision of a suitable internal road layout that allows all vehicles to enter and leave in forward gear and provides adequate areas for manoeuvring ensures safety for vehicles. (b) The proposed development exceeds the parking requirements of the Planning Scheme and the design of the access points ensures that traffic impacts will not be generated. (c) The nature of the development and layout of the various parking areas is such that access to and use of the parking areas is practical, personal safety will be protected and visual impacts will not be generated. (d) Suitable access to public transport is available in the locality while the sites proximity to the centre of Ipswich provides opportunities to minimize the use of private motor vehicles. (e) It is anticipated that conditions of approval will reflect the specific requirements in terms of providing parking facilities for people with disabilities; (f) The nature of the use is such that provision of specific motor vehicle or bicycle parking facilities is unnecessary (i.e. residents could keep such vehicles in their designated parking areas). (g) The proposed parking areas will not impact on the amenity of nearby residents given the separation of the parking areas from the property boundaries.</p>
<p>12.9.4 Parking Design and Construction Standards Site Considerations Specific Outcomes (a) Car parking is provided within the site of the development. (b) Long term or all day carparking areas are generally located to the rear or side of the property so as to be unobtrusive. (c) Entrances to carparks are readily identifiable and convenient.</p>		<p>The residential nature of the development is such that many of the issues raised within the specific outcome are not applicable to the project. However, as adequate facilities are provided within the site itself, visitor car parking areas are clearly identifiable and suitable road access is available, it is argued that compliance with the specific outcome sought is achieved.</p>

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<p>(d) Car park site selection takes into account—</p> <ul style="list-style-type: none"> (i) the type of road frontage; (ii) the safety and convenience of ingress and egress points; (iii) provision of and scope for suitable drainage; (iv) the effects of the carparking area on adjacent or nearby uses; (v) minimisation of pedestrian/vehicular conflicts; (vi) walking distances from the carpark to the destination; (vii) the potential for site landscaping; (viii) issues relating to public safety and security; and (ix) co-location and multi-use opportunities for shared parking arrangements. <p>General Layout of Parking Areas</p> <p>Specific Outcomes</p> <ul style="list-style-type: none"> (a) The design provides uncongested traffic flow within the parking area, thereby reducing the potential for vehicle queuing off-site and conflict between vehicles (drivers) trying for the same parking space. (b) The design minimises unnecessary areas for parking and manoeuvring, without compromising the safety and convenience of the carpark layout. <p>Design of Parking Modules, Circulation Roadways and Ramps</p> <p>Specific Outcomes</p> <p>Parking modules and associated circulation roadways and ramps are designed to—</p> <ul style="list-style-type: none"> (a) move traffic to and from the road frontage with minimum disruption to through traffic and maximum pedestrian safety; (b) provide adequate capacity in circulation 		<p>It is argued that the proposal meets the specific outcome sought as follows:</p> <ul style="list-style-type: none"> ▪ The design and layout of the site ensures that traffic flow throughout the site will be maintained; ▪ Queuing onto public roads will not occur (i.e. 2 lane entrance to the development will ensure continual vehicle movements); ▪ Conflict for parking spaces is unlikely to occur given that the proposal exceeds the Planning Scheme parking requirements; and ▪ No unnecessary parking or manoeuvring areas are proposed. <p>The design of the development achieves compliance with the relevant Australian Standards and it is anticipated that conditions of approval will reflect the requirement for the development to be constructed in accordance with these provisions.</p>
	<p>(4) Probable Solutions – for sub-section (3)</p> <p>Parking modules, circulation roadways and ramps are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	

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Specific Outcomes	Probable Solutions	Development Response
<p>roadways and aisles to handle peak hour movements by minimising congestion;</p> <p>(c) arrange internal roadways to avoid as far as practicable conflicts between intersecting streams of circulating traffic;</p> <p>(d) provide minimum length travel paths between entry/exit points and parking spaces; and</p> <p>(e) safely treat points of conflict with pedestrians and other users.</p> <p>Access Driveways and Queuing Areas</p> <p>Specific Outcomes</p> <p>(a) Access driveways are located to minimise conflict and designed to operate efficiently and safely taking into account—</p> <p>(i) the size of the parking area;</p> <p>(ii) the amount and type of vehicle traffic using the parking area;</p> <p>(iii) the type of use (e.g. long-term, short-term, regular, casual); (iv) the capacity of the adjoining street system;</p> <p>(v) road frontage characteristics (i.e. type of road, vertical and horizontal geometry, traffic volume and speed control);</p> <p>(vi) the spacing and type of entrances and exits proposed relative to each other and other intersections;</p> <p>(vii) the location of existing or proposed medians and other traffic control devices;</p> <p>(viii) sight distances;</p> <p>(ix) pedestrian and vehicle safety aspects;</p> <p>(x) the potential for queuing vehicles; and</p> <p>(xi) any relevant provision for public transport.</p> <p>(b) Access driveways catering for a high volume and turnover of vehicles are located—</p> <p>(i) off side roads rather than directly from the frontage of a Designated Road;</p> <p>(ii) where possible, away from other uses and</p>	<p>Probable Solutions – for sub-section (5)</p> <p>Access driveways and queuing areas are located and designed in accordance with the provisions of Australian Standard AS 2890.1 Part 1: Off Street Carparking.</p>	<p>The design of the internal roads complies with the relevant Australian Standards and it is anticipated that conditions of approval will reflect the requirement for the development to be constructed in accordance with these provisions.</p>

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<p>works generating a large amount of traffic;</p> <p>(iii) away from areas where there is a heavy and constant pedestrian movement along the footpath;</p> <p>(iv) away from areas where right turning traffic entering the site would obstruct through traffic; and</p> <p>(v) away from areas where traffic using the driveways will interfere or block the operations of bus stops, taxi ranks, loading zones or pedestrian crossings.</p> <p>(c) The widths of access driveways are designed and constructed taking into account the—</p> <p>(i) type of road frontage;</p> <p>(ii) traffic generating potential of the proposed development and the number of parking spaces required; and</p> <p>(iii) the potential for the queuing of vehicles on the entry road.</p> <p>Public Safety</p> <p>Specific Outcomes</p> <p>The design, location and management of carparks promote public safety by—</p> <p>(a) being designed to optimise informal surveillance and to control inappropriate access;</p> <p>(b) being sufficiently well lit, with vandal proof lighting, to enable visibility of all external edges and routes providing access to the carpark;</p> <p>(c) avoiding the creation of concealment areas; and</p> <p>(d) being designed to avoid large (over 100 cars in a single block), continuous, carparking areas, and where this cannot be avoided, effective surveillance is provided.</p>	<p>Probable Solutions – for sub-section (7)</p> <p>(a) Informal surveillance is provided from adjoining uses by the placement or location of windows or retail premises, kiosks or other uses that generate activity on the edges of the parking area overlooking the carpark.</p> <p>(b) For large carparks (i.e. in excess of 100 spaces)—</p> <p>(i) a single entry/exit point is provided within clear view of an attendant, or where provision of an attendant is not practical, more than one entry/exit point is provided so that the carpark does not become an entrapment area;</p> <p>(ii) an attendant trained for emergencies is provided;</p> <p>(iii) signage is provided, which—</p> <p>(A) identifies the location of parking modules, to enable users to easily relocate their</p>	<p>N/A given the residential nature of the use and the 'scattering' of car parking spaces throughout the site.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>Separation of Pedestrian and Vehicular Circulation Specific Outcomes (a) Pedestrian routes are separated from vehicular circulation to allow protected access for pedestrians via the shortest practical route from the parking area to the use. (b) Pedestrian access does not pass through commercial or refuse vehicle reversing or loading areas. (c) Protection measures for pedestrians are located in areas of high pedestrian/vehicular conflict or high speed and may include— (i) physical barriers (e.g. bollards); (ii) pedestrian crossings; (iii) lighting; (iv) raised walkways between parking modules; (v) speed humps; and (vi) mounding, landscaping or fencing.</p> <p>Parking Spaces for People with Disabilities Specific Outcome Vehicle parking spaces for people with</p>	<p>vehicles; (B) identifies directions to exits, nearby destinations and emergency facilities (such as fire extinguishers, telephones or emergency buttons); (C) advises users to lock their vehicles and secure valuables; and (D) informs users of the security measures provided; (iv) organised surveillance is provided through regular patrols or mechanical means; and (v) emergency telephones or contact buttons are provided in highly accessible, convenient and identifiable locations.</p>	<p>Compliance with the specific outcome sought is achieved as the design of the development provides for the separation of vehicle and pedestrian traffic.</p>
	<p>Probable Solutions – for sub-section (10) (a) Parking spaces for people with disabilities are provided at the rates specified in Appendix C of Australian Standard AS2890.1 Part 1: Off</p>	<p>It is anticipated that conditions of approval will reflect the specific requirements in terms of providing parking facilities for people with disabilities.</p>

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<p>disabilities are well located and are provided in sufficient quantities and have adequate areas and dimensions to meet user needs.</p>	<p>Street Carparking. (b) Car parking spaces for people with disabilities are located as near as possible to the entrance or entrances to the facility or use they serve. (c) Parking spaces for people with disabilities are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking. (d) Pathways and ramps between parking areas and the entrances to buildings are designed in accordance with the provisions of Australian Standard AS1428.1: Design for Access and Mobility. (e) Parking spaces for people with disabilities are identified by a sign incorporating the International Symbol specified in Australian Standard AS1428.1: Design for Access and Mobility. (f) The sign is readily visible from a vehicle at the entrance to the carpark, or guide signs are provided to indicate the direction of the disabled parking spaces.</p>	
<p>Parking Spaces for Motorcycles Specific Outcome Motorcycle parking spaces have adequate areas and dimensions to meet user needs.</p>	<p>Probable Solution – for sub-section (13) Parking spaces for motorcycles are designed in accordance with the provisions of Section 2.4.7 of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>The residential nature of the use is such that provision of motorcycle parking spaces is unnecessary.</p>
<p>Bicycle Parking Specific Outcomes (a) Specific areas for bicycle parking are set aside within uses likely to attract a high proportion of local use or youth patronage, including— (i) shopping centres; (ii) major factory or office complexes; (iii) educational establishments; (iv) sports, leisure and entertainment centres;</p>	<p>Probable Solutions – for sub-section (14) (a) Bicycle parking facilities are designed in accordance with the provisions of Australian Standard AS2890.3 Part 3: Bicycle Parking Facilities. (b) Bicycle parking is provided for the uses listed in sub-section (14)(a) above at the rate of one space per— (i) 750m² of office floor space; and (ii) 500m² of non-office floor space.</p>	<p>The residential nature of the use is such that provision of motorcycle parking spaces is unnecessary.</p>

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<p>(v) libraries and other public buildings;</p> <p>(vi) transit centres;</p> <p>(vii) parks and recreation areas;</p> <p>(viii) tourist facilities; and</p> <p>(ix) medical centres and hospitals.</p> <p>(b) Shoppers, customers, messengers and visitors are encouraged to use bicycles by providing short term bicycle parking facilities which—</p> <p>(i) are conveniently located and readily accessible to intended destinations;</p> <p>(ii) are located to facilitate casual surveillance in order to minimise incidents of theft or damage; and</p> <p>(iii) enable bicycles to be securely locked without undue inconvenience.</p> <p>(c) Students, employees, residents and commuters, who are likely to stay at a site for several hours are encouraged to use bicycles by providing long term bicycle parking facilities which—</p> <p>(i) are secure and weather protected;</p> <p>(ii) are conveniently located in relation to intended destinations; and</p> <p>(iii) include shower facilities where provided for use by employees.</p> <p>(d) Bicycle parking facilities are designed—</p> <p>(i) to ensure that motor vehicles cannot encroach into bicycle parking areas;</p> <p>(ii) so that they do not adversely affect pedestrian movements;</p> <p>(iii) to provide adequate directional signage;</p> <p>(iv) to provide lighting where the bicycle parking facilities are used at night; and</p> <p>(v) to facilitate access to both destinations and bicycle paths.</p> <p>Commercial Vehicle Facilities and Service Areas</p>	<p>(c) Long term bicycle parking space (e.g. for the use by employees) are provided with the following 'end of trip' facilities—</p> <p>(i) 1 locker per 2 bicycle parking spaces; and</p> <p>(ii) 1 shower cubicle with an ancillary change room per 10 bicycle parking spaces.</p> <p>(d) Short term bicycle parking areas are provided within 15 metres of the main entry to the building they are intended to serve.</p> <p>(e) At least 50% of long term bicycle parking areas are covered by a roof.</p>	<p>The internal road layout is suitable for manoeuvring of service vehicles however the nature of the use is such that specific service bays are not required.</p>
	<p>Probable Solutions – for sub-section (16)</p> <p>(a) Service areas and service bays for</p>	

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<p>Specific Outcomes</p> <p>(a) All areas for the manoeuvring and standing of commercial vehicles in association with loading and unloading are located wholly within the site and are separate from and do not encroach upon any part of the site set aside for other purposes.</p> <p>(b) All commercial vehicle manoeuvring areas and ingress and egress points are designed, wherever possible so that it is not necessary to drive between the property boundary and the carriageway of the frontage road in a reverse gear.</p> <p>Parking Structures (including enclosed garages and multi-level carparks)</p> <p>Specific Outcomes</p> <p>(a) Parking structures (including enclosed garages) are designed to provide adequate clearance from walls, columns, roofs and other obstructions, in order to facilitate ease of use.</p> <p>(b) Parking structures are designed—</p> <p>(i) as an integral part of a building; or</p> <p>(ii) where free standing—</p> <p>(A) are located as close as possible to the use(s) they are intended to serve; and</p> <p>(B) are designed in a sympathetic and compatible manner with other nearby buildings.</p> <p>(c) Multi-level parking structures—</p> <p>(i) are designed to minimize visual impact on the streetscape and nearby uses;</p> <p>(ii) contribute to a lively pedestrian environment by including retail or other active uses on the ground floor, street frontage perimeter of the structure; and</p> <p>(iii) promote personal and public safety by—</p> <p>(A) having an attendant trained for</p>	<p>commercial vehicles are designed in accordance with the provisions of Australian Standard AS2890.2 Part 2: Commercial Vehicle Facilities.</p> <p>(b) Access driveways to service areas and service bays are designed in accordance with the provisions of Australian Standard AS2890.2 Part 2: Commercial Vehicle Facilities.</p>	<p>The individual garages proposed comply with the relevant Australian Standards. It is noted that no other car parking structures are proposed.</p>

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<p>emergencies on duty after hours: (B) having emergency telephones placed throughout, with accompanying illuminated international telephone signs; (C) having vandal proof and consistent lighting which enables visibility of all external edges and access routes throughout the carpark; (D) having white exit corridors, stairwells, walls and ceilings that reflect light; (E) having secured potential concealment spots; (F) providing organized surveillance through regular patrols; (G) providing mechanical surveillance and emergency telephones or buttons on each level, with illuminated international signs; (H) providing signage advising directions to stairs, lifts and exits, offices/buildings served, fire extinguishers and emergency buttons; (I) providing parking module identification signs to enable users to easily relocate their vehicles; and (J) providing signs advising users to lock their vehicles, to secure valuables and informing users of the security measures installed.</p>		
<p>Tandem and Stacked Parking Specific Outcomes A limited number of tandem parking spaces may be provided subject to evidence— (a) that there is a real need for tandem parking or stacked parking and that the provision of tandem parking or stacked parking will not adversely affect the use of the site; and (b) tandem parking or stacked parking is primarily used to provide parking for people employed on the premises and likely to park</p>		<p>N/A as tandem parking spaces are not proposed.</p>

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<p>all day or a major part of the day, or where a parking attendant is available during operational periods to assist with the parking and retrieval of vehicles; and</p> <p>(c) that provision is available on site for shifting cars without the movement of vehicles onto public streets.</p>		
<p>Parcel Pick-up Areas Specific Outcomes Parcel pick-up areas are designed and located—</p> <p>(a) so as not to interrupt the flow of vehicles in circulation roadways; and</p> <p>(b) to enable pedestrians to move freely around vehicles in the parcel pick-up area without being endangered by traffic.</p>		<p>N/A - no pick up areas are proposed given the residential nature of the use.</p>
<p>Trolley Bays Specific Outcome Trolley bays are provided within shopping centre carparks to enable the orderly storage of shopping trolleys.</p>	<p>Probable Solution – for sub-section (22) Trolley bays are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>N/A – no trolley bays are proposed given the residential nature of the use.</p>
<p>Speed Humps Specific Outcomes Speed humps, where necessary, are—</p> <p>(a) clearly visible to both drivers and pedestrians; and</p> <p>(b) designed and constructed to—</p> <p>(i) reduce vehicle speeds; and</p> <p>(ii) avoid damage to vehicles.</p>	<p>Probable Solutions – for sub-section (24) Speed humps are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>N/A – no speed humps are proposed.</p>
<p>Signage Specific Outcomes (a) Off street parking areas are designed to control traffic and parking movements rather than simply relying on signage directions. (b) The design of the parking area and its circulation pattern makes it difficult to breach traffic and parking rules. (c) Vehicular speed is limited by the design of</p>	<p>Probable Solutions – for sub-section (26) (a) Signage is designed in accordance with the provisions of Australian Standards— (i) AS2890.1 Part 1: Off Street Carparking; and (ii) AS1742: Code of Uniform Traffic Control Devices. (b) All traffic signage and traffic control measure details are shown on the carparking layout plan.</p>	<p>N/A – no formal signage of parking areas is considered necessary given the residential nature of the development.</p>

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<p>the parking area.</p> <p>(d) Signage within parking areas is provided to—</p> <p>(i) warn against hazards to safety or potential damage to vehicles;</p> <p>(ii) identify sections or rows of parking spaces so that users may easily relocate their vehicles;</p> <p>(iii) direct and inform drivers entering and circulating within carparks about vehicular entry points, exits and location of parking spaces for people with disabilities;</p> <p>(iv) direct pedestrians to lifts, stairs, amenities, exits and major destinations; and</p> <p>(v) inform users about security measures and where to go for assistance.</p> <p>(e) Adequate, legible signage is provided to assist pedestrians, particularly older people and people with disabilities, to find their way safely around carparks.</p> <p>(f) Clear and regular signage is provided to main pedestrian routes.</p> <p>(g) Signs are located so that they are not likely to be obscured by growing vegetation.</p> <p>(h) Signs are located at entrances and near activity nodes.</p> <p>(i) Clear, recognisable signage is provided at bus stops, taxi ranks and public facilities.</p> <p>(j) Signs intended for night use are illuminated.</p> <p>Marking of Spaces</p> <p>Specific Outcomes</p> <p>(a) Parking areas are marked so as to clearly delineate individual parking spaces.</p> <p>(b) Visitor, disabled, motorcycle and bicycle parking spaces are clearly marked, and their location clearly sign posted.</p> <p>Carpark Lighting</p>	<p>Probable Solution – for sub-section (28)</p> <p>Parking areas are permanently lined in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking, so as to clearly delineate individual parking spaces.</p> <p>Probable Solutions – for sub-section (30)</p>	<p>All visitor parking areas will be line marked. It is anticipated that Council's requirements in this regard will be reflected through conditions of approval.</p> <p>Suitable lighting will be provided throughout the development including within parking</p>

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<p>Specific Outcomes</p> <p>(a) Lighting is used to increase safety and security in and around carparks.</p> <p>(b) Outdoor public spaces used or accessed after dark are appropriately and consistently lit to reduce the contrast between shadows and illuminated areas.</p> <p>(c) Lighting design is integrated with building, landscaping, signage, streetscape and public space design.</p> <p>(d) Light spillage onto adjoining land and roadways is avoided.</p> <p>(e) Energy use is minimised.</p> <p>(f) Lighting is appropriately placed to avoid shadows and glare which might put pedestrians or other vehicles at risk (i.e. shielded light at eye level).</p> <p>(g) Lighting is designed to avoid configurations of lights in areas within 6km of the RAAF Base Amberley runway that replicate the appearance of airport runways at night.</p>	<p>(a) Lighting within parking structures complies with the requirements of Australian Standard AS 1680: Interior Lighting.</p> <p>(b) Illumination levels outside the boundaries of the site do not exceed 8 lux (lumens) when measured 1.5 metres outside the boundary of the site at any level upwards from the ground.</p> <p>(c) Security lighting is consistent with Australian Standard AS 4282 (1997) The Control of Ostrusive Effects of Outdoor Lighting.</p> <p>(d) Night lighting is controlled by photoelectric cells rather than time switches.</p> <p>(e) Areas not intended for night-time use are not lit or are closed off to avoid giving a false impression of safety.</p> <p>(f) Principal pedestrian and bicycle movement routes, public spaces and outdoor signage in public spaces are lit in accordance with Australian Standard AS1158 (Public Lighting Code) so that these areas become the focus of legitimate pedestrian activity after dark.</p> <p>(g) Areas which are heavily used by pedestrians, including main entries to buildings and toilets and main pedestrian routes are lit with the power of 50-100 lux (lumens).</p> <p>(h) Large carparks (e.g. greater than 100 car spaces) do not include configurations of lights in straight parallel lines 500m – 1000m long in areas within 6km of the RAAF Base Amberley runway.</p>	<p>areas. It is anticipated that conditions of approval will reflect Council's requirements in this regard.</p>
<p>Landscaping</p> <p>(32) Specific Outcomes</p> <p>(a) Landscaping including natural features, plantings, earthworks and fencing in parking areas is used to—</p> <p>(i) enhance the amenity of the site;</p> <p>(ii) reduce the harsh visual effect often</p>	<p>Probable Solutions – for sub-section (32)</p> <p>(a) A minimum of 1 space should be used for landscaping for every 8 standard car spaces.</p> <p>(b) Areas used for landscaping within parking areas may be reduced to 2m in width but are distributed as evenly as possible (see Figure 12.9.4).</p>	<p>Given the residential nature of the development the parking areas are small groups of spaces 'scattered' throughout the site. There is 1 cluster of 8 car parking spaces and a landscaped bay has been provided.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>created by open concrete and asphalt areas;</p> <p>(iii) provide shade for vehicles, site buildings and pedestrians;</p> <p>(iv) separate and define pedestrian and vehicular circulation routes;</p> <p>(v) provide wind protection where necessary; and</p> <p>(vi) reduce noise and light spillover (e.g. headlights and overhead lighting).</p> <p>(b) Landscaping designs do not compromise public safety, the safety of traffic circulation and sight distances, in particular, the location and choice of vegetation species, or any other landscaping feature, does not—</p> <p>(i) create concealment areas;</p> <p>(ii) affect sight distances at any intersection;</p> <p>(iii) affect accessibility for vehicular or pedestrian traffic;</p> <p>(iv) affect visibility of carpark signage; or</p> <p>(v) diminish casual surveillance of the parking area.</p> <p>(c) Landscaping is used to break up the visual impact of large parking areas by distributing landscape areas throughout the parking area.</p> <p>(d) Landscaping also provides shade by the use of appropriately sized canopy trees which are robust and minimize nuisance from fruit and berries.</p> <p>(e) Landscaping is maintained by the property owner at the property owner's cost.</p> <p>(f) Landscaping is designed for minimum of maintenance.</p>	<p>(c) Landscaping areas are protected from vehicular traffic by a barrier kerb (minimum height 100mm) or wheel stops.</p> <p>(d) A minimum of 2 metres is set aside along the periphery of carparking areas to allow for landscaping to be established, with a minimum 3 metre width being provided along any street frontage.</p>	<p>It is anticipated that Council's minimum construction requirements for surfacing of the internal roads and parking areas will be reflected through conditions of approval.</p>
<p>Surface Treatment of Parking Areas</p> <p>Specific Outcomes</p> <p>The surface of areas upon which vehicles are parked or driven are treated in a manner which—</p> <p>(a) reflects the frequency and duration of use;</p>	<p>Probable Solutions – for sub-section (34)</p> <p>(a) Sealed parking areas are constructed to the following standards—</p> <p>(i) low parking turnover – flush or chip seal (i.e. minimum depth of 150mm of compacted pavement material with a two (2) coat bitumen</p>	<p>It is anticipated that Council's minimum construction requirements for surfacing of the internal roads and parking areas will be reflected through conditions of approval.</p>

PARKING CODE

Lipoma Pty Ltd – MCU,
North Street, North Ipswich.
Our Ref. 874206.

Specific Outcomes	Probable Solutions	Development Response
<p>including provision for the sealing or paving of most parking areas;</p> <p>(b) provides for appropriate all weather use;</p> <p>(c) avoids the creation of a dust nuisance for on-site or nearby users;</p> <p>(d) provides for adequate drainage; and</p> <p>(e) reflects the intended character of the surrounding area.</p>	<p>seal, except where soil tests indicate that a greater minimum depth of subbase required); and</p> <p>(ii) high parking turnover – asphaltic concrete.</p> <p>(b) Areas which should be protected from vehicular traffic (such as traffic islands, gardens, landscaping, aisle ends and pedestrian areas) are protected by being raised and bordered by a vertical-faced kerb or other suitable barrier (minimum height 100mm).</p>	
<p>Drainage</p> <p>Specific Outcomes</p> <p>(a) All stormwater drainage from paved and impervious areas is collected within the site and piped to a nominated legal point of discharge.</p> <p>(b) Particular attention is given to the flow path of stormwater resulting from a storm with a 1 in 100 year return interval.</p>	<p>Probable Solutions – for sub-section (36)</p> <p>(a) All stormwater drainage design is in accordance with the requirements of the Institute of Engineers, Australia, 1987; "Australian Rainfall and Runoff: A Guide to Flood Estimation", Volume 1, for a two year return period.</p> <p>(b) Where the internal driveway drains towards the street, a grated catch drain is installed immediately inside the property boundary.</p>	<p>A stormwater management plan has been prepared for the development by Yeats Consulting Engineers (refer to Appendix 9).</p>
<p>Miscellaneous</p> <p>Specific Outcomes</p> <p>(a) Where appropriate, parking areas are laid out so that vehicular and pedestrian traffic may conveniently connect with and travel between adjoining uses or lots.</p> <p>(b) Unless approved for another use, all parking areas are—</p> <p>(i) kept exclusively for parking;</p> <p>(ii) used exclusively for parking;</p> <p>(iii) maintained for continued use for parking; and</p> <p>(iv) available for use by both staff and visitors/clients.</p> <p>(c) Unless otherwise approved by the local government, all parking areas are to be available for users on-site and are not to be</p>		<p>The development incorporates a network of pedestrian paths that will provide opportunities to link to other destinations.</p> <p>All parking areas will be kept for use as parking areas and will be available to residents and visitors alike.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>leased or sold to other persons.</p> <p>12.9.5 Parking Demand Standards Material Change of Use and Extensions or Additions to Existing Uses and Works (1) Specific Outcomes (a) Where an existing building occupied by an existing use is extended, or the area of land occupied by an existing use is increased, the requirements of this Code apply only to the extension of the existing building or to the use of the additional land. (b) The parking requirements for the extension or increased site area is to be calculated as follows— A + B, where— A is the parking demand of the extension or increased site area; and B is the number of parking spaces (if any) lost as a result of the extension or increased site area. (c) Where an existing building or land is occupied by a new use (not being an existing use) and the parking demand of the new use is greater than the parking demand for the existing use, the parking requirements for the new use is calculated as follows— C – D, where— C is the parking demand of the new use; and D is the parking demand of the existing use.</p> <p>'Standard' Parking Demand for Specific Uses (2) Specific Outcomes (a) Adequate provision is made for on-site parking commensurate with the needs of traffic generating uses and works. (b) All off-street carparking areas are constructed and available for use before the use commences.</p>	<p>Probable Solutions – for sub-section (2) (a) Parking spaces are provided in accordance with Table 12.9.1. (b) Where the number of parking spaces calculated using Table 12.9.1 is not a whole number, the number required is the next highest whole number. (c) Where the local government receives an application for the establishment of two (2) or more uses on the same site, the parking demand is calculated by totalling the</p>	<p>N/A as the proposal does not involve extensions to an existing use.</p>
<p>'Standard' Parking Demand for Specific Uses (2) Specific Outcomes (a) Adequate provision is made for on-site parking commensurate with the needs of traffic generating uses and works. (b) All off-street carparking areas are constructed and available for use before the use commences.</p>	<p>Probable Solutions – for sub-section (2) (a) Parking spaces are provided in accordance with Table 12.9.1. (b) Where the number of parking spaces calculated using Table 12.9.1 is not a whole number, the number required is the next highest whole number. (c) Where the local government receives an application for the establishment of two (2) or more uses on the same site, the parking demand is calculated by totalling the</p>	<p>The parking requirements are reflected in the extract from Table 12.9.1 below. The proposal generally complies with these requirements as follows:</p> <ul style="list-style-type: none"> ▪ 1 covered space per dwelling for exclusive use of residents is provided (this is in the form of a single garage in all cases). ▪ Visitor parking within the development is provided in three ways, a visitor parking space on the driveway of each unit, parallel parking bays through the internal road network and clusters of parking bays, usually adjoining open space areas. In total, 154 visitor parking bays are provided (including the covered wash bays). It is noted that the layout of the development does not provide all 59 commonly accessible spaces however the provision of one visitor space per unit is expected to greatly reduce the need for commonly accessible spaces. It

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Lipoma Pty Ltd – MCU.
 North Street, North Ipswich.
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Specific Outcomes	Probable Solutions	Development Response
<p>(g) townhouse.</p>	<p>requirements for each use.</p> <p>Extract From Table 12.9.1: Provision of Parking Spaces</p> <p>1 covered space per dwelling for exclusive resident use. 0.5 spaces per dwelling for visitor parking; 0.5 spaces per dwelling (to be located in the common area) for use by both residents or visitors; plus 1 vehicle wash bay per 20 dwellings.</p>	<p>is therefore argued that the parking arrangements proposed for the site are appropriate and generally comply with the Planning Scheme provisions. It is important to note that the design of the proposed development provides a total supply of 274 spaces, 32 more than that required by the Planning Scheme.</p> <ul style="list-style-type: none"> 6 wash bays have been provided within the development (118 / 6 = 5.9 wash bays). <p>Any development with a long driveway (e.g. in excess of 50 metres) is to provide for access (which may include a passing bay) by furniture removal vans, refuse collection and emergency vehicles.</p>

Attachment BD-17



MICHEL
GROUP SERVICES

22 April 2010

Our Ref. 874206

Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

MEMBERSHIPS:

Association of
Consulting Surveyors
Queensland

Urban Development
Institute of Australia

DIRECTORS:

Geoff Thomson
B.App.Sc.(Surv)
Cadastral Surveyor Qld.
Reg. Surv. NSW.

Tony Cullane
B.Surv.
Cadastral Surveyor Qld.
Reg. Surv. NSW.

Phil Brooker
B.Surv.
Cadastral Surveyor Qld.

Garth Lambert
Ass Dip App.Sc. (Arch)
IT / Drafting

Quality Assurance:
ANZSIC ISO 9001:2008
ACSIS Reg. No. 411

Michel Group Services Pty Ltd
A.C.N. 061 750 132
ABN 53 841 801 835

23 Cotton Street
Nerang
QLD Australia 4211

P.O. Box 2695
Nerang BC
QLD Australia 4211

Telephone
07 5502 2500

Facsimile
07 5500 4890

Email
admin@michelservices.com.au

Web Site
www.michelservices.com.au

Attn: Mr Brett Davey

Dear Sir,

**RE: DEVELOPMENT APPLICATION:
MATERIAL CHANGE OF USE (DEVELOPMENT PERMIT) FOR MULTIPLE
RESIDENTIAL (18 UNITS) AND RECONFIGURING A LOT (1 INTO 3 LOT
SUBDIVISION).
21A NORTH STREET, NORTH IPSWICH.
LOT 55 ON SP222487.**

Please find attached a development application seeking Council approval for Material Change of Use and Reconfiguring a Lot at the abovementioned property. The following is attached in this regard:

1. Six complete copies of the application material.
2. Council's application fee of \$2,530 (ROL Fee: 1 into 3 lot subdivision for sewerred lots = \$510 per lot x 3 lots = \$1,530. MCU Fee: Code assessment fee paid previously so difference of fees for impact assessment is being paid - 18 units code assessment \$4,375 + [\$295 x 15 units] = \$8,800, impact assessment consistent use fee \$5,375 + [\$295 x 15 units] = \$9,800 so difference in fees is \$1,000). Note that the application fees payable were confirmed with Brett Davey.

It is important to note here that the proposed units are part of a wider development that has been lodged by way of a separate code assessable application (i.e. MCU6293/2009). As the two developments are interrelated, the same specialist reports are being used for both projects.

We will await Council's Acknowledgement Notice in due course and should you have any questions please don't hesitate to contact us.

Yours Faithfully
Michel Group Services Pty Ltd

Cc.: Leda Developments Pty Ltd (Attn: [REDACTED])



Application Details - IDAS form 1

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

You **MUST** complete **ALL** questions unless the form indicates otherwise. Incomplete forms or forms without all necessary information and documentation will result in your application not being a properly made application.

