

- 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/m^2 .
- 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/m^2 .
- 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

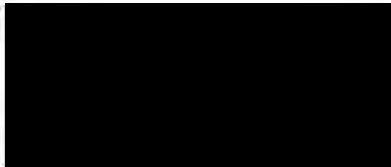
The developer should consider the quality of the development required, including the potential of upgrading the acoustic features of the site to provide a more suitable environment for future tenants. Areas to consider upgrades of acoustic features include (but not limited to) improved construction of 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.

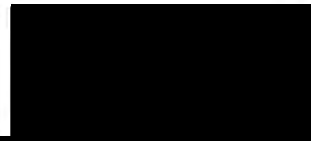
If you should have any further questions, please do not hesitate to contact us.

Report Compiled by:



B.Eng (Env)
Acoustic Consultant

Report Checked by:



B.Eng (Mech)
Associate Director

9. APPENDICES

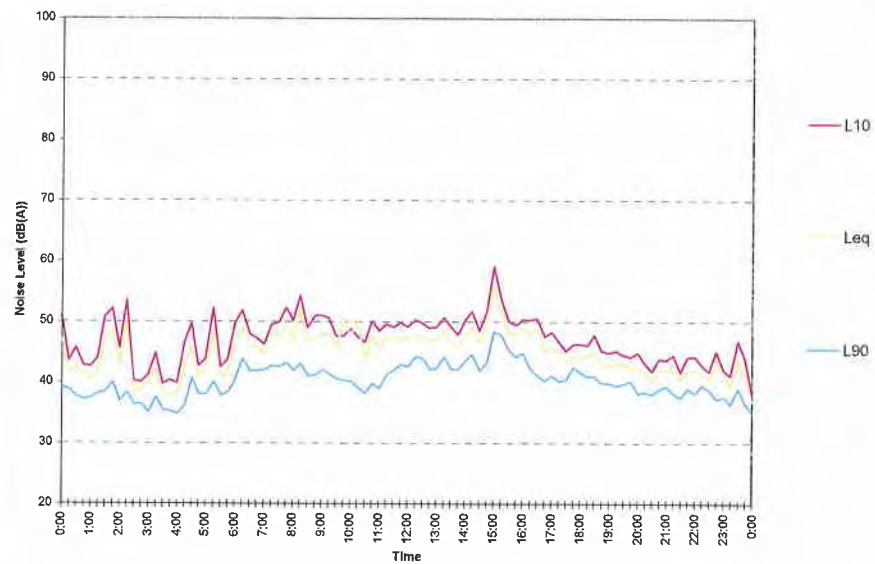
Appendix A

Proposed Development Plan

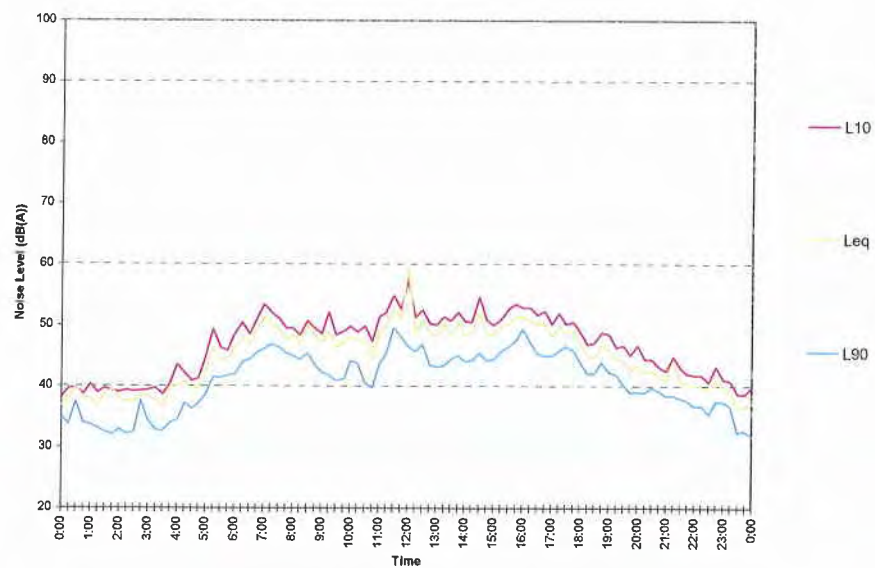


Appendix B
Noise Monitoring Results

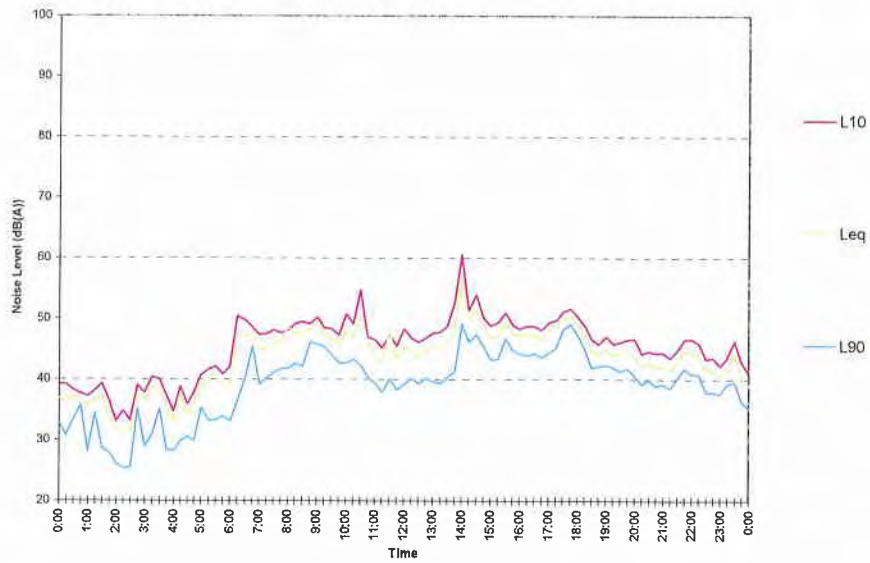
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31/05/2009



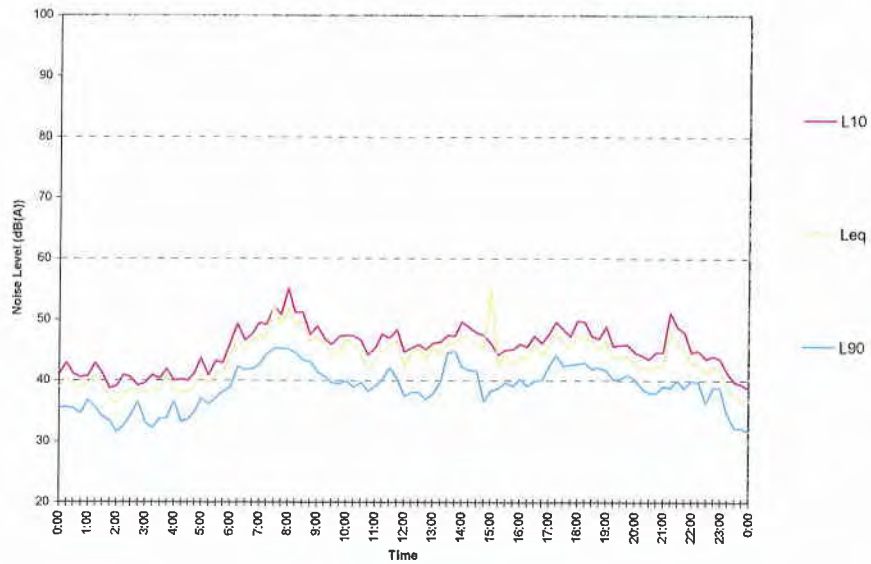
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01/06/2009