For all development applications, you must:

- complete this form (*Application details - IDAS form 1*)
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

Applicant details (note: the applicant is the person responsible for making the application and need not be the owner of the land. The applicant is responsible for ensuring the information provided on all IDAS application forms is correct. Any development permit or preliminary approval that may be issued as a consequence of this application will be issued to the applicant.)

Please note: If there is more than one applicant, provide additional applicant details by clicking the "Add another applicant" button below.

Name/s (individual or company name in full)	Lipoma Pty Ltd C/ Michel Group Services Pty Ltd
For companies, contact name	[REDACTED]
Postal address	PO Box 2695 NERANG BC QLD 4211
Contact phone number	[REDACTED]
Mobile number (non-mandatory)	[REDACTED]
Fax number (non-mandatory)	[REDACTED]
e-mail address (non-mandatory)	[REDACTED]

1. What is the nature of development proposed? (tick all applicable boxes)

- material change of use of premises
- building work
- operational work
- reconfiguring a lot

2. What type of approval is being sought?

- development permit
 preliminary approval
 both - provide details below

3. Is the application for a mobile and temporary environmentally relevant activity (ERA)?

- No
 Yes - complete table A and then go to question 5

4. Location of the premises (complete table B and/or table C as applicable. Identify each lot in a separate row)

Table B - street address/lot for the premises or street address/lot on plan for the land adjoining or adjacent to the premises

	Street Address				Lot on plan description		Local government area (e.g. Logan, Cairns)
	Unit No.	Street No.	Street name and official suburb/locality name	Post code	Lot No.	Plan type and plan no.	
1		21A	North Street, North Ipswich	4305	55	SP222487	ICC

Street address / lot on plan

Street address / lot on plan for the land adjoining or adjacent to the premises (appropriate for development in water e.g. jetty, pontoon)

Table C - premises coordinates (appropriate for development in remote areas, over part of a lot or in water e.g. channel dredging in Moreton Bay)

	Coordinates (note: place each set of coordinates in a separate row)				Zone reference	Datum	Local government area (If applicable)
	Easting	Northing	Latitude	Longitude			
1						<input type="checkbox"/> GDA94 <input type="checkbox"/> WGS84 <input type="checkbox"/> other	

5. Total area of the premises on which the development is proposed (indicate hectares or m²)

4.89 hectares

6. Current use/s of the premises (e.g. vacant land, house, apartment building, cane farm, etc.)

1	Vacant land
---	-------------

7. Provide a brief description of the proposal (e.g. six unit apartment building, 30 lot residential subdivision etc.)

18 units and 1 into 3 lot subdivision



8. Is owner's consent required for this application? (refer to notes at the end of this form for more information)

- No
 Yes - complete either table D, table E or table F as applicable

Table D (note: do not complete this table if lodging the application on-line using Smart eDA)

Name of owner/s of the land

I/We, the above-mentioned owner/s of the land, consent to the making of this application.

Signature of owner/s of the land

Date

Table E

Name of owner/s of the land

Lipoma Pty Ltd ACN 002 203 581

- The owner's written consent is attached or will be provided separately to the assessment manager

Table F

Name of owner/s of the land

- By making this application, I, the applicant, declare that the owner has given written consent to the making of the application.

9. Does the application involve a state resource? (e.g. the application involves state land, or taking quarry materials. Refer to the notes at the end of this form for more information)

- No Yes - complete table G

10. Identify if any of the following apply to the premises (tick applicable box/es)

- adjacent to a water body, watercourse or aquifer (e.g creek, river, lake, canal) - complete table H
 on strategic port land under the *Transport Infrastructure Act 1994* - complete table I
 in a tidal water area - complete table J

11. Are there any existing easements on the premises? (e.g. for vehicular access, electricity, overland flow, water, etc.)

- No Yes - ensure the type, location and dimension of each easement is included in the plans submitted

12. Does the proposal include new building work or operational work on the premises? (including any services)

No Yes - ensure the nature, location and dimensions of proposed works are included in plans submitted

13. Is the payment of a portable long service leave levy applicable to this application? (refer to the notes at the end of this form for more information)

No - Go to question 15 Yes

15. Has the local government agreed to apply a superseded planning scheme to this application under section 96 of the *Sustainable Planning Act 2009*?

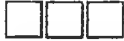
No
 Yes - provide details below

16. List below all of the forms and supporting information that accompany this application (include all IDAS forms, checklists, mandatory supporting information etc. that will be submitted as part of this application. Note: this question does not apply for applications made online using Smart eDA)

	Description of attachment or title of attachment	Method of lodgement to assessment manager
1	Planning report contains all supporting info	over the counter

17. Applicant's declaration

By making this application, I declare that all information in this application is true and correct (note: it is unlawful to provide false or misleading information).



Notes for completing this form

Question 8:

- Section 263 of the *Sustainable Planning Act 2009* sets out when the consent of the owner of the land is required for an application. Section 260(1)(e) of the *Sustainable Planning Act 2009* provides that if the owner's consent is required under section 263, then an application must contain, or be accompanied by, the written consent of the owner, or include a declaration by the applicant that the owner has given written consent to the making of the application.
- Owner's consent is not required for a mobile and temporary ERA.

Question 9:

- Section 264 of the *Sustainable Planning Act 2009* provides that if a development involves a state resource, a regulation may require the application to be supported by certain evidence prescribed under the regulation. Schedule 14 of the *Sustainable Planning Regulation 2009* prescribes the state resources for which evidence is required to be given, and the evidence required, to support the application.

Question 13:

- *The Building and Construction Industry (Portable Long Service Leave) Act 1991* prescribes when the portable long service leave levy is payable.
- The portable long service leave levy amount and other prescribed percentages and rates for calculating the levy are prescribed in the *Building and Construction Industry (Portable Long Service Leave) Regulation 2002*.

Question 14:

- The portable long service leave levy need not be paid when the application is made, but the *Building and Construction Industry (Portable Long Service Leave) Act 1991* requires the levy to be paid before a development permit is issued.
- Building and Construction Industry Notification and Payment Forms are available from any Queensland post office or agency, on request from QLeave, or can be completed on the QLeave website at www.qleave.qld.gov.au. For further information contact QLeave on 1800 803 481 or www.qleave.qld.gov.au.

Privacy -the information collected in this form will be used by the Department of Infrastructure and Planning (DIP) in accordance with the processing and assessment of your application. Your personal details will not be disclosed for a purpose outside of the IDAS process, except where required by legislation (including the *Right to Information Act 2009*) or as required by Parliament. This information may be stored in a departmental database. The information collected will be retained as required by the *Public Records Act 2002*.

OFFICE USE ONLY

Date received

Reference numbers

NOTIFICATION OF ENGAGEMENT OF A PRIVATE CERTIFIER

To:

Council. I have been engaged as the private certifier for the building work referred to in this application.

Date of engagement	Name	BSA Certification license number	Building classification/s



QLEAVE NOTIFICATION AND PAYMENT (for completion by assessment manager or private certifier if applicable)

	Description of the work	QLeave Project Number	Amount paid (\$)	Date paid	Date received form sighted by assessment manager	Name of officer who sighted the form
1						

The *Sustainable Planning Act 2009* (SPA) is administered by the Department of Infrastructure and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agencies.



Material change of use assessable against a planning scheme - IDAS form 5

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

This form must be completed for development applications for a material change of use assessable against a planning scheme.

You **MUST** complete **ALL** questions unless the form indicates otherwise. Incomplete forms or forms without all necessary information and documentation will result in your application not being a properly made application.

For all development applications, you must:

- complete *Applicant details - IDAS form 1*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

This form can also be used for development on strategic port land under the *Transport Infrastructure Act 1994*.

1. How is the premises identified / zoned in the applicable planning scheme? (if the premises involves multiple zones, clearly identify the relevant zone for each lot in a separate row in the below table) Non-mandatory

	Lot description (i.e. street address or lot on plan details)	Applicable zone / precinct	Applicable overlays
1	21A North Street, North Ipswich	Special Opportunity Zone	OV00 Character Places; OV5 Flooding and Urban Stormwater Flow Paths; OV7A Defence Regulations and Obstruction Clearances

2. How is the proposed use/s defined in the applicable planning scheme?

	General explanation of the proposed use	Planning scheme definition (include each definition in a new row) (non-mandatory)	No. of dwelling / tenancy units (if applicable)	Days and hours of operation (if applicable)	No. of employees (if applicable)
1	Construction of residential units	Multiple Residential	18	-	0

3. What type of approval is being sought for the material change of use?

- development permit preliminary approval both - provide details below

4. Are there any current approvals associated with this application for the change of use of the premises? (eg. a preliminary approval)

- No Yes - provide details below



	List of approval reference/s	Date approved	Date approval lapses (if applicable)
1	Riverlinks Preliminary Approval	Unknown	
2	1 into 5 lot subdivision - ICC Ref. 5026/08	13/2/09	

5. Does the proposed use involve (tick applicable box/es)

- the reuse of existing buildings on the premises No Yes
- new building work on the premises No Yes
- the reuse of existing operational works on the premises No Yes
- new operational work on the premises No Yes



6. Confirm that the following mandatory supporting information accompanies this application

All applications	Confirmation of lodgement	Method of lodgement
<p>a site plan drawn to scale (1:100, 1:200 or 1:500 are the recommended scales) which shows the following:</p> <ul style="list-style-type: none"> • the location and site area of the land to which the application relates (<i>relevant land</i>) • the north point • the boundaries of the relevant land • any road frontages of the relevant land, including the name of the road • the location and use of any existing or proposed buildings or structures on the relevant land (note: where extensive demolition or new buildings are proposed, two separate plans (an existing site plan and proposed site plan) may be appropriate) • any existing or proposed easements on the relevant land and their function • the location and use of buildings on land adjoining the relevant land • all vehicle access points and any existing or proposed car parking areas on the relevant land. Car parking spaces for persons with disabilities and any service vehicle access and parking should be clearly marked. • for any new building on the relevant land, the location of refuse storage • the location of any proposed retaining walls on the relevant land and their height • the location of any proposed landscaping on the relevant land • the location of any stormwater detention on the relevant land 	<input checked="" type="checkbox"/> confirmed	over the counter
<p>a statement about how the proposed development addresses the local government's planning schemes and any other planning documents relevant to the application</p>	<input checked="" type="checkbox"/> confirmed	over the counter
<p>a statement about the intensity and scale of the proposed use (e.g. number of employees, days and hours of operation, number of visitors, number of seats, capacity of storage area etc.)</p>	<input checked="" type="checkbox"/> confirmed	over the counter
<p>information that states:</p> <ul style="list-style-type: none"> • the existing or proposed floor area, site cover, maximum number of storeys and maximum height above natural ground level for existing or new buildings (e.g. information regarding existing buildings but not being reused) • the existing or proposed number of on-site car parking bays, type of vehicle cross-over (for non-residential uses) and vehicular servicing arrangement (for non-residential uses) 	<input checked="" type="checkbox"/> confirmed <input type="checkbox"/> not applicable	over the counter



	Confirmation of lodgement	Method of lodgement
When the application involves the reuse of existing buildings		
plans showing the size, location, existing floor area, existing site cover, existing maximum number of storeys, and existing maximum height above natural ground level of the buildings to be reused	<input type="checkbox"/> confirmed <input checked="" type="checkbox"/> not applicable	
When the application involves new building work (including extensions)		
floor plans drawn to scale (1:50, 1:100 or 1:200 are the recommended scales) which show the following: <ul style="list-style-type: none"> • the north point • the intended use of each area on the floor plan (for commercial, industrial or mixed use developments only) • the room layout (for residential development only) with all rooms clearly labelled • the existing and the proposed built form (for extensions only) • the gross floor area of each proposed floor area 	<input checked="" type="checkbox"/> confirmed <input type="checkbox"/> not applicable	over the counter
elevations drawn to scale (1:100, 1:200 or 1:500 are the recommended scales) which show plans of all building elevations and facades, clearly labelled to identify orientation (e.g. north elevation)	<input checked="" type="checkbox"/> confirmed <input type="checkbox"/> not applicable	over the counter
plans showing the size, location, proposed site cover, proposed maximum number of storeys, and proposed maximum height above natural ground level of the proposed new building work	<input checked="" type="checkbox"/> confirmed <input type="checkbox"/> not applicable	over the counter
When the application involves the reuse of other existing works		
plans showing the nature, location, number of on-site car parking bays, existing area of landscaping, existing type of vehicular cross-cover (non-residential uses), and existing type of vehicular servicing arrangement (non-residential uses) of the works to be reused	<input type="checkbox"/> confirmed <input checked="" type="checkbox"/> not applicable	
When the application involves new operational work		
plans showing the nature, location, number of new on-site car parking bays, proposed area of new landscaping, proposed type of new vehicle cross-cover (non-residential uses), proposed maximum new vehicular servicing arrangement (non-residential uses) of the proposed new operational works	<input type="checkbox"/> confirmed <input checked="" type="checkbox"/> not applicable	

Notes for completing this form:

- This form can also be used for a material change of use assessable against the land use plan for Cairns airport land or Mackay airport land. Whenever a planning scheme is mentioned, take it to mean land use plan for the airport land.

Privacy - please refer to your assessment manager for further details on the use of information recorded in this form.

OFFICE USE ONLY

Date received Reference numbers

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agencies.



Reconfiguring a lot - IDAS form 7

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

This form must be completed for development applications for reconfiguring a lot.

You **MUST** complete **ALL** questions unless the form indicates otherwise. Incomplete forms or forms without all necessary information and documentation will result in your application not being a properly made application.

For all development applications, you must:

- complete *Applicant details - IDAS form 1*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

This form can also be used for development on strategic port land under the *Transport Infrastructure Act 1994*.

1. What is the total number of existing lots making up the premises?	1
---	---

2. What is the nature of the lot reconfiguration? (tick applicable box/es)

- subdivision - complete questions 3-6 and 11
- boundary realignment - complete questions 8, 9 and 11
- creating an easement giving access to a lot from a constructed road - complete questions 10 and 11
- dividing land into parts by agreement --please provide details below and complete questions 7 and 11

3. Within the subdivision, what is the number of additional lots being created and their intended final use?				
Intended final use of new lots	Residential	Commercial	Industrial	Other (Specify) Drainage Reserve
Number of additional of lots created	2			1

4. What type of approval is being sought for the subdivision?
--

- preliminary approval
- development permit
- both

5. Are there any current approvals associated with this subdivision application? (e.g. material change of use)

- No Yes - provide details below

	List of approval reference/s	Date approved	Date approval lapses
1	Riverlinks Preliminary Approval	Unknown	





6. Does the proposal involve multiple stages?

No - complete Table A Yes - complete Table B

Table A	
What is the total length of any new road to be constructed?	Nil
What is the total area of land to be contributed for community purposes?	Refer to attached plans
Does the proposal involve the construction of a canal or other artificial waterway?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
Does the proposal involve operational work for the building of a retaining wall?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	

11. Confirm that the following mandatory information accompanies this application

Mandatory supporting information	Confirmation of lodgement	Method of lodgement
site plans drawn to scale (1:100, 1:200 or 1:500 are the recommended scales) which show the following: <ul style="list-style-type: none"> • the location and site area of the land to which the application relates (<i>relevant land</i>) • the north point • the boundaries of the relevant land • any road frontages of the relevant land, including the name of the road • the contours and natural ground levels of the relevant land • the location of any existing buildings or structures on the relevant land • the allotment layout showing existing lots, any proposed lots (including the dimensions of those lots), existing or proposed road reserves, building envelopes and existing or proposed open space (note: numbering is required for all lots) • any drainage features over the relevant land, including any watercourse, creek, dam, waterhole or spring and any land subject to a Q100 flood event • any existing or proposed easements on the relevant land and their function • all existing and proposed roads and access points on the relevant land • any existing or proposed car parking areas on the relevant land • the location of any proposed retaining walls on the relevant land and their height • the location of any stormwater detention on the relevant land • the location and dimension of any land dedicated for community purposes • the final intended use of any new lots 	<input checked="" type="checkbox"/> confirmed	over the counter
a statement about how the proposed development addresses the local government's planning schemes and any other planning documents relevant to the application	<input checked="" type="checkbox"/> confirmed	over the counter

Notes for completing this form:

- This form can also be used for reconfiguring a lot against the land use plan for Cairns airport land or Mackay airport land. Whenever a planning scheme is mentioned, take it to mean land use plan for the airport land

Privacy - please refer to your local council for further details on the use of information recorded in this form.



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Contaminated land - IDAS form 24

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

This form must be completed for development applications for:

- a material change of use that is assessable development under the *Sustainable Planning Regulation 2009*, schedule 3, part 1, table 2, items 6 to 9
- reconfiguring a lot that requires referral under the *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 22.

You **MUST** complete **ALL** questions unless the form indicates otherwise. Incomplete forms or forms without all necessary information and documentation will result in your application not being a properly made application.

For all development applications you must:

- complete *Application details - IDAS form 1*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

1. What is the nature of the application? (tick applicable box/es)

- material change of use reconfiguring a lot

2. What is the nature of the contamination? (tick applicable box/es)

- all or part of the premises is on the environmental management register
- all or part of the premises is on the contaminated land register
- all or part of the premises is currently used for, or was last used for, a notifiable activity
- all or part of the premises is currently used for, or was last used for, an industrial activity and the proposed use is for child care, educational, recreational or residential purposes (including a caretakers' accommodation on industrial land)
- in an area where an area management advice has been given for natural mineralisation or industry activity and the proposed use is for child care, educational, recreational or residential purposes (including caretakers' accommodation on industrial land)
- is in an area for which an area management advice has been given for unexploded ordnance



3. Confirm that the following mandatory supporting information accompanies this application

Plans	Confirmation of lodgement	Method of lodgement
plans showing where any notifiable activities, hazardous contaminant or potentially contaminated activity has occurred on the premises	<input checked="" type="checkbox"/> confirmed	over the counter
Written documentation		
if the application involves a material change of use from an industrial use to a more sensitive use (e.g. child care, educational, recreational or residential purposes), then a detailed site history outlining previous potentially contaminated uses on the premises	<input type="checkbox"/> confirmed <input type="checkbox"/> not applicable	

Privacy - please refer to your assessment manager for further details on the use of information recorded in this form.

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Development assessment checklist - IDAS checklist 1

(Sustainable Planning Act 2009, version 1.0 18 December 2009)

This checklist applies to the carrying out of development generally.

You are not required to complete this checklist as part of your development application, however you may submit the checklist with your application if you wish. The purpose of the checklist is to assist you in identifying:

- whether you need to make a development application for the proposed development
- if a development application is required, the relevant IDAS forms you need to complete as part of your application
- whether you need to give a copy of your application to any referral agencies.

If your development involves a material change of use, reconfiguring a lot or operational works, it is recommended that you complete *Material change of use - IDAS checklist 2*, *Reconfiguring a lot - IDAS checklist 3* or *Operational works - IDAS checklist 4*, as applicable.

If you are unsure how to answer any questions on this checklist, phone or visit your local government, or go to the Department of Infrastructure and Planning's website at www.dip.qld.gov.au.

All terms used in this checklist have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

Part 1 - General questions

1.1 Have you received a referral agency response in relation to this proposed development prior to making an application?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• To assist you in preparing your application, completing <i>Referral agency responses - IDAS checklist 6</i> is recommended

1.2 Do you wish the proposed development to be assessed against a superseded planning scheme?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• You must complete <i>Request to apply a superseded planning scheme - Sustainable Planning Act form 2</i> and give this notice to the relevant local government. If the local government agrees to your request, details must be provided in <i>Application details - IDAS form 1</i>

1.3 Does the proposal involve removing quarry material from a watercourse or lake for which an allocation notice is required under the *Water Act 2000*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete part 2 of this checklist

1.4 Is any part of the proposed development intended to be carried out on a Queensland heritage place under the *Queensland Heritage Act 1992*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete part 3 of this checklist



1.5 Does the proposal involve development on a local heritage place?

No

Yes • It is recommended that you complete part 4 of this checklist

1.6 Does the proposal involve an environmentally relevant activity, other than an agricultural ERA, a mining activity or a chapter 5A activity?

No

Yes • It is recommended that you complete part 5 of this checklist

1.7 Is any part of the development on strategic port land or airport land (other than development for a material change of use that is inconsistent with the land use plan for the strategic port land or airport land)

No

Yes • It is recommended that you complete part 6 of this checklist

1.8 Is any part of the development on land below a high water mark within the limits of a port under the Transport Infrastructure Act 1994?

No

Yes • It is recommended that you complete part 7 of this checklist

1.9 Is any part of the premises designated for community infrastructure?

No

Yes • It is recommended that you complete part 8 of this checklist

1.10 Does the proposal involve the establishment or expansion of a waste water disposal system?

No

Yes • It is recommended that you complete part 9 of this checklist

1.11 Is the development on land that adjoins a declared fish habitat area under the Fisheries Act 1994?

No

Yes • It is recommended that you complete part 10 of this checklist

Privacy - please refer to your assessment manager for further details on the use of information recorded in this checklist.

Disclaimer:

While the Department of Infrastructure and Planning (DIP) believes that this information contained on this checklist and provided as part of this process will be of assistance to you, it is provided on the basis that you will not rely on the information without first making your own enquiries regarding the interpretation and application of the applicable legislation to your circumstances.

To the full extent permitted by law DIP expressly disclaims all liability (including but not limited to liability for negligence) for errors or omissions of any kind or for any loss (including direct and indirect losses), damage or other consequence which may arise from your reliance on this process and the information contained on this checklist.



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Material Change of Use - IDAS Checklist Part 2

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

This checklist only applies when the development application seeks approval for a material change of use of premises.

You are not required to complete this checklist as part of your development application, however you may submit the checklist with your application if you wish. The purpose of the checklist is to assist you in identifying:

- whether you need to make a development application for the proposed development
- if a development application is required, the relevant IDAS forms you need to complete as part of your application, and
- whether you need to give a copy of your application to any referral agencies.

Before completing this checklist, it is recommended that you complete *Development Assessment Checklist - IDAS checklist part 1*. If your development involves reconfiguring a lot or operational works, it is recommended that you also complete *Reconfiguring a lot - IDAS checklist 3* and *Operational works - IDAS checklist 4*, as applicable.

If you are unsure how to answer any questions on this checklist, phone or visit your local government, or go to the Department of Infrastructure and Planning's website at www.dip.qld.gov.au

All terms used in this checklist have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

Part 1 - General questions

1.1 Is the proposed use assessable development under the planning scheme?

- | | |
|---|--|
| <input type="checkbox"/> No | |
| <input checked="" type="checkbox"/> Yes | <ul style="list-style-type: none">• You must complete <i>Material change of use assessable against a planning scheme - IDAS form 5</i>• Continue on to question 1.3 |

1.3 Is any part of the land part of a future state-controlled road or within 100 metres of a State-controlled road?

- | | |
|--|---|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">• If your application is assessable development under a planning scheme, the Department of Transport and Main Roads is a concurrence agency for your application. You must give a copy of the application to the Department of Transport and Main Roads.• It is recommended that you complete part 2 of this checklist |

1.4 Does *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils* apply to the development?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">• It is recommended that you complete part 3 of this checklist |

1.5 Is any part of the premises located in a coastal management district?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">• It is recommended that you complete part 4 of this checklist |



1.6 Is the size of the lot two hectares or larger?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	• It is recommended that you complete part 5 of this checklist

1.7 Is any part of the premises in an area for which an area management advice has been given for unexploded ordnance?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• You must complete <i>Contaminated land - IDAS form 24</i> . • This application requires assessment by the administering authority (either the chief executive administering the <i>Environmental Protection Act 1994</i> , or the local government) as a concurrence agency.

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 11

1.8 Is the proposed use of the premises listed in schedule 12 of the *Sustainable Planning Regulation 2009* and does it meet the specified threshold?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the Department of Transport and Main Roads as a concurrence agency

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 14

1.9 Is the proposed use of the premises listed in schedule 13 of the *Sustainable Planning Regulation 2009* and does it meet the specified threshold?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the Department of Transport and Main Roads as a concurrence agency

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 15

1.10 Is any part of the premises in an interim koala habitat protection area to which the provisions of the *South East Queensland koala State planning regulatory provisions* apply?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 6 (starting from question 6.1) of this checklist

1.11 Is any part of the premises in a koala conservation area or koala sustainability area, which is located outside the current SEQ urban footprint area?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 6 (starting from question 6.3) of this checklist

1.12 Is the proposed use associated with a reconfiguration of a lot?

<input type="checkbox"/> No	• It is recommended that you complete Part 7 of this checklist
<input checked="" type="checkbox"/> Yes	

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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1.13 Is any part of the premises in a wild river area declared under the *Wild Rivers Act 2005*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 8 of this checklist

1.14 Is the proposed use for a domestic housing activity?

<input checked="" type="checkbox"/> No	• It is recommended that you complete Part 9 of this checklist
<input type="checkbox"/> Yes	

1.15 Does the use of the premises include a lot sharing a common boundary with a Queensland Heritage place under the *Queensland Heritage Act 1992*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the Department of Environment and Resource Management as an advice agency • You must also complete <i>Queensland Heritage Place - IDAS form 3</i>

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 23

1.16 Is preliminary approval sought for the application under the *Sustainable Planning Act 2009*, section 242?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the Department of Infrastructure and Planning as a concurrence agency • You must complete <i>Preliminary approval varying the effect of the local planning instrument - IDAS form 31</i>

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 24

1.17 Is the proposed use for a brothel as defined under the *Prostitution Act 1999*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 10 of this checklist

1.18 Is any part of the proposed use on strategic port land under the *Transport Infrastructure Act 1994*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 11 of this checklist

1.19 Is any part of the proposed use on airport land under the *Airport Assets (Restructuring and Disposal Act 2008)*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 12 of this checklist



1.20 Is the proposed use a major hazard facility or possible major hazard facility under the *Dangerous Goods Safety Management Act 2001*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• This application requires assessment by the Department of Justice and Attorney-General (JAG). If JAG is not your assessment manager for the application, the role of the agency will be as concurrence agency.• You must also complete <i>Major hazard facility - IDAS form 22</i>.

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 3, part 1, table 2, item 5
- *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 8

1.21 Is all or part of the premises on the environmental management register or contaminated land register under the *Environmental Protection Act 1994*?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 13 of this checklist

1.22 Is all or part of the land forming the premises currently used for a notifiable activity or if there is no existing use, was it last used for a notifiable activity?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 14 of this checklist

1.23 Is all or part of the land forming the premises currently used for an industrial activity (other than for a mining activity or petroleum activity) or if there is no existing use, was it last used for an industrial activity (other than for a mining activity or petroleum activity)?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 15 of this checklist

1.24 Is any part of the premises in an area for which an area management advice has been given for natural mineralisation or industrial activity (other than for a mining or petroleum activity)?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 16 of this checklist

1.25 Is the proposed use for aquaculture defined under the *Fisheries Act 1994*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 17 of this checklist

1.26 Is any part of the premises in a wild river area declared under the *Wild Rivers Act 2005*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 18 of this checklist

1.27 Is any part of the premises within the South East Queensland designated region?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	<ul style="list-style-type: none">• It is recommended that you complete Part 19 of this checklist

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

1.28 Is any part of the premises within the Far North Queensland (FNQ) designated region?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 20 of this checklist

1.29 Is the proposal for urban purposes, as defined under the Sustainable Planning Regulation 2009?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	• It is recommended that you complete Part 21 of this checklist

1.30 Can the proposed use be performed without the removal, destruction or damage of marine plants under the Fisheries Act 1994?

<input type="checkbox"/> No	• It is recommended that you complete Part 22 of this checklist
<input checked="" type="checkbox"/> Yes	

1.31 Is any part of the premises within the Wide Bay Burnett (WBB) designated region?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• It is recommended that you complete Part 23 of this checklist

Part 5 - Vegetation clearing

5.1 Does the lot contain the following?

category A or B shown on a property map of assessable vegetation	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
if there is no property map of assessable vegetation for a lot, native vegetation shown as remnant vegetation on a regional ecosystem or remnant map.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

• If no to both of the above then end of part of the checklist.

Section reference:

- Sustainable Planning Regulation 2009, schedule 7, table 3, item 10

Part 9 - Wetland

9.1 Does the premises include a lot situated in or, or within 100 metres of, a wetland shown on the 'Map of referable wetlands' a document approved by the chief executive of the Department of Environment and Resource Management?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the Department of Environment and Resource Management as an advice agency

Section reference:

- Sustainable Planning Regulation 2009, schedule 7, table 3, item 21



Part 13 - Contaminated land - registered land

13.1 Do any of the following apply?

a suitability statement has been given and a site management plan has been approved for the intended use for the land and the application involves only the following: <ul style="list-style-type: none">the fit-out of a building on the landminor site excavation (e.g. post holes for open-sided non-habitable structures)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
there is currently a notifiable activity on the land and the activity is continuing	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the proposed use is industrial and only involves minor site excavation (i.e. post holes for open-sided non-habitable structures)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the land is used for a mining activity or petroleum activity.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the land is an urban development area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

- If no to all of the above:
 - you must complete Contaminated land --IDAS form 24
 - this application requires assessment by the Department of Environment and Resource Management (DERM). If DERM is not your assessment manager for the application, the role of the agency will be as a concurrence agency

Section reference:

- Sustainable Planning Regulation 2009*, schedule 3, part 1, table 2, item 6
- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 23



Part 19 - South East Queensland Region

19.1 Do any of the following apply?

the application is only for development proposed in a rural precinct and the development is consistent with the rural precinct	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the application is only for development identified as exempt from assessment under the <i>Sustainable Planning Regulation 2009</i> , schedule 4	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the application is only for development carried out under a development approval which has not lapsed for a development application: <ul style="list-style-type: none"> that was properly made before 28 July 2009 or to which division 2 of the SEQ 2009-2031 regulatory provisions applied 	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the application is only for development that is consistent with a preliminary approval which has not lapsed, for the part of a development application mentioned in section 3.1.6 of the repealed <i>Integrated Planning Act 1997</i> (IPA) that states the way in which the effect of a local planning scheme is varied, where the development application for the preliminary approval was: <ul style="list-style-type: none"> properly made before 28 July 2009 or assessed against division 2 of the SEQ 2009-2031 regulatory provisions 	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the application is only for development that is generally in accordance with a rezoning approval where the development entitlements from the rezoning approval are conferred by the following: <ul style="list-style-type: none"> the resulting zone in a transitional planning scheme or a development permit or acknowledgement notice mentioned in section 3.2.5(1)(a) of the repealed <i>Integrated Planning Act 1997</i> for a development application (superseded planning scheme) for the resulting zone in a transitional planning scheme which is a superseded planning scheme, or a notice issued under section 97 of the <i>Sustainable Planning Act 2009</i> (SPA) agreeing to apply the superseded planning scheme or a planning scheme (other than a transitional planning scheme) 	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the application is only for development that is declared to be a significant project under the <i>State Development and Public Works Organisation Act 1971</i> , section 26(1)(a)	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes
the premises are completely within a state development area under the <i>State Development and Public Works Organisation Act 1971</i>	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes

- If you answered yes to any of the above, end of part 19 of the checklist.

19.2 Is any part of the premises within a development area defined by the SEQ 2009-2031 regulatory provisions?

<input checked="" type="checkbox"/> No	• Go to question 19.4
<input type="checkbox"/> Yes	

19.4 Is the proposed use for an extension of more than 10 000 metres squared of retail floor space?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment against section 4.1 of the SEQ 2009-2031 regulatory provisions

19.5 Is any part of the premises outside the urban footprint area?

<input checked="" type="checkbox"/> No	• End of part 19 of the checklist
<input type="checkbox"/> Yes	



Section reference:

- *South East Queensland Regional Plan 2009-2031 Regulatory Provisions*, divisions 2 and 4
- *Sustainable Planning Regulation 2009*, schedule 7, table 3, item 12
- *SEQ Regional Plan 2009-2031 Regulatory Provisions* for the meaning of rural precinct.

Part 21 - Conservation estate

21.1 Is the proposed use on a lot situated in, or within 100 metres of, any of the following?

a protected area, forest reserve, critical habitat or area of major interest under the <i>Nature Conservation Act 1992</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
a state forest or timber reserve under the <i>Forestry Act 1959</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
a marine park under the <i>Marine Parks Act 2004</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
a recreation area under the <i>Recreation Area Management Act 2006</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
a world heritage area listed under the World Heritage Convention	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes
Brisbane forest park under the <i>Brisbane Forest Park Act 1977</i>	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes

- If you answered yes to any of the above, then this application needs to be referred to the Department of Environment and Resource Management as advice agency.

Section reference:

Sustainable Planning Regulation 2009, schedule 2, table 2, item 45

Privacy - please refer to the assessment manager for further details on the use of information recorded in this checklist.

Disclaimer:

While the Department of Infrastructure and Planning (DIP) believes that the information contained on this checklist and provided as part of this process will be of assistance to you, it is provided on the basis that you will not rely on the information without first making your own enquiries regarding the interpretation and application of the applicable legislation to your circumstances.

To the full extent permitted by law DIP expressly disclaims all liability (including but not limited to liability for negligence) for errors or omissions of any kind or for any loss (including direct and indirect losses), damage or other consequence which may arise from your reliance on this process and the information contained on this checklist.

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Reconfiguring a lot - IDAS checklist 3

(Sustainable Planning Act 2009 version 1.0 effective 18 December 2009)

This checklist only applies when the development application seeks approval to reconfigure a lot.

You are not required to complete this checklist as part of your development application, however you may submit the checklist with your application if you wish. The purpose of the checklist is to assist you in identifying:

- whether you need to make a development application for the proposed development
- if a development application is required, the relevant IDAS forms you need to complete as part of your application, and
- whether you need to give a copy of your application to any referral agencies.

You should complete all questions unless the checklist indicates otherwise.

If you are unsure how to answer any questions on this checklist, phone or visit your local government, or go to the Department of Infrastructure and Planning's website, www.dip.qld.gov.au

All terms used in this checklist have the meaning given in the *Sustainable Planning Act 2009* or the *Sustainable Planning Regulation 2009*.

The checklist and relevant parts do not need to be completed for applications relating only to building work requiring assessment against the *Building Act 1975*.

Part 1 - General questions

1.1 Is any part of the land located in part of a future state-controlled road or within 100m of a state-controlled road?

- | | |
|--|---|
| <input checked="" type="checkbox"/> No | • It is recommended that you complete part 2, question 2.1 of this checklist. |
| <input type="checkbox"/> Yes | • It is recommended that you complete part 2, question 2.2 of this checklist. |

1.2 Is any part of the premises within a coastal management district?

- | | |
|--|---|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | • This application requires assessment by the Department of Environment and Resource Management as a concurrence agency |

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 14(a)

1.3 Is any lot before the proposed reconfiguration two hectares or larger?

- | | |
|---|---|
| <input type="checkbox"/> No | |
| <input checked="" type="checkbox"/> Yes | • It is recommended that you complete part 3 of this checklist. |

1.4 Is any part of the lot subject to an easement?

- | | |
|---|---|
| <input type="checkbox"/> No | |
| <input checked="" type="checkbox"/> Yes | • It is recommended that you complete part 4 of this checklist. |

1.5 Is any part of the lot situated within 100 metres of a substation site under the *Electricity Act 1994*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">This application requires assessment by the entity responsible for the substation as an advice agency

Section reference:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 21(b)

1.6 Is all or part of the premises on the environmental management register or contaminated land register under the *Environmental Protection Act 1994*?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 5 of this checklist.

1.7 Is all or part of the land forming the premises currently used for a notifiable activity, or if there is no existing use was it last used for a notifiable activity?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 6 of this checklist.

1.8 Is all or part of the land forming the premises used for an industrial activity (other than mining activity or petroleum activity) or, if there is no existing use, was it last used for an industrial activity (other than for a mining activity or petroleum activity)?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 7 of this checklist.

1.9 Is all or part of the premises in an area for which an area management advice has been given for natural mineralisation or industrial activity (other than for a mining activity or petroleum activity)?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 8 of this checklist.

1.10 Is all or part of the premises in an area for which an area management advice has been given for unexploded ordnance?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">You must complete <i>Contaminated land - IDAS form 24</i>This application requires assessment by the Department of Environment and Resource Management as a concurrence agency

Section reference:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 22(b)

1.11 Is any part of the premises within the South East Queensland (SEQ) designated region?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 9 of this checklist.

1.12 Is any part of the premises within the Far North Queensland (FNQ Region) designated region?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 10 of this checklist.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

1.13 Is any part of the premises in an interim koala habitat protection area identified under the South East Queensland Koala state planning regulatory provisions (SEQ Koala SPRP)?

<input checked="" type="checkbox"/> No	<ul style="list-style-type: none">It is recommended that you complete part 11 (starting from question 11.3) of this checklist.
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 11 (starting from question 11.1) of this checklist.

1.14 Is the proposed reconfiguration in connection with the construction of a canal?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">You must complete <i>Tidal work and coastal management district - IDAS form 23</i>This application needs to be assessed by the Department of Environment and Resource management as a concurrence agency

Section references:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 14(b)
- South East Queensland Koala State planning regulatory provisions*

1.15 Is the proposed reconfiguration in an area declared to be a catchment area under the *Water Act 2000*?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 12 of this checklist.

1.16 Is the proposed reconfiguration of a lot for a purpose or on land mentioned in Schedule 9 of the *Sustainable Planning Regulation 2009* and does it exceed the specified threshold for the purpose or land?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">This application needs to be assessed by the Department of Transport and Main Roads as concurrence agency

Section references:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 33
- Sustainable Planning Regulation 2009*, schedule 9

1.17 Is the proposed reconfiguration related to rail transport development and listed in Schedule 10 of the *Sustainable Planning Regulation 2009* and does it meet the specified threshold?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<ul style="list-style-type: none">This application needs to be assessed by the Department of Transport and Main Roads as concurrence agency

Section references:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 34
- Sustainable Planning Regulation 2009*, schedule 10

1.18 Does the proposed reconfiguration result in more than 10 lots or any lot created is less than five hectares in area?

<input type="checkbox"/> No	
<input checked="" type="checkbox"/> Yes	<ul style="list-style-type: none">It is recommended that you complete part 13 of this checklist.



1.19 Does the proposed reconfiguration involve a lot sharing a common boundary with a lot that comprises or contains a Queensland Heritage place under the *Queensland Heritage Act 1992*?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">This application needs to be assessed by the Department of Environment and Resource Management as an advice agency |

Section reference:

- Sustainable Planning Regulation 2009*, schedule 7, table 2, item 46

1.20 Can the proposed reconfiguration of a lot be performed without the removal, destruction or damage of marine plants under the *Fisheries Act 1994*?

- | | |
|---|--|
| <input type="checkbox"/> No | <ul style="list-style-type: none">It is recommended that you complete part 14 of this checklist. |
| <input checked="" type="checkbox"/> Yes | |

1.21 Is any part of the premises within the Wide Bay Burnett (WBB) designated region?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">It is recommended that you complete part 15 of this checklist. |

Part 2 - State-controlled roads

2.1 Is the proposed reconfiguration listed in *Sustainable Planning Regulation 2009*, schedule 11 and does it exceed the threshold?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | |
| <input type="checkbox"/> Yes | <ul style="list-style-type: none">This application requires assessment by the Department of Transport and Main Roads (DTMR) as concurrence Agency. |

Part 3 - Clearing vegetation

3.1 Is the size of any lot proposed to be created 25 hectares or larger?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | <ul style="list-style-type: none">End of part 3 of this checklist. |
| <input type="checkbox"/> Yes | |

Section reference:

- Sustainable Planning Regulation 2009*, schedule 3, part 1, table 4, item 1
- Sustainable Planning Regulation 2009*, schedule 26

Part 4 - Easements

4.1 Is there an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* for a transmission grid or supply network under that Act?

- | | |
|---|---|
| <input type="checkbox"/> No | |
| <input checked="" type="checkbox"/> Yes | <ul style="list-style-type: none">This application requires assessment by the distribution or transmission entity as an advice agency |

4.2 Is there an easement in favour of the holder of pipeline licence number 1 issued under the *Petroleum Act 1923* for the construction or operation of the Moonie to Brisbane strategic pipeline under that Act?

<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	• This application requires assessment by the license holder as an advice agency

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 2, items 21(a) and 35

Part 5 - Contaminated land - registered land

5.1 Do one or more of the following apply?

a suitability statement has been given and a site management plan has been approved for the land for the intended use and the application involves only: <ul style="list-style-type: none">• the fit-out of a building on the land or• minor site excavation (e.g. post holes for open-sided non-habitable structures)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
there is currently a notifiable activity on the land and the activity is continuing	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the proposed use is industrial and only involves minor site excavation, for example post holes for open-sided non-habitable structures	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the land is in an urban development area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

- If no to all of the above,:
 - o you must complete *Contaminated land - IDAS form 24*
 - o This application requires assessment by the Department of Environment and Resource Management (DERM). If DERM is not the assessment manager for the application, the role of the agency will be as a concurrence agency.

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 22(a)
- *Sustainable Planning Regulation 2009*, schedule 3, part 1, table 2, item 6



Part 9 - South East Queensland region

9.1 Do any of the following apply?

the application only seeks approval for reconfiguring a lot other than a subdivision	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development inside a rural precinct and the development is consistent with the rural precinct	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development identified as exempt development under the <i>Sustainable Planning Regulation 2009</i> , schedule 4	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development carried out under a development approval (which has not lapsed) for the premises: <ul style="list-style-type: none">that was properly made before the <i>South East Queensland Regional Plan 2009-2031 regulatory provisions</i> (SEQ 2009-2031 regulatory provisions) commenced orto which division 2 of the SEQ 2009-2031 regulatory provisions apply	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development that is consistent with a preliminary approval which has not lapsed, for the part of a development application mentioned in SPA section 242 that states the way in which the effect of a local planning instrument is varied, where the development application for the preliminary approval was: <ul style="list-style-type: none">properly made before the SEQ 2009-2031 regulatory provisions came into effect orassessed against division 2 of the SEQ 2009-2031 regulatory provisions	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development that is generally in accordance with a rezoning approval where the development entitlements from the rezoning approval are conferred by the following: <ul style="list-style-type: none">the resulting zone in a transitional planning schemea development permit for a development application (superseded planning scheme) for the resulting zone in a transitional planning scheme which is a superseded planning scheme ora notice is issued under section 97 of the <i>Sustainable Planning Act 2009</i> agreeing to apply the superseded planning schemea planning scheme (other than a transitional planning scheme)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the application is only for development that is declared to be a significant project under section 26(1)(1) of the <i>State Development and Public Works Organisation Act 1971</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
the development is in a state development area under the <i>State Development and Public Works Organisation Act 1971</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

- If yes to any of the above, end of part 9 of this checklist.

9.2 Is any part of the premises in a development area as defined by the SEQ Regional Plan?

- | | |
|--|--|
| <input checked="" type="checkbox"/> No | <ul style="list-style-type: none">Go to question 9.4 |
| <input type="checkbox"/> Yes | |

9.4 Is any part of the premises within the regional landscape and rural production area as defined in the SEQ Regional Plan?

- | | |
|--|---|
| <input checked="" type="checkbox"/> No | <ul style="list-style-type: none">End part 9 of this checklist. |
| <input type="checkbox"/> Yes | |



Section references:

- *South East Queensland Regional Plan 2009-2031*
- *South East Queensland 2009-2031 regulatory provisions*, division 3
- *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 39

Part 11 - Koala conservation

11.3 Is any part of the premises in a koala conservation area or koala sustainability area identified under the *Nature Conservation (Koala) Conservation Plan 2006* outside the current SEQ urban footprint area?

- No • Go to question 11.5.
- Yes

11.5 Is any part of the premises in a koala conservation area or koala sustainability area identified under the *Nature Conservation (Koala) Conservation Plan 2006* which is a Department of Environment and Resource Management urban footprint koala area?

- No • End of part 11 of this checklist.
- Yes

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 2, item 36
- *South East Queensland Regional Plan 2009-2031 state planning regulatory provisions*
- *South East Queensland Koala State planning regulatory provisions*
- *Nature Conservation (Koala) Conservation Plan 2006*

Part 13 - Wetland

13.1 Does the proposed reconfiguration involve a lot situated in, or within 100 metres of, a wetland shown on the 'Map of referable wetlands'?

- No
- Yes • This application needs to be assessed by the Department of Environment and Resource Management as an advice agency.

13.2 Does the reconfiguration involve a lot situated in, or within 100 metres of, the following?

a protected area, forest reserve, critical habitat or area of major interest under the <i>Nature Conservation Act 1992</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a State forest or timber reserve under the <i>Forestry Act 1959</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a marine park under the <i>Marine Parks Act 2004</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a recreation area under the <i>Recreation Areas Management Act 2006</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a world heritage area listed under the World Heritage Convention	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Brisbane forest park under the <i>Brisbane Forest Park Act 1977</i>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

- If yes to any of the above, then this application must be assessed by the Department of Environment and Resource Management as an advice agency.

Section reference:

- *Sustainable Planning Regulation 2009*, schedule 7, table 2, items 43 and 44



Privacy --please refer to your assessment manager for further details on the use of information recorded in this form.

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Lipoma Pty Ltd – MCU.
North Street, North Ipswich.
Our Ref. 874206.

Appendix 10

Assessment against Planning Scheme Codes.

SPECIAL OPPORTUNITY ZONE CODE

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Specific Outcomes	Probable Solutions	Development Response
<p>4.21.2 Overall Outcomes for Special Opportunity Zone</p> <p>The overall outcomes sought for the Special Opportunity Zone are the following—</p> <p>(a) The Special Opportunity Zone caters for—</p> <p>(i) land where the future use cannot be definitively stated at this time;</p> <p>(ii) the use and management of sites which perform a land use transition or buffering role;</p> <p>(iii) the recognition of various opportunities over large, infill or broad hectare parcels of land; or</p> <p>(iv) promoting a flexible approach to uses and works on land which is constrained.</p> <p>(b) Uses and works provide for the continuation of the existing or approved use or the protection of the intended use, however, were these uses to cease, the site's locational and physical attributes present opportunities for different development forms which require further detailed investigation.</p> <p>(c) Uses and works within the Special Opportunity Zone are located, designed and managed to—</p> <p>(i) be compatible with the amenity and character of surrounding lands;</p> <p>(ii) facilitate the development of the Sub Areas comprising the zone for their approved use or intended use;</p> <p>(iii) maintain townscape character and amenity;</p> <p>(iv) maintain the safety of people, buildings and works; and</p> <p>(v) avoid significant adverse effects on the natural environment.</p> <p>4.21.3 Effects of Development – General</p> <p>Character and Amenity Specific Outcomes</p> <p>(a) Uses and works reflect the local character,</p>	<p>Probable Solutions – for sub-section (1)(a)</p> <p>(a) Buildings are generally up to two storeys in height unless otherwise specified for a Sub</p>	<p>In this instance the preferred use of the site has been established through the preliminary approval granted over the site (Riverlink Preliminary Approval) as well as subsequent ROL approvals to create management lots for development in accordance with the preliminary approval. The proposal is consistent with these approvals.</p>
<p>Character and Amenity Specific Outcomes</p> <p>(a) Uses and works reflect the local character,</p>	<p>Probable Solutions – for sub-section (1)(a)</p> <p>(a) Buildings are generally up to two storeys in height unless otherwise specified for a Sub</p>	<p>Compliance is achieved, as the maximum height proposed is 2 storeys.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>the amenity of the surrounding area and protect and enhance views along important view corridors and landmark features having regard to—</p> <ul style="list-style-type: none"> (i) building height; (ii) places of cultural significance or streetscape value; (iii) boundary clearances/buffers and in particular the possible implications for adjoining lands, including the potential restriction on the current or future use of such land; (iv) building setbacks from the road network in particular along Designated Roads; (v) avoiding large expanses of blank wall, particularly where visually prominent; and (vi) the form, scale, bulk, style and siting of buildings. <p>(b) Uses and works do not have a significant detrimental impact on the amenity of nearby residents or the surrounding area, including through the—</p> <ul style="list-style-type: none"> (i) emission of odours, noise, dust, waste products, light, electrical interference or otherwise; or (ii) generation of traffic travelling to or from the site. <p>Plan of Development Specific Outcomes All land included in the Special Opportunity Zone is developed in accordance with a Plan of Development indicating—</p> <ul style="list-style-type: none"> (a) the type and location of uses on the site; and (b) the density and/or intensity of uses and works and where known, the size and location of proposed buildings and other structures and details regarding vehicle 	<p>Area.</p> <ul style="list-style-type: none"> (b) Additional storeys are not provided unless appropriate with— <ul style="list-style-type: none"> (i) the scale of adjoining development; and (ii) the extent of fall across the land; and (iii) the character and amenity of the area and overall townscape. (c) Buildings are setback a minimum of 6 metres from the street alignment, unless otherwise specified for a Sub Area. 	<p>As indicated above the proposed development is generally consistent with the relevant approvals granted by Council and the preferred development outcome as specified by Council.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>access and movement onto and through the site.</p> <p>Operation of Road Network and Access Specific Outcomes Uses are located and designed to—</p> <ul style="list-style-type: none"> (a) ensure the safe and efficient operation of the road network; (b) avoid access to Designated Roads (and in particular avoid the creation of multiple access points along a Designated Road) unless the premises do not have an alternative frontage to a dedicated road or other alternative access; (c) avoid the creation of a new traffic hazard or increase an existing traffic hazard; and (d) avoid significant adverse effects (e.g. by noise or dust generated) from use of the road network. 		<p>Suitable access to the development can be achieved via North Street for that section of the development while Colvin Street will be used to access the units adjacent to this road. As adequate site distance is available at these locations, use of the access points will not generate a traffic hazard and impacts will not be generated on nearby properties, it is argued that compliance with the specific outcome sought is achieved.</p>
<p>Provision of Infrastructure Specific Outcomes Infrastructure is—</p> <ul style="list-style-type: none"> (a) integrated with existing systems; (b) provided to service the approved use for each Sub Area (including suitable road access, electricity, telecommunications and adequate water supply or on-site potable water storage); (c) provided to meet appropriate standards, in particular that roads providing access to each Sub Area are constructed to a bitumen road standard; (d) comprised of components and materials that are readily accessible and available from local sources. 	<p>Probable Solutions – for sub-section (5) Infrastructure is provided to the standards stated in Planning Scheme Policy 3—General Works.</p>	<p>The following points should be noted with regard to provision of infrastructure:</p> <ul style="list-style-type: none"> ▪ The proposed development is capable of being serviced by existing water and sewerage infrastructure (refer to engineering services report in Appendix 5). ▪ Electricity and telecommunications services are available to the site and will be extended as required to service the proposed units. ▪ On-site water storage for each unit will be undertaken in accordance with the requirements of the BCA and QDC. ▪ Suitable road access is available.
<p>Effluent Treatment and Disposal Specific Outcome Uses are able to be—</p> <ul style="list-style-type: none"> (a) connected to the reticulated sewerage 		<p>Compliance is achieved as the site is to be connected to the reticulated sewerage network.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>network; or(b) provided with adequate on-site effluent treatment and disposal¹⁸⁴.</p> <p>Vegetation/Landscaping</p> <p>Specific Outcome</p> <p>(a) Appropriate landscaping, including street trees, is used to soften building outlines and enhance the overall appearance of the area.</p> <p>(b) All significant trees are retained, where possible.</p>		<p>The proposed development will incorporate adequate landscaping.</p>
<p>Operational Airspace – Wildlife Hazards</p> <p>Specific Outcome</p> <p>(a) Particular attention is given to the covering or containment of food and waste sources so as not to attract wildlife (particularly birds or bats) that are likely to affect the operational airspace within 8km of RAAF Base Amberley.</p> <p>(b) Turf farming and fruit farming are managed within 8km of RAAF Base Amberley to avoid the attraction of wildlife (particularly birds or bats) that is likely to affect the operational airspace of RAAF Base Amberley.</p>	<p>Probable Solution – for sub-section (9)(b)</p> <p>Turf farming and fruit farming are avoided within 3km of RAAF Base Amberley.</p>	<p>The nature of the use is such that it will not impact on the operations of the Amberley air base.</p>
<p>Specific Outcomes</p> <p>NOTE 4.21.4C The Sub Area is highly significant in a townscape context as it—</p> <p>(a) is situated in a prominent position, particularly when viewed from Denmark Hill, the Woodend Road ridge and the elevated areas to the north along Pine Mountain Road;</p> <p>(b) straddles or adjoins significant view corridors, along the traverser, both towards and away from the summit and northern slopes of Denmark Hill, towards the City Centre, along the river and along Downs Street;</p> <p>(c) adjoins the main northern approach route to the City Centre; and</p> <p>(d) contains a number of landmark buildings.</p>	<p>4.21.4 Effects of Development within Sub Areas - (2) Sub Area SA2 – North Ipswich Railyards</p>	<p>As reflected within the Specific Outcome, this locality is highly significant in a townscape context. The current proposal is seeking to develop a small section of the land owned by Leda in accordance with the Riverlink Preliminary Approval (note that the development of the remainder of Leda's land will be dealt with via separate development applications). The design of the current proposal has sought to integrate with the adjoining railway workshops and the existing residential development to the east of the site, while maintaining the visual amenity of the locality.</p> <p>In terms of the preferred use of the sub area the following points should be noted:</p> <ul style="list-style-type: none"> ▪ The subject site does not form part of the Ipswich Railway Museum or Workshops Precinct, therefore the intended use for this area is not applicable to the proposal. ▪ The proposal involves the development of an urban village and represents the first stage of the re-development of the land owned by Leda. Subsequent stages will deal with the development of the land adjacent to the Bremer River.

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Specific Outcomes	Probable Solutions	Development Response
<p>particularly the gatehouse, the powerhouse and the historic water towers.</p> <p>(a) The Sub Area is developed for one or more of the following—</p> <p>(i) a major tourism precinct, based on a railways/technology interactive museum and historic research and archives centre, together with art and craft markets, cottage industries, and visitor accommodation;</p> <p>(ii) a major convention/recreation/entertainment/sport and leisure complex, with indoor and outdoor facilities (perhaps including a sporting hall of fame, a sports academy and an aquatic centre);</p> <p>(iii) an arts complex (perhaps including a film studio, a film and multimedia training centre and a community arts centre);</p> <p>(iv) a business/technology/innovation centre catering for specialist research, multi-media and information technology and telecommunications businesses;</p> <p>(v) an urban village comprising a mixed use development with medium density housing, art and craft markets, community arts centre, cottage industries, studio apartments and other home based businesses;</p> <p>(vi) educational uses; and</p> <p>(vii) the continued use of the Licence Issuing Centre.</p> <p>(b) Office uses located in this Sub Area have a direct link with uses set out in (a) above and do not comprise government departments, financial institutions or professional offices which are more appropriately located within the Ipswich CBD.</p> <p>(c) The Sub Area is not developed as a rival office or retail location to the CBD.</p> <p>(d) All buildings and structures are below</p>		<ul style="list-style-type: none"> ▪ The proposal will not impact on the continued operation of the Licence Issuing Centre. ▪ The proposed units will be substantially lower than RL48m AHD. ▪ The proposal involves the construction of buildings with a maximum height of 2 storeys to ensure the consistency of the proposal with nearby heritage buildings. ▪ The proposal does not involve the demolition of buildings with cultural significance. ▪ The design of the proposed development seeks to replicate the 'saw tooth' roof line of the Railway Workshops to ensure that the proposal is sympathetic to the heritage character of the locality. ▪ Construction materials and colours have been chosen to compliment the nearby heritage buildings ▪ The design of the development ensures that blank walls are not presented to public roads or adjoining properties. ▪ The proposal will not impact on the direct rail linkage to the CBD. ▪ The proposal will not impact on existing trunk sewer infrastructure and maintains the ongoing function of stormwater drainage paths. ▪ Works to address the contamination of the site will be undertaken in accordance with the requirements of DERM's Contaminated Land Unit.

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Specific Outcomes	Probable Solutions	Development Response
<p>RL48m AHD (i.e. below the roofline of the North Ipswich Primary School), which is the dominant landmark in the area.</p> <p>(e) New buildings are generally limited to a maximum height of 4 storeys where they are located outside the heritage areas.</p> <p>(f) New buildings are setback from the street an equal or greater distance to the heritage buildings located in this Sub Area.</p> <p>(g) Uses and works maintain the important view corridors along the traverser axis and at the southern end of Downs Street, across the river towards Denmark Hill.</p> <p>(h) All places of cultural significance or streetscape value are conserved, with such places adaptively reused.</p> <p>(i) New uses are sympathetic and respectful to places of cultural heritage significance and maximise opportunities to create interesting courtyard spaces between buildings.</p> <p>(j) The layout of the original roundhouse is interpreted in the redevelopment of the site, potentially by way of special landscaping or carparking surface treatment.</p> <p>(k) The placement of buildings maintains views towards major historic landmark buildings such as the powerhouse, water towers and gatehouse, and along the traverser, along Downs Street, and across the river to Denmark Hill.</p> <p>(l) New buildings minimise the extent of blank walls, particularly in situations where such walls are visually prominent.</p> <p>(m) Infill development between heritage buildings is consistent with the height and roof form of heritage buildings.</p> <p>(n) Mature trees are conserved, particularly the large fig trees near the administration</p>		

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Specific Outcomes	Probable Solutions	Development Response
<p>buildings in the railyards.</p> <p>(o) Uses and works in the vicinity of the western end of W.M. Hughes Street, adjoining the Bremer River, protect a possible future transport corridor link across the river.</p> <p>(p) Development within the Sub Area is integrated with—</p> <p>(i) the CBD utilising a pedestrian/bicycle connection constructed on the North Ipswich Railway Bridge;</p> <p>(ii) Woodend Park to the west; and</p> <p>(iii) the adjoining open space to the west and south.</p> <p>(q) The direct rail linkage between the CBD and the Sub Area is retained.</p> <p>(r) Uses and works avoid the alignment of the trunk sewers and major stormwater drainage paths.</p> <p>(s) Comprehensive site contamination investigations are undertaken together with necessary decontamination works which are commensurate with the desired future use for each specific part of the Sub Area.</p>		

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Specific Outcomes	Probable Solutions	Development Response
<p>12.6.3 The overall outcomes sought for the Residential Code are the following—</p> <p>(a) Residential uses and works— (i) create a pleasant, safe and attractive living environment; (ii) maintain, and where possible enhance, residential amenity both internal and external to the site; (iii) blend new development into existing streetscapes and neighbourhoods; (iv) conserve places of cultural significance or streetscape value; (v) promote greater housing choice with sufficient flexibility to accommodate the diverse housing needs of the community; and (vi) provide for privacy, day lighting, ventilation and natural climate control.</p> <p>(b) The character, scale and density of development are— (i) commensurate with the intent of the zone or Sub Area in which the development is proposed; (ii) compatible with the physical characteristics of the site and its surrounds; and (iii) compatible with the desired character of the local area.</p>	<p>Probable Solutions – for sub-section (1) Dwelling Density, Height and Setbacks</p> <p>(a) The dwelling density, height and setbacks conform to those specified for the relevant zone, Sub Area or precinct.</p> <p>Building Height (b) Where no building height provisions are specified for the zone, sub area or precinct, buildings are limited to one</p>	<p>It is argued that the design and layout of the development achieves compliance with the specific outcomes sought as follows:</p> <p>(a) The provision of adequate private and communal open space as well as suitable landscaped areas ensures that a pleasant living environment will be provided. Adequate opportunities for passive surveillance ensures that a safe living environment will be provided while the design of proposed units and landscaped areas will ensure that an attractive living environment is provided.</p> <p>(b) The proposal will improve the amenity of the locality through the construction of a use consistent with the surrounding pattern of development; screening part of the railway workshops from existing residences; improving North Street; improving the large drainage line and construction of extensive landscaped areas to soften the built form of the development.</p> <p>(c) The orientation of the development and provision of pedestrian access areas will ensure that the development will blend into the streetscape.</p> <p>(d) The proposal will not impact on places of cultural significance or streetscape value.</p> <p>(e) The proposed development will provide greater housing choice than the typical detached dwellings on low density residential lots which prevails in the locality.</p> <p>(f) The use of fencing and landscaping will ensure privacy, while the layout of the development will ensure that adequate day lighting, ventilation and natural climate control can be achieved.</p> <p>(g) The proposal is consistent with the planning intent for the site established through a preliminary approval.</p> <p>(h) The residential nature of the development and the maximum height of 2 storeys ensures that the development is consistent with the physical characteristics of the surrounding pattern of development.</p> <p>(i) The proposed residential development is consistent with the character of the local area.</p> <p>Dwelling Density, Height and Setbacks The current proposal is in accordance with the Riverlink Preliminary Approval as well as the provisions of the Special Opportunity Zone.</p> <p>Building Height The maximum height proposed is 2 storeys which is consistent with the surrounding pattern of development.</p> <p>Building Setbacks No specific setbacks are specified for the zone applicable to the site and therefore</p>
<p>Density and Character Specific Outcomes</p> <p>Uses and works reflect the desired built character, maintain amenity and protect and enhance important townscape and landscape elements having regard to— (a) dwelling density; (b) building height; (c) lot sizes and dimensions; (d) boundary clearances and the provision of</p>	<p>Probable Solutions – for sub-section (1) Dwelling Density, Height and Setbacks</p> <p>(a) The dwelling density, height and setbacks conform to those specified for the relevant zone, Sub Area or precinct.</p> <p>Building Height (b) Where no building height provisions are specified for the zone, sub area or precinct, buildings are limited to one</p>	<p>Dwelling Density, Height and Setbacks The current proposal is in accordance with the Riverlink Preliminary Approval as well as the provisions of the Special Opportunity Zone.</p> <p>Building Height The maximum height proposed is 2 storeys which is consistent with the surrounding pattern of development.</p> <p>Building Setbacks No specific setbacks are specified for the zone applicable to the site and therefore</p>

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<p>space around buildings;</p> <p>(e) the location and design of parking areas;</p> <p>(f) the provision of recreation space;</p> <p>(g) access to natural light and ventilation;</p> <p>(h) privacy;</p> <p>(i) noise attenuation;</p> <p>(j) vegetation protection;</p> <p>(k) landscape treatment;</p> <p>(l) places of cultural significance or streetscape value; and</p> <p>(m) the form, scale, bulk, style, siting, orientation, roof lines, materials and detailing of buildings.</p>	<p>(1) storey in height, unless appropriate with—</p> <p>(i) the scale of adjoining development; and</p> <p>(ii) the extent of fall across the site; and</p> <p>(iii) the character and amenity of the area and the overall townscape.</p> <p>Building Setbacks</p> <p>(c) Where no building setbacks are specified for the zone, sub area or precinct, the building setbacks conform to Schedule 5.</p> <p>(d) Windows in habitable rooms do not face directly into habitable rooms in another dwelling on the same site closer than nine (9) metres except that at ground level such minimum separation may be—</p> <p>(i) three (3) metres where screen fences or walls are provided or where the windows are above 1.6 metres from the floor; and</p> <p>(ii) six (6) metres where existing vegetation or new plantings prevent views between windows.</p> <p>Probable Solutions – for sub-section (3)</p> <p>(a) Building street facades do not exceed—</p> <p>(i) 14 metres in length within a 20 metre wide frontage;</p> <p>(ii) 10 metres in length within a 15 metre wide frontage; or</p> <p>(iii) 7 metres in length within a 10 metre wide frontage.</p> <p>(b) Building wall lengths in excess of 15m are articulated by use of verandahs, balconies, bay windows, window hoods or wall offsets (minimum 1m deep), or physical separation into detached buildings.</p> <p>(c) Buildings are detailed or articulated to enable individual dwellings to be identified from public streets and communal areas.</p>	<p>the provisions of Schedule 5 are applicable. The following points address these provisions:</p> <ul style="list-style-type: none"> ▪ <i>Minimum 6 metre road frontage setback – All buildings achieve compliance with the 6 metre setback from the road frontage.</i> ▪ <i>Minimum side and rear setback 1.5 metres where the building height is 4.5 metres or less – All side and rear boundary setbacks exceed 1.5 metres and therefore compliance is achieved.</i> ▪ <i>Minimum side and rear setback 2 metres where the building height is between 4.5 and 7.5 metres – All side and rear boundary setbacks exceed 2 metres and therefore compliance is achieved.</i>
<p>Building Scale and Articulation Specific Outcomes</p> <p>(a) Building design, detailing and finish provide an appropriate scale to the street and add visual interest and differentiation between residential buildings when viewed from streets, or a public thoroughfare.</p> <p>(b) In low density residential areas, new residential buildings are designed with clearly distinguishable parts of similar scale to existing dwellings.</p> <p>(c) Large expanses of blank walls are avoided, particularly in situations where such walls are likely to be visually prominent.</p> <p>(d) New buildings take into account the image presented by the backs and sides of buildings so as to ensure an attractive townscape.</p>	<p>The proposal involves construction of units in groups/terraces of either 3 or 6 units for the most part. The length of a typical row of 3 units is 23 metres while the length of a typical row of 6 units is 45 metres. The design achieves compliance with the probable solutions sought as follows:</p> <ul style="list-style-type: none"> ▪ Articulation of the units and use of balconies ensures that the wall is not on a single plane. ▪ The use of differing heights, articulation of the units and clearly identifiable 'front doors' ensures that individual dwellings can be identified. 	