25691_ENV
05/062009

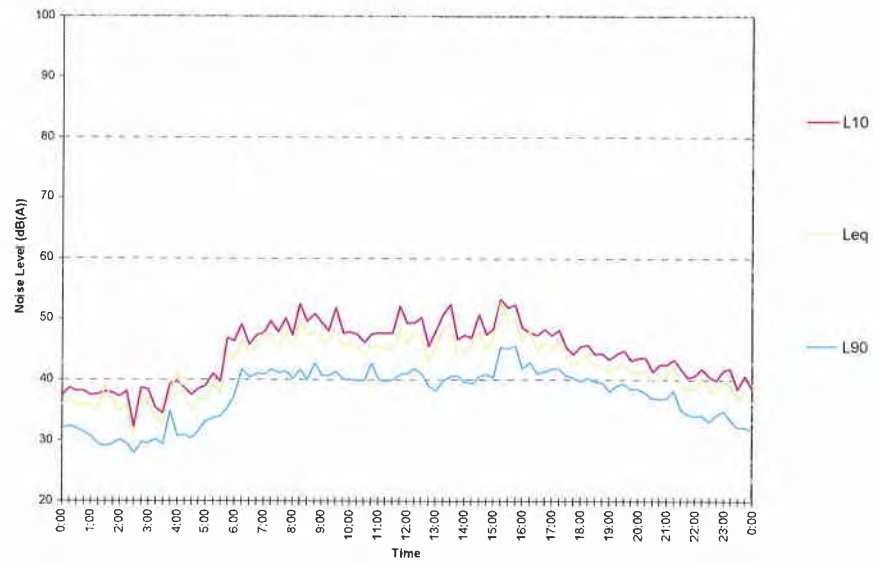


25691_ENV
Saturday June 6, 2009



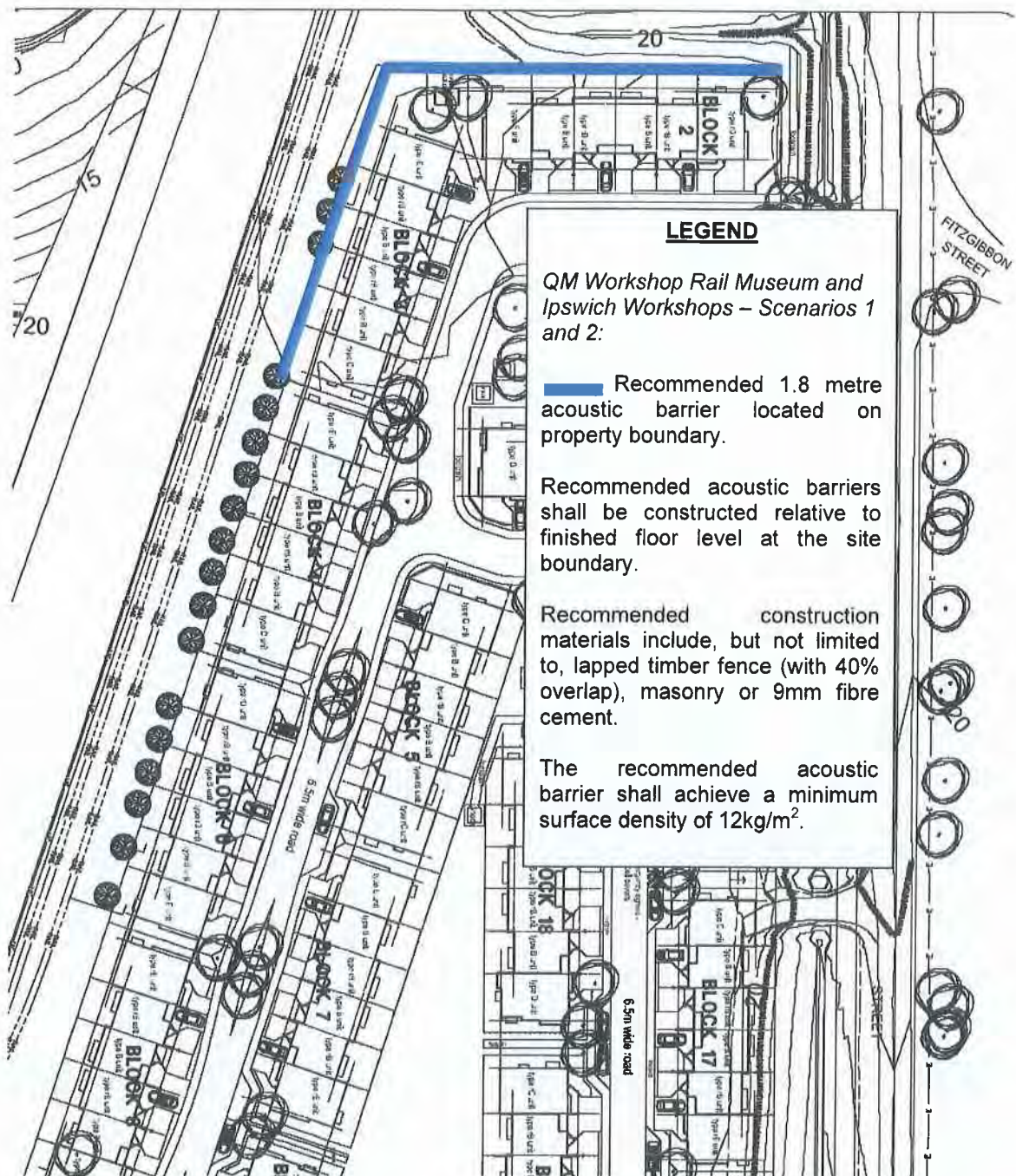
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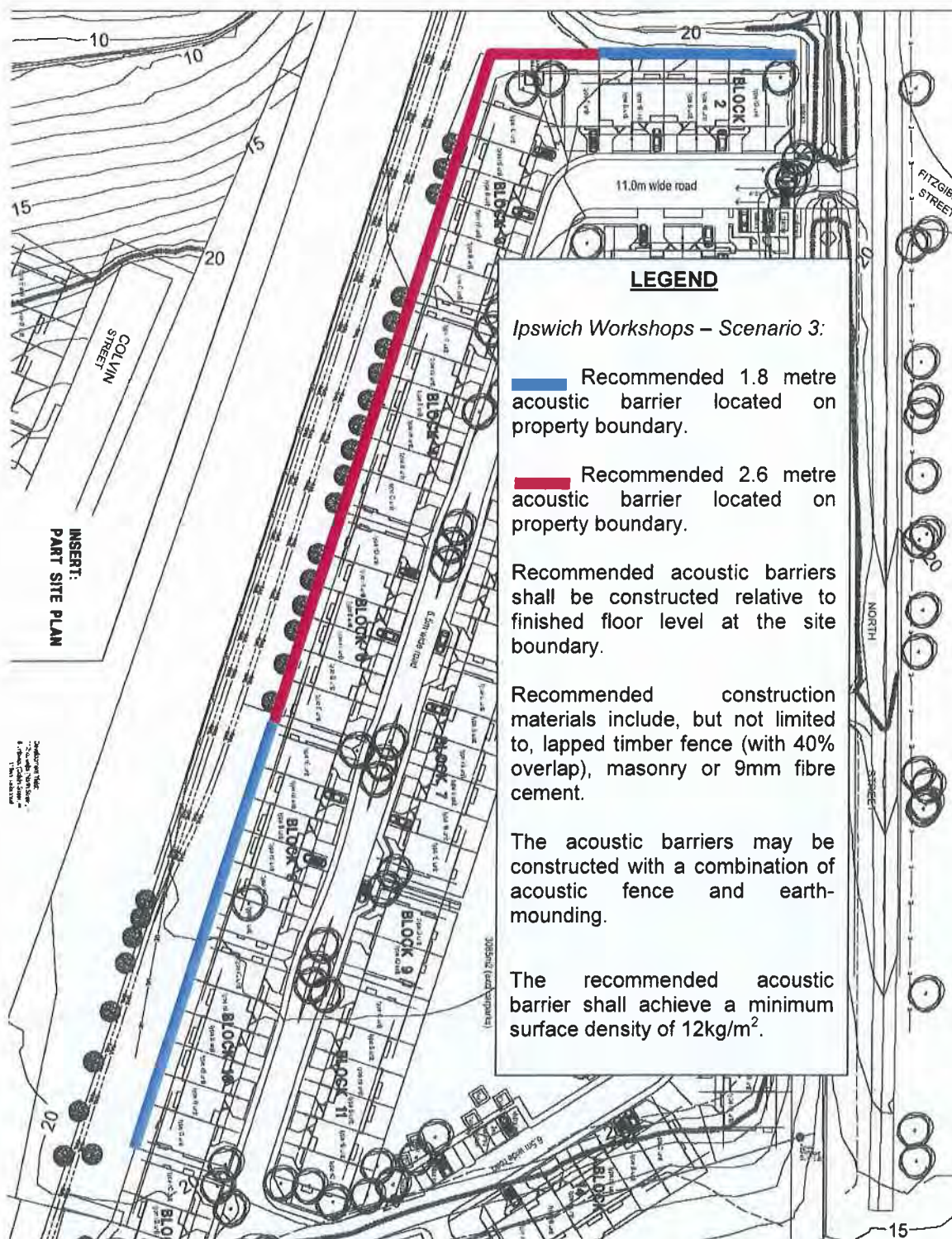
08/06/2009



Appendix C

Recommended Acoustic Barriers





Lipoma Pty Ltd – MCU.
North Street, North Ipswich.
Our Ref. 874206.

Appendix 3

Proposal Plans (Units).



LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES

UNIT SCHEDULE:

BLOCK No.	UNIT No	TYPE	HEIGHT	BEDS	FLOOR AREA	EE CERT	Rec Area reqmt	Priv Rec Actual	Primary Rec Area	Com Rec balance	UNIT No
01	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
02	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
03	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
04	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
05	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
06	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
07	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
08	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
09	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
10	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
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	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
13	1301	B unit	1	2	101.24m2	1301-tba	62m2	34.5m2	44.4m2	-17.1m2	1301
	1302	B unit	2	3	140.1m2	1302-tba	75m2	57.9m2	44.4m2	-24.5m2	1302
	1303	B unit	2	3	140.1m2	1303-tba	75m2	50.5m2	37.0m2	-38.5m2	1303
14	1304	B unit	2	3	140.1m2	1304-tba	75m2	50.5m2	37.0m2	-38.5m2	1304
	1305	B unit	2	3	140.1m2	1305-tba	75m2	57.9m2	44.4m2	-17.1m2	1305
	1306	B unit	2	3	102.72m2	1306-tba	62m2	74.6m2	34.0m2	-14.6m2	1306
15	1401	B unit	1	2	97.01m2	1401-tba	60m2	48.5m2	30.0m2	-28.5m2	1401
	1402	B unit	2	3	140.1m2	1402-tba	75m2	45.5m2	30.0m2	-45.5m2	1402
	1403	B unit	2	3	140.1m2	1403-tba	75m2	45.5m2	30.0m2	-45.5m2	1403
16	1404	B unit	2	3	140.1m2	1404-tba	75m2	45.5m2	30.0m2	-45.5m2	1404
	1405	B unit	2	3	140.1m2	1405-tba	75m2	45.5m2	30.0m2	-45.5m2	1405
	1406	B unit	1	2	101.24m2	1406-tba	62m2	84.5m2	30.0m2	-24.5m2	1406
17	prior appln	prior appln	1	2	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
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	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
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	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
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	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
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	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
	prior appln	prior appln	2	3	prior appln	tba	prior appln	prior appln	prior appln	prior appln	prior appln
21	2101	F unit	1+	2	110.0m2	2101-tba	60m2	120.0m2	95.0m2	-65.0m2	2101
	2102	F unit	1+	2	110.0m2	2102-tba	60m2	120.0m2	95.0m2	-65.0m2	2102
	2103	F unit	1+	2	110.0m2	2103-tba	60m2	120.0m2	95.0m2	-65.0m2	2103
22	2201	F unit	1+	2	110.0m2	2201-tba	60m2	120.0m2	95.0m2	-65.0m2	2201
	2202	F unit	1+	2	110.0m2	2202-tba	60m2	120.0m2	95.0m2	-65.0m2	2202
	2203	F unit	1+	2	110.0m2	2203-tba	60m2	120.0m2	95.0m2	-65.0m2	2203

DEVELOPMENT DATA:

development yield:

yield: prior development application 100no units (North Street) +
this application @ 12 units (North Street) +
6no units (Colvin Street) = 118no units total

carparking: prior development application 237no. +
this application @ 18no private car spaces + 18no (112/46) visitor
spaces on driveways + 6no (4+2) visitor spaces in common areas
= 237 + 42 = 279 spaces total

recreation area: 3085m2 as prior development application +
open space / drainage reserve

development details:

local authority: Ipswich City Council
domestic: Residential Medium Density
vacant
proposed use: Residential Medium Density

gross building area:
site cover:
density - allowable:
- actual
car parking - this appln:
- required
- actual
- whole site / req:
/ actual

Blocks 1-12: 8,045.47m2 gross
Blocks 15-20: 4,564.80m2 gross
Maintenance Bldg: 13.5m2 gross
Covered Areas: 87.5m2 gross
this appln:
Block 13: 754.36m2 gross
Block 14: 758.65m2 gross
Block 21: 252.0m2 gross
Block 22: 252.0m2 gross

14,738.28m2 (over whole site)
10,252.56m2 = 21.03% (over whole site)
@ 50ha = 244no (over whole site)
@ 24ha = 118no (over whole site)
1 unit (v) + 0.5 unit (v1) + 0.5 unit (v2) = 36 bays total
18 (res) + 18 (v1) + 6 (v2) = 42 bays
205 + 36 = 241no bays
237 + 42 = 279no bays

DRAWING SCHEDULE:

ARCHITECTURAL (impact application):

drawing no issue drawing title
2009 12 DA01 C Development Details
2009 12 DA02 E Site Plan
2009 12 DA03 E Site Layout
2009 12 DA04 C Typical Unit Plans 'B' & 'F'
2009 12 DA05 B Typical Unit Plans 'C', 'D' & 'E'
2009 12 DA08 B Block 13 Plan / Typical 6 Unit Plan
2009 12 DA09 B Block 13 Elevations / Typical 6 Unit
2009 12 DA11 A Pedestrian Circulation
2009 12 DA12 A Elevations / Colour Palette
2009 12 DA13 A Colvin Street Units

ASSOCIATED CONSULTANTS:

LAND SURVEY & TOWN PLANNING SERVICES:

Michael Group Services
23 Colton Street, Nersing
p: 07 55022500
f: 07 55004850
e: admin@michelservices.com.au

CIVIL ENGINEERING:

Yates Consulting Engineers
L 2 9 Ouyen Street Bundall
p: 07 55704877
f: 07 55704877
e: brandon@yates.com.au

STRUCTURAL ENGINEERING:

name
address
p:
f:
e:

HYDRAULIC SERVICES:

name
address
p:
f:
e:

TRAFFIC ENGINEERING:

Bitzko Consulting
26/58 Ravenhill Avenue, Robbins
p: 07 55625377
f: 07 55625373
e: andrew@bitzkoconsulting.com.au

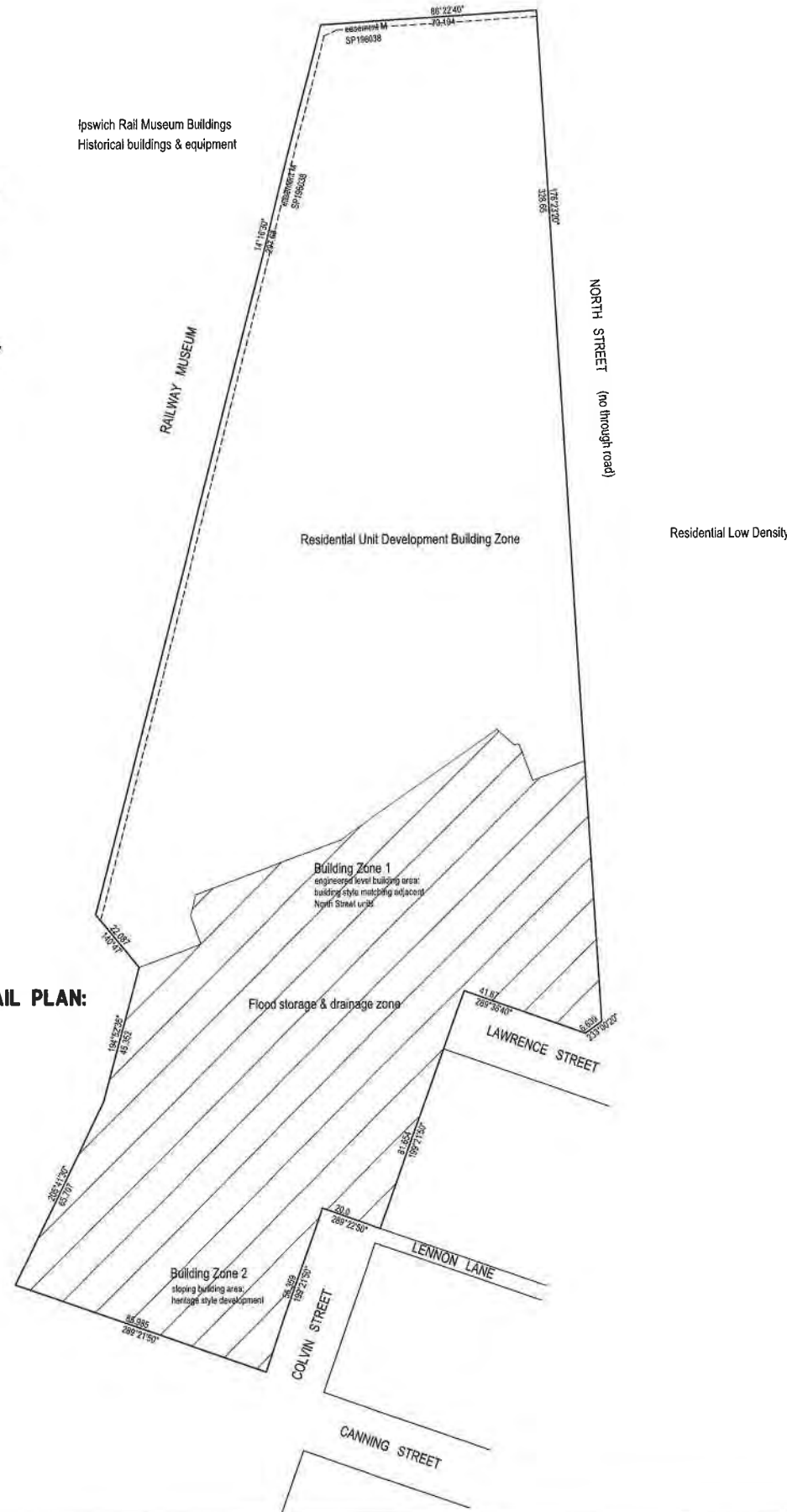
ACOUSTIC ENGINEERING:

TTM Consulting (GC)
132 Scarborough Street, Southport
p: 55919177
f: 55919188
e: admin@ttmgroup.com.au

LANDSCAPE ARCHITECTURE:

TTM Consulting (GC)
132 Scarborough Street, Southport
p: 55919177
f: 55919188
e: admin@ttmgroup.com.au

SITE DETAIL PLAN:



Development Data:

this application:

12no units (North Street) +
6no units (Colvin Street) =
18no units total

carparking:

this application:
18 (res) + 18 (v1) + 6 (v2) = 42no bays

Recreation Area: 3085m2 + private open space / private courtyards

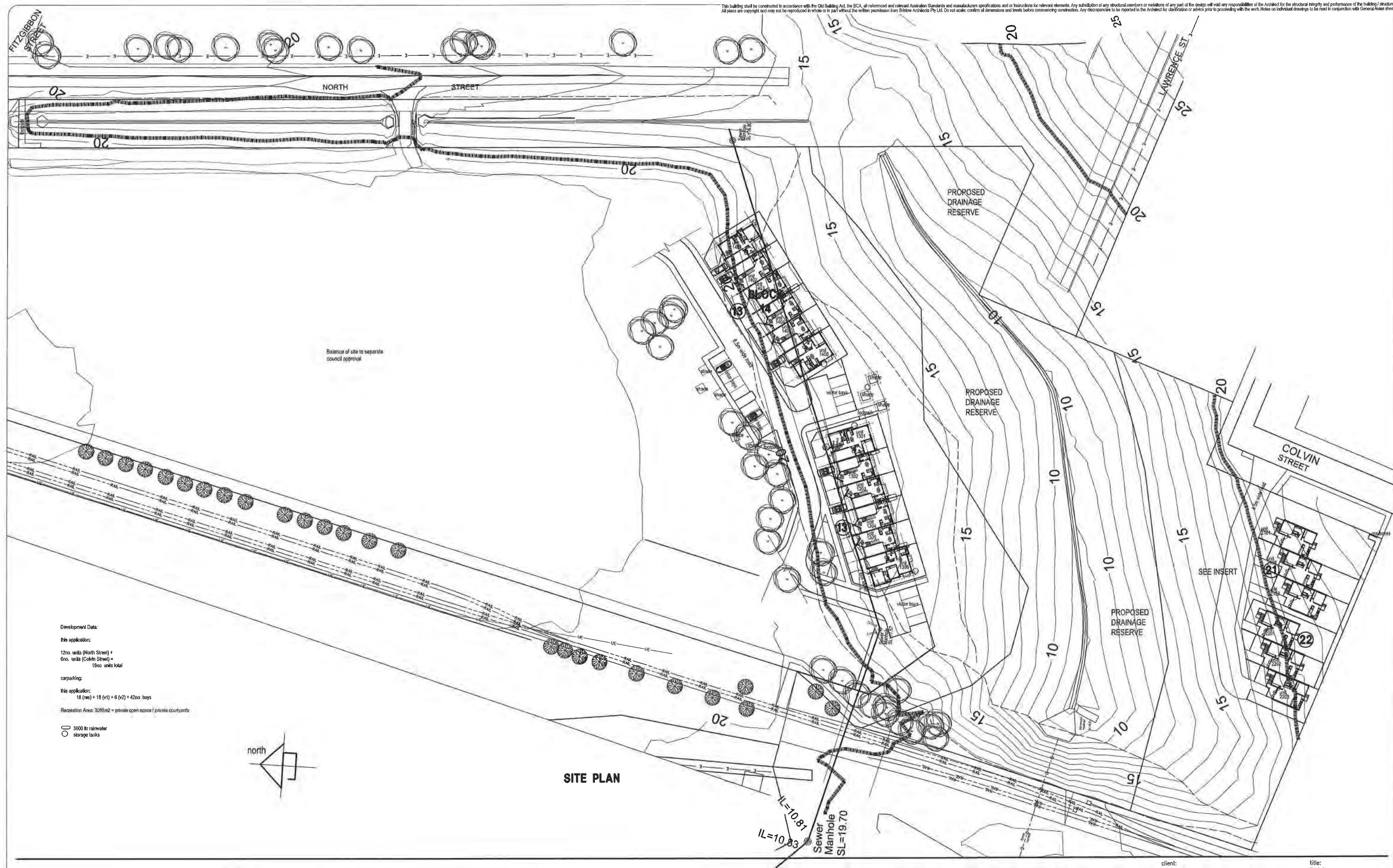
SITE PLAN

client:

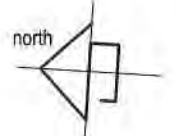
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date: job no:
16/03/10 2008 32
drawing no:
2009.12 DA02 E

This building shall be constructed in accordance with the Old 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 confirm 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.



Development Data:
this application:
12no units (North Street) +
6no. units (Colvin Street) =
18no units total
carparking:
this application:
18 (res) + 18 (v1) + 6 (v2) = 42no. bays
Recreation Area: 3085m² = private open space / private courtyard
3000 ltr rainwater storage tanks



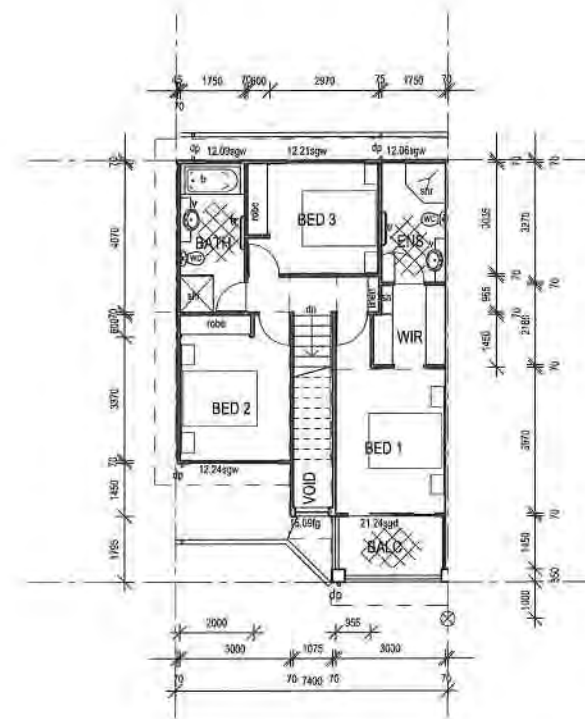
SITE PLAN

BRISTOW ARCHITECTS
BRISTOW ARCHITECTS PTY LTD
3 Nozomi Street,
Burling Waters, QLD
Phone: 5535 1977
Fax: 5535 5254
Email: alan.bristow@bristowarchitects.com.au