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<p>Building Orientation Specific Outcomes</p> <p>(a) Buildings address the street frontage or frontages rather than being aligned at right angles or diagonal to the street.</p> <p>(b) Buildings are designed so that overlooking and opportunities for casual surveillance of public spaces, pedestrian paths and car parking areas are provided.</p> <p>(c) Generally, as much as practical of the habitable parts of a building are located towards the street, in order to develop a strong relationship between private accommodation and the street.</p> <p>(d) Buildings are sited and designed to provide a clearly delineated transition space from public spaces (e.g. the street or communal open space) to dwellings and associated private use areas.</p> <p>(e) The site layout ensures that the front entrance of each dwelling is easily found, and that amenity is maintained between dwellings.</p>	<p>Probable Solutions – for sub-section (5) frontages.</p> <p>(a) There are no blank walls along street frontages.</p> <p>(b) Habitable rooms of dwellings that are located near the street frontage are oriented towards the street, and have verandahs or balconies adjoining, or oriented to the street.</p>	<p>Compliance is achieved as no blank walls are presented to North Street or Colvin Street.</p>
<p>Corner Sites</p> <p>Specific Outcomes</p> <p>Buildings on corner sites—</p> <p>(a) contribute to the clear definition of the street intersection and entrances to the building.</p> <p>(b) address both street frontages, in terms of—</p> <p>(i) orientation of habitable rooms; and</p> <p>(ii) location of balconies, verandahs and entrances; and</p> <p>(c) use high quality, appropriate materials and detailing.</p> <p>Building Entrances Specific Outcomes</p> <p>(a) Entries to buildings are exposed to the</p>		<p>N/A as the site is not located on a corner.</p>
		<p>The following points should be noted with regard to the proposals compliance with the specific outcomes sought:</p> <ul style="list-style-type: none"> The main entrance to the development will be clearly identifiable and provides

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<p>main street frontage and are clearly delineated/legible.</p> <p>(b) Building identification and numbering is prominent.</p> <p>(c) Entrances to buildings are emphasized by—</p> <p>(i) a size of entrance of an appropriate scale and presence on the street; and</p> <p>(ii) use of high quality materials and high levels of detailing around the entrance.</p> <p>Skyline Elements/Roof Top Design</p> <p>Specific Outcomes</p> <p>(a) The design of the roof form is consistent with the predominant existing character or the desired character of roofs in the area.</p> <p>(b) The design of roof forms ensure that—</p> <p>(i) plant rooms and equipment are appropriately concealed; and</p> <p>(ii) appropriately coloured roof treatments are used and contrasting coloured roof treatments are avoided.</p> <p>Building Materials</p> <p>Specific Outcomes</p> <p>(a) External materials are high quality, attractive, durable and need minimal maintenance.</p> <p>(b) Use of highly reflective materials in facades or on roofs (e.g. unpainted zincalume) is avoided or limited to locations where they do not detract from the amenity and character of adjacent development and public or semi-public spaces.</p> <p>(c) Colours are used to unify buildings which form part of a group, and colour schemes are appropriate to the style of the building.</p> <p>(d) Previously unpainted surfaces are not painted where the original finish (e.g. face brickwork) is an important part of the</p>		<p>adequate separation for vehicles and pedestrians.</p> <p>Prominent numbering will be used throughout the development.</p> <p>The design of the individual units includes appropriate entrances.</p>
		<p>The proposal achieves compliance with the specific outcomes sought as follows:</p> <ul style="list-style-type: none"> ▪ The roof form has been designed in a 'saw tooth' fashion to ensure consistency with the nearby railway workshops. The Colvin Street units have been designed in a typical 'Queenslander' fashion to compliment nearby dwellings. ▪ No roof-top machinery is proposed. ▪ The proposed colour pallet will compliment the locality and provide adequate contrast.
		<p>The following points should be noted with regard to the building materials proposed:</p> <ul style="list-style-type: none"> ▪ High quality materials needing minimal maintenance are proposed. ▪ It is not intended to use highly reflective materials. ▪ Face brick, painted cladding, rendered and painted block work or blue board will be used for external walls while colourbond will be used for roofs. A colour palette is included within the proposal plans, which has been selected to compliment the heritage buildings found within the locality.

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<p>building's character.</p> <p>Site Amalgamation Specific Outcomes Where the site for the proposed development comprises more than one lot, all lots are amalgamated by survey into one parcel prior to the submission of an application for the approval of building works.</p>		<p>N/A as the site is currently on a single title.</p>
<p>Site Suitability and Amenity Specific Outcomes (a) Residential uses or works are designed and sited to maximise site potential, minimise risk and provide a high degree of amenity in a residential environment, suited to the community's needs. (b) Residential uses and works do not cause unreasonable, detrimental impacts on the amenity of adjacent uses, streets, or other public or semipublic spaces with respect to— (i) overshadowing or loss of sunlight or natural daylight; (ii) noise; and (iii) loss of privacy. (c) Mixed use developments incorporating residential accommodation (for short or long term residents) are designed to ensure that residents are afforded reasonable standards of on-site convenience and amenity, and safe and secure access. (d) Habitable rooms in dwellings are situated above the adopted flood level. (e) Residential building sites have proven, suitable surface and sub-surface stability characteristics having regard to past, present and likely future mining activity. (f) Residential uses are sited within a lot so that the future development of the balance area of the lot (if any) is facilitated.</p>		<p>It is argued that the proposal complies with the specific outcomes sought as follows: a) The design of the development maximizes the use of the developable area and ensures that the amenity of the locality is not impacted upon. b) The nature of the use itself (i.e. residential based), the maximum height of 2 storeys and physical separation to existing residences ensures that the proposal will not generate impacts on the locality in terms of noise, overshadowing or loss of privacy. c) N/A as the proposal does not involve mixed uses. d) The floor levels of all dwellings are located above the defined flood level. e) The site is not located within an area subject to undermining. f) The proposal will not compromise the future development of adjoining or nearby sites.</p>

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<p>Privacy Specific Outcomes Direct overlooking of main internal living areas of other dwellings is minimised by building layout, location of entrances, location and design of windows and balconies, screening devices and landscaping or by physical separation.</p>	<p>Probable Solutions – for sub-section (13) (a) Dwellings are designed to face a street frontage or towards the interior of a site, rather than across side or rear boundaries to adjoining land. (b) A minimum 9m separation (or 12 m where above first floor level) is provided between the windows of habitable rooms of facing dwellings. (c) Direct views between living area windows of adjacent dwellings are screened or obscured. (d) Direct views from living rooms of dwellings into the principal area of private recreation space of another dwelling are screened or obscured. (e) Screening is provided by— (i) 1.8 m high solid fences or walls between ground floor level windows; or (ii) window screens that have a maximum area of 25% openings, which are permanently fixed and made of durable materials; or (iii) landscaping, including existing dense vegetation or new planting. (f) Each dwelling is provided with a private entrance at ground level, or alternatively, where there are shared access paths to entries, overlooking into habitable rooms is prevented by the use of screen walls or the location of windows above 1.6 metres from the floor.</p>	<p>The design of the proposal addresses the issues raised within the probable solution as follows:</p> <ul style="list-style-type: none"> ▪ The location of the site itself and layout of the proposed units ensures that the units will not overlook nearby residential development. ▪ Use of fencing and landscaping will ensure that any potential direct views between living areas are adequately screened. ▪ The design ensures that there will be no direct views from living rooms into the private recreation space of another dwelling. ▪ It is anticipated that conditions of approval will specify the allowable materials and methods to facilitate screening where required. ▪ The design ensures that each dwelling is provided with a private entrance at ground level.
<p>Noise Specific Outcomes (a) Site layout and building design protect internal living and sleeping areas from high levels of external noise. (b) Active recreation facilities, including swimming pools, spas, tennis courts and</p>		<p>An acoustic report has been prepared by TTM Consulting that addresses the acoustic issues associated with the development.</p> <p>It is argued that the layout of the proposal is such that significant impacts from the use of the various facilities by residents will not impact on individual units.</p>

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<p>barbecue areas and equipment and machinery such as garbage chutes, pumps, compressors, air conditioning and other plant which generate high noise levels, are located away from habitable rooms in nearby dwellings or are enclosed or otherwise acoustically treated.</p> <p>(c) Where possible, driveways and parking areas are located away from the windows of habitable rooms in adjacent dwellings at the same level, or are screened to minimise noise.</p> <p>(d) Residential buildings are either—</p> <p>(i) not exposed to unacceptable transport noise (particularly from main roads or rail corridors); or</p> <p>(ii) designed and constructed so that acceptable living conditions are created within the dwelling.</p>	<p>Probable Solutions – for sub-section (16)</p> <p>(a) Illumination levels parallel to and at a distance of 1.5 m outside the boundary of the lot do not exceed 8 lux in either the vertical or horizontal plane for a height of 10m above ground level.</p> <p>(b) Security lighting is consistent with Australian Standard AS 4282 (1997) – The Control of Obtrusive Effects of Outdoor Lighting.</p> <p>(c) Principal pedestrian and bicycle movement routes, public spaces and outdoor signage in public spaces is lit to the minimum Australian Standard of AS1158 (Public Lighting Code) so that these areas become the focus of legitimate pedestrian activity after dark.</p> <p>(d) Areas which are heavily used by pedestrians, such as major pedestrian routes, entries to buildings and entries to public toilets</p>	<p>The nature of nearby uses is such that light emissions will not impact on the proposed development.</p> <p>It is anticipated that conditions of approval will reflect Council's requirements for internal lighting throughout the development.</p>
<p>Lighting</p> <p>Specific Outcomes</p> <p>Lighting is—</p> <p>(a) provided in public streets and public/communal spaces, along pedestrian and cyclist paths and within car parking areas;</p> <p>(b) located such that mature planting does not reduce its effectiveness;</p> <p>(c) aesthetically integrated into the total design with building, landscaping, signage, streetscape and public space design;</p> <p>(d) used to illuminate buildings, public and communal areas and other areas that may be susceptible to criminal activity, but avoids 'light spill' which would detract from the amenity of nearby areas (particularly residential uses) or contribute to hazardous traffic conditions;</p>	<p>Probable Solutions – for sub-section (16)</p> <p>(a) Illumination levels parallel to and at a distance of 1.5 m outside the boundary of the lot do not exceed 8 lux in either the vertical or horizontal plane for a height of 10m above ground level.</p> <p>(b) Security lighting is consistent with Australian Standard AS 4282 (1997) – The Control of Obtrusive Effects of Outdoor Lighting.</p> <p>(c) Principal pedestrian and bicycle movement routes, public spaces and outdoor signage in public spaces is lit to the minimum Australian Standard of AS1158 (Public Lighting Code) so that these areas become the focus of legitimate pedestrian activity after dark.</p> <p>(d) Areas which are heavily used by pedestrians, such as major pedestrian routes, entries to buildings and entries to public toilets</p>	<p>The nature of nearby uses is such that light emissions will not impact on the proposed development.</p> <p>It is anticipated that conditions of approval will reflect Council's requirements for internal lighting throughout the development.</p>

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<p>(e) appropriately placed to avoid shadows and glare which might put pedestrians at risk. (i.e. shielded light at eye level);</p> <p>(f) not directed onto nearby properties;</p> <p>(g) downward directed;</p> <p>(h) appropriately shielded at its source;</p> <p>(i) provided to vehicular and pedestrian movement areas, including roads, paths and carparks, in order to provide visibility and safety at night; and</p> <p>(j) provided for entry ways, and includes point-to-point lighting for pedestrian walkways.</p> <p>Climate Control Specific Outcomes</p> <p>(a) Uses and works are sited, designed and constructed to respond to Ipswich's climate in a manner which minimises reliance on non-renewable energy sources for heating, cooling or ventilation.</p> <p>(b) Habitable rooms, occupants, streets and public/comunal spaces are capable of receiving adequate daylight and ventilation which maximizes access to winter sunshine and summer breezes.</p> <p>(c) Windows and doors in buildings are located, sized and shaded and the building layout and materials chosen to facilitate energy conservation.</p> <p>(d) Building design incorporates architectural features such as extended eaves, awnings, pergolas and verandahs to protect windows and doorways from summer sun, glare and rain, and to provide shelter for outdoor living areas.</p> <p>(e) Habitable rooms receive adequate daylight for the carrying out of daily tasks and private recreation space receives adequate</p>	<p>are lit with the power of 50 – 100 lux (lumens).</p> <p>(e) Areas not intended for night-time use are not lit or are closed off to avoid giving a false impression of safety.</p> <p>(f) Photoelectric cells are provided rather than time switches for night lighting.</p> <p>Probable Solutions – for sub-section (18)</p> <p>(a) The main living areas within dwellings are oriented between 30 degrees west to 90 degrees east of due north.</p> <p>(b) Dwellings are sited, designed and constructed with windows—(i) to face a court or other outdoor space open to the sky, or an open verandah; or</p> <p>(i) to be placed not less than a horizontal distance of 1.5m from any facing building.</p> <p>(c) Any well situated opposite an existing habitable room window is setback from that window by a minimum distance of half the height of that wall.</p> <p>(d) Eaves, with a minimum width of 450mm, are provided to the exterior of all dwellings.</p>	<p>It is argued that the design of the units responds to the probable solutions sought.</p>

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<p>sunlight, having regard to both on-site and adjacent development.</p> <p>(f) Buildings are sited and designed—</p> <p>(i) to maximise use of prevailing breezes for natural ventilation; and</p> <p>(ii) so that openings (windows and doors) are located in opposite and adjacent walls wherever possible to facilitate capture of prevailing breezes and cross ventilation.</p> <p>Overshadowing and Wind Turbulence Specific Outcome</p> <p>The height and placement of buildings is designed to ensure that there is minimal overshadowing and creation of wind turbulence on adjoining properties, particularly where containing public or communal spaces, which would have a detrimental impact upon the amenity of those properties.</p>	<p>21) Probable Solution – for sub-section (20)</p> <p>All ground level, private recreation space areas on the site and adjoining sites affected by shadow from an existing or proposed building are capable of receiving sunlight for a minimum of 4 hours on 21 June.</p>	<p>The position and dimensions of private recreation areas is such that adequate sunlight is available.</p>
<p>Recreation Space Specific Outcomes</p> <p>(a) Communal recreation space and associated facilities are provided onsite to suit anticipated user needs, taking into account—</p> <p>(i) the overall housing density;</p> <p>(ii) the quality and extent of alternative public open space or private recreation space;</p> <p>(iii) the relationship to other, nearby, recreation or open space areas;</p> <p>(iv) the need to distinguish communal recreation space clearly from public open space or private recreation space; (v) the type of activity permitted on the communal recreation space;</p> <p>(vi) future maintenance requirements;</p> <p>(vii) the need to maintain the privacy of nearby dwellings; and</p> <p>(viii) the need for landscaping to enhance a</p>	<p>Probable Solutions – for sub-section (22)</p> <p>(a) Recreation space is provided at a rate of—</p> <p>(i) 45m² for one bedroom in each dwelling; plus</p> <p>(ii) 15m² for each additional bedroom in each dwelling.</p> <p>(b) Recreation space may be communal, or private, or a combination thereof.</p> <p>(c) Communal recreation space—</p> <p>(i) does not include areas used for driveways, carparking, clothes drying, storage or refuse collection; (ii) has a minimum dimension of 5 metres;</p> <p>(iii) where comprising between 10 and 30 dwellings, provides at least one area with a minimum dimension of 10 metres;</p> <p>(iv) where comprising more than 30 dwellings provides at least one area with a minimum dimension of 20 metres.</p>	<p>Private open space will be provided for each unit in the form of a 'back yard' that will act as outdoor living areas for residents. These 'back yards' will be separately fenced to clearly identify ownership and will be accessible from the primary living areas of the dwellings. It is also noted that the private recreation space for each unit exceeds 35m², has a minimum dimension of 3 metres, a slope less than 5% and will be screened by suitable fencing.</p> <p>The communal recreation area for the development is located within the main development area which is the subject of a separate development application.</p> <p>It should be noted that an assessment of the wider development against the open space requirements has been undertaken as part of MCU6293/2009 which demonstrates compliance with the open space requirements of the Planning Scheme.</p>

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<p>sense of enclosure, while allowing informal surveillance and meeting security needs.</p> <p>(b) Private recreation space is provided for each dwelling to suit projected user needs by—</p> <p>(i) being clearly defined for private use;</p> <p>(ii) being suitable for intended use, with particular regard to slope;</p> <p>(iii) being directly accessible from a main living area;</p> <p>(iv) having dimensions capable of accommodating some outdoor recreational needs and some space for service functions; and</p> <p>(v) taking account of requirements for privacy, security, outlook and maximum year-round use.</p>	<p>(d) Private recreation space, where provided at ground level—</p> <p>(i) has a minimum area of 35m² with a minimum dimension of 3 metres;</p> <p>(ii) includes a principal area having—</p> <p>(A) a minimum area of 16m²;</p> <p>(B) a slope no greater than 1 in 20 (5%); and</p> <p>(C) direct access from a living room of the dwelling;</p> <p>(iii) is oriented between 30 degrees west to 90 degrees east of due north; and</p> <p>(iv) is screened with a 1.8 metre high wall or screen fence with no gaps along the common boundary to adjoining dwellings or communal areas (see Figure 12.6.1).</p> <p>(e) Where private recreation space is not provided at ground level, each dwelling has a balcony or verandah with—</p> <p>(i) a minimum area of 8m²;</p> <p>(ii) a minimum dimension of 2.4 metres;</p> <p>(iii) an orientation between 30 degrees west or 90 degrees east of due north; and</p> <p>(iv) direct access from a living room of the dwelling (see Figure 12.6.1).</p>	<p>Landscaping throughout the development will be designed to achieve compliance with the outcomes sought by the Planning Scheme (refer to the landscaping plans).</p>
<p>Landscaping</p> <p>Specific Outcomes</p> <p>(a) Landscaping for residential uses is designed and constructed to—</p> <p>(i) compliment the existing or intended streetscape character and appearance and thereby to assist with the integration of the development into the streetscape;</p> <p>(ii) an appropriate scale, relative to both the street reserve width and the building bulk;</p> <p>(iii) be sensitive to site attributes, such as cultural landscapes, natural landform, existing vegetation, views, land capability, availability of water on site, and drainage;</p>	<p>Probable Solutions – for sub-section (24)</p> <p>(a) Buildings on stumps/piers are provided in preference to slab on ground construction, within vegetated areas and on steeply sloping land [i.e. land with a slope greater than 20% (1 in 5)].</p> <p>(b) Shrubbery and low-level planting associated with footpaths do not exceed 0.5m in height where abutting footpaths.</p> <p>(c) Trees in vulnerable settings do not have branches below 1.5m.</p>	<p>Landscaping throughout the development will be designed to achieve compliance with the outcomes sought by the Planning Scheme (refer to the landscaping plans).</p>

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<p>(iv) incorporate significant existing vegetation, where possible;</p> <p>(v) improve privacy and minimize overlooking into private spaces;</p> <p>(vi) promote safety and casual surveillance;</p> <p>(vii) assist in microclimate management and energy conservation and efficiency, with particular regard to maximising summer shade and providing access to winter sunshine for outdoor living and recreation areas and providing protection from winter winds and westerly aspects;</p> <p>(viii) accommodate stormwater flows and maximize absorptive landscaped areas for on-site infiltration of stormwater;</p> <p>(ix) integrate and form linkages with parks, reserves and transport corridors;</p> <p>(x) reinforce desired traffic speed and behaviour;</p> <p>(xi) enhance opportunities for pedestrian comfort;</p> <p>(xii) consider lines of sight for pedestrians, cyclists and vehicles;</p> <p>(xiii) provide attractive and coordinated street furniture and facilities to meet user needs;</p> <p>(xiv) effectively screen storage and service areas from views from outside the site;</p> <p>(xv) achieve easy and cost effective maintenance, which is not overly dependent on the city's reticulated water supply and utilises stored rainwater and recycled treated wastewater where practicable; and</p> <p>(xvi) avoid damage to building foundations and overhead and underground utility services.</p> <p>(b) Landscaping is designed to promote safety through—</p>		
		<p>(i) the provision of shade and shelter which</p>

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<p>encourages the use of public and communal areas; and</p> <p>(ii) planting which supports informal surveillance and does not obscure doors and windows overlooking public/communal spaces and isolated areas.</p> <p>Fences and Walls</p> <p>Specific Outcomes</p> <p>(a) Fence types are designed giving consideration to—</p> <p>(i) the appropriateness of the fence design in its local context;</p> <p>(ii) the role of the fence;</p> <p>(iii) the definition of the property boundary;</p> <p>(iv) uses on the site and on adjoining sites;</p> <p>(v) existing or planned lighting and landscaping; and</p> <p>(vi) site security and access identification and restriction.</p> <p>(b) Front fences and walls—</p> <p>(i) enable some outlook from buildings to the street for safety and surveillance;</p> <p>(ii) assist in highlighting entrances and in creating a sense of community identity within the streetscape;</p> <p>(iii) are designed and detailed to provide visual interest to the streetscape;</p> <p>(iv) comprise materials and colours compatible with the buildings and landscaping on site, and with attractive visual examples of fences and walls in the streetscape to offer a sense of continuity; and</p> <p>(v) are compatible with facilities in the street frontage area, such as mail boxes and garbage collection areas.</p> <p>(c) Retaining walls are terraced and landscaped, or otherwise detailed, to be visually attractive and not to appear to be</p>	<p>Probable Solutions – for sub-section (26)</p> <p>(a) Front fences and walls have a maximum height of—</p> <p>(i) 1.2m high if of solid appearance; and</p> <p>(ii) 1.8m high if the fence has openings or materials which make it not less than 30% transparent.</p> <p>(b) Fences do not exceed 10 m in length without some form of articulation or detailing (e.g. a gateway or recessed garden) to provide visual interest.</p>	<p>A variety of fencing styles and construction materials will be used throughout the development as reflected on the landscaping plans.</p>

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<p>overbearing.</p> <p>Footpaths Specific Outcomes (a) Footpaths are designed and constructed to— (i) provide safe and convenient access to dwellings and communal facilities; (ii) discourage use of the site as a pedestrian through-route for non-residents; and (iii) provide privacy to interior dwelling spaces and private recreation space from passersby. (b) All footpaths have a hard and non-slip surface and are well drained.</p> <p>Paving Materials and Street Furniture Specific Outcomes The materials and colours used for footpath paving and street furniture are consistent with those identified in the local government's adopted standards.</p> <p>Safety and Security Specific Outcomes (a) Overall Design/Legibility (i) Uses and works are designed and managed to ensure that users are aware of how to safely gain access to, around and within the premises, with a particular emphasis on vulnerable groups, vulnerable elements and vulnerable settings. (ii) The design increases people's awareness of their environment and potential risks to their safety. (iii) The design promotes the use, construction and maintenance of an urban environment which is user friendly and safe to live and move in at any time of day or night. (iv) Where possible, the use or works improves the opportunities to be seen through</p>	<p>Probable Solutions – for sub-section (28) (a) Where the development involves up to 20 dwellings the sealed carriageway within the internal driveway may be used to provide pedestrian access to the dwellings. (b) Where the development involves more than 20 dwellings, pedestrian access to each dwelling is provided by a minimum 1.5m wide footpath which is separate to, but may adjoin, an internal driveway.</p>	<p>Adequate pedestrian links have been provided throughout the development.</p> <p>It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction standards and materials for the proposed footpaths and associated facilities.</p>
<p>Probable Solutions – for sub-section (31)(b) (a) No blank building facade is presented to any street frontage. (b) Front fences and walls are no more than 1.2 metre high if solid, or up to 1.8m high if the fence has openings or materials which make it not less than 30% transparent.</p>	<p>The following points should be noted in response to the specific outcomes sought: Overall Design/Legibility</p> <ul style="list-style-type: none"> ▪ Entrances to the proposed dwellings are clearly visible as are the pedestrian paths proposed throughout the development. ▪ The layout of the development, use of lighting and opportunities for passive surveillance will ensure the provision of a safe environment. <p>Surveillance and Sightlines</p> <ul style="list-style-type: none"> ▪ The design of the pedestrian network within the development ensures that suitable sightlines are available. ▪ The position of units adjacent to open space and extensive use of windows ensures that opportunities for informal surveillance are available. ▪ Fencing has been designed to facilitate passive surveillance. ▪ The development does not include spaces where there would be a perceived risk to personal safety. ▪ Landscaping adjacent to the pedestrian paths will be designed to maintain visibility. <p>Clear Definition of Ownership/Boundaries</p>	<p>The following points should be noted in response to the specific outcomes sought: Overall Design/Legibility</p> <ul style="list-style-type: none"> ▪ Entrances to the proposed dwellings are clearly visible as are the pedestrian paths proposed throughout the development. ▪ The layout of the development, use of lighting and opportunities for passive surveillance will ensure the provision of a safe environment. <p>Surveillance and Sightlines</p> <ul style="list-style-type: none"> ▪ The design of the pedestrian network within the development ensures that suitable sightlines are available. ▪ The position of units adjacent to open space and extensive use of windows ensures that opportunities for informal surveillance are available. ▪ Fencing has been designed to facilitate passive surveillance. ▪ The development does not include spaces where there would be a perceived risk to personal safety. ▪ Landscaping adjacent to the pedestrian paths will be designed to maintain visibility. <p>Clear Definition of Ownership/Boundaries</p>

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<p>reduction in isolation, improved mix and intensity of land use and increased legitimate use of spaces.</p> <p>(v) Buildings, spaces and infrastructure are designed to assist legibility (i.e. orientation and navigation through a site or area) reducing the need to depend on signs in order for a person to find their way around.</p> <p>(vi) The layout minimises the potential for crime, vandalism and fear and enhances personal safety and the individual's perception of personal safety.</p> <p>(vii) An easy to understand pedestrian network is provided so that people can easily find their way through, and connections to, important destinations.</p> <p>(viii) The design of areas, buildings, accessways and spaces enables people to find building entrances and exits as well as services such as public transport, phones and public toilets without undue signage.</p> <p>(b) Surveillance and Sightlines</p> <p>(i) The development provides unimpeded sightlines, particularly along pedestrian/bicycle routes.</p> <p>(ii) The development encourages informal surveillance from surrounding buildings and land uses.</p> <p>(iii) Front fences and walls enable some outlook from buildings to the street to achieve safety and surveillance.</p> <p>(iv) Visibility is provided into spaces where risk to personal safety is perceived to be high, including stairwells, elevators, car parks, lobby entrances and bicycle parking facilities.</p> <p>(v) The design of the use or works avoids— (A) 'blind' corners (including on stairs, in</p>		<ul style="list-style-type: none"> ▪ Fencing and landscaping will be designed to clearly separate communal areas from areas set aside as private open space. ▪ Clear and concise numbering will be used throughout the development. <p>Concealment Reduction</p> <ul style="list-style-type: none"> ▪ The development is unlikely to result in the creation of specific concealment points. ▪ Security lighting will be provided throughout the development in accordance with Council's requirements. <p>Streetscape Design</p> <ul style="list-style-type: none"> ▪ The internal streetscape will be designed to ensure safety of users through provision of opportunities for passive surveillance as well as free movement throughout the site by pedestrians. ▪ All surfaces will be designed to be free of trip hazards and obstructions. <p>Building Design for Public Safety</p> <ul style="list-style-type: none"> ▪ It is argued that the design of the development and extensive opportunities for passive surveillance will minimize opportunities and incentives to commit crime. As indicated above the design provides adequate opportunities for passive surveillance. ▪ The design is such that building entrances are clearly defined. Landscaping design will also assist in this regard.

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<p>corridors or other situations where movement can be predicted);</p> <p>(B) sudden changes of grade on pathways which reduce sightlines;</p> <p>(C) concealment points (unless they can be secured after hours); and</p> <p>(D) pedestrian tunnels, excepting that where unimpeded sightlines or the absence of concealment points cannot be reasonably achieved, hardware (such as security mirrors) and good lighting is provided to restore visibility.</p> <p>(vi) All barriers (including landscaping features) along principal bicycle and pedestrian routes are visually permeable (i.e. can be easily seen through) to reduce concealment points.</p> <p>(vii) Windows, verandahs, balconies and activities in buildings are directed to overlook pedestrian routes, open space areas and carparks.</p> <p>(c) Clear Definition of Ownership/Boundaries</p> <p>(i) Uses and works are designed and constructed to clearly define ownership, boundaries and legitimate use of private, semi-private and public/comunal space (see Figure 12.6.2).</p> <p>(ii) Landscaping, building features, changes of level and low to medium height fencing are used to delineate ownership boundaries.</p> <p>(iii) Street names and building identification (e.g. numbers) are clearly displayed using reflective materials, with numbers clearly located on the kerb, and building frontage.</p> <p>(d) Concealment Reduction</p>		

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<p>(i) Potential concealment points adjacent to main pedestrian routes are eliminated.</p> <p>(ii) Where a concealment point is unavoidable, aids to visibility such as convex mirrors and good lighting are provided.</p> <p>(iii) The design of the development avoids the creation of concealment points such as—</p> <p>(A) dark areas adjacent to a main/designated pedestrian route;</p> <p>(B) dead-end alleyways; and</p> <p>(C) areas that are isolated after dark.</p> <p>(iv) Security lighting is provided along principal movement routes, in building entrances, site entries, car parking areas and other movement areas used after dark.</p> <p>(v) Access to loading docks, storage areas and other restricted areas is controlled by—</p> <p>(A) solid, secure materials; and</p> <p>(B) locking the facilities after hours.</p> <p>(e) Streetscape Design</p> <p>(i) Streetscape design—</p> <p>(A) creates safe public places;</p> <p>(B) encourages pedestrian flow; and</p> <p>(C) designates safe resting places.</p> <p>(ii) Paving materials, surfaces and spaces are free of trip hazards and obstructions for the safe movement of the elderly and people with mobility difficulties.</p> <p>(iii) Where appropriate, street furniture is provided which—</p> <p>(A) does not obscure the views of users, obstruct sightlines along the street, or provide opportunities for concealment; and</p> <p>(B) provides shade and encourages use and informal surveillance.</p> <p>(f) Building Design for Public Safety</p>		

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<p>(i) Building design removes, as much as is possible, the opportunity and incentive to commit crime and improves personal perception and the physical reality of a useable, comfortable and safe environment.</p> <p>(ii) Buildings are designed and constructed, including through the location of windows, verandahs and balconies and the location of habitable rooms to support informal surveillance of the street reserve, nearby open space and other vulnerable areas.</p> <p>(iii) Building entrances are designed so that they—</p> <p>(A) are clearly defined;</p> <p>(B) well lit and face the street; (C) do not create concealment points; and</p> <p>(D) provide clear sightlines from the building foyer so that occupants can see outside before leaving the building.</p> <p>(iv) Ramps and elevator entrances are provided in areas which are not isolated.</p> <p>(v) Windows at street level, are secured.</p> <p>(vi) Buildings are designed to minimise access between roof, balconies and windows of adjoining dwellings.</p>	<p>Probable Solutions – for sub-section (33)</p> <p>(a) Where the development involves 12 or more dwellings direct vehicular access is obtained from a public road with a sealed carriageway of not less than 7.5 metres in width.</p> <p>(b) The minimum pavement widths for those sections of internal driveways which do not provide direct access to parking spaces (i.e. including driveway entries and cross overs from a street reserve) are—</p> <p>(i) 3 metres for up to 12 dwellings; and</p> <p>(ii) 5.6 metres for more than 12 dwellings.</p>	<p>The following points address the proposals compliance with the probable solutions sought:</p> <ul style="list-style-type: none"> ▪ The frontage roads are of a suitable standard for the proposed development. ▪ The internal road width proposed is 6.5 metres. ▪ It is anticipated that conditions of approval will reflect Council's requirements for construction of the internal roadways including preferred construction materials. ▪ Visitor car parking has been scattered throughout the development including a single visitor space on the driveway of each unit.
<p>Carparking and Vehicular Access Specific Outcomes</p> <p>(a) The site has vehicle access from a street or road with adequate capacity for the traffic volumes expected to be generated.</p> <p>(b) Garages, carports and other parking structures are sited and designed so as not to dominate the street frontage.</p> <p>(c) Garages, carports and other parking structures are compatible with the design of the main building(s) on site, particularly in terms of materials, detailing, colours and roof form.</p>		

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<p>(d) Open car parking areas (including visitor parking) are not located between the building and the street alignment, unless softened with landscaping or some other appropriate form of low screening.</p> <p>(e) Access points and driveways avoid existing street trees, as well as mature or significant vegetation on site.</p> <p>(f) The visual impact of driveways and open parking areas is reduced through the appropriate use of tints, textures, gravel or pavers.</p> <p>(g) Large expanses of bitumen and concrete are avoided.</p> <p>(h) The prominence of driveway and carpark access into sites is minimized through limiting the width and number of driveways.</p> <p>(i) Shared driveways are utilised, where possible, to reduce the visual impact on the streetscape of large expanses of driveway crossovers.</p> <p>(j) The paving apron and turning area is kept to the minimum area necessary.</p> <p>Service Facilities</p> <p>Specific Outcomes</p> <p>Provision is made for refuse collection and storage areas, laundry and clothes drying facilities, mail boxes and external storage facilities, which are—</p> <p>(a) of useable size;</p> <p>(b) suitably located for convenient use; and</p> <p>(c) designed to be visually attractive or screened.</p>	<p>(c) Internal driveways, and in particular open car parking spaces, are of a non-bituminous appearance to enhance the visual amenity on the site and to differentiate between internal driveways and public roads.</p> <p>(d) The minimum boundary setback for any carport or garage is—</p> <p>(i) six (6) metres from any road boundary; and</p> <p>(ii) 1.5 metres from any other site boundary.</p> <p>(e) The minimum setback for any open car parking space is—</p> <p>(i) three (3) metres from any road boundary;</p> <p>(ii) 1.5 metres from any other site boundary; and</p> <p>(iii) 1.5 metres from any residential building on site.</p> <p>(f) Visitor car parking is provided—</p> <p>(i) in discrete areas with small clusters of no more than five (5) spaces;</p> <p>(ii) at regular intervals in the internal driveway system; and</p> <p>(iii) within easy walking distance (i.e. 50 metres) of each dwelling.</p> <p>Probable Solutions – for sub-section (35)</p> <p>(a) A mail box structure—</p> <p>(i) is provided adjacent to the street frontage alignment of the main pedestrian access to the site; and</p> <p>(ii) includes, where the development involves more than one dwelling, one lockable mail box per dwelling, plus one additional mail box for use by a body corporate or management entity.</p> <p>(b) Each dwelling is provided with its own laundry and clothes drying facilities, or alternatively communal facilities are provided within 50 metres of each dwelling.</p> <p>(c) Each dwelling is provided with a secure</p>	<p>Compliance with the probable solution sought is achieved as follows:</p> <ul style="list-style-type: none"> ▪ A communal mail box structure is proposed adjacent to the entrance to the development. ▪ Clothes drying areas are available for each unit with the private open space areas. ▪ Storage areas have been included within the garages of each unit. ▪ Each unit will be provided with a wheeled bin for disposal of waste which will be collected in the usual manner.

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<p>Fire Fighting Specific Outcomes Residential uses are designed with adequate water supply and access for fire fighting purposes.</p>	<p>storage area, of at least three cubic metres, which is capable of being accessed from the exterior of the dwelling. (d) The external storage area may form part of a garage or carport, but not a laundry. Probable Solution for Sub-Section (37) (a) All dwellings are located within the fire appliance access distances shown in Diagram A below; or (b) (i) The water supply service to the development is sized for the provision of fire fighting flows via hydrants and a metered bypass across a check valve in accordance with AS2419.1, such that new fire hydrants are installed to enable all dwellings to achieve the fire appliance access distances shown in Diagram A below; and (ii) vehicular access, through the site is via— (A) a minimum 3 metre wide concrete driveway; (B) with a minimum 3 metres in horizontal clearance and 4.5 metres in vertical clearance; and (C) with a sufficient hard stand turnaround area or through route configuration to enable fire fighting vehicles to enter and leave the site in a forward gear.</p>	<p>It is anticipated that Council's requirements for fire fighting infrastructure will be reflected through conditions of approval. It is noted however that the layout of the site provides suitable manoeuvring areas for service vehicles including fire fighting vehicles.</p>

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<p>12.9.3 Overall Outcomes for the Parking Code</p> <p>The overall outcomes sought for the Parking Code are the following—</p> <p>Off-street parking areas and loading and unloading facilities are designed, constructed and maintained to—</p> <ul style="list-style-type: none"> (a) provide a safe environment for both pedestrians and vehicles; (b) reduce traffic congestion by ensuring adequate off street facilities are provided by developments which are likely to generate traffic; (c) ensure that high standards of practicability, personal safety and aesthetic value are incorporated into the construction of off street parking areas and loading and unloading facilities; (d) encourage integration with public transport facilities and non-motorised forms of transport and shared use of parking facilities in order to reduce the overall demand for parking facilities for private motor vehicles; (e) provide parking facilities for people with disabilities; (f) provide facilities for the parking of bicycles and motorcycles; and (g) protect the amenity of nearby users, particularly residents. 		<p>It is argued that the design of the development achieves compliance with the specific outcomes sought as follows:</p> <ul style="list-style-type: none"> (a) The separation of pedestrian pathways and vehicle access areas ensures safety for pedestrians while the provision of a suitable internal road layout that allows all vehicles to enter and leave in forward gear and provides adequate areas for manoeuvring ensures safety for vehicles. (b) The proposed development exceeds the parking requirements of the Planning Scheme and the design of the access points ensures that traffic impacts will not be generated. (c) The nature of the development and layout of the various parking areas is such that access to and use of the parking areas is practical, personal safety will be protected and visual impacts will not be generated. (d) Suitable access to public transport is available in the locality while the sites proximity to the centre of Ipswich provides opportunities to minimize the use of private motor vehicles. (e) It is anticipated that conditions of approval will reflect the specific requirements in terms of providing parking facilities for people with disabilities; (f) The nature of the use is such that provision of specific motor vehicle or bicycle parking facilities is unnecessary (i.e. residents could keep such vehicles in their designated parking areas). (g) The proposed parking areas will not impact on the amenity of nearby residents given the separation of the parking areas from the property boundaries.
<p>12.9.4 Parking Design and Construction Standards</p> <p>Site Considerations</p> <p>Specific Outcomes</p> <ul style="list-style-type: none"> (a) Car parking is provided within the site of the development. (b) Long term or all day carparking areas are generally located to the rear or side of the property so as to be unobtrusive. (c) Entrances to carparks are readily identifiable and convenient. 		<p>The residential nature of the development is such that many of the issues raised within the specific outcome are not applicable to the project. However, as adequate facilities are provided within the site itself, visitor car parking areas are clearly identifiable and suitable road access is available, it is argued that compliance with the specific outcome sought is achieved.</p>

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<p>(d) Car park site selection takes into account—</p> <ul style="list-style-type: none"> (i) the type of road frontage; (ii) the safety and convenience of ingress and egress points; (iii) provision of and scope for suitable drainage; (iv) the effects of the carparking area on adjacent or nearby uses; (v) minimisation of pedestrian/vehicular conflicts; (vi) walking distances from the carpark to the destination; (vii) the potential for site landscaping; (viii) issues relating to public safety and security; and (ix) co-location and multi-use opportunities for shared parking arrangements. <p>General Layout of Parking Areas</p> <p>Specific Outcomes</p> <ul style="list-style-type: none"> (a) The design provides uncongested traffic flow within the parking area, thereby reducing the potential for vehicle queuing off-site and conflict between vehicles (drivers) trying for the same parking space. (b) The design minimises unnecessary areas for parking and manoeuvring, without compromising the safety and convenience of the carpark layout. <p>Design of Parking Modules, Circulation Roadways and Ramps</p> <p>Specific Outcomes</p> <p>Parking modules and associated circulation roadways and ramps are designed to—</p> <ul style="list-style-type: none"> (a) move traffic to and from the road frontage with minimum disruption to through traffic and maximum pedestrian safety; (b) provide adequate capacity in circulation 		<p>It is argued that the proposal meets the specific outcome sought as follows:</p> <ul style="list-style-type: none"> ▪ The design and layout of the site ensures that traffic flow throughout the site will be maintained; ▪ Queuing onto public roads will not occur; ▪ Conflict for parking spaces is unlikely to occur given that the proposal exceeds the Planning Scheme parking requirements; and ▪ No unnecessary parking or manoeuvring areas are proposed.
	<p>(4) Probable Solutions – for sub-section (3)</p> <p>Parking modules, circulation roadways and ramps are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>The design of the development achieves compliance with the relevant Australian Standards and it is anticipated that conditions of approval will reflect the requirement for the development to be constructed in accordance with these provisions.</p>

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<p>roadways and aisles to handle peak hour movements by minimising congestion;</p> <p>(c) arrange internal roadways to avoid as far as practicable conflicts between intersecting streams of circulating traffic;</p> <p>(d) provide minimum length travel paths between entry/exit points and parking spaces; and</p> <p>(e) safely treat points of conflict with pedestrians and other users.</p> <p>Access Driveways and Queuing Areas</p> <p>Specific Outcomes</p> <p>(a) Access driveways are located to minimise conflict and designed to operate efficiently and safely taking into account—</p> <p>(i) the size of the parking area;</p> <p>(ii) the amount and type of vehicle traffic using the parking area;</p> <p>(iii) the type of use (e.g. long-term, short-term, regular, casual); (iv) the capacity of the adjoining street system;</p> <p>(v) road frontage characteristics (i.e. type of road, vertical and horizontal geometry, traffic volume and speed control);</p> <p>(vi) the spacing and type of entrances and exits proposed relative to each other and other intersections;</p> <p>(vii) the location of existing or proposed medians and other traffic control devices;</p> <p>(viii) sight distances;</p> <p>(ix) pedestrian and vehicle safety aspects;</p> <p>(x) the potential for queuing vehicles; and</p> <p>(xi) any relevant provision for public transport.</p> <p>(b) Access driveways catering for a high volume and turnover of vehicles are located—</p> <p>(i) off side roads rather than directly from the frontage of a Designated Road;</p> <p>(ii) where possible, away from other uses and</p>	<p>Probable Solutions – for sub-section (5)</p> <p>Access driveways and queuing areas are located and designed in accordance with the provisions of Australian Standard AS 2890.1 Part 1: Off Street Carparking.</p>	<p>The design of the internal roads complies with the relevant Australian Standards and it is anticipated that conditions of approval will reflect the requirement for the development to be constructed in accordance with these provisions.</p>

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<p>works generating a large amount of traffic;</p> <p>(iii) away from areas where there is a heavy and constant pedestrian movement along the footpath;</p> <p>(iv) away from areas where right turning traffic entering the site would obstruct through traffic; and</p> <p>(v) away from areas where traffic using the driveways will interfere or block the operations of bus stops, taxi ranks, loading zones or pedestrian crossings.</p> <p>(c) The widths of access driveways are designed and constructed taking into account the—</p> <p>(i) type of road frontage;</p> <p>(ii) traffic generating potential of the proposed development and the number of parking spaces required; and</p> <p>(iii) the potential for the queuing of vehicles on the entry road.</p> <p>Public Safety Specific Outcomes The design, location and management of carparks promote public safety by—</p> <p>(a) being designed to optimise informal surveillance and to control inappropriate access;</p> <p>(b) being sufficiently well lit, with vandal proof lighting, to enable visibility of all external edges and routes providing access to the carpark;</p> <p>(c) avoiding the creation of concealment areas; and</p> <p>(d) being designed to avoid large (over 100 cars in a single block), continuous, carparking areas, and where this cannot be avoided, effective surveillance is provided.</p>	<p>Probable Solutions – for sub-section (7)</p> <p>(a) Informal surveillance is provided from adjoining uses by the placement or location of windows or retail premises, kiosks or other uses that generate activity on the edges of the parking area overlooking the carpark.</p> <p>(b) For large carparks (i.e. in excess of 100 spaces)—</p> <p>(i) a single entry/exit point is provided within clear view of an attendant, or where provision of an attendant is not practical, more than one entry/exit point is provided so that the carpark does not become an entrapment area;</p> <p>(ii) an attendant trained for emergencies is provided;</p> <p>(iii) signage is provided, which—</p> <p>(A) identifies the location of parking modules, to enable users to easily relocate their</p>	<p>N/A given the residential nature of the use and the 'scattering' of car parking spaces throughout the site.</p>

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<p>Separation of Pedestrian and Vehicular Circulation Specific Outcomes (a) Pedestrian routes are separated from vehicular circulation to allow protected access for pedestrians via the shortest practical route from the parking area to the use. (b) Pedestrian access does not pass through commercial or refuse vehicle reversing or loading areas. (c) Protection measures for pedestrians are located in areas of high pedestrian/vehicular conflict or high speed and may include— (i) physical barriers (e.g. bollards); (ii) pedestrian crossings; (iii) lighting; (iv) raised walkways between parking modules; (v) speed humps; and (vi) mounding, landscaping or fencing.</p>	<p>vehicles; (B) identifies directions to exits, nearby destinations and emergency facilities (such as fire extinguishers, telephones or emergency buttons); (C) advises users to lock their vehicles and secure valuables; and (D) informs users of the security measures provided; (iv) organised surveillance is provided through regular patrols or mechanical means; and (v) emergency telephones or contact buttons are provided in highly accessible, convenient and identifiable locations.</p>	<p>Compliance with the specific outcome sought is achieved as the design of the development provides for the separation of vehicle and pedestrian traffic.</p>
<p>Parking Spaces for People with Disabilities Specific Outcome Vehicle parking spaces for people with</p>	<p>Probable Solutions – for sub-section (10) (a) Parking spaces for people with disabilities are provided at the rates specified in Appendix C of Australian Standard AS2890.1 Part 1: Off</p>	<p>it is anticipated that conditions of approval will reflect the specific requirements in terms of providing parking facilities for people with disabilities.</p>

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<p>disabilities are well located and are provided in sufficient quantities and have adequate areas and dimensions to meet user needs.</p>	<p>Street Carparking. (b) Car parking spaces for people with disabilities are located as near as possible to the entrance or entrances to the facility or use they serve. (c) Parking spaces for people with disabilities are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking. (d) Pathways and ramps between parking areas and the entrances to buildings are designed in accordance with the provisions of Australian Standard AS1428.1: Design for Access and Mobility. (e) Parking spaces for people with disabilities are identified by a sign incorporating the International Symbol specified in Australian Standard AS1428.1: Design for Access and Mobility. (f) The sign is readily visible from a vehicle at the entrance to the carpark, or guide signs are provided to indicate the direction of the disabled parking spaces.</p>	
<p>Parking Spaces for Motorcycles Specific Outcome Motorcycle parking spaces have adequate areas and dimensions to meet user needs.</p>	<p>Probable Solution – for sub-section (13) Parking spaces for motorcycles are designed in accordance with the provisions of Section 2.4.7 of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>The residential nature of the use is such that provision of motorcycle parking spaces is unnecessary.</p>
<p>Bicycle Parking Specific Outcomes (a) Specific areas for bicycle parking are set aside within uses likely to attract a high proportion of local use or youth patronage, including— (i) shopping centres; (ii) major factory or office complexes; (iii) educational establishments; (iv) sports, leisure and entertainment centres;</p>	<p>Probable Solutions – for sub-section (14) (a) Bicycle parking facilities are designed in accordance with the provisions of Australian Standard AS2890.3 Part 3: Bicycle Parking Facilities. (b) Bicycle parking is provided for the uses listed in sub-section (14)(a) above at the rate of one space per— (i) 750m² of office floor space; and (ii) 500m² of non-office floor space.</p>	<p>The residential nature of the use is such that provision of motorcycle parking spaces is unnecessary.</p>

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North Street, North Ipswich.
Our Ref. 874206.

Specific Outcomes	Probable Solutions	Development Response
<p>(v) libraries and other public buildings;</p> <p>(vi) transit centres;</p> <p>(vii) parks and recreation areas;</p> <p>(viii) tourist facilities; and</p> <p>(ix) medical centres and hospitals.</p> <p>(b) Shoppers, customers, messengers and visitors are encouraged to use bicycles by providing short term bicycle parking facilities which—</p> <p>(i) are conveniently located and readily accessible to intended destinations;</p> <p>(ii) are located to facilitate casual surveillance in order to minimise incidents of theft or damage; and</p> <p>(iii) enable bicycles to be securely locked without undue inconvenience.</p> <p>(c) Students, employees, residents and commuters, who are likely to stay at a site for several hours are encouraged to use bicycles by providing long term bicycle parking facilities which—</p> <p>(i) are secure and weather protected;</p> <p>(ii) are conveniently located in relation to intended destinations; and</p> <p>(iii) include shower facilities where provided for use by employees.</p> <p>(d) Bicycle parking facilities are designed—</p> <p>(i) to ensure that motor vehicles cannot encroach into bicycle parking areas;</p> <p>(ii) so that they do not adversely affect pedestrian movements;</p> <p>(iii) to provide adequate directional signage;</p> <p>(iv) to provide lighting where the bicycle parking facilities are used at night; and</p> <p>(v) to facilitate access to both destinations and bicycle paths.</p> <p>Commercial Vehicle Facilities and Service Areas</p>	<p>(c) Long term bicycle parking space (e.g. for the use by employees) are provided with the following 'end of trip' facilities—</p> <p>(i) 1 locker per 2 bicycle parking spaces; and</p> <p>(ii) 1 shower cubicle with an ancillary change room per 10 bicycle parking spaces.</p> <p>(d) Short term bicycle parking areas are provided within 15 metres of the main entry to the building they are intended to serve.</p> <p>(e) At least 50% of long term bicycle parking areas are covered by a roof.</p>	<p>The internal road layout is suitable for manoeuvring of service vehicles however the nature of the use is such that specific service bays are not required.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>Specific Outcomes</p> <p>(a) All areas for the manoeuvring and standing of commercial vehicles in association with loading and unloading are located wholly within the site and are separate from and do not encroach upon any part of the site set aside for other purposes.</p> <p>(b) All commercial vehicle manoeuvring areas and ingress and egress points are designed, wherever possible so that it is not necessary to drive between the property boundary and the carriageway of the frontage road in a reverse gear.</p>	<p>commercial vehicles are designed in accordance with the provisions of Australian Standard AS2890.2 Part 2: Commercial Vehicle Facilities.</p> <p>(b) Access driveways to service areas and service bays are designed in accordance with the provisions of Australian Standard AS2890.2 Part 2: Commercial Vehicle Facilities.</p>	
<p>Parking Structures (including enclosed garages and multi-level carparks)</p> <p>Specific Outcomes</p> <p>(a) Parking structures (including enclosed garages) are designed to provide adequate clearance from walls, columns, roofs and other obstructions, in order to facilitate ease of use.</p> <p>(b) Parking structures are designed—</p> <p>(i) as an integral part of a building; or</p> <p>(ii) where free standing—</p> <p>(A) are located as close as possible to the use(s) they are intended to serve; and</p> <p>(B) are designed in a sympathetic and compatible manner with other nearby buildings.</p> <p>(c) Multi-level parking structures—</p> <p>(i) are designed to minimize visual impact on the streetscape and nearby uses;</p> <p>(ii) contribute to a lively pedestrian environment by including retail or other active uses on the ground floor, street frontage perimeter of the structure; and</p> <p>(iii) promote personal and public safety by—</p> <p>(A) having an attendant trained for</p>	<p>Probable Solution – for sub-section (18)</p> <p>Parking structures are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>The individual garages proposed comply with the relevant Australian Standards. It is noted that no other car parking structures are proposed.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>emergencies on duty after hours;</p> <p>(B) having emergency telephones placed throughout, with accompanying illuminated international telephone signs;</p> <p>(C) having vandal proof and consistent lighting which enables visibility of all external edges and access routes throughout the carpark;</p> <p>(D) having white exit corridors, stairwells, walls and ceilings that reflect light;</p> <p>(E) having secured potential concealment spots;</p> <p>(F) providing organized surveillance through regular patrols;</p> <p>(G) providing mechanical surveillance and emergency telephones or buttons on each level, with illuminated international signs;</p> <p>(H) providing signage advising directions to stairs, lifts and exits, offices/buildings served, fire extinguishers and emergency buttons;</p> <p>(I) providing parking module identification signs to enable users to easily relocate their vehicles; and</p> <p>(J) providing signs advising users to lock their vehicles, to secure valuables and informing users of the security measures installed.</p>		
<p>Tandem and Stacked Parking Specific Outcomes A limited number of tandem parking spaces may be provided subject to evidence— (a) that there is a real need for tandem parking or stacked parking and that the provision of tandem parking or stacked parking will not adversely affect the use of the site; and (b) tandem parking or stacked parking is primarily used to provide parking for people employed on the premises and likely to park</p>		<p>N/A as tandem parking spaces are not proposed.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>all day or a major part of the day, or where a parking attendant is available during operational periods to assist with the parking and retrieval of vehicles; and</p> <p>(c) that provision is available on site for shifting cars without the movement of vehicles onto public streets.</p>		
<p>Parcel Pick-up Areas Parcel pick-up areas are designed and located—</p> <p>(a) so as not to interrupt the flow of vehicles in circulation roadways; and</p> <p>(b) to enable pedestrians to move freely around vehicles in the parcel pick-up area without being endangered by traffic.</p>		<p>N/A - no pick up areas are proposed given the residential nature of the use.</p>
<p>Trolley Bays Specific Outcome Trolley bays are provided within shopping centre carparks to enable the orderly storage of shopping trolleys.</p>	<p>Probable Solution – for sub-section (22) Trolley bays are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>N/A – no trolley bays are proposed given the residential nature of the use.</p>
<p>Speed Humps Specific Outcomes Speed humps, where necessary, are—</p> <p>(a) clearly visible to both drivers and pedestrians; and</p> <p>(b) designed and constructed to—</p> <p>(i) reduce vehicle speeds; and</p> <p>(ii) avoid damage to vehicles.</p>	<p>Probable Solutions – for sub-section (24) Speed humps are designed in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking.</p>	<p>N/A – no speed humps are proposed.</p>
<p>Signage Specific Outcomes (a) Off street parking areas are designed to control traffic and parking movements rather than simply relying on signage directions. (b) The design of the parking area and its circulation pattern makes it difficult to breach traffic and parking rules. (c) Vehicular speed is limited by the design of</p>	<p>Probable Solutions – for sub-section (26) (a) Signage is designed in accordance with the provisions of Australian Standards— (i) AS2890.1 Part 1: Off Street Carparking; and (ii) AS1742: Code of Uniform Traffic Control Devices. (b) All traffic signage and traffic control measure details are shown on the carparking layout plan.</p>	<p>N/A – no formal signage of parking areas is considered necessary given the residential nature of the development.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>the parking area.</p> <p>(d) Signage within parking areas is provided to—</p> <p>(i) warn against hazards to safety or potential damage to vehicles;</p> <p>(ii) identify sections or rows of parking spaces so that users may easily relocate their vehicles;</p> <p>(iii) direct and inform drivers entering and circulating within carparks about vehicular entry points, exits and location of parking spaces for people with disabilities;</p> <p>(iv) direct pedestrians to lifts, stairs, amenities, exits and major destinations; and</p> <p>(v) inform users about security measures and where to go for assistance.</p> <p>(e) Adequate, legible signage is provided to assist pedestrians, particularly older people and people with disabilities, to find their way safely around carparks.</p> <p>(f) Clear and regular signage is provided to main pedestrian routes.</p> <p>(g) Signs are located so that they are not likely to be obscured by growing vegetation.</p> <p>(h) Signs are located at entrances and near activity nodes.</p> <p>(i) Clear, recognisable signage is provided at bus stops, taxi ranks and public facilities.</p> <p>(j) Signs intended for night use are illuminated.</p>	<p>Probable Solution – for sub-section (28)</p> <p>Parking areas are permanently lined in accordance with the provisions of Australian Standard AS2890.1 Part 1: Off Street Carparking, so as to clearly delineate individual parking spaces.</p>	<p>All visitor parking areas will be line marked. It is anticipated that Council's requirements in this regard will be reflected through conditions of approval.</p>
<p>Marking of Spaces</p> <p>Specific Outcomes</p> <p>(a) Parking areas are marked so as to clearly delineate individual parking spaces.</p> <p>(b) Visitor, disabled, motorcycle and bicycle parking spaces are clearly marked, and their location clearly sign posted.</p>	<p>Probable Solutions – for sub-section (30)</p>	<p>Suitable lighting will be provided throughout the development including within parking</p>
<p>Carpark Lighting</p>		

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Specific Outcomes	Probable Solutions	Development Response
<p>Specific Outcomes</p> <p>(a) Lighting is used to increase safety and security in and around carparks.</p> <p>(b) Outdoor public spaces used or accessed after dark are appropriately and consistently lit to reduce the contrast between shadows and illuminated areas.</p> <p>(c) Lighting design is integrated with building, landscaping, signage, streetscape and public space design.</p> <p>(d) Light spillage onto adjoining land and roadways is avoided.</p> <p>(e) Energy use is minimised.</p> <p>(f) Lighting is appropriately placed to avoid shadows and glare which might put pedestrians or other vehicles at risk (i.e. shielded light at eye level).</p> <p>(g) Lighting is designed to avoid configurations of lights in areas within 6km of the RAAF Base Amberley runway that replicate the appearance of airport runways at night.</p>	<p>(a) Lighting within parking structures complies with the requirements of Australian Standard AS 1680: Interior Lighting.</p> <p>(b) Illumination levels outside the boundaries of the site do not exceed 8 lux (lumens) when measured 1.5 metres outside the boundary of the site at any level upwards from the ground.</p> <p>(c) Security lighting is consistent with Australian Standard AS 4282 (1997) The Control of Obtrusive Effects of Outdoor Lighting.</p> <p>(d) Night lighting is controlled by photoelectric cells rather than time switches.</p> <p>(e) Areas not intended for night-time use are not lit or are closed off to avoid giving a false impression of safety.</p> <p>(f) Principal pedestrian and bicycle movement routes, public spaces and outdoor signage in public spaces are lit in accordance with Australian Standard AS1158 (Public Lighting Code) so that these areas become the focus of legitimate pedestrian activity after dark.</p> <p>(g) Areas which are heavily used by pedestrians, including main entries to buildings and toilets and main pedestrian routes are lit with the power of 50-100 lux (lumens).</p> <p>(h) Large carparks (e.g. greater than 100 car spaces) do not include configurations of lights in straight parallel lines 500m – 1000m long in areas within 6km of the RAAF Base Amberley runway.</p>	<p>areas. It is anticipated that conditions of approval will reflect Council's requirements in this regard.</p>
<p>Landscaping</p> <p>(32) Specific Outcomes</p> <p>(a) Landscaping including natural features, plantings, earthworks and fencing in parking areas is used to—</p> <p>(i) enhance the amenity of the site;</p> <p>(ii) reduce the harsh visual effect often</p>	<p>Probable Solutions – for sub-section (32)</p> <p>(a) A minimum of 1 space should be used for landscaping for every 8 standard car spaces.</p> <p>(b) Areas used for landscaping within parking areas may be reduced to 2m in width but are distributed as evenly as possible (see Figure 12.9.4).</p>	<p>Given the residential nature of the development the parking areas are small groups of spaces 'scattered' throughout the site.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>created by open concrete and asphalt areas;</p> <p>(iii) provide shade for vehicles, site buildings and pedestrians;</p> <p>(iv) separate and define pedestrian and vehicular circulation routes;</p> <p>(v) provide wind protection where necessary; and</p> <p>(vi) reduce noise and light spillover (e.g. headlights and overhead lighting).</p> <p>(b) Landscaping designs do not compromise public safety, the safety of traffic circulation and sight distances, in particular, the location and choice of vegetation species, or any other landscaping feature, does not—</p> <p>(i) create concealment areas;</p> <p>(ii) affect sight distances at any intersection;</p> <p>(iii) affect accessibility for vehicular or pedestrian traffic;</p> <p>(iv) affect visibility of carpark signage; or</p> <p>(v) diminish casual surveillance of the parking area.</p> <p>(c) Landscaping is used to break up the visual impact of large parking areas by distributing landscape areas throughout the parking area.</p> <p>(d) Landscaping also provides shade by the use of appropriately sized canopy trees which are robust and minimize nuisance from fruit and berries.</p> <p>(e) Landscaping is maintained by the property owner at the property owner's cost.</p> <p>(f) Landscaping is designed for minimum of maintenance.</p>	<p>(c) Landscaping areas are protected from vehicular traffic by a barrier kerb (minimum height 100mm) or wheel stops.</p> <p>(d) A minimum of 2 metres is set aside along the periphery of carparking areas to allow for landscaping to be established, with a minimum 3 metre width being provided along any street frontage.</p>	<p>It is anticipated that Council's minimum construction requirements for surfacing of the internal roads and parking areas will be reflected through conditions of approval.</p>
<p>Surface Treatment of Parking Areas</p> <p>Specific Outcomes</p> <p>The surface of areas upon which vehicles are parked or driven are treated in a manner which—</p> <p>(a) reflects the frequency and duration of use,</p>	<p>Probable Solutions – for sub-section (34)</p> <p>(a) Sealed parking areas are constructed to the following standards—</p> <p>(i) low parking turnover – flush or chip seal (i.e. minimum depth of 150mm of compacted pavement material with a two (2) coat bitumen</p>	<p>It is anticipated that Council's minimum construction requirements for surfacing of the internal roads and parking areas will be reflected through conditions of approval.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>including provision for the sealing or paving of most parking areas;</p> <p>(b) provides for appropriate all weather use;</p> <p>(c) avoids the creation of a dust nuisance for on-site or nearby users;</p> <p>(d) provides for adequate drainage; and</p> <p>(e) reflects the intended character of the surrounding area.</p>	<p>seal, except where soil tests indicate that a greater minimum depth of subbase required); and</p> <p>(ii) high parking turnover – asphaltic concrete.</p> <p>(b) Areas which should be protected from vehicular traffic (such as traffic islands, gardens, landscaping, aisle ends and pedestrian areas) are protected by being raised and bordered by a vertical-faced kerb or other suitable barrier (minimum height 100mm).</p>	
<p>Drainage</p> <p>Specific Outcomes</p> <p>(a) All stormwater drainage from paved and impervious areas is collected within the site and piped to a nominated legal point of discharge.</p> <p>(b) Particular attention is given to the flow path of stormwater resulting from a storm with a 1 in 100 year return interval.</p>	<p>Probable Solutions – for sub-section (36)</p> <p>(a) All stormwater drainage design is in accordance with the requirements of the Institute of Engineers, Australia, 1987: "Australian Rainfall and Runoff: A Guide to Flood Estimation", Volume 1, for a two year return period.</p> <p>(b) Where the internal driveway drains towards the street, a grated catch drain is installed immediately inside the property boundary.</p>	<p>A stormwater management plan has been prepared for the development by Yeats Consulting Engineers (copy attached).</p>
<p>Miscellaneous</p> <p>Specific Outcomes</p> <p>(a) Where appropriate, parking areas are laid out so that vehicular and pedestrian traffic may conveniently connect with and travel between adjoining uses or lots.</p> <p>(b) Unless approved for another use, all parking areas are—</p> <p>(i) kept exclusively for parking;</p> <p>(ii) used exclusively for parking;</p> <p>(iii) maintained for continued use for parking; and</p> <p>(iv) available for use by both staff and visitors/clients.</p> <p>(c) Unless otherwise approved by the local government, all parking areas are to be available for users on-site and are not to be</p>		<p>The development incorporates a network of pedestrian paths that will provide opportunities to link to other destinations.</p> <p>All parking areas will be kept for use as parking areas and will be available to residents and visitors alike.</p>

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Specific Outcomes	Probable Solutions	Development Response
<p>leased or sold to other persons.</p> <p>12.9.5 Parking Demand Standards</p> <p>Material Change of Use and Extensions or Additions to Existing Uses and Works</p> <p>(1) Specific Outcomes</p> <p>(a) Where an existing building occupied by an existing use is extended, or the area of land occupied by an existing use is increased, the requirements of this Code apply only to the extension of the existing building or to the use of the additional land.</p> <p>(b) The parking requirements for the extension or increased site area is to be calculated as follows— A + B, where— A is the parking demand of the extension or increased site area; and B is the number of parking spaces (if any) lost as a result of the extension or increased site area.</p> <p>(c) Where an existing building or land is occupied by a new use (not being an existing use) and the parking demand of the new use is greater than the parking demand for the existing use, the parking requirements for the new use is calculated as follows— C - D, where— C is the parking demand of the new use; and D is the parking demand of the existing use.</p> <p>'Standard' Parking Demand for Specific Uses</p> <p>(2) Specific Outcomes</p> <p>(a) Adequate provision is made for on-site parking commensurate with the needs of traffic generating uses and works.</p> <p>(b) All off-street carparking areas are constructed and available for use before the use commences.</p>	<p>Probable Solutions – for sub-section (2)</p> <p>(a) Parking spaces are provided in accordance with Table 12.9.1.</p> <p>(b) Where the number of parking spaces calculated using Table 12.9.1 is not a whole number, the number required is the next highest whole number.</p> <p>(c) Where the local government receives an application for the establishment of two (2) or more uses on the same site, the parking demand is calculated by totalling the</p>	<p>N/A as the proposal does not involve extensions to an existing use.</p>
<p>'Standard' Parking Demand for Specific Uses</p> <p>(2) Specific Outcomes</p> <p>(a) Adequate provision is made for on-site parking commensurate with the needs of traffic generating uses and works.</p> <p>(b) All off-street carparking areas are constructed and available for use before the use commences.</p>	<p>Probable Solutions – for sub-section (2)</p> <p>(a) Parking spaces are provided in accordance with Table 12.9.1.</p> <p>(b) Where the number of parking spaces calculated using Table 12.9.1 is not a whole number, the number required is the next highest whole number.</p> <p>(c) Where the local government receives an application for the establishment of two (2) or more uses on the same site, the parking demand is calculated by totalling the</p>	<p>The parking requirements are reflected in the extract from Table 12.9.1 below. The proposal generally complies with these requirements as follows:</p> <ul style="list-style-type: none"> ▪ 1 covered space per dwelling for exclusive use of residents is provided. ▪ Visitor parking within the development is provided by way of a visitor parking space on the driveway of each unit as well as visitor parking bays scattered through the internal road network with the number of spaces complying with the Planning Scheme criteria.