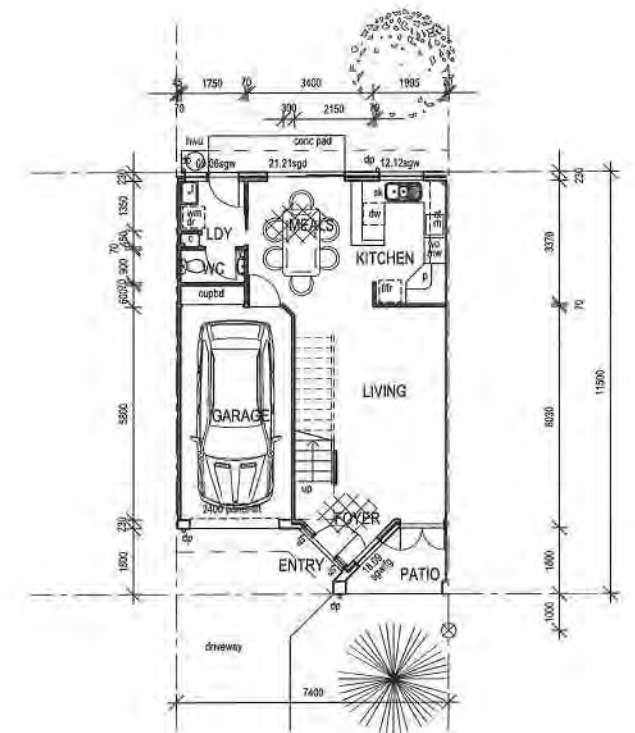
AMENDMENTS:
E Blocks 13, 14, 21 & 22 added - Apr 10
D Application amended - Apr 10
C Covered car wash bays deleted; proposed drainage reserve added - Mar 10
B Block 19 amended - Sep 09
A DA Issue - Aug 09

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:
20/07/09
drawing no:
2009.12 DA03 E
drawn:
ajb
job no:
2008 32

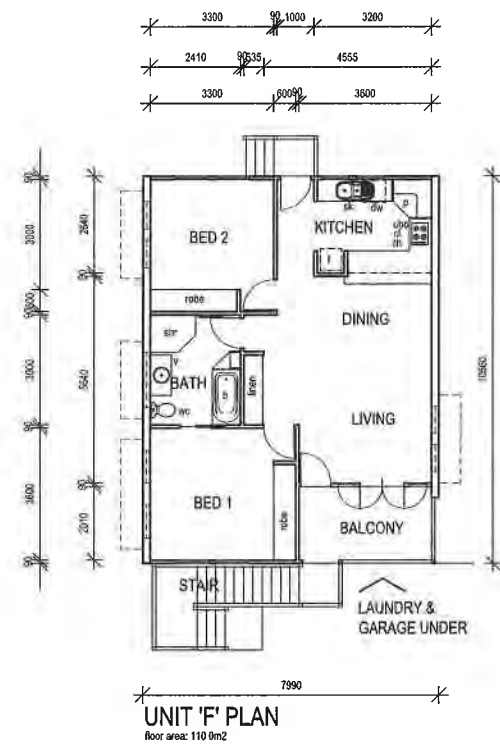
— This building shall be constructed in accordance with the Qld Building Act, the BCA, all referenced and relevant Australian Standards and manufacturers specifications and or instructions for relevant elements. Any substitution of any structural members or variations of any part of the design will void 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 Bistow Architects Pty Ltd. Do not scale; confirm 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.



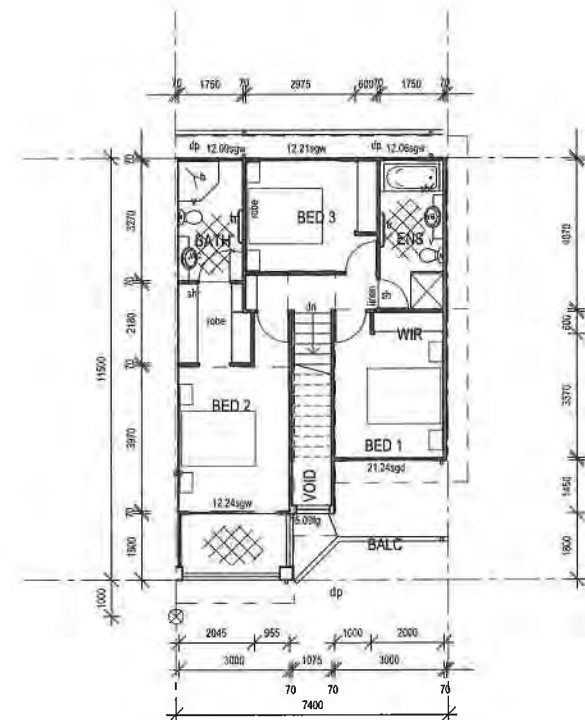
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floor area: 66.46m²