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Specific Outcomes	Probable Solutions requirements for each use.	Development Response
(g) townhouse.	<p>Extract From Table 12.9.1: Provision of Parking Spaces</p> <p>1 covered space per dwelling for exclusive resident use.</p> <p>0.5 spaces per dwelling for visitor parking.</p> <p>0.5 spaces per dwelling (to be located in the common area) for use by both residents or visitors, plus</p> <p>1 vehicle wash bay per 20 dwellings</p>	<p>Any development with a long driveway (e.g. in excess of 50 metres) is to provide for access (which may include a passing bay) by furniture removal vans, refuse collection and emergency vehicles.</p>

LIPOMA PTY LIMITED

(A.B.N. 26 260 662 834)



20 April 2010

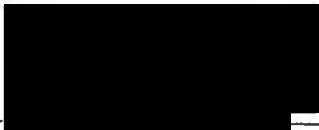
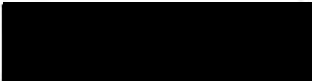

Michel Group Services

Dear 

Re: Riverlink Northern Sites – MCU Application for 18 Units and 1 into 3 lot subdivision

This letter confirms our acknowledgement that Michel Group has authority to lodge an application for a MCU which addresses 18 Units and 1 into 3 lot subdivision.

Should you have any questions concerning this matter, please contact 
on 



Executive Chairman & Company Secretary

GPO BOX 2522 SYDNEY NSW 2001

◆
Level 11, 5 Hunter Street, SYDNEY NSW 2000
TELEPHONE (02) 8226 4400 FACSIMILE (02) 8226 4411

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 7604304

Search Date: 28/09/2009 08:44

Title Reference: 50780672

Date Created: 26/08/2009

Previous Title: 50718421

REGISTERED OWNER

Dealing No: 712667818 18/08/2009

LIPOMA PTY LTD A.C.N. 002 203 581

TRUSTEE

UNDER INSTRUMENT 708510442

ESTATE AND LAND

Estate in Fee Simple

LOT 55

SURVEY PLAN 222487

County of STANLEY

Parish of CHUWAR

Local Government: IPSWICH

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 13509199 (POR 233)
2. EASEMENT No 708022944 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT B ON SP151433
3. EASEMENT No 708022959 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT D ON SP151433
4. EASEMENT No 708022965 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT E ON SP151433
5. EASEMENT No 708022973 02/09/2004 at 10:29
Benefiting
THE LAND OVER EASEMENT F ON SP151433
6. EASEMENT No 708022974 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT G ON SP151433
7. EASEMENT No 708022975 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT H ON SP151433
8. EASEMENT No 708022977 02/09/2004 at 10:30
Benefiting
THE LAND OVER EASEMENT J ON SP151433

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 7604304

Search Date: 28/09/2009 08:44

Title Reference: 50780672

Date Created: 26/08/2009

EASEMENTS, ENCUMBRANCES AND INTERESTS

9. EASEMENT No 708022998 02/09/2004 at 10:31
Benefiting
THE LAND OVER EASEMENT R ON SP151433
10. EASEMENT No 708023001 02/09/2004 at 10:32
Benefiting
THE LAND OVER EASEMENT S ON SP151433
11. EASEMENT IN GROSS No 710043236 25/10/2006 at 09:51
burdening the land
ENERGEX LIMITED A.C.N. 078 849 055
over
EASEMENT M ON SP196038

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
AS13931B	HERITGE SITE QUEENSLAND HERITAGE ACT 1992	09/09/1993 00:00	CURRENT
712098928	HERITGE SITE QUEENSLAND HERITAGE ACT 1992	10/12/2008 11:39	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested By: D APPLICATIONS GLOBAL X

based on the Property Information Index created with the permission of the State of Queensland (Department of Environment and Resource Management) 2009

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Proposal: Material Change of Use (Development Permit) for Multiple Residential (18 units)

**Site Address: 21A North Street, North
Ipswich.**

Legal Description: Lot 55 on SP222487.

Client Name: Leda Developments Pty Ltd.

Date: April 2010.

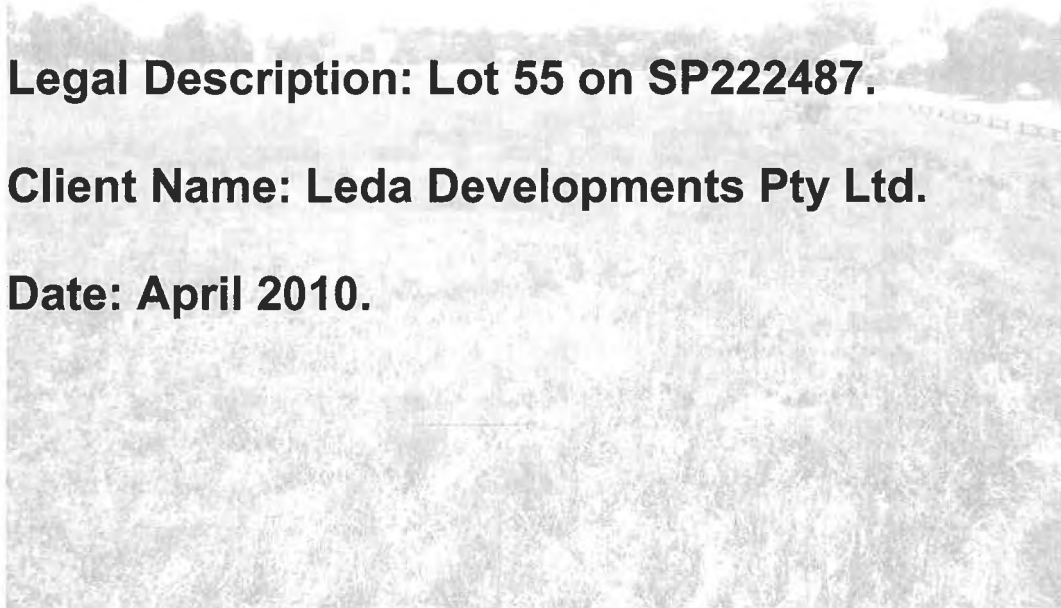


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Executive Summary

Site Details

Site Details	21A North Street, North Ipswich
Legal Description	Lot 55 on SP222487
Site Area	4.893 hectares
Zone	Special Opportunity Zone
Applicable Overlays	OV00 Character Places; OV5 Flooding and Urban Stormwater Flow Paths; OV7A Defence Regulations and Obstruction Clearances
Owners	Lipoma Pty Ltd ACN 002 203 581

Applicant Details

Applicant	Leda Developments Pty Ltd C/ Michel Group Services PO Box 2695 NERANG BC QLD 4211
Contact Person	Tim Riches Ph: (07) 5502 2500 Fax: (07) 5500 4890 Email: tim@michelservices.com.au
Our File Reference	874206

The Proposal

- The proposed development involves the construction of 18 units within two development areas. 12 units will be located within the primary development area adjacent to North Street while the remaining 6 units will be located adjacent to Colvin Street.
- Approval is also sought for a 1 into 3 lot subdivision which will facilitate dedication of the drainage reserve to Council.
- The drainage channel that traverses the site will be maintained in its natural state, albeit with minor improvements to facilitate ongoing maintenance.
- Earthworks will be undertaken to remove the contaminated material from the site and to provide a pad suitable for construction of the development.
- The design of the development has taken into account the character of the surrounding area and reflected certain elements such as roof form, construction materials and colours within the design of the proposed development.
- The development is capable of being serviced by the reticulated water and sewer networks as well as suitable electricity and telephone services.

1.0 Introduction

The development application is seeking Council approval for the construction of a unit development comprising 18 dwellings and also the subdivision of the site into 3 allotments. Specifically, the application is seeking approval for a Material Change of Use (Development Permit) for Multiple Residential (18 units) and Reconfiguring a Lot (1 into 3 lot subdivision).

The following Planning Report outlines details of the subject site and the surrounding pattern of development, the specific details of the proposed development and an assessment against the relevant Planning Regulations (the *Sustainable Planning Act 2009*, the South East Queensland Regional Plan, the State Planning Policies and the Ipswich Planning Scheme).

It is believed that the development is appropriate and justifiable and therefore Council's favourable consideration is requested.

2.0 Subject Site

2.1 Description and Characteristics

The subject site is located at 21A North Street, North Ipswich. The following points summarise the characteristics of the site:

- The legal description of the site is Lot 55 on SP222487 (note that a copy of the survey plan is included in Appendix 1 and the current title search is included with the owners consent in Appendix 11).
- The area of the site is 4.893 hectares.
- The site has frontage to North Street, Lawrence Street, Lennon Lane and Colvin Street. Physical access is available to the site from all of these roads, however access via North Street and Colvin Street is most suitable as it accesses areas of the site not subject to flooding.
- The site is currently vacant.
- The site contains two distinct sections in terms of topography, a drainage channel traverses the southern section of the site in an east to west direction, while the remainder of the site is a flat pad above the defined flood level adjacent to North Street.
- The site is predominately clear of vegetation however there are several established trees, all of which will be removed to facilitate construction of the development. It is important to note that the stand of pine trees at the western boundary of the site are located on the adjoining property and will not be impacted upon as part of the proposed development.
- The site is included within the Special Opportunity Zone for the purposes of the Planning Scheme.
- The site is included within the Urban Footprint for the purposes of the South East Queensland Regional Plan.

- The site is burdened by Easement M on SP196038, which is in favour of Energex for the purposes of underground electrical infrastructure (refer to the proposal plan for the location of the easement).
- The site is not identified as containing remnant vegetation.
- The site is not within 100 metres of any referable wetlands.

Photo 1: View to the southwest towards the drainage channel from the end of bitumen on North Street (refer to the red arrow for position of the drainage channel).



Photo 2: View to the north over the flat pad from the edge of the drainage channel (note that North Street is to the right of the photo).



Photo 3: View to the south over the drainage channel from the southern most point of the flat pad. The red arrow indicates the location and direction of flow for the drainage channel while the blue hatched area indicates the area adjacent to Colvin Street that is to be developed.

Photo 4: View towards Lawrence Street from the southern most point of the flat pad. The drainage channel is also evident in this photo.



2.2 Background

There are two previous approvals relevant to the proposed development as summarised in the table below:

Table 1: Previous Approvals.

Type of Approval	Relevant Information
Preliminary Approval	Specific details regarding the Preliminary Approval granted by Council such as approval date, Council reference numbers etc are not available however a copy of the Riverlink Preliminary Approval Plan and the Ministerial conditions has been provided.

	<p>As outlined within the Ministerial conditions, Preliminary Approval was granted to establish a planning framework to guide the future development of the site. This planning framework is the basis against which development applications are to be assessed and details the level of assessment for particular uses within the various precincts (i.e. the Preliminary Approval overrides Council's Planning Scheme).</p> <p>The subject site is included partly within the Mixed Use Urban Village Precinct and partly within the Mixed Use Urban Village Parkland Precinct for the purposes of the Preliminary Approval. The areas the subject of this application as primarily located within the Mixed Use Urban Village Parkland Precinct and as per table 3.2.6 from the Preliminary Approval, Attached Housing is identified as an impact assessable use.</p> <p>It is also noted that the drainage channel will be retained in its natural state, thus complying with the intended use of the Mixed Use Urban Village Parkland Precinct applicable to that section of the site. While part of the area dedicated as Parkland Precinct is to be developed, it is argued that the intent of the Preliminary Approval was to maintain the drainage channel while facilitating the development of those areas of the site above the defined flood level. The proposal achieves this intent.</p> <p>Section 3.2 of the Preliminary Approval document includes assessment criteria against which future applications are to be assessed (refer to section 4.3 of the below report for an assessment of the proposal against these criteria).</p>
Subdivision Approval	<p>Council Reference: 5026/08</p> <p>Approval Date: 13 February 2009</p> <p>The subdivision application was lodged following the preliminary approval being granted and sought to create 5 management lots for future development in accordance with the preliminary approval. The subject site (Lot 55) was created as part of this subdivision.</p> <p>Few conditions were attached to this approval and none were relevant to the proposed development.</p>

	<p>Council did however include two plans in the <i>Further Advice</i> section of this approval that were intended to guide the future development of the overall holding. Appendix A included a <i>Land Use Plan</i> to guide future development while Appendix B included an <i>Indicative Connectivity Plan</i> to guide future road and pedestrian infrastructure.</p> <p>The subject site was designated partly as a <i>Residential Medium Density Precinct</i> and partly as a <i>Drainage/Open Space Precinct</i> on the <i>Land Use</i> plan. Further points relevant to this site were that development was to be a maximum of 2 storeys along the North Street frontage and that a <i>Convenience Retail (General Store/Café)</i> use was indicated for the northern section of the subject site. The following points address the preferred land uses:</p> <ul style="list-style-type: none">▪ <i>Residential Medium Density Precinct</i> - The proposed development is seeking approval for medium density residential development in accordance with the preferred use expressed by Council through these plans.▪ <i>Drainage/Open Space Precinct</i> - The proposed development involves improvement works to drainage channel to facilitate ongoing maintenance. It is also noted that a small section of this area adjacent to Colvin Street will be developed with 6 units as an area suitable for development can be created above the defined flood level.▪ <i>Convenience Retail (General Store/Café)</i> – The Applicant has elected not to propose any commercial development on this site as there are similar facilities within walking distance of the site along Downs Street and any new facility in this locality would be more appropriate on the Railway Workshops and Museum site as opposed to the subject site. <p>In terms of intended connections reflected on the Appendix B plan, Council indicated a preference to have a public road along the western boundary of the subject site to provide a vehicle link to the land adjacent to the Bremer River and to provide a pedestrian link through to Colvin Street. Investigations during the early stages of preparing the development application revealed that a public road adjacent to the western boundary was not feasible as it severely impacted on the yield of the project and agreement was reached with Council to remove this road link. It is noted that the proposal incorporates suitable paths to provide a link to Colvin Street.</p>
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2.3 Surrounding Land Uses

The following points summarise the surrounding pattern of development:

- The access driveway and car parking area associated with the railway workshops and museum adjoins the northern boundary of the site while the rail line and shunting yard associated with the workshops adjoins the western boundary of the site.
- Residential properties are located to the east of the site on the opposite side of North Street with detached dwellings being the most common land use.
- Residential development is the predominant use to the south of the site however the Queensland Transport service centre also adjoins the sites southern boundary.

- Land earmarked for future development is located to the west of the railway facilities, which adjoins the Bremer River.
- The subject site is approximately 1 kilometre north of the Ipswich CBD and approximately 500 metres north of the Riverlink Shopping Centre.
- Several small-scale commercial uses are also located along Downs Street that are within walking distance of the subject site.
- Ipswich North State School is also located on Downs Street to the east of the site.
- A local park is located to the east of the site on the opposite side of North Street.

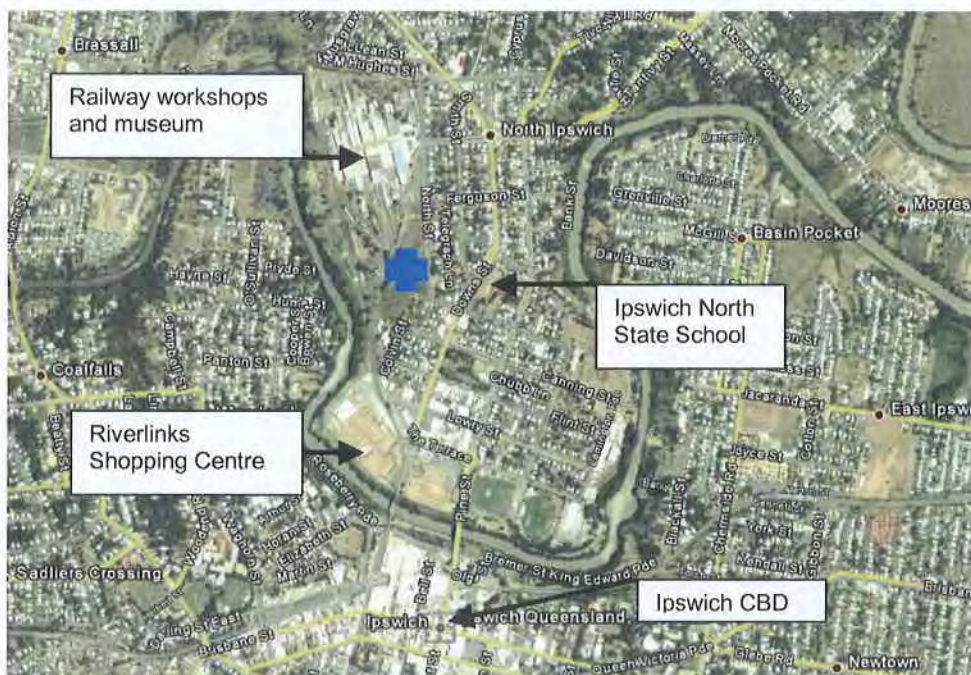


Figure 1: Aerial photo of locality (source Google Earth).



Photo 5: Established residential properties are located to the east of the site on the opposite side of North Street. These dwellings are typically constructed of timber cladding with corrugated iron roofs and utilise a variety of colours and roof pitches.

Photo 6: A mechanical workshop is located to the southeast of the site fronting Telegraph Street. This site is located on the opposite side of the drainage channel that traverses the site.



Photo 7: A Queensland Transport service centre adjoins the sites southern boundary and gains access via Colvin Street.



Photo 8: A railway line that links to the railway workshops and museum adjoins the sites western boundary as pictured. An existing corrugated iron fence separates the subject site from the workshops area and shunting yard.

Given the variety of potentially conflicting land uses located in close proximity to the site potential noise impacts on the proposed dwellings was an issue of concern. Therefore TTM Consulting were engaged to prepare an Environmental Noise Impact Report (refer to Appendix 2). This report outlines an assessment of the existing background noise as well as an assessment of noise generated by nearby land uses including the railway workshops, the railway museum, the mechanical workshop and the Queensland Transport service centre. The current background noise was used to calculate assessment requirements against which off-site activities could be assessed to ascertain potential impacts on the proposed development. Both daytime and evening and indoor and outdoor criteria were considered.

It is important to note here that the scale of future uses associated with the railway workshops and museum is unclear. Therefore the report considers three scenarios for future use, continuation of the current use, increased operations as a maintenance workshop and full operation of all facilities.

The report concludes that noise generated by nearby land uses can comply with the assessment requirements through use of the recommended acoustic barriers with the exception of shunting trains (scenario 3 only). The report notes that further acoustic treatments to the dwellings would result in compliance with the assessment requirements for these activities. Given the infrequency of these activities, it is argued that any potential impacts will not be significant.

The use of the adjoining railway line by steam locomotives for tourism purposes is also noted within the report. As only 10 trains per year use this line, it is argued that an assessment of the potential acoustic impacts is unnecessary due to the infrequent usage.

In summary, the report concludes that on the condition the recommendations presented in Section 7 of the report are implemented, the development is predicted to comply with the relevant Ipswich City Council and Queensland Transport assessment criteria.

3.0 Details of Proposal

As indicated above, the development application is seeking Council approval for the construction of a unit development comprising 18 dwellings and also a 3 lot subdivision. Specifically, the application is seeking approval for a Material Change of Use (Development Permit) for Multiple Residential (18 units) and Reconfiguring a Lot (1 into 3 lot subdivision).

3.1 Material Change of Use Component

As indicated on the proposal plans, these units form part of a wider development that is the subject of a separate application. Two separate applications have been used due to different assessment criteria from the Preliminary Approval applicable to the site.

In total, 18 units are proposed in the current application, 12 of which are to be sited within the main development area adjacent to North Street while the remaining 6 units will be sited within the development area adjacent to Colvin Street (refer to the proposal plans in Appendix 3). It is important to note that the development has been designed to provide diversity in terms of finished product while maintaining the affordability of dwellings for future owners. The proposal plans in Appendix 3 have been prepared by Bristow Architects and include details of the site layout, floor plans of the individual units, typical elevations, typical blocks of units as well as details of the proposed construction materials and colours.

The development will incorporate five separate floor plans/layouts as summarised below:

- **Unit B** – Type B units are to have a height of 2 storeys and will include a single garage, laundry, toilet, dining area, kitchen, living area and patio on the lower



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level and 3 bedrooms and 2 bathrooms on the upper level. These units will have an area of 140.1m² and 8 Type B units are proposed within the development. As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rB units).

- **Unit C** – The type C unit will be of single storey construction and will include 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. These units will have an area of 97.01m² and 1 of these units is proposed within the development.
- **Unit D** – 1 Type rD unit is proposed within the development and these units will be a single storey construction including 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. This unit will have an area of 102.72m².
- **Unit E** – 2 Type E units are proposed within the development. These units will be a single storey construction including 2 bedrooms, 2 bathrooms, a single garage with laundry facilities, a kitchen and a combined living/dining area. These units will have an area of 101.24m². As outlined within the proposal plans a mirror reverse of this unit is also proposed (Type rE units).
- **Unit F** – The Type F units are proposed for the development area adjacent to Colvin Street and will utilise a split-level type construction to address the slope of the site. These units have been design in a traditional ‘Queenslander’ fashion to complement nearby buildings and will utilise timber cladding with a corrugated iron roof. These units will include 2 bedrooms, a bathroom, combined living and dining area, balcony and a kitchen on the upper level while the laundry and garage will be located under the dwelling. 6 Type F units are proposed for the Colvin Street development area.

It is proposed to construct the units in groups/terraces of 6 units. These terraces typically include two storey units within the centre and single storey units on either end. This approach reduces the bulk of the unit blocks while also ensuring diversity of built form. Garages have been clustered in pairs to reduce the number of access points onto the internal roads and also to provide greater physical separation between the living areas of the units.

Balconies (first floor), patios (ground floor), offsetting units and extensive use of windows combine to ensure the terraces do not present any blank walls or lengthy walls on a single plane.

The units are to be constructed with a variety of materials including face brick, cladding/weatherboards, rendered and painted blue board and corrugated iron roofs. The diversity in materials reflects those typically found within the surrounding area. Specifically, face brick has been chosen to reflect the buildings within the railway workshops and museum while cladding is extensively used on nearby dwellings.

Sheet DA12 within the proposal plans includes a colour palette showing four options for building facades. These colours have also been selected based on those typically found within the local area. It is intended that the differing colour pallets will be used to differentiate between units (i.e. to clearly separate neighbouring units) and also to ensure diversity of the finished product.



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A 'saw tooth' roof form has been incorporated within the main development area to ensure consistency of the proposal with the railway workshops and museum. In summary, it is argued that the design of the development responds well to the locality, in particular the nearby railway workshops and museum.

3.1.1 Open Space

Private open space will be provided for each unit in the form of a 'back yard' that will act as outdoor living areas for residents. These 'back yards' will be separately fenced to clearly identify ownership and will be accessible from the primary living areas of the dwellings. It is also noted that the private recreation space for each unit exceeds 35m², has a minimum dimension of 3 metres, a slope less than 5% and will be screened by suitable fencing.

It should also be noted that the communal recreation area for the development is located within the main development area that is the subject of a separate development application.

The remaining area of open space is the drainage channel that traverses the site. As outlined within the Engineering Services Report, earthworks will be undertaken within this area to create suitable batters for ongoing maintenance. It is our view that this area is most appropriate as a drainage reserve under Council's ownership, and therefore approval is also sought to separate this area from the development areas to enable dedication to Council (refer section 3.2 below). It should also be noted that the construction of pedestrian paths through the drainage channel linking North Street to Colvin and Lawrence Streets is proposed (refer below for further details with regard to the proposed pedestrian network).

3.1.2 Access, Internal Roads and Parking

The following section addresses the provision of access to the site, the proposed internal road arrangements, pedestrian access throughout the development and the provision of vehicle parking.

Access to the 12 units within the main development area will be via new internal roads constructed for the development of the wider site. As indicated above, these 12 units are the final stage for this wider development that is the subject of a separate application.

With regard to Colvin Street it is proposed to construct a two way, 6.5m wide road with cul-de-sac head while the one-way link to Lennon Lane will be maintained (a plan reflecting these details is included within the Engineering Services Report in Appendix 6). A new internal road will provide direct access to the proposed units.

It is important to note that all of the proposed units will gain direct vehicle access to the internal road network with all roads of sufficient width to cater for two-way traffic. Specifically, internal roads will have a width of 6.5 metres with an inverted crown design with centre drainage points to eliminate the need for kerb and channel. As a community title arrangement is to be used, the ongoing maintenance of the internal road network will remain the responsibility of the body corporate.



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Each unit is provided with a covered parking space as well as a second space on their driveway. Visitor parking spaces are also provided in common property areas.

An assessment of the proposal against the Planning Scheme's Parking Code is included in Appendix 10.

3.1.3 Servicing

Yeats Consulting Engineers were engaged to undertake an assessment of existing services surrounding the site and make recommendations as to the works required to service the development (refer to the Engineering Services Report in Appendix 6). The following points summarise the recommendations presented within the Engineering Services Report:

- Water – the report details the existing mains located within both Colvin and Canning Streets. This part of the development is intended to be serviced by a new connection to the existing 150mm main located at the intersection of Colvin and Canning Streets.

It is noted that the internal water reticulation will be designed and documented by the hydraulic engineer with specific details to be submitted in a subsequent plumbing and drainage application prior to construction. As the proposed development will utilise a community title arrangement, the ongoing maintenance of the internal network will remain the responsibility of the body corporate. It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction of new connection points to service the development (i.e. the connections into the live water mains).

- Sewer – an existing 150mm Council main traverses the development site in an east to west direction. It is proposed to realign the sewer east around the proposed units and the boundary of the site and connect the new main back into the existing main within Colvin Street (the *Existing Services* Plan in Appendix B of the report details these works). A gravity connection into the main within Colvin Street will be required to service the units proposed within this area. Calculations within the Yeats Report demonstrate that the main is of a suitable size to service the proposed development.

It is noted that the internal sewer reticulation will be designed and documented by the hydraulic engineer with specific details to be submitted in a subsequent plumbing and drainage application prior to construction. As the proposed development will utilise a community title arrangement, the ongoing maintenance of the internal network will remain the responsibility of the body corporate. It is anticipated that conditions of approval will reflect Council's requirements with regard to the construction of new connection points to service the development (i.e. the connections into the live sewer mains).

- Electricity and Telephone – electricity and telephone services will be connected to the development at the time of construction in accordance with the requirements of the relevant service providers.
- Waste Disposal – disposal of household waste will be via individual Council collected wheelie bins for each unit and it is noted that a suitable screened bin storage area will be provided for each unit. The layout of the internal roads for the North Street development ensures that waste collection vehicles can



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manoeuvre through the site without difficulty. Wheelie bins for the units located at Colvin Street will need to be taken out to the road frontage for collection.

In summary it is argued that the development is capable of being appropriately serviced. Future applications will provide more specific details of the systems and networks to be constructed.

3.1.4 Earthworks

The Engineering Services Report by Yeats Consulting Engineers (refer Appendix 6) addresses the earthworks required to construct the development. As Council would be aware a separate operational works application for bulk earthworks has been lodged for the site and regard should be had to this application when considering the earthworks necessary for the construction of the proposed development.

The following points are a brief summary of the proposed earthworks:

- After the removal of the contaminated soil, imported fill is required to lift the finished ground levels of the North Street development site generally back to pre-development levels to tie into the existing ground levels surrounding the site.
- The finished levels will be designed to provide positive drainage towards the main gully and proposed stormwater treatment infrastructure to the south of the development area.
- All building pads will be elevated above the defined flood levels.
- Minor earthworks are also proposed to the central drainage gully and typically involve reshaping of the batters to achieve maximum 1:6 grades to facilitate ongoing maintenance.
- With regard to the Colvin Street development area, the proposed earthworks will involve benching of the slope to achieve a generally level platform to accommodate the proposed building pads and access road.

3.1.5 Landscaping and Fencing

Landscaping and fencing throughout the development is detailed on the plans by Planit Consulting in Appendix 4. It is argued that the landscaping proposed will result in an appropriate outcome for the site from a privacy, visual amenity and consistency with the local character point of view.

3.1.6 Flooding and Stormwater

To investigate the flooding issues associated with the proposal, Cardno were engaged to prepare a Flood Study (refer Appendix 8). The Study includes an assessment of both pre and post development cases to ascertain any potential impacts on flood levels as a result of the proposed development (note that for the post development case, the earthworks as designed by Yeats Consulting Engineers were incorporated into the necessary modelling software). The study also addresses both local flooding and regional flooding associated with the Bremer River.

The report concludes that the proposed development will not adversely impact the flood levels upstream of the site, however minor increases in flood levels will be experienced with the drainage channel that traverses the site (i.e. the impacts on



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flood heights etc are all contained within the site and will not impact any adjacent properties). The report also notes that no on-site detention of stormwater is required.

With regard to Regional Flooding, the Study concludes that the proposed development will have no discernable adverse impact on flood levels in the Bremer and Brisbane Rivers.

Yeats Consulting Engineers were engaged to prepare a Site Based Stormwater Management Plan for the proposed development (refer Appendix 9). The report addresses both quantity and quality issues and makes recommendations for the stormwater management infrastructure required to service the development. It is also important to note that when developing the stormwater management regime for the site, consideration was given to flooding issues and the conclusions of the Cardno flood study.

In terms of quantity of stormwater, the report includes an assessment of the pre-development hydrology, the post-development hydrology without mitigation and then makes recommendations for the necessary infrastructure to ensure no increase in stormwater flows following construction of the proposed development.

In terms of water quality, the report outlines the relevant objectives based on Council's guidelines and makes recommendations as to the works required to ensure that the relevant water quality objectives are complied with.

The following points summarise the stormwater treatment infrastructure proposed as part of the development:

- The legal point of discharge has been taken as the inlet into the existing culvert located beneath the railway line.
- Rainwater tanks will be provided for each unit that will assist in reducing the quantity of stormwater flows while also acting as a minor treatment node.
- A piped drainage system will be designed to cater for minor storm events (up to Q10) while overland flow paths will be provided throughout the development area to convey major storm events up to Q100 while maintaining adequate freeboard to habitable rooms.
- A bio-retention basin is proposed to treat runoff from the main development area adjacent to North Street. This basin will be sited in the southeastern corner of the development area within common property and will accept flows from the underground piped drainage network only. The stormwater flows will be percolated through the filter media within the basin before being recovered at the base of the basin via perforated pipes before being discharged to the gully and subsequently the legal point of discharge. It should be noted that the ongoing maintenance of the bio-retention basin will be the responsibility of the body corporate.
- To treat stormwater from the development area adjacent to Colvin Street, it is proposed to construct a Bio-retention swale. Flows from the minor piped drainage network will be directed to the vegetated swale adjacent to the access road. Overflow from the swale will be discharged into the drainage channel following treatment.



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The report also addresses erosion and sediment management during all stages of the development. It is anticipated that a condition of approval will require the implementation of these recommendations during the different stages of the project.

The report concludes that with the implementation of the recommended stormwater management strategy, there will be no significant worsening in flooding conditions both upstream and downstream of the site and the water quality objectives as described in the Ipswich Planning Scheme will be met.

3.2 Reconfiguring a Lot Component

The Reconfiguring a Lot component of the development involves the subdivision of the site into 3 allotments (refer to subdivision plan in Appendix 5). Specifically, an allotment will be created for the main development area adjacent to North Street, an allotment for the development area adjacent to Colvin Street and an allotment for the drainage reserve. The following table summarises the proposed allotments:

Table 2: Details of Proposed Allotments.

Proposed Lot No.	Area	Final Use
550	3.581 hectares	Residential development
551	7,966m ²	Drainage Reserve
552	5,154m ²	Residential Development

4.0 Planning Regulations

4.1 Sustainable Planning Act

The purpose of the *Sustainable Planning Act 2009* (the Act) is to achieve ecological sustainability by managing the process by which development takes place, managing the effect of development on the environment and continuing the coordination and integration of planning at the local, regional and State level.

The application is seeking Council approval for material change of use and reconfiguring a lot and is assessable development. A Development Permit is to be obtained prior to the commencement of the use. Assessment against the preliminary approval applicable to the site indicates that the proposal is subject to Impact Assessment in accordance with section 314 of the Act.

4.2 State Planning Policies (SPP)

The proposal has been assessed against the State Planning Policies and it has been determined that none of the policies not adequately reflected within the Planning Scheme are relevant to the assessment of the proposal.

4.3 Riverlink Preliminary Approval

As indicated above, the Preliminary Approval established a planning framework against which development applications are to be assessed. The following table outlines an assessment of the proposed development against the provisions of the Preliminary Approval applicable to the Mixed Use Urban Village area (note that many of these provisions are not relevant to the current proposal as they are applicable to the future development of the areas adjacent to the Bremer River).



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Table 3: Assessment against the Riverlink Preliminary Approval.

Riverlink Preliminary Approval Requirements	Development Response
<p>Mixed Use Urban Village Precinct – It is preferred that the precinct accommodates a range of park and business or accommodation uses.</p>	<p>The current proposal is seeking approval for residential uses only. Future applications within the balance of the precinct may include business uses.</p>
<p><i>Mixed Use Urban Village Parkland Precinct</i> – The mixed-use urban village parkland precinct is intended to be developed as a regional recreational resource that will integrate the mixed-use urban village precinct with the other Riverlink sub-areas. Pedestrian and cycle links shall permeate throughout the precinct linking into the mixed-use urban village precinct, other riverheart parkland precincts and to the existing CBD.</p>	<p>As outlined above this area predominately covers the drainage channel that traverses the site and it is intended to maintain the function of the drainage channel in the long term. Pedestrian paths are proposed through this area as part of the current development. These paths provide links from North Street through to Lawrence and Colvin Streets as well as potential links across the railway to link in with the areas adjacent to the Bremer River. This particular proposal is the first stage of the Riverlink development around the railway workshops and museum and future developments will complete the pedestrian networks commenced as part of this proposal.</p>
<p><i>Specific Outcomes</i> Any development will need to be the subject of a detailed application which addresses:</p> <ul style="list-style-type: none"> ▪ View corridors. ▪ Landmarks and gateways. ▪ The design of public open spaces. ▪ High levels of pedestrian connectivity. 	<p>It is argued that the design of the proposal complies with the specific outcomes sought as view corridors are not impacted upon, the development will not detract from any existing landmarks, the open space areas will be landscaped in accordance with Council's requirements and the proposal provides the necessary pedestrian connections which will tie in with the future development of the remainder of the Riverlink precinct.</p>
<p><i>Probable Solutions</i></p> <ul style="list-style-type: none"> ▪ Buildings are to be designed and located so as to: <ul style="list-style-type: none"> ○ Create a vibrant, attractive 'main street' setting which is capable of accommodating pedestrian, cycle, vehicle and rail links between the workshops and the CBD. ○ Address the 'Riverheart' recreational corridor. ○ Support the conservation of identified places of cultural significance. ○ Conserve view corridors. ▪ All buildings and structures are to be below RL48m AHD. ▪ New buildings are limited to a maximum height of 4 storeys. ▪ Whilst no building plot ratio is specified the net residential density should be at least 50 dwellings per hectare distributed 	<p>The following points address those probable solutions considered relevant to the current proposal:</p> <ul style="list-style-type: none"> ▪ The design of the development includes the provision of pedestrian and cycle links (note that links to the CBD and creation of a 'main street' will be completed as part of ongoing development of the site). ▪ Those areas identified as open space on the current site are to be retained as part of the proposal (i.e. the function of the drainage channel will be retained). ▪ The site does not contain features with cultural significance, is not identified as a Heritage Place and does not directly adjoin a Heritage Place. It is therefore argued that further investigations into heritage issues is unnecessary. ▪ The proposal will not impact on view corridors.



across a wide range of dwelling types.	<ul style="list-style-type: none">▪ All buildings and structures will be below RL48m AHD.▪ The maximum building height proposed is 2 storeys.▪ The current proposal represents a density of 24 dwellings per hectare. Future proposals on the remaining development areas will include a variety of dwelling types and the overall density for the locality will be assessed again as part of future proposals.
--	---

In summary, it is argued that the proposal is generally consistent with the provisions of the Preliminary Approval.

4.4 Ipswich Planning Scheme

While the Preliminary Approval applicable to the site specifies the level of assessment for the proposed use and includes assessment criteria, it is considered relevant to undertake an assessment of the proposal against the provisions of Council's Planning Scheme. The following sections address those provisions of the Planning Scheme considered relevant to the proposed development.

4.4.1 Definition of Use

The proposal is seeking approval for Multiple Residential as defined under the Planning Scheme. For the purposes of the application the proposal will be defined as Multiple Residential (18 Units). The Planning Scheme defines Multiple Residential as:

***"Multiple Residential"** means the residential use of premises if there are three or more dwellings on any one lot. The term includes the use of premises for—*

- (a) apartments;*
- (b) boarding house, if providing permanent accommodation;*
- (c) caravan park, if providing permanent accommodation;*
- (d) nursing home;*
- (e) retirement community; or*
- (f) townhouses.*

The term does not include the use of premises for "Dual Occupancy", "Institutional Residential" or "Temporary Accommodation".

The proposal is clearly consistent with this definition as it involves the construction of townhouses for residential use. Note that an assessment of the proposal against the Residential Use code is included in Appendix 10.

4.4.2 Zoning

As outlined above, the subject site is included within the Special Opportunity Zone for the purposes of the Planning Scheme (refer to extract from zoning map below).



LAND AND HYDROGRAPHIC SURVEYING
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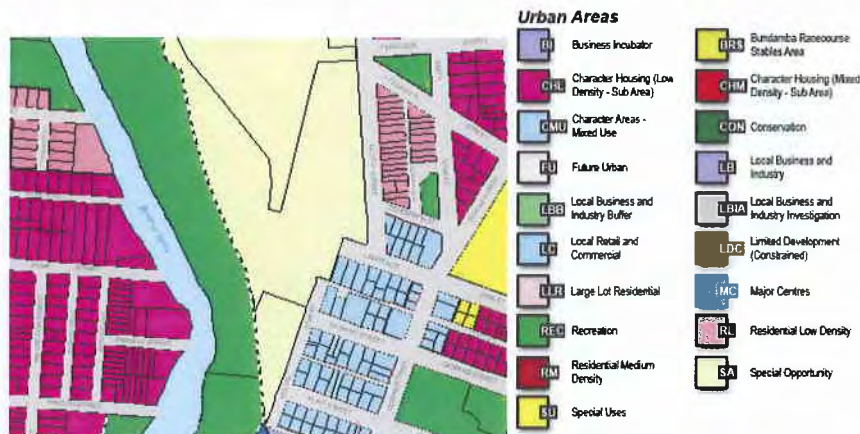


Figure 2: Extract from Zoning Map.

The Planning Scheme includes the following statement regarding the overall outcomes sought for properties included within the Special Opportunity Zone:

The overall outcomes sought for the Special Opportunity Zone are the following—

(a) The Special Opportunity Zone caters for—

- (i) land where the future use cannot be definitively stated at this time;*
- (ii) the use and management of sites which perform a land use transition or buffering role;*
- (iii) the recognition of various opportunities over large, infill or broad hectare parcels of land; or*
- (iv) promoting a flexible approach to uses and works on land which is constrained.*

(b) Uses and works provide for the continuation of the existing or approved use or the protection of the intended use, however, were these uses to cease, the site's locational and physical attributes present opportunities for different development forms which require further detailed investigation.

(c) Uses and works within the Special Opportunity Zone are located, designed and managed to—

- (i) be compatible with the amenity and character of surrounding lands;*
- (ii) facilitate the development of the Sub Areas comprising the zone for their approved use or intended use;*
- (iii) maintain townscape character and amenity;*
- (iv) maintain the safety of people, buildings and works; and*
- (v) avoid significant adverse effects on the natural environment.*

In this instance the preferred use of the site has been established through the preliminary approval granted over the site (Riverlink Preliminary Approval) as well as subsequent ROL approvals to create management lots for development in



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accordance with the preliminary approval. The proposal is consistent with these approvals and it is therefore argued that compliance with the intent of the Special Opportunity Zone is achieved.

An assessment of the proposal against the Special Opportunity Zone Code is outlined in Appendix 10.

4.4.3 Overlays

The following points summarise the planning scheme overlays applicable to the subject site and the relevance of those overlays to the current development:

- OV00 Character Places – the extract from the Character Places overlay below indicates that the site is included in the State Heritage Register. As Council would be aware the site was recently subdivided into 5 management lots for future development. This management lot subdivision also divided the heritage listed features onto specific lots. The subject site (Lot 55 on SP222487) is not listed on the Heritage Register. As indicated in section 5 below, referral to the Heritage Section of DERM is triggered as the site adjoins a property listed on the Heritage Register.

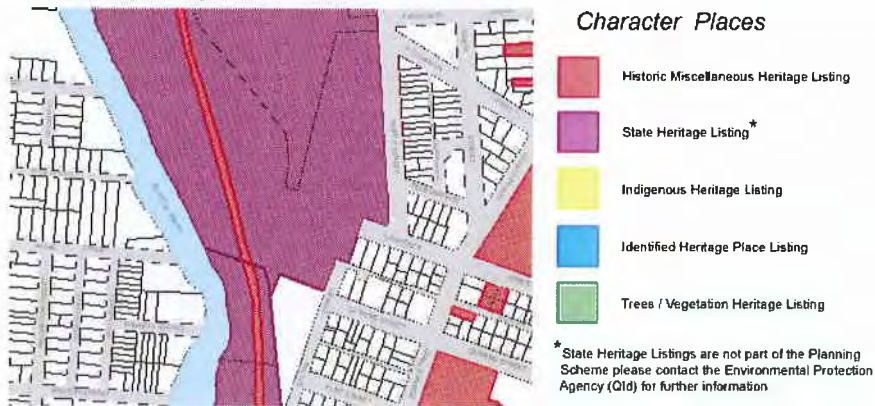


Figure 3: Extract from Overlay Map 00.

- OV4 Difficult Topography – as illustrated on the map below, the area to be developed is not identified as containing difficult topography and therefore there are no slope stability issues associated with the proposal.



Figure 4: Extract from Overlay Map 4.

- **OV5 Flooding and Urban Stormwater Flow Paths** – as illustrated on the map below, a drainage path traverses the site that is impacted upon during a Q100 flood event. Suitable investigations into flooding issues have been undertaken as part of preparing the development application and a flood report prepared by Cardno is attached in Appendix 8.

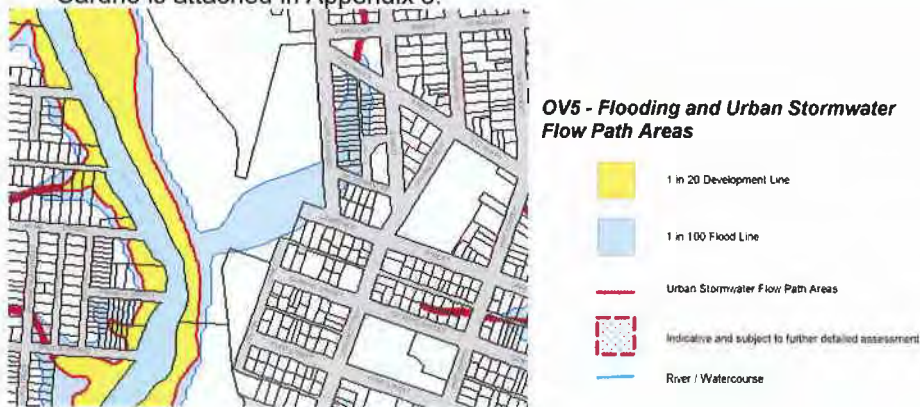


Figure 5: Extract from Overlay Map 5.

- **OV7A Defence Regulations and Obstruction Clearances** – the maximum building height for the site is indicated as 90m on the defence regulations and obstruction clearances overlay map below. As the proposal involves construction of buildings with a maximum height of 2 storeys, compliance with the maximum height is achieved.

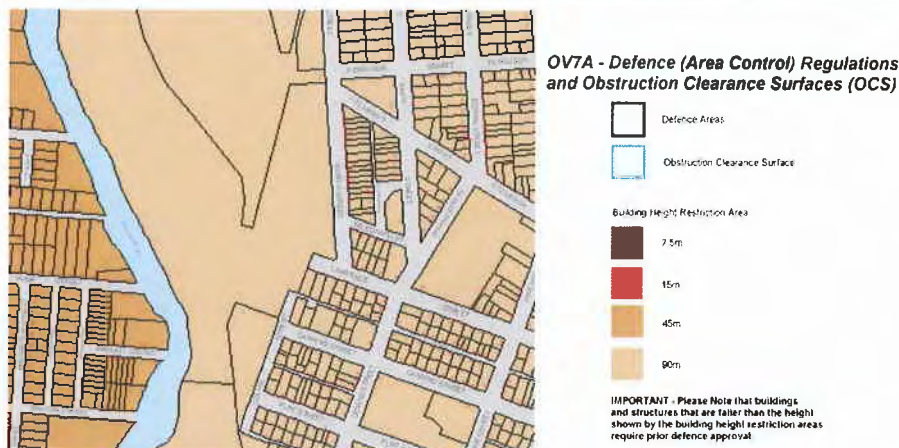


Figure 6: Extract from Overlay Map 7A.

4.4.4 Codes

An assessment of the proposal against the following Planning Scheme codes is outlined in Appendix 10 of the application material. These assessments demonstrate the proposals compliance with the relevant requirements.

- Special Opportunity Zone Code.
- Residential Use Code.
- Parking Code.

4.4.5 Infrastructure Charges

When calculating the infrastructure charges for the proposed development the issue of credits applicable to the subject site needs to be resolved. While the subject site is vacant, it is part of the land that formed the railway workshops. At the peak of operations, the railway workshops employed around 3,000 people and the scale of the use obviously generated significant demand on the water and sewer networks in particular. Given that suitable mains and treatment infrastructure were provided to service this previous use, it is argued that credits for infrastructure charges should be recognised for the subject site based on this previous land use. We are of the view that assessing the overall land that formed the railway workshops and calculating an appropriate credit rating on an area basis is the most appropriate approach.

When considering the likely infrastructure charges for Roadworks, it is considered relevant to have regard to the extensive road upgrades undertaken by Leda as part of the construction of the Riverlink Shopping Centre (note that this project represented the first stage of the wider Riverlink Development of which this proposal is part) and the recommendations of the traffic report which concludes that the traffic generation associated with the proposal will not impact on the surrounding road network.

4.5 South East Queensland Regional Plan

The subject site is included within the Urban Footprint for the purposes of the Regional Plan. As the proposal is seeking approval for *Urban Activities* consistent with the intended use of the site as specified through a preliminary approval, it is

argued that the proposal is consistent with the provisions of the Regional Plan. It is also noted that there are no specific sections of the Regulatory Provisions relevant to the assessment of the proposal and that referral to the Department of Infrastructure and Planning is not triggered.

5.0 Consultation and Referrals

The development application triggers the following referrals:

Concurrence Agencies

- Department of Environment and Resource Management's (DERM) Contaminated Land Section – Referral to the Contaminated Land Unit is triggered as the site is listed on the Environmental Management Register. As indicated above, a separate application has been lodged for Operational Works approval (Bulk Earthworks) over the site that involves the remediation of the site. A Remediation Plan addressing contaminated land issues is attached in Appendix 7.

Advice Agencies

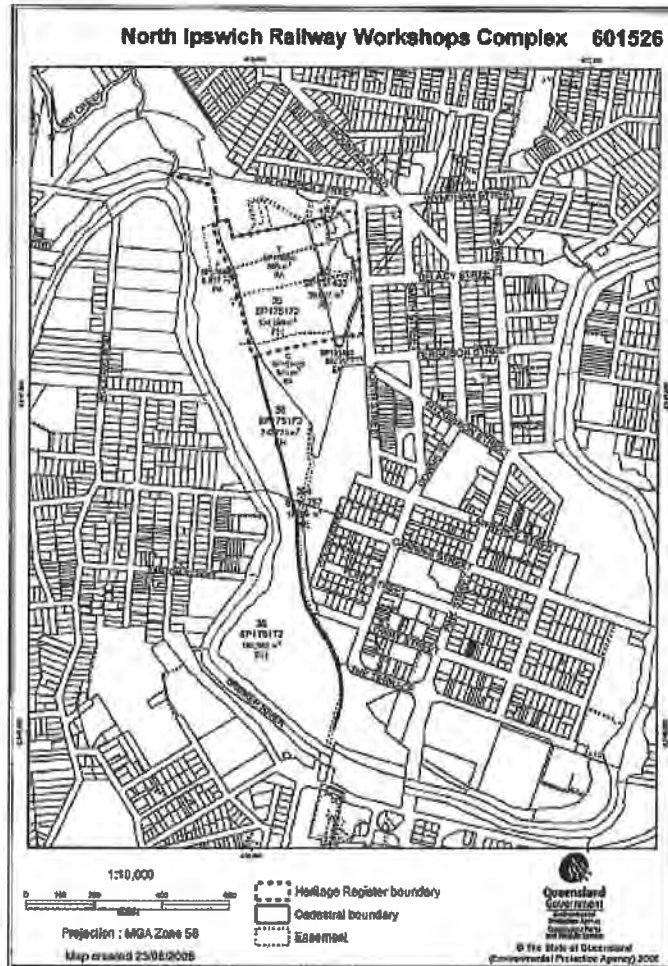
- Energex – Referral to Energex as an advice agency is triggered as the site contains an easement in favour of Energex for the purposes of electrical infrastructure. It is noted that the easement is adjacent to the northern and part of the western boundary of the site and that the electrical infrastructure is underground. It should be noted that it is not intended to build over the easement (other than fences) and that the easement will be maintained on the site following construction of the development.

With regard to referral to the Heritage section of DERM, we are of the view that referral is not triggered in this instance, as the site does not share a common boundary with a Heritage Place. For Council's reference we have included an extract from the certified Heritage Register listing for the nearby railway workshops and museum. As illustrated on this plan, the boundary of the Heritage Place is approximately 100 metres from the subject site.

Leda Developments Pty Ltd – MCU for 18 Units.
North Street, North Ipswich.
Our Ref. 874206.

Queensland Heritage Act 1992

Certified copy of an entry in the Heritage Register pursuant to Section 32 (1) (a).
(see reverse side of form)



Date 10/10/2006

Note: This certificate is valid at the date of issue only.



**Queensland
Government**
Environmental
Protection Agency

It is noted that referral to the Department of Transport and Main Roads is not triggered as the site is not located within 100 metres of a State Controlled Road and

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the development does not exceed the thresholds specified within Schedule 11 of the *Sustainable Planning Regulation 2009*.

It is also noted that the proposal does not trigger any of the referral requirements under schedules 9 or 10 of the *Sustainable Planning Regulation 2009* and therefore referral to Queensland Transport is not triggered (note that the adjoining railway is not mapped as a railway corridor for the purposes of QT's IDAS Triggers Mapping).

Pre-lodgement discussions have been held with Council and the points raised during these discussions have been addressed through the design of the proposal where possible.

As the proposed development is subject to impact assessment, public notification will be required.

6.0 Conclusion

The preceding report demonstrates the suitability of the proposal in terms of the Ipswich Planning Scheme, the South East Queensland Regional Plan and the *Sustainable Planning Act 2009*. It is argued that the proposal is appropriate for the subject site and will not generate impacts on adjoining properties or the local area.

Having regard to the issues raised in this Planning Report, it is considered appropriate for Council to provide its support for the proposal and issue the necessary approvals in accordance with the *Sustainable Planning Act 2009*.

Lipoma Pty Ltd – MCU.
North Street, North Ipswich.
Our Ref. 874206.

Appendix 1

Survey Plan (SP222487).

Sheet 1 of 4

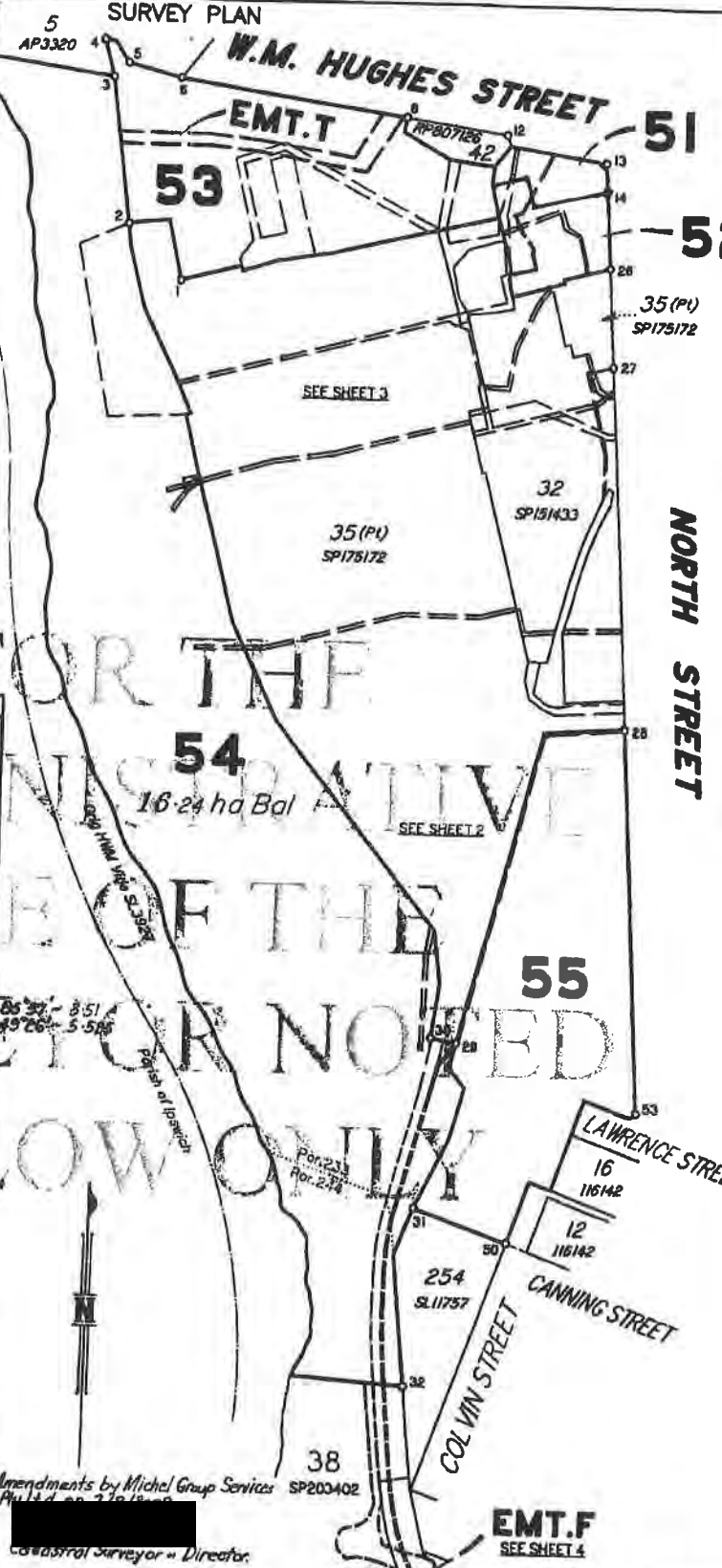
Scale 1:4000 - Lengths are in Metres.

Land Title Act 1994; Land Act 1994
Form 21 Version 2

Original information compiled from SL 3927 & SP203402 in the Department of Environment & Resource Management.
No mark placed at stations 49d-49f (under stockpiles)
Drill hole in brick placed at station 14.
Nail in concrete placed at station 29a.
Drill hole in conc placed at all corners between stations 48 & 49 inclusive and at station 39a.
GI Nail in bitumen placed at stations 15a, 15b, 39b, 39c, 47, 49a-49c & 49g.
Peg placed at all other new corners.
See Sheet 4 for Permanent Marks Table

REFERENCE MARKS

STN	TO	ORIGIN	BEARING	DIST
1	O.Screw	12/DP170533	93°13'	33.445
2	OIP	11/DP170533	154°10'	0.837
3	O.Screw	2/DP218929	329°36'10"	13.70
4	OIP gone	SL 3927	86°13'10"	1.006
4	O.Screw	6/DP218929	22°43'30"	57.285
4	Nail in Conc		327°43'30"	18.488
6	OIP gone	4/SL180186	8°33'10"	1.006
6	O.Screw	3/DP218929	37°38'10"	6.542
6	Nail in Conc		60°32'30"	6.316
7	Nail in Conc		80°07'10"	6.434
8	O.Spike	2/DP218531	20°19'35"	13.515
9	O.Bolt (not searched)	8/RP807126	43°03'10"	2.0
10	O.GI Pipe (not searched)	7/RP807126	318°40'10"	1.56
11	D/H in Conc		83°46'	21.65
12	OIP not fd (Under Conc)	SL 3927	34°26'10"	1.131
13	Nail in Kb		67°31'30"	16.937
13b	O.Nail gone	1/SP151433	114°32'	3.917
14	D/H in Kb		3°08'	16.888
15	Pin		8°10'00"	6.888
16	GI Nail in Bit		8°20'10"	15.485
17	O.GI Nail	8/SP151433	82°13'	2.802
20	Pin		158°18'10"	14.982
20	Pin		265°22'30"	31.807
21	Pin		185°07'20"	9.697
24	Pin		34°30'10"	2.792
25	Pin		34°40'50"	13.49
26	O.Nail hole	2/DP170533	7°23'	3.636
27	O.Nail	2/SP151433	10°06'	3.882
28	O.Nail	1/SP175172	15°24'55"	23.392
28	OIP gone	7/DP170534	343°30'30"	1.08
29	Pin		227°09'	38.805
30	OIP	2/SP175172	170°43'	1.834
31	O.Screw	16/SL120186	280°14'	1.765
31	Pin		96°58'	8.325
32	OIP	4/SP203402	234°24'	1.78
33	OIP	37/SP203402	260°49'	4.056
34	OIP not fd	6/DP170534	343°06'30"	1.165
35	OIP	6a/DP170534	265°22'35"	0.82
38	OIP gone	7/DP170534	343°30'30"	1.08
41	OIP gone	8/DP170534	253°13'30"	0.777
42	OIP	8a/DP170534	78°34'30"	0.72
43	O.Nail	14/SP222470	245°13'10"	11.019
44	OIP	17/SP196038	288°05'45"	0.896
45	OIP gone	15/SP196038	347°08'	0.858
46	OIP	16/SP196038	189°53'50"	12.314
49	D/H in Conc		178°01'10"	12.444
50	GI Nail in Bit		84°38'20"	10.63
50a	OIP	14/SL3927	189°21'50"	0.604
51	GI Nail in Bit		248°44'15"	11.647
52	OIP	12/SL120186	110°28'	1.0
53	GI Nail in Bit		229°30'25"	27.245



MICHEL GROUP SERVICES PTY. LTD. (ABN 53 841 801 835) hereby certify that the land comprised in this plan was surveyed by the corporation, by Geoffrey Scott GREEN, Cadastral Surveyor, for whose work the corporation accepts responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards, and that the said survey was completed on 16/08/2009.

MICHEL GROUP SERVICES PTY. LTD. A.C.N. 081 780 132
Director
Date 13/7/2009

Plan of Lots 51-55, Easement T in Lot 53 & Easement F in Lot 38 on SP203402

Cancelling Lot 39 on SP203402

PARISH: CHUWAR COUNTY: Stanley No

Mertidion: SP196038

F/N's:

Scale: 1:4000

Format: STANDARD



SP222487

Plan Status:

**WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.**

712667818

\$664.90
18/08/2009 10:44

BE 400 NT

Registered

& Lodged by

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

I/We **LIPOMA PTY LTD ACN. 002 203 581**
TRUSTEE UNDER INSTRUMENT 708510442

Existing		Created				
Title Reference	Description	New Lots	Road	Emts	Cov.	Profit or Precede
50718421	Lot 38 on SP203402	51-55		T		
50718420	Lot 38 on SP203402	-		F		

(Names in full)

* as Registered Owners of this land agree to this plan and dedicate the Public Use Land as shown hereon in accordance with Section 66 of the Land Title Act 1994.

* as Lessees of this land agree to this plan

Signature of *Registered Owner



6 July 2009

BENEFIT EASEMENT ALLOCATIONS

Easement	Lots Fully Benefited	Lots Partially Benefited
708022944	51-53 & 55	54
708022959	51-53 & 55	54
708022965	51-53 & 55	54
708022973	51-53 & 55	54
708022974	51-53 & 55	54
708022975	51-53 & 55	54
708022977	51-53 & 55	54
708022998	51-53 & 55	54
708023001	51-53 & 55	54

ENCUMBRANCE EASEMENT ALLOCATIONS

Easement	Lots to be Encumbered
708022979	53
708022980	51 & 52
708022987	51 & 52
708022990	54
708022997	54
708324692	54
708324697	54
708324707	54
708324709	53
708324717	52
708492398	54
708492401	54
710043236	54 & 55

EXISTING ADMINISTRATIVE ADVICE ALLOCATIONS

Administrative Advice	Lots to be Encumbered
AS139318	51-55
AS139838	54
712098928	51-55

* Rule out whichever is inapplicable

2. Local Government Approval.

* **IPSWICH CITY COUNCIL**

hereby approves this plan in accordance with the:

% **INTEGRATED PLANNING ACT 1997**

54 51-53 & 55	Por. 233 & 244 Por. 233	12. Building Format Plans only. I certify that: * As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or roads. * Part of the building shown on this plan encroaches onto adjoining lots and road.
Lots	Orig	
7. Portion Allocation :		General Surveyor/Director * Date * Initials words not required
a. Map Reference : 9442-14334		
9. Locality : North Ipswich		13. Lodgement Fees : Survey Deposit \$ Lodgement \$ New Titles \$ Photocopy \$ Postage \$ TOTAL \$
10. Local Government : Ipswich City Council		
11. Passed & Endorsed :		
By: MICHEL GROUP SERVICES PTY. LTD. ABN. 53 841 801 835 Date: 18/08/2009		14. Insert Plan Number SP222487
Signed: [Signature] Designation: Liaison Officer		

Dated this 10th day of AUGUST 2009

Authorised Local Government Officer

* Insert the name of the Local Government. % Insert Integrated Planning Act 1997 or
Insert designation of signatory or delegation Local Government (Planning & Environment) Act 1997

a. Plans with Community Management Statement :

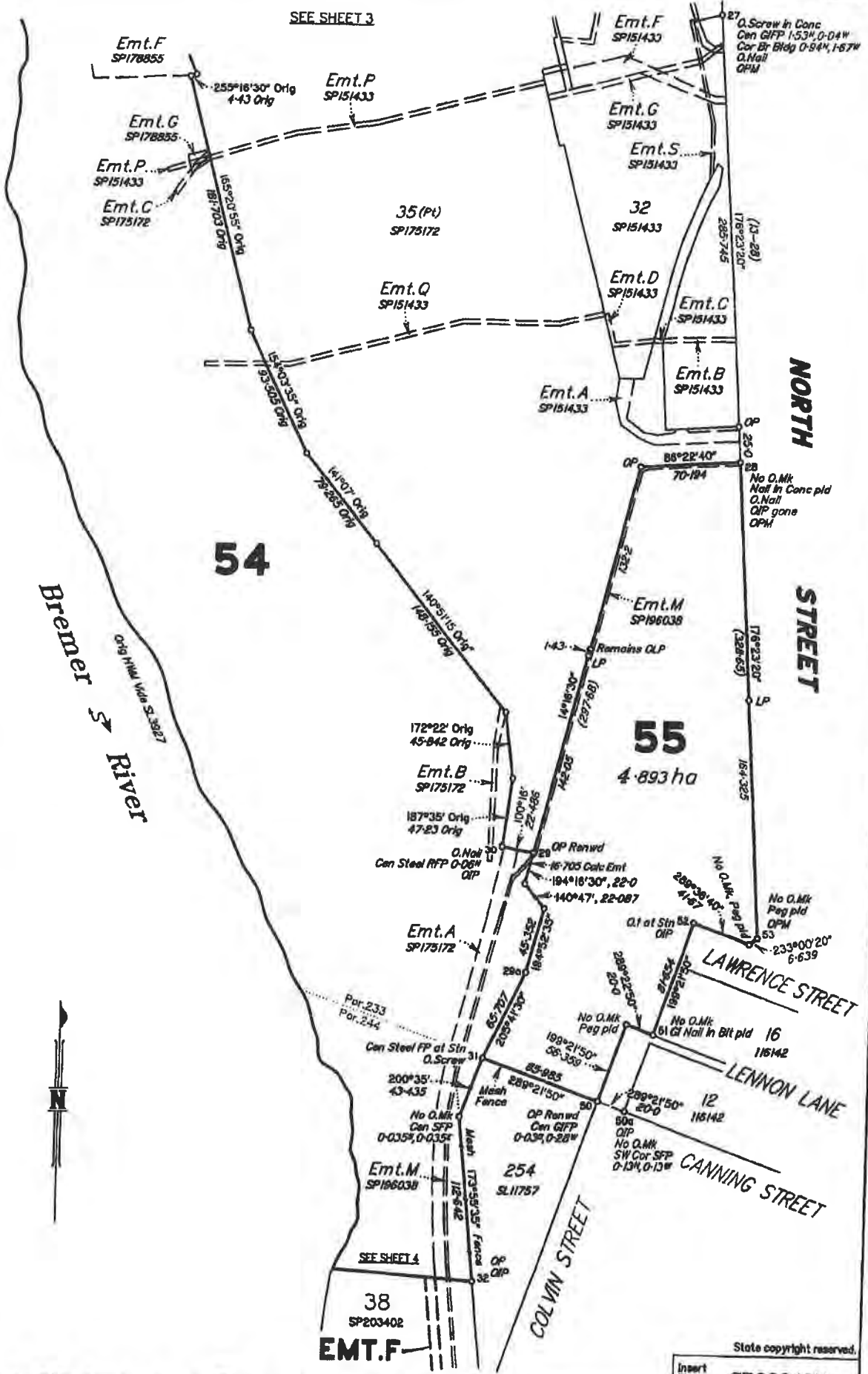
CMS Number :

Name :

4. References :

Dept File :
Local Govt : 5026/08
Surveyor : 8742-02

SEE SHEET 3



Scale 1:2500 - Lengths are in Metres.