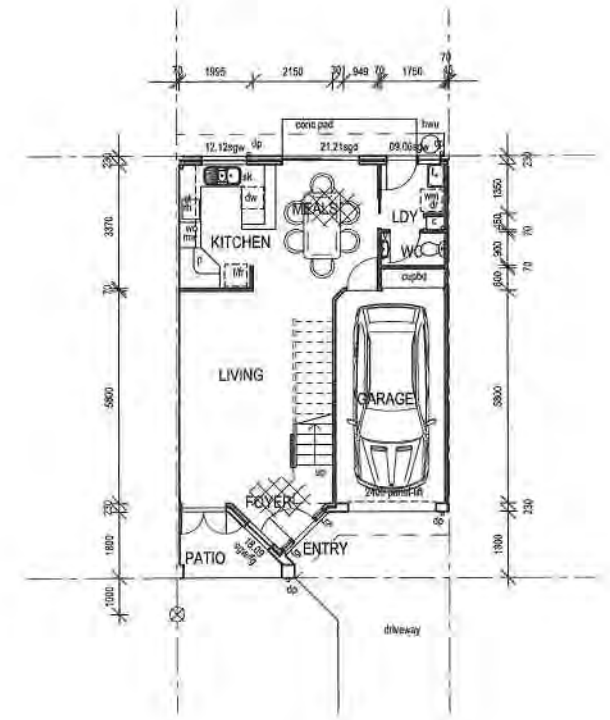
UNIT 'B' PLAN: GF
floor area: 73 64m²



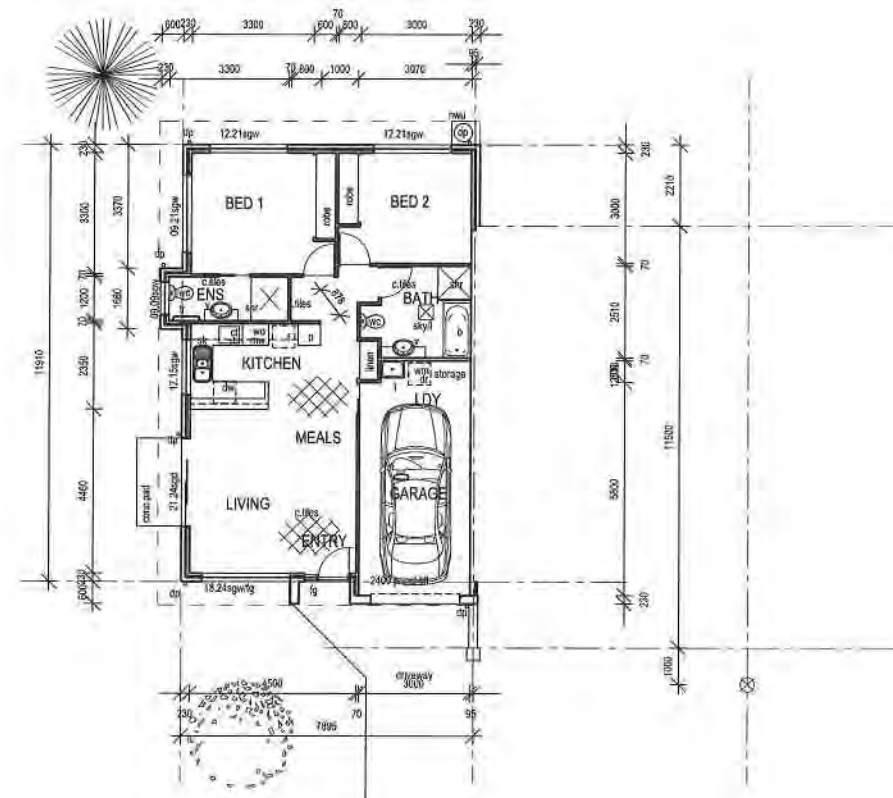
UNIT 'F' PLAN
floor area: 110.0m²



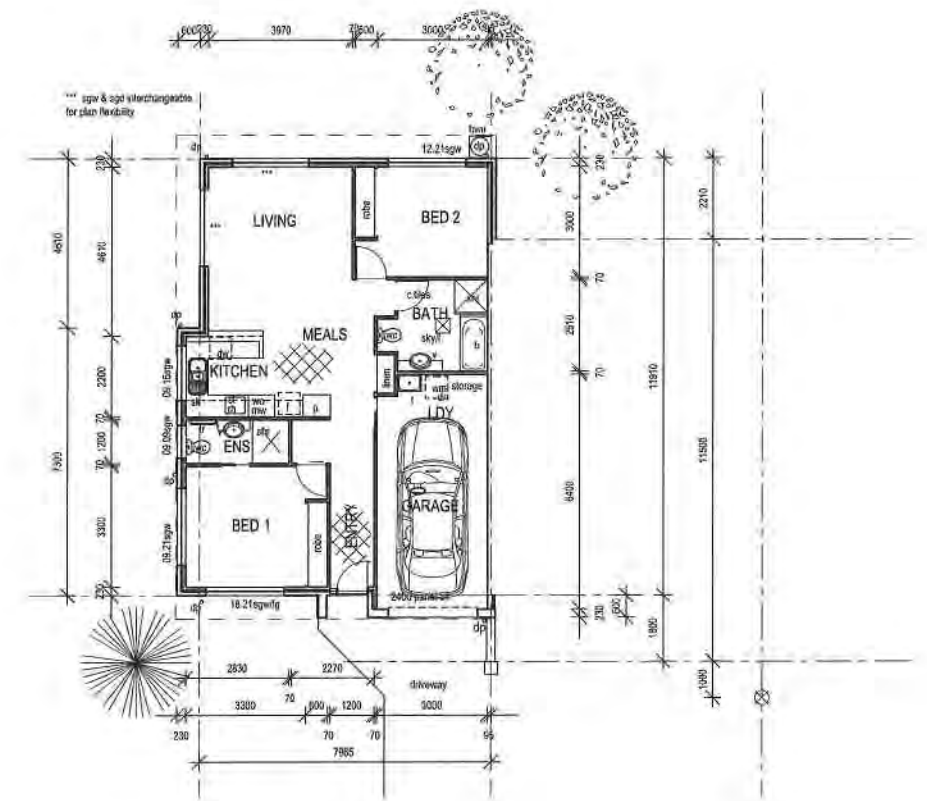
UNIT 'rB' PLAN: FF
floor area: 66.46m2



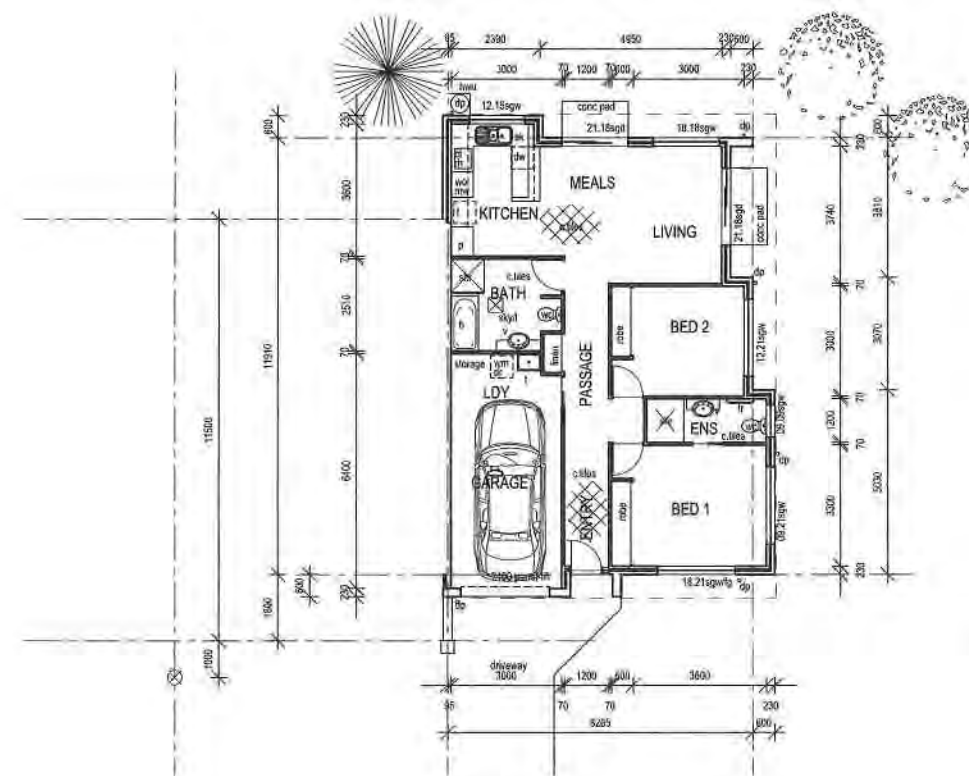
UNIT 'rB' PLAN: GF
floor area: 73.64m²



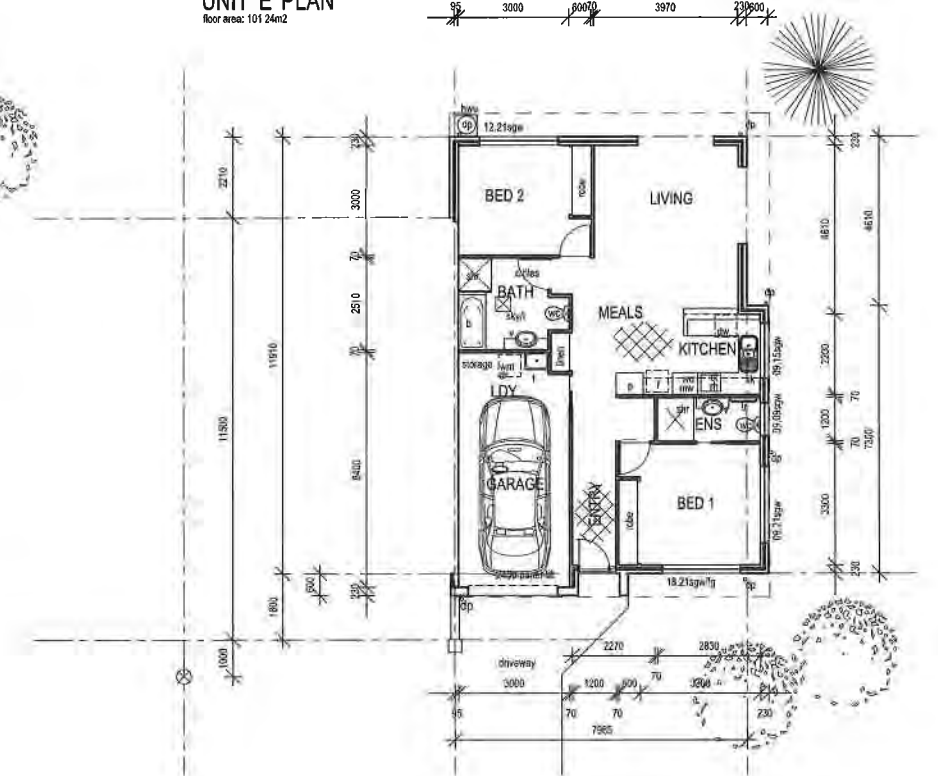
UNIT 'C' PLAN
floor area: 97.01m²



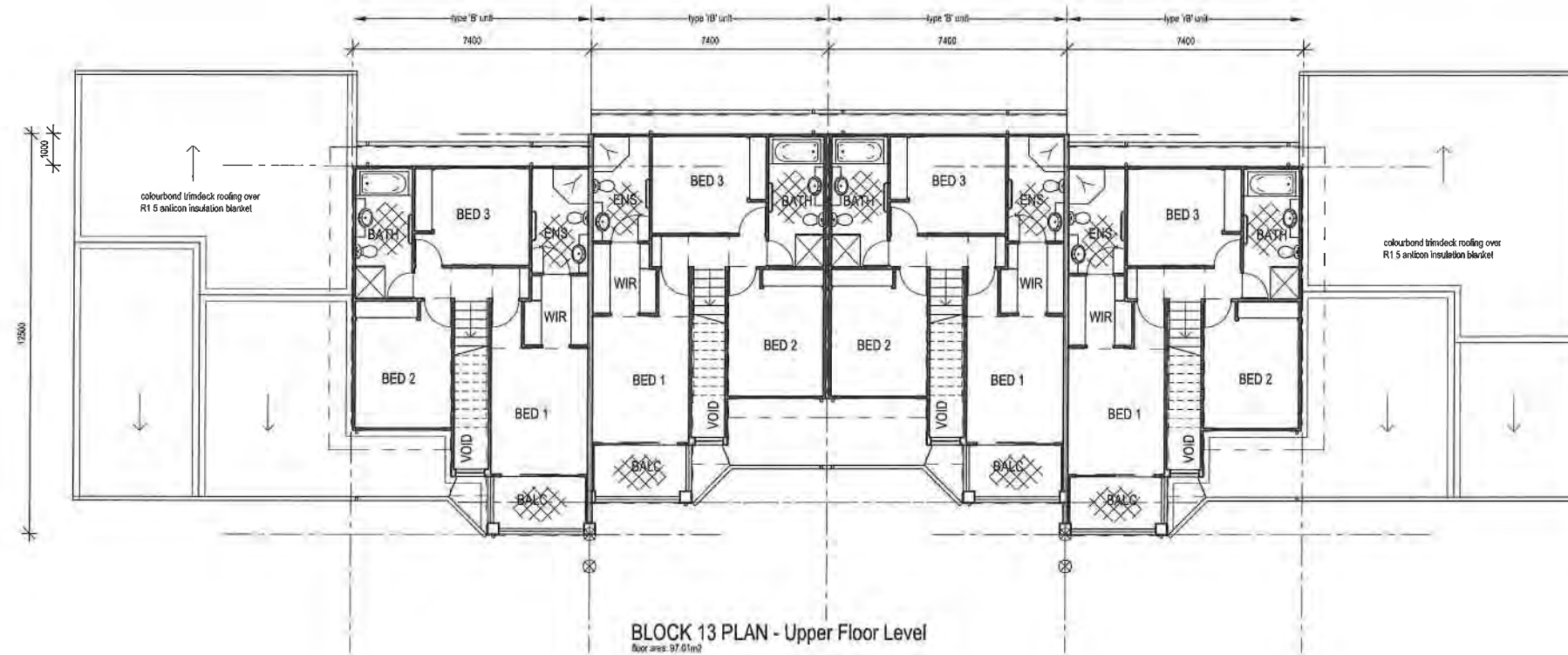
UNIT 'E' PLAN
floor area: 101.24m²



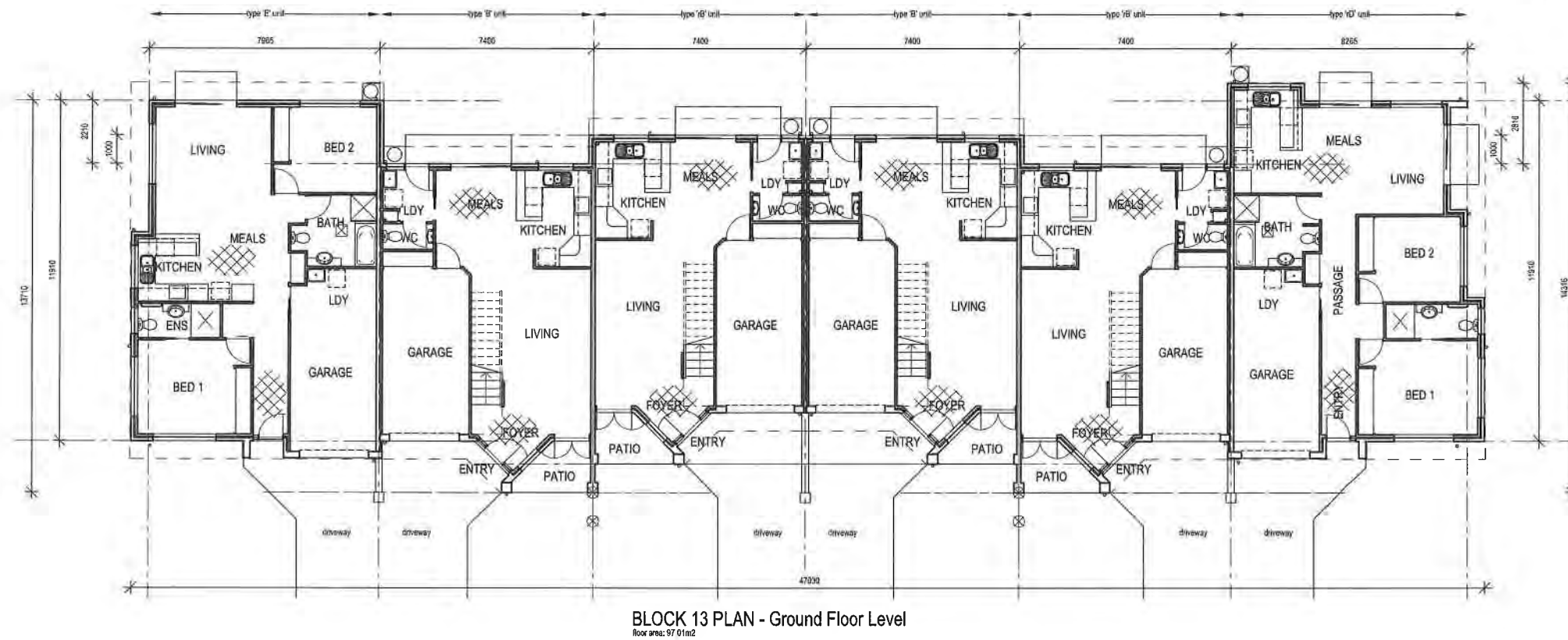
UNIT 'D' PLAN
floor area: 102.72m²



UNIT 'E' PLAN
floor area: 101.24m²



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



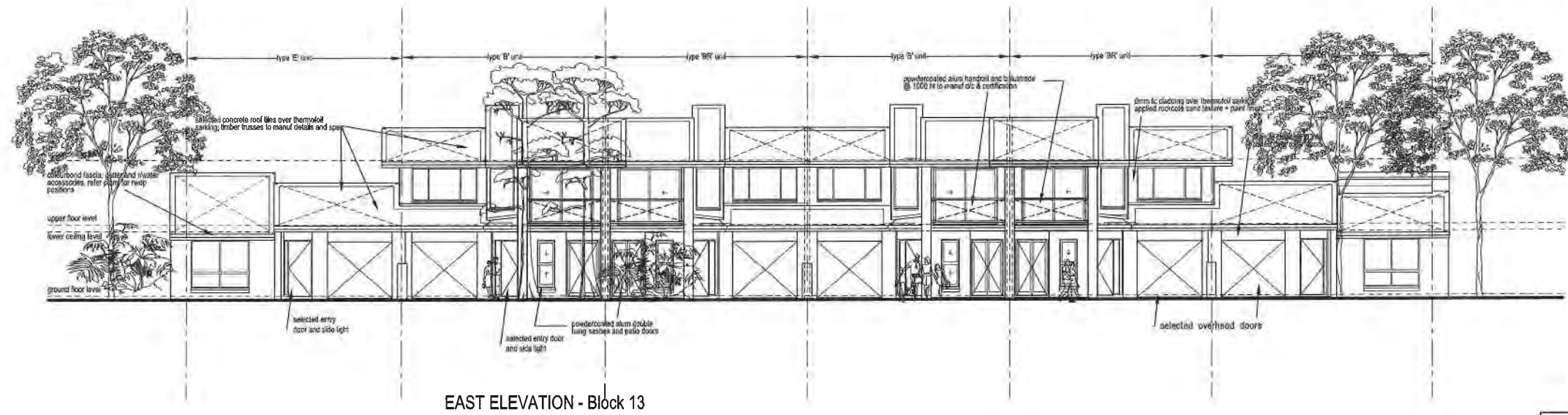
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NORTH ELEVATION

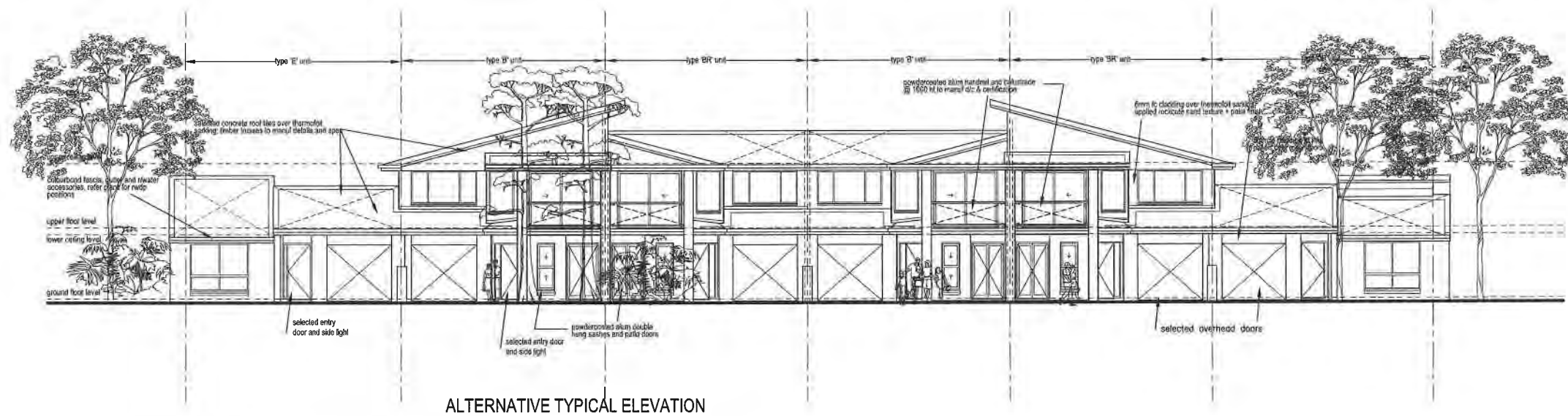


SOUTH ELEVATION



EAST ELEVATION - Block 13

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



ALTERNATIVE TYPICAL ELEVATION