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Insert Plan Number SP222487

NORTH STREET

W.M. HUGHES STREET

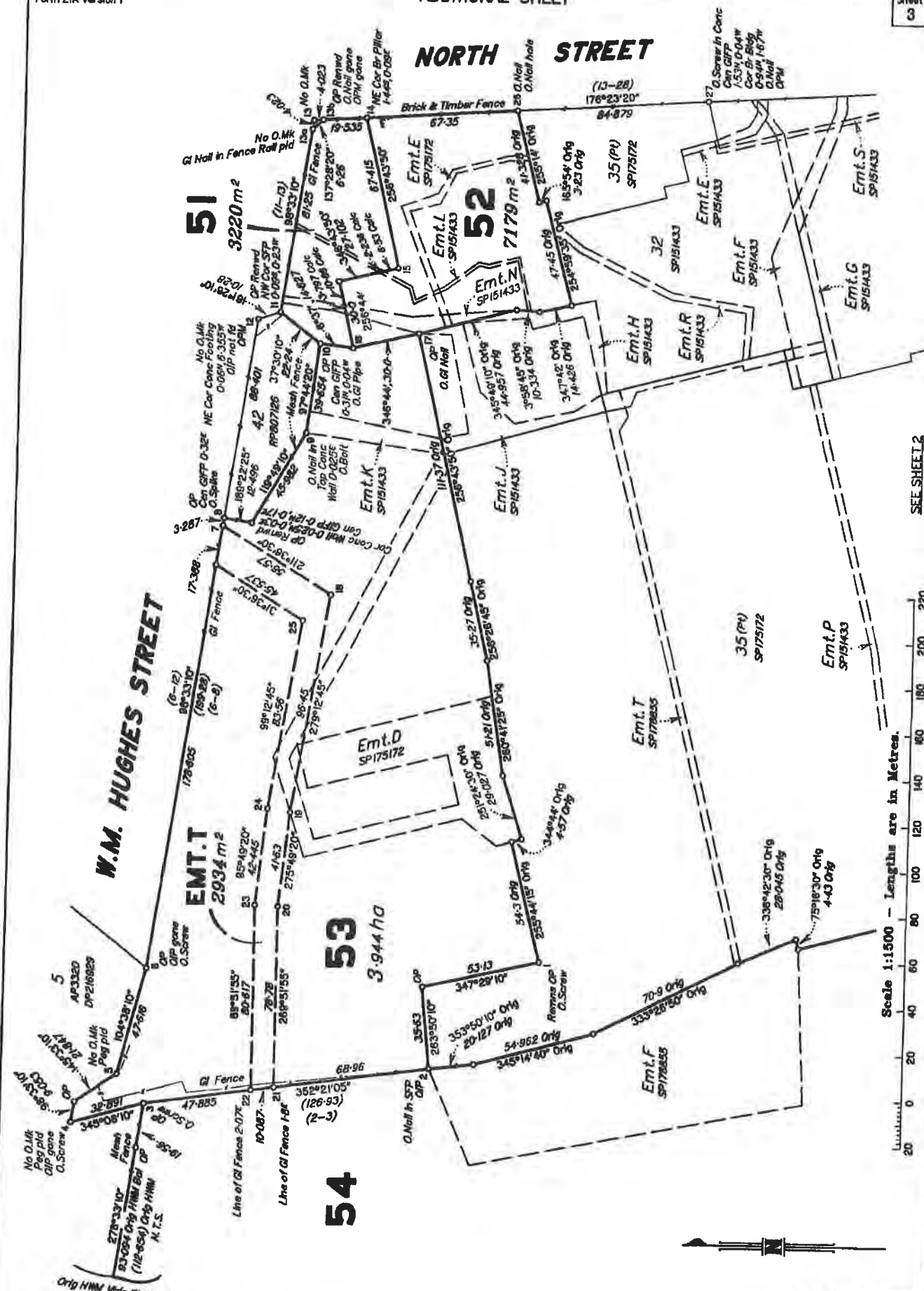
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52
7179 m²

EMT.T
2934 m²

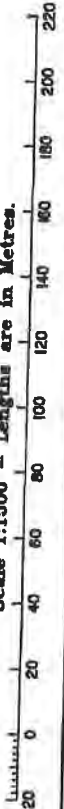
53
3.944 ha

54



SEE SHEET 2

Scale 1:1500 - Lengths are in Metres.



State copyright reserved.

Insert Plan Number
SP222487

50m 100m 150m

PERMANENT MARKS					
PM	ORIGIN	BEARING	DIST	NO	TYPE
12-OPM	1/DP216929	292°47'40"	6.594	90835	Standard
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27-OPM	2/SP151433	168°38'50"	23.354	53194	Standard
28-OPM	3/DP170533	38°00'15"	44.26	31434	Standard
53-OPM	8/SL3927	86°23'20"	0.604	36595	Standard

Bremer River

54

38
SP203402

254
SL11757

EMT.F
2855 m²

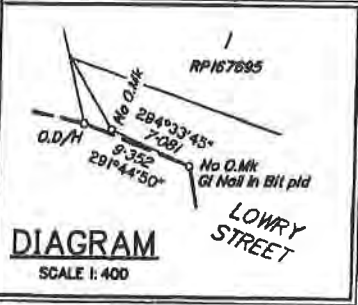
COLVIN STREET

Lease CW
SP22470

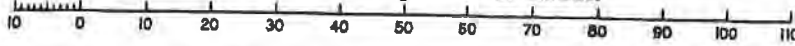
RP167695

LOWRY STREET

21
SP175186



Scale 1:750 - Lengths are in Metres.



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Insert Plan Number SP222487

Lipoma Pty Ltd – MCU.
North Street, North Ipswich.
Our Ref. 874206.

Appendix 2

Environmental Noise Impact Report (TTM Consulting).



LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES



TTM Consulting (Qld)Pty Ltd
579 Coronation Drive
Toowong Qld 4066
PO Box 1120 Toowong BC QLD 4066

t (07) 3327 9500
f (07) 3327 9501
e gpearce@ttmgroup.com.au
ABN 65 010 868 621

**Proposed Townhouse Development – “Riverlinks”
North Street, North Ipswich**

ENVIRONMENTAL NOISE IMPACT REPORT

Prepared for:

Leda Holdings Pty Ltd

Date Prepared:

19th August 2009

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1. INTRODUCTION

The following report is in response to a request by Leda Holdings Pty Ltd for an environmental noise assessment for a proposed townhouse development located at Lot 55 North Street, North Ipswich. The report considers offsite activity and railway noise and forms part of a development application under consideration by Ipswich City Council.

An assessment of the activities associated with the *Queensland Rail (QR) Ipswich Workshops* was analysed in 3 scenarios as the future use of the workshops are uncertain. The modelling conducted considered the worst case for each scenario as detailed in this report.

In undertaking this assessment, the following noise monitoring was conducted:

- Unattended background noise monitoring; and
- Attended noise measurements of activities associated with the:
 - QR workshops,
 - Queensland Museum, and
 - Steam locomotives.

Based upon the predicted noise levels, recommendations regarding acoustic treatments and management controls were specified.

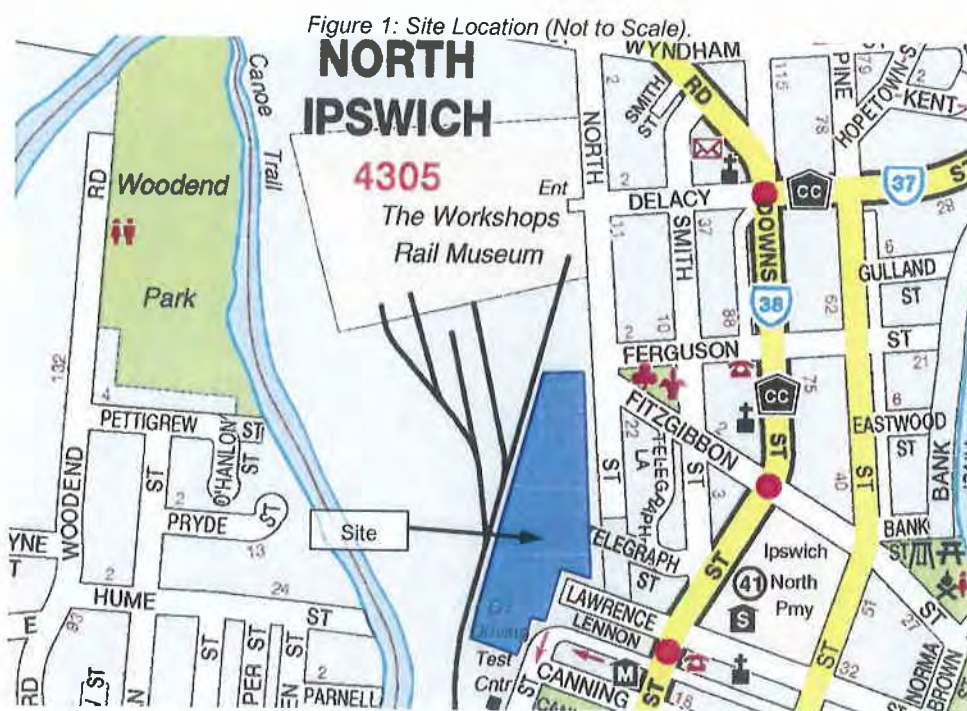
2. SITE DESCRIPTION

2.1 Site Location

The site is described by the following:

North Street, North Ipswich
Lot 55 on SP222487

Refer to Figure 1 for site location.



A comprehensive site survey was conducted on the 29th of May, 2009. The survey identified the following surrounding the site:

- North Street is located adjacent the eastern boundary, separating the site from a automotive smash repair workshop and a mixture of single storey highset, single and two storey residential dwellings.
- "Queensland Transport (QT) Driving Test Centre" is located adjacent the southern property boundary, separating the development from a mixture of residential and commercial premises.
- A railway line is located adjacent the western boundary separating the site from vacant land and the Bremer River.
- Located northwest of the development are the Queensland Museums' (QM) "Workshops Rail Museum" and Queensland Rails (QR) "Ipswich Workshop".

2.1 Proposal

The proposal is to develop the site as follows:

- A total of 120 two residential townhouse units (total of 22 buildings);
- Communal recreation areas and visitor parking spaces.

Access to the site is from North and Colvin Streets, with an internal road network providing access to individual units.

Refer to **Appendix A** for the development plans.

2.2 Acoustic Environment

The area surrounding the site is primarily affected by activities associated with the QR *Ipswich Workshops* and the QM *Workshop Rail Museum*. Other activities in the area that potentially affect the acoustic amenity include the QT *Driving Test Centre* (south) and the automotive smash repair workshop (east).

Note, during the site visit (29th of May, 2009) activities associated with QR *Ipswich Workshops*, QM *Workshop Rail Museum* were inaudible at the nearest site boundary. Additionally, activities associated with the QT *Driving Test Centre* and smash repair workshop were also inaudible at the site.

An assessment of the potential impacts from the QR Ipswich workshop and QM workshop rail museum were conducted at the site (refer to Section 6).

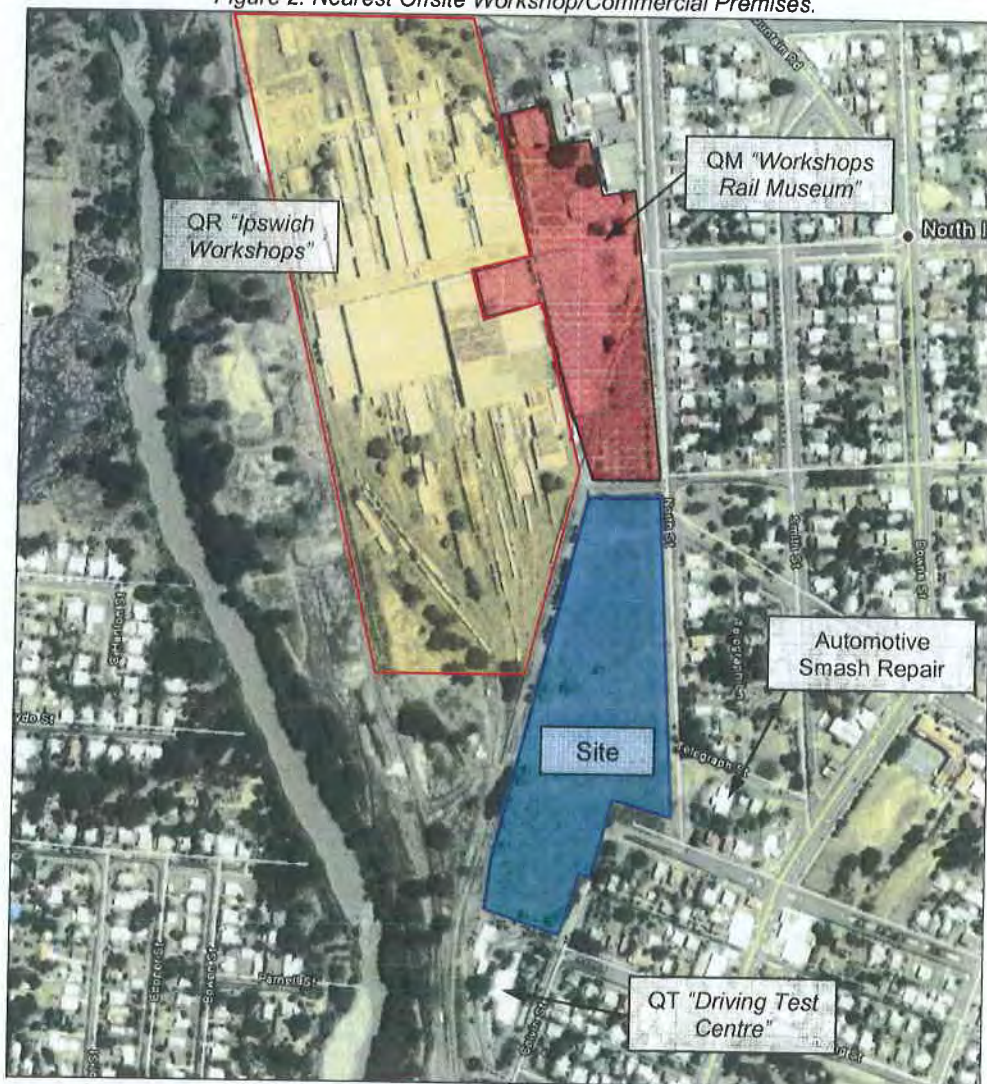
2.3 Offsite Workshop/Commercial Activities

To adequately assess the site, consideration must be given to the activities associated with commercial and light industry premises located in the vicinity of the site. During the site survey, the following offsite premises were identified as having potential to impact the acoustic amenity of the site:

- QR "Ipswich Workshops" (operating hours range from 7am to 5pm on weekdays) is situated northwest of the site.
- QM "Workshops Rail Museum" (operating hours are from 9:30am to 5pm 7 days) is located north.

Refer to Figure 2 for the location of the nearest workshop/commercial premises.

Figure 2: Nearest Offsite Workshop/Commercial Premises.



A preliminary assessment of the offsite activities which have the potential to impact the site was conducted with the results of the analysis presented in Section 6.3.

3. EQUIPMENT

The following equipment was used to record background and source noise levels:

- ARL EL316 Environmental Noise Monitor (SN # 16-306-005);
- RION NA-28 Sound Level Meter (SN # 01060055);
- RION NC-74 Sound Calibrator (SN # 35073393).
- BSWA Technology Co. Ltd Acoustical Calibrator (SN # 44095).

The ARL Environmental Noise Monitor and RION NA-28 Sound Level Meter hold current NATA Laboratory Certification and were field calibrated before and after the monitoring sessions with no significant drift from the reference signal recorded.

4. MEASUREMENT PROCEDURE

4.1 Unattended Background Noise Measurement Procedure

An ARL EL316 environmental noise monitor was placed on site to measure existing background noise levels representative of the development. The unattended noise monitor was located 1.3 metres above ground level, in a free field location.

The noise monitor was set to record noise levels between the 29th of May and the 9th of June, 2009 as follows:

- "A" weighting;
- "Fast" response; and
- 15 minute statistical interval.

The statistical interval was chosen to allow application of AS/NZS 2107:2000 'Acoustics – Recommended Design Sound Level and Reverberation Times for Building Interiors'.

Refer to Figure 3 for the location of the unattended noise monitor.

Figure 3: Unattended Noise Monitoring Location.



Weather conditions during the unattended noise monitoring period were generally fine with light to moderate wind speeds and temperatures ranging from 4 to 24°C. Rainfall recorded on the 30th of May, 2nd – 4th and 7th of June. The data collected on these days were omitted from the analysis.

4.2 Queensland Rail and Queensland Museum Activity Noise Measurements

A site survey was conducted to determine the potential for offsite activities to impact the development. Attended noise measurements were conducted on Friday the 19th of June, 2009 between 10:00am and midday. Typical noise levels associated with relevant activities were taken from similar investigations. All measurements were conducted generally in accordance with Australian Standard AS1055:1997 "*Acoustics – Description & Measurement of Environmental Noise*".

Weather conditions during the attended measurements were clear with low wind speeds.

4.3 Steam Locomotive Activity Noise Measurements

A site survey was conducted to determine the potential for steam locomotive activities (start up preparation and passby) to impact the development. Attended noise measurements were conducted on Saturday the 20th of June, 2009 between 6:30am and 3pm. All measurements were conducted generally in accordance with Australian Standards AS1055:1997 "*Acoustics – Description & Measurement of Environmental Noise*" and AS2377:2002 "*Acoustics – Methods for the measurement of railbound vehicle noise*".

Weather conditions during the monitoring were varied with brief showers occurring during the day. Noise measurements were not conducted during these periods.

5. NOISE CRITERIA

The typical criteria applied to the development is divided into 4 sections (5.1 – 5.4) and details the assessment requirements for offsite activity, rail noise and mechanical plant. For industrial activities that come under the classification of an environmentally relevant activity the criteria stipulated in Section 5.3 applies.

5.1 Offsite Activity Noise

The criteria applied to the proposed townhouse development is in accordance with the Environmental Protection (Noise) Policy 2008 (EPP08). This section deals with noise sources associated with proposed onsite activities, excluding mechanical plant (i.e. vehicle activity).

For the implementation of the policy the following criteria was considered.

Schedule 1 acoustic quality objectives – Section 8

Column 1	Column 2	Column 3			Column 4
Sensitive receptor	Time of day	Acoustic quality objectives (measured at the receptor) dB(A)			Environmental value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
dwelling (for outdoors)	daytime and evening	50	55	65	health and wellbeing
dwelling (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

Note: for a noise reduction of 15dB(A) from the outdoor levels to the indoors, it was assumed that standard glazing for residential receivers was installed with the windows and doors facing the site closed.

To ensure the acoustic amenity of the surrounding area is maintained, the EPP08 policy also requires that background creep is assessed as follows:

Controlling Background Creep

- “(2) To the extent that it is reasonable to do so, noise from an activity must not be –
- (a) For noise that is continuous noise measured by $L_{A90,T}$ – more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$; or
 - (b) For noise that varies over time measured by $L_{Aeq,adj,T}$ – more than 5 dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$.”

Given the short duration and fluctuation of offsite noise levels, we recommend application of an $L_{Aeq,adj,T} + 5$ dB(A) criteria. Based upon the measured average levels onsite the following criteria applies:

Table 1: Recommended design noise level targets for offsite activity noise.

Time Period	Noise Limits L_{Aeq} dB(A)
Daytime 7am – 6pm	47 ($L_{A90} + 5$ dB(A))
Evening Time 6pm – 10pm	44 ($L_{A90} + 5$ dB(A))
Night Time 10pm – 7am	40 ($L_{A90} + 5$ dB(A))

Refer to **Appendix B** for graphical representation of measured noise levels.

5.2 Mechanical Plant

In accordance with Ipswich Shire Council requirement for the application of the background creep policy, the following criteria shall apply that mechanical plant does not exceed the existing background noise levels by more than 0dB(A). Based upon measured background noise levels measured at the site, the following noise limits apply to mechanical plant when measured at the property boundary of affected residents.

Table 2: Criteria for Residential Receivers.

Time Period	Criteria L_{A90} dB(A)
Daytime 7am – 6pm	42 ($L_{A90} + 0$ dB(A))
Evening - time 6pm – 10pm	39 ($L_{A90} + 0$ dB(A))
Night time 10pm - 7am	35 ($L_{A90} + 0$ dB(A))

Refer to **Appendix B** for graphical representation of measured noise levels.

The above levels are quoted as a measured level, not a component level, hence, all plant proposed must be included in assessment including correction for tonality. By designing plant noise to a measured level rather than a component level, the additive effect of multiple plant is taken into account.

5.3 Environmentally Relevant Activity

As certain operations may fall into the category of an environmentally relevant activity, the assessment criteria applied to the operation falls under the jurisdiction of the Environmental Protection Agency (EPA) and not the local Council. Therefore the EPP 2008 noise policy shall apply as stated in the previous section.

5.4 Rail Noise

We were advised by Queensland Transport that the development is to be designed to meet the following criterion:

- External design levels of $L_{Aeq,24hr}$ 65dB(A), assessed at outdoor recreation areas.
- L_{Amax} 87dB(A), assessed at outdoor recreation areas.
- Indoor design level for bedrooms and living areas of L_{Amax} 50dB(A) average maximum sound level between 10pm and 6am.

It is noted that the indoor design level is set out in Queensland Transport's 'Interest in Planning Schemes No.3'; and the external design levels are set out in the Environmental Protection (Noise) Policy 1997.

From time to time, passing trains will blow a horn to warn people of its presence. It should be noted however that Queensland Rails' "Code of Practice, Railway Noise Management" (December 1999), states the following in relation to noise impacts from horns and other safety devices:

8. "HORNS AND OTHER WARNING DEVICES"

Horns and sirens are used within QR as warning devices to protect the safety of both employees and the public. Unfortunately, noise from these devices may cause annoyance to some residents from time to time.

In general, public and employee safety must be satisfactorily protected and hence it is not appropriate to apply any particular noise criteria to these warning devices (including the QR nominated interim levels and the EPP Noise planning levels). Where specific complaints are received, however, responsible Managers will consider whether there is sufficient justification to change standing orders on the use of horns or to nominate alternative warning devices.

In considering what constitutes "sufficient justification", responsible Managers will have regard to any relevant QR Safety Management Systems.

QR shall ensure driver training will include appropriate use of horns and warning devices.

6. RESULTS & CALCULATIONS

6.1 Offsite Activity Noise Levels

The noise sources associated with the activities at the QR "Ipswich Workshop" and QM "Workshop Rail Museum" were based on attended measurements and similar investigations. Tables 3 – 5 present the noise levels associated with activities at the workshop and were selected as they represent the likely activities that have the potential to cause noise annoyance at the site.

Table 3: L₁ Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m L ₁ dB(A)	Correction SPL dB(A)*	Corrected Level SPL dB(A)
Car door closure	78	+ 2 (impulsive)	80
Car bypass @ 5 km/hr	77	N/A	77
Truck bypass @ 5km/hr	82	N/A	82
Truck reverse alarm	84	+ 5 (tonal)	89
Forklift outside	85	N/A	85
Forklift reverse alarm outside	90	+ 5 (tonal)	95
Unloading Truck with Forklift	92	+ 2 (impulsive)	94
Compression air brakes	95	+ 5 (impulsive)	100
Air compressor	89	+ 2 (impulsive)	91
Waste collection	92	+ 5 (impulsive)	97
Hammering sheet metal	106	+ 5 (impulsive)	111
Drill Press	76	N/A	76
Hand Grinder	98	+ 5 (tonal)	103
Compressed Air Rivet Gun	86	+ 5 (tonal)	91
Shunting Freight Wagon	98	+ 5 (impulsive)	103

*Correction due to tonality and impulsiveness as per AS1055 – 1997.

Table 4: L₁₀ Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m L ₁₀ dB(A)	Correction SPL dB(A)*	Corrected Level SPL dB(A)
Car door closure	66	+ 2 (impulsive)	68
Car bypass @ 5 km/hr	75	N/A	75
Truck bypass @ 5km/hr	81	N/A	81
Truck reverse alarm	81	+ 5 (tonal)	86
Forklift outside	81	N/A	81
Forklift reverse alarm outside	86	+ 5 (tonal)	91
Unloading Truck with Forklift	88	+ 2 (impulsive)	90
Compression air brakes	85	+ 5 (impulsive)	90
Air compressor	84	+ 2 (impulsive)	86
Waste collection	87	+ 5 (impulsive)	92
Hammering sheet metal	102	+ 5 (impulsive)	107
Drill Press	74	N/A	74
Hand Grinder	97	+ 5 (tonal)	102
Compressed Air Rivet Gun	85	+ 5 (tonal)	90
Shunting Freight Wagon	98	+ 5 (impulsive)	103

*Correction due to tonality and impulsiveness as per AS1055 – 1997.

Table 5: L_{eq} Noise Levels from Typical Industrial/Commercial Activity.

Noise Source	Measured Level SPL @1m	Correction SPL dB(A)*	Corrected Level SPL
Car door closure	65	+ 2 (impulsive)	67
Car bypass @ 5 km/hr	72	N/A	72
Truck bypass @ 5km/hr	78	N/A	78
Truck reverse alarm	81	+ 5 (tonal)	86
Forklift outside	81	N/A	81
Forklift reverse alarm outside	86	+ 5 (tonal)	91
Unloading Truck with Forklift	85	+ 2 (impulsive)	87
Compression air brakes	79	+ 5 (impulsive)	84
Air compressor	83	+ 2 (impulsive)	85
Waste collection	84	+ 5 (impulsive)	89
Hammering sheet metal	96	+ 5 (impulsive)	101
Drill Press	69	N/A	69
Hand Grinder	95	+ 5 (tonal)	100
Compressed Air Rivet Gun	79	+ 5 (tonal)	84
Shunting Freight Wagon	96	+ 5 (impulsive)	101

The nearest noise sensitive receivers on site are located along the northern property boundary.

6.1.1 Predicted Noise Levels – Schedule 1 EPP08 Outdoor (day/evening) Criteria

Tables 6 and 7 present predicted noise impact levels from the *Ipswich Workshops* and *Workshop Rail Museum* impacting onto the nearest potentially affected noise sensitive premises. Predicted levels are based upon the above mentioned noise source levels and the receiver located at the nearest boundary of the site to the source.

Table 6: Predicted Noise Impacts from QR Ipswich Workshops to Nearest Onsite Receiver

Noise Source:	Predicted Level			Assessment Criteria Complies (Yes/No)		
	L _{A1} dB(A)	L _{A10} dB(A)	L _{Aeq} dB(A)	L _{A1} 65 dB(A)	L _{A10} 55dB(A)	L _{Aeq} 50dB(A)
Car door closure	49	37	36	Yes	Yes	Yes
Car bypass @ 5 km/hr	47	45	42	Yes	Yes	Yes
Truck bypass @ 5km/hr	54	53	50	Yes	Yes	Yes
Truck reverse alarm	48	45	45	Yes	Yes	Yes
Forklift outside	44	40	40	Yes	Yes	Yes
Forklift reverse alarm outside	54	50	50	Yes	Yes	Yes
Unloading Truck with Forklift	53	49	46	Yes	Yes	Yes
Compression air brakes	59	49	43	Yes	Yes	Yes
Air compressor	39	34	33	Yes	Yes	Yes
Waste collection	58	53	50	Yes	Yes	Yes
Milling Machine	39	36	33	Yes	Yes	Yes
Conversation	33	29	23	Yes	Yes	Yes
Hammering sheet metal	58	54	48	Yes	Yes	Yes
Drill Press	23	21	16	Yes	Yes	Yes
Hand Grinder	45	44	42	Yes	Yes	Yes
Compressed Air Rivet Gun	33	32	26	Yes	Yes	Yes
Shunting Freight Wagon	61	61	59	Yes	No	No

Based upon the source noise levels presented in Tables 3 – 5 and the construction of a 2.6metre high acoustic barrier along western site boundary, shunting freight wagons (only assessed for Scenario 3 – see Section 6.1.2) are predicted to exceed the L_{A10} and L_{Aeq} criteria. It is predicted shunting freight wagon activities can achieve compliance with additional acoustic treatments as detailed in Section 7.

All remaining activities associated with the *QR Ipswich Workshops* are predicted to comply with the criteria provided the recommended acoustic barrier detailed in Section 7 is implemented.

Table 7: Predicted Noise Impacts from QM Workshop Rail Museum to Nearest Onsite Receiver

Noise Source:	Predicted Level			Assessment Criteria Complies (Yes/No)		
	L _{A1} dB(A)	L _{A10} dB(A)	L _{Aeq} dB(A)	L _{A1} 65 dB(A)	L _{A10} 55dB(A)	L _{Aeq} 50dB(A)
Car door closure	49	37	36	Yes	Yes	Yes
Car bypass @ 5 km/hr	47	45	42	Yes	Yes	Yes
Truck bypass @ 5km/hr	54	53	50	Yes	Yes	Yes
Truck reverse alarm	48	45	45	Yes	Yes	Yes
Forklift outside	44	40	40	Yes	Yes	Yes
Forklift reverse alarm outside	54	50	50	Yes	Yes	Yes
Unloading Truck with Forklift	53	49	46	Yes	Yes	Yes
Compression air brakes	59	49	43	Yes	Yes	Yes
Waste collection	58	53	50	Yes	Yes	Yes
Conversation	33	29	23	Yes	Yes	Yes

The activities associated with the Workshop Rail Museum are predicted to comply with the criteria provided the recommended acoustic barrier detailed in Section 7 is incorporated into the development.

6.1.2 Predicted Noise Levels – Background Creep Criteria

To ensure the acoustic amenity of the surrounding area is not adversely impacted, a further assessment was conducted to determine the compliance of the offsite activities in accordance with the EPP08 “Background creep” assessment criteria.

As the future use of the rail workshop and associated yard are uncertain, 3 scenarios were considered and are detailed as follows:

- Scenario 1 – Current use/capacity:
 - 3 staff members (of a total 54 staff) operating equipment (hand tools, power tools, floor mounted machinery) indoors within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - 1 workshop/maintenance warehouse utilised,
 - 1 semi-truck delivery per month (with associated forklifts unloading/loading activities).
 - 1 “traverser” movement per month.

- Scenario 2 – Increased operational capacity (Increased activity as a maintenance workshop):
 - 25 staff members operating equipment (hand tools, power tools, floor mounted machinery) indoors within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - 2 semi-truck delivery per week (with associated forklifts unloading/loading activities)
 - 2 “traverser” movements per week
- Scenario 3 – Full operation of all facilities and workshop buildings (Use as a freight yard and maintenance workshop):
 - All staff members operating equipment (hand tools, power tools, floor mounted machinery) simultaneously (indoors) within the workshop buildings,
 - Conversation from all staff (outside),
 - Car movements associated with 54 staff (car bypass and car door closure),
 - All workshop/maintenance warehouses utilised,
 - 20 semi-truck delivery per day (with associated forklifts unloading/loading activities)
 - 1 “traverser” movement per day,
 - shunting freight wagons from rail yard.

For calculation purposes the following assumptions were made for day time operation (7am to 6pm):

- Scenario 1 – Current use/capacity:
 1. 162 Car passbys and 162 Car Door Closures.
 2. 2 Truck passbys 1 truck compression air brake and 1 Truck reversing alarm.
 3. 10 Forklift movements, 5 forklift unloading truck movements, 5 Forklift reversing alarms.
 4. 120 air compressor cycles.
 5. 45 uses of the milling machine, 200 hammering sheet metal and 10 uses of the drill press, hand grinder and compressed air rivet gun (each).
 6. 2 “Traverser” passbys and 2 loading/unloading of the traverser using the shunt tractor.
 7. 6 conversations (where 50% of the staff are talking simultaneously).
 8. 1 waste collection truck to empty industrial bin.
- Scenario 2 – Increased operational capacity:
 1. 162 Car passbys and 162 Car Door Closures.
 2. 4 Truck passbys 2 truck compression air brake and 2 Truck reversing alarm.
 3. 20 Forklift movements, 10 forklift unloading truck movements, 10 Forklift reversing alarms.
 4. 120 air compressor cycles.
 5. 60 uses of the milling machine, 300 hammering sheet metal and 100 uses of the drill press, hand grinder and compressed air rivet gun (each).
 6. 4 “Traverser” passbys and 4 loading/unloading of the traverser using the shunt tractor.
 7. 6 conversations (where 50% of the staff are talking simultaneously).
 8. 1 waste collection truck to empty industrial bin.