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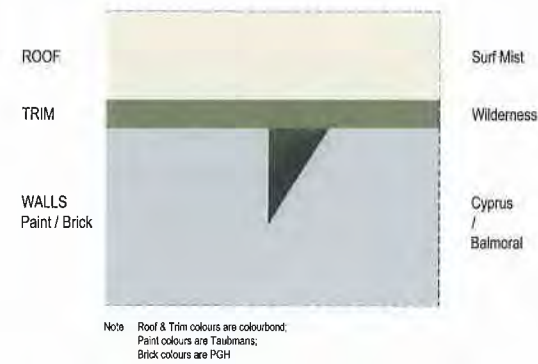
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Block number amended & elevation changed - Apr 10
DA Issue - Aug 08
AMENDMENTS:

client: LEDA DEVELOPMENTS PTY LTD
project & address: Proposed Residential Unit Development @ North Street, North Ipswich
title: D A Issue - Block 13 Elevs & Typical 6 Unit
scale: 1:100
date: 24/07/09
drawing no: 2009.12 DA09 B
drawn: ajb
job no: 2008.32



#1 COLOUR SELECTION



#2 COLOUR SELECTION



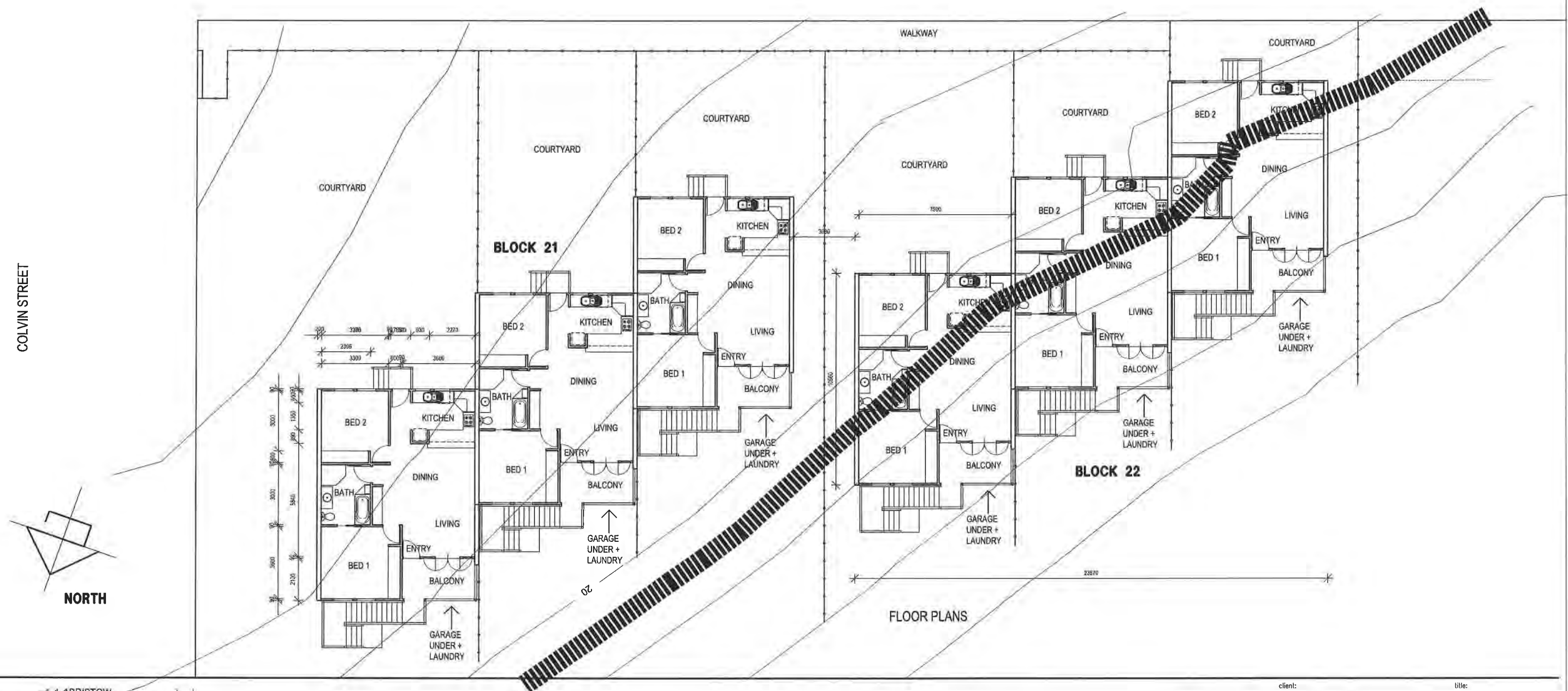
#3 COLOUR SELECTION



#4 COLOUR SELECTION



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AMENDMENTS:

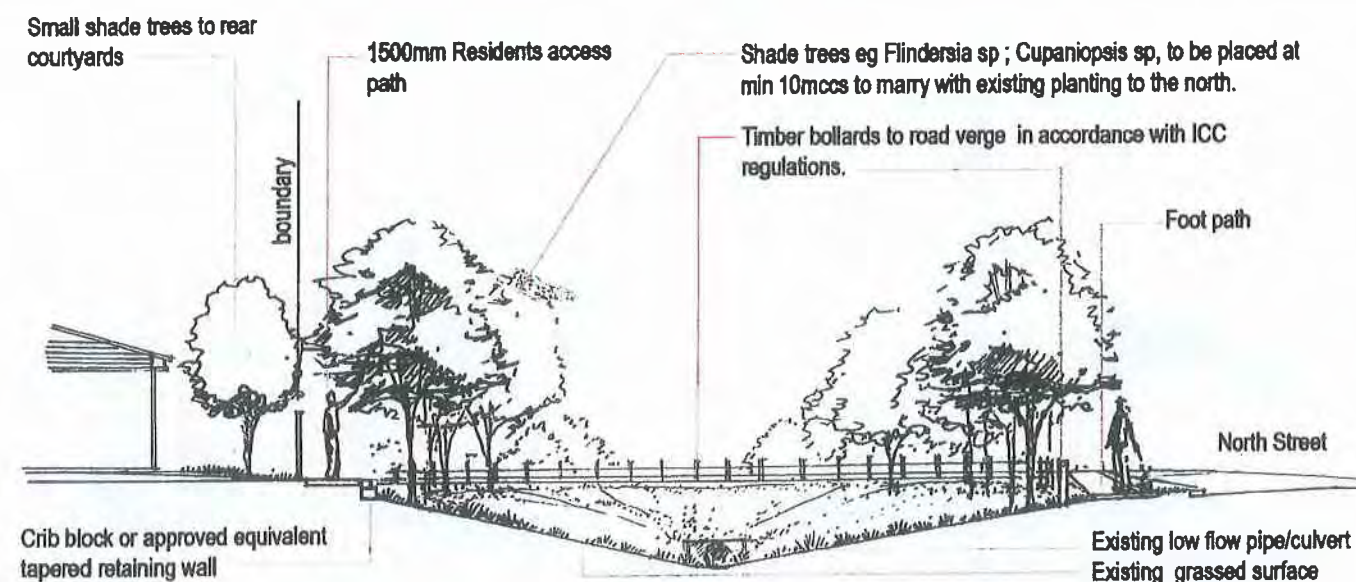
client:
LEDA DEVELOPMENTS PTY LTD
project & address:
**Proposed Residential Unit
Development @ North Street,
North Ipswich**
title:
D A Issue -
Colvin St Units
scale:
1:100
date:
27/08/09
drawing no:
2009.12 DA13
drawn:
apb
job no:
2008.32

Appendix 4

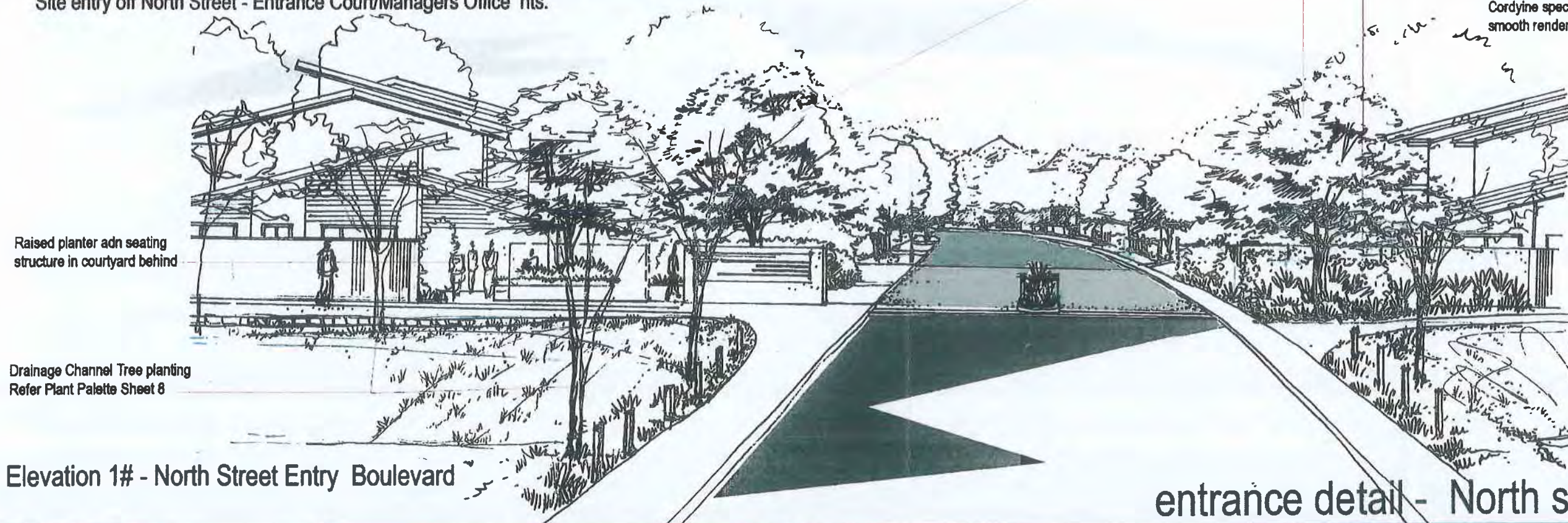
Landscaping Plans.



Site entry off North Street - Entrance Court/Managers Office nts.



Section A - A Typical grassed Drain Channel Profile (Original scale 1:2000@A1)



Elevation 1# - North Street Entry Boulevard

entrance detail - North street interface



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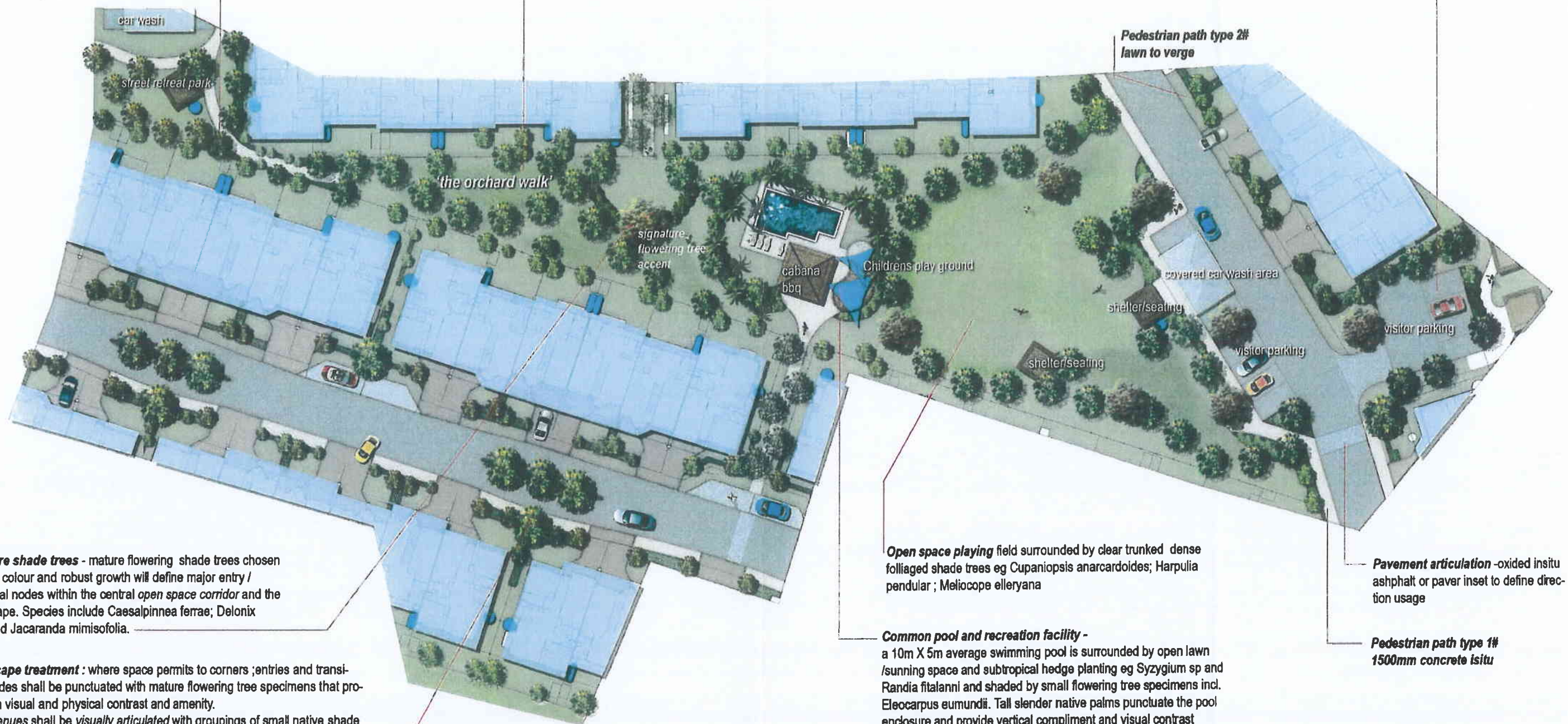
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1500mm Concrete path links the intimate 'street retreat' park to the main recreation corridor. This path shall be flanked with low tussock species eg Lomandra hystrix and Dianella sp as well as small shrub species providing colour and visual contrast through this narrow space as well as allowing *clear site lines* into and out of this park

Shade tree planting in 'open' Copses/groves to lawn area - to include predominantly native flowering shade trees with the inclusion of selected groves of Fruit tree species eg Olea and citrus varieties taking cues from historic context and practises at the adjacent Rail workshop site. Selected fruiting varieties are chosen for hardiness and form and will marry into the meadow park character of this corridor.

Park link to public open space/ sw drainage reserve beyond shall be framed by shelter /seating facilities and low massed garden beds to carpark perimeter. Shrub Planting is maintained at max 1m H to allow passive surveillance. Refer SW Drainage Reserve sheet



Signature shade trees - mature flowering shade trees chosen for form, colour and robust growth will define major entry / directional nodes within the central open space corridor and the streetscape. Species include Caesalpinnea ferrea; Delonix regia; and Jacaranda mimisfolia.

Streetscape treatment : where space permits to corners ;entries and transitional nodes shall be punctuated with mature flowering tree specimens that provide both visual and physical contrast and amenity. Long avenues shall be *visually articulated* with groupings of small native shade trees eg Cupaniopsis; Eleocharis sp and Harpullia sp centered to road islands (min 1400 W) and clustered to property frontages /road verge plantings. (Refer Private lot Treatment sheet)

Open space playing field surrounded by clear trunked dense folliaged shade trees eg Cupaniopsis anarcoides; Harpullia pendular; Meliococe elleryana

Common pool and recreation facility - a 10m X 5m average swimming pool is surrounded by open lawn /sunning space and subtropical hedge planting eg Syzygium sp and Randia fitalanni and shaded by small flowering tree specimens incl. Eleocharis eumundii. Tall slender native palms punctuate the pool enclosure and provide vertical compliment and visual contrast within the recreation area. The cabana over looking the pool shall provide shade and seating as well as a communal BBQ.

Pavement articulation -oxidised insitu asphalt or paver inset to define direction usage

Pedestrian path type 1# 1500mm concrete isitu

open space / recreation corridor



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Unit 1, 2 & 3
Corner of North Street & Railway Avenue
PO Box 200, Ipswich, Queensland 4701

Phone: 07 55 344 500
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www.ledadevelopments.com.au



CONSULTANTS sheet 2

sheet 3

SEE ELEVATION BELOW



Typical internal street elevation nts



typical treatment - internal blocks nts.

Where space permits low massed tussock planting eg Lomandra Hystrix ;
Hymenocallis littoralis; Dietes bicolor to the street front/path interface

Driveway -pavement as selected to compliment the proposed
Architectural detail and colour selection

Timber privacy fence type 1# to 1500m to front alignments
and property alignment Refer landscape structures

Small flowering trees accent the corner points of each court yard and also
contribute to shade and visual amenity to the overall streetscape. eg El-
aeocarpus sp Melicope sp; Acmena sp.

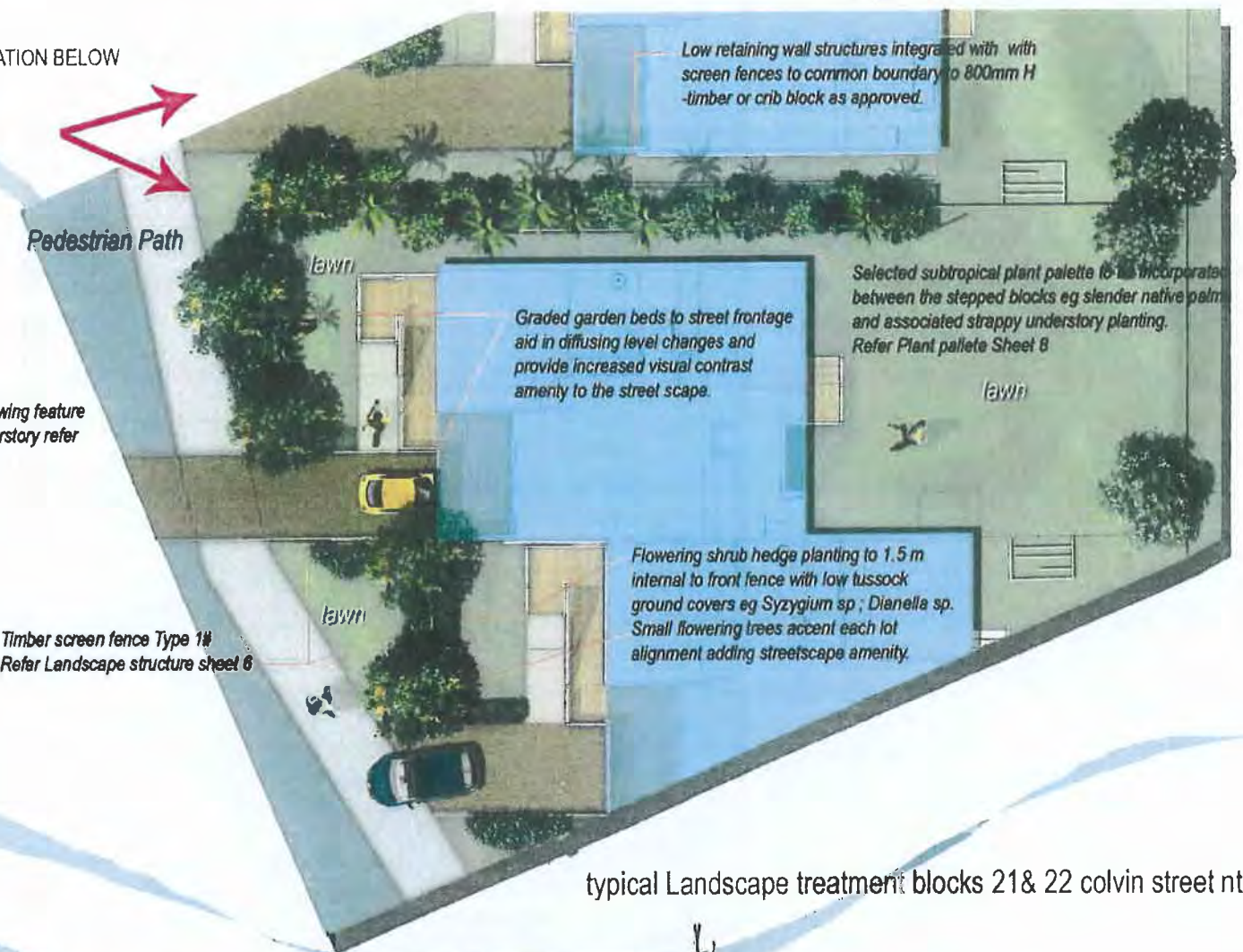
Low flowering shrubs and tussock planting internal of courtyard to the
front and side alignment provides softening of the fence structure and
visual contrast.

Lawn to rear courtyards with 1-2 small to medium shade trees eg
Cupaniopsis anacardoides; Acmena smithii

Timber acoustic fence type2# Refer Landscape structures sheet 6

Fence articulation-allowing feature
tree planting and understory refer
also Architects details

Timber screen fence Type 1#
Refer Landscape structure sheet 6



typical Landscape treatment blocks 21& 22 colvin street nts.



Typical street Elevation Unit Blocks 21 /22 Colvin Street nts.

landscape treatment to private lots



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Pool fence to recreation pool plaza and childrens play ground - Min 1200mm H PC Aluminium



Privacy screen fence type 1# -Internal street front and side boundaries 1200-1500 mmH treated timber paling with top cap.see below



Accoustic fence type 2# -western boundary 1800mm H lapped treated timber



Internal accoustic fence feature wall to corner properties as indicated on plan - Face brick as selected to marry with Architectural detail articulated in relief with smooth Rendered columns



Privacy screen fence typical character....



Bollard character....



Typical picnic /shade shelter character....



landscape structures



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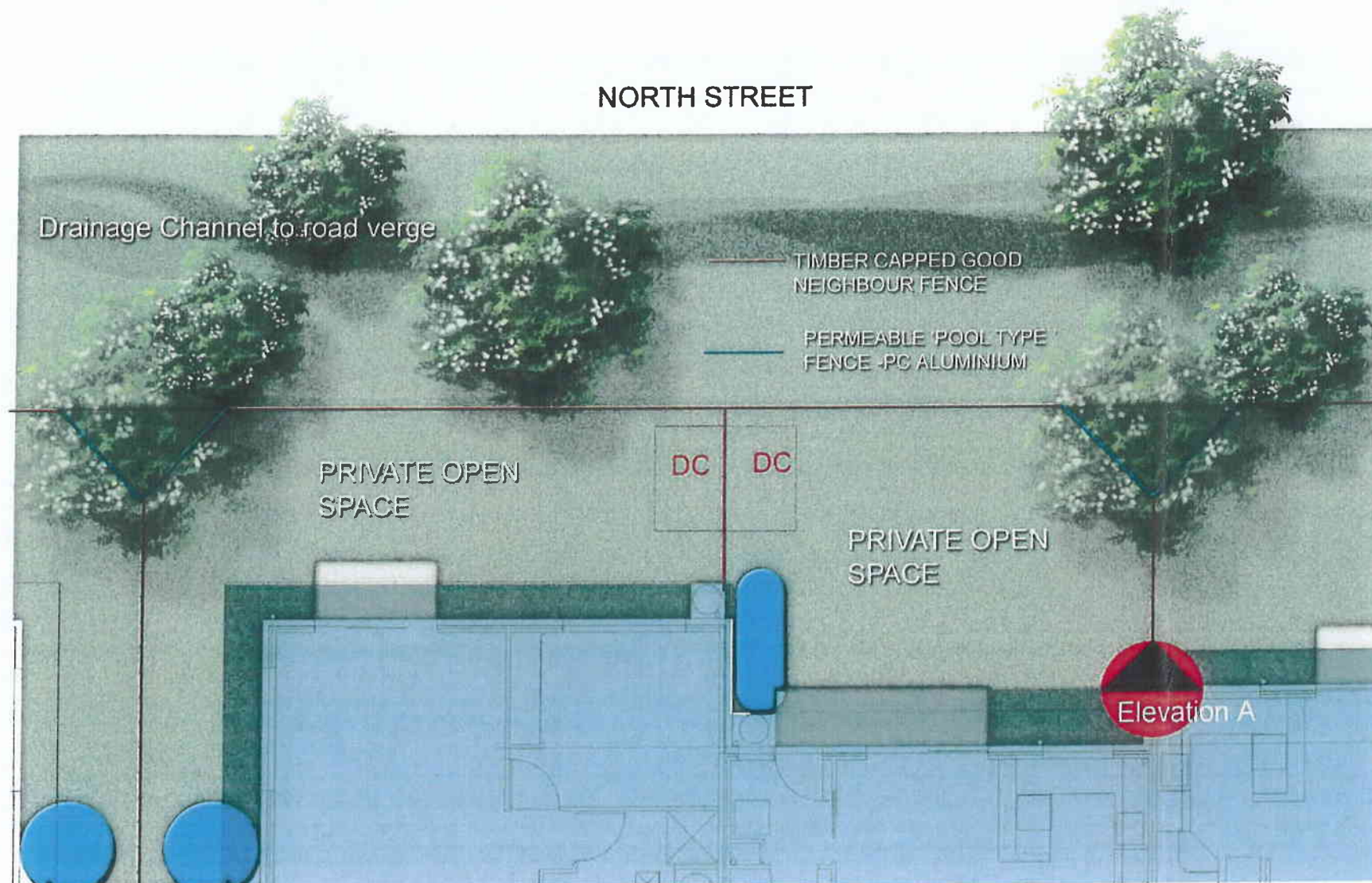
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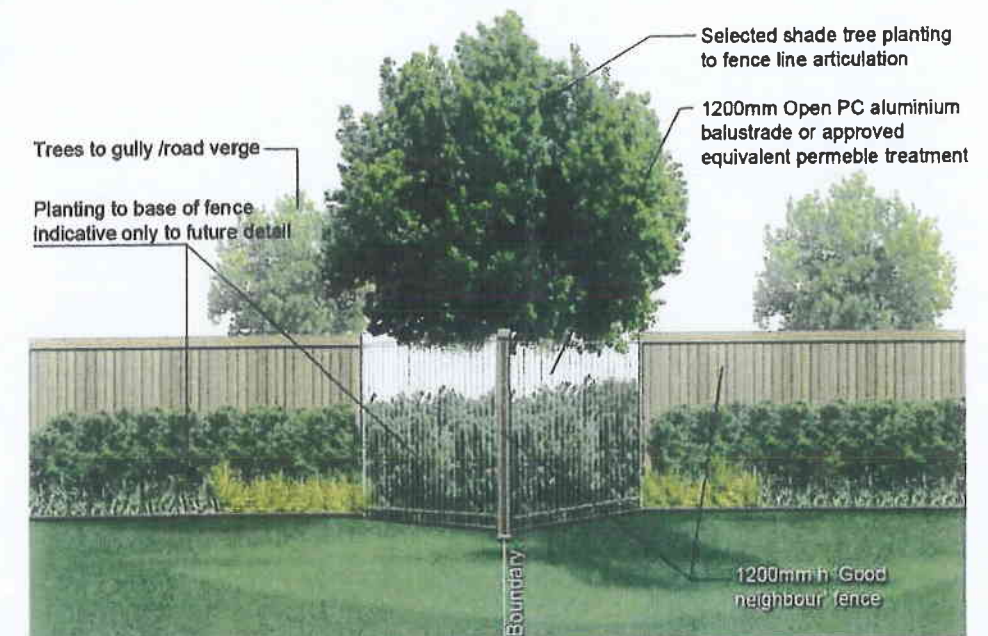




Typical fence treatment North street frontage nts

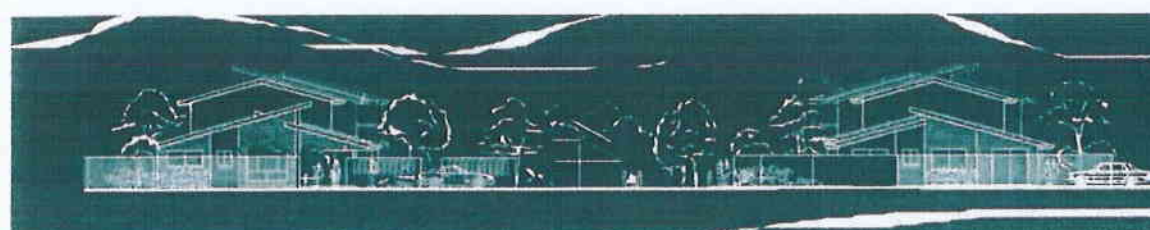


Typical timber / PC aluminium fence detail intended.



Typical Elevation A - Private open space

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The images above are indicative of the general open space parkland character intended for this development with emphasis placed on achieving an 'open woodland' feel to the play spaces with clear vistas through to neighbouring open space. Shade tree planting in keeping with the contextual species palette as well as taking cultural cues from the historic use of this area and neighbouring Rail industry.

open space recreation zone character



Streetscape character shall feature predominantly native flowering shade trees with tailored low planting to accent property frontage and side boundaries. Shade and visual contrast within the main interbal avenues is paramount and feature accent planting (signature trees) will define direction, access nodes and use of these internal streets

street scape character /recreation zone

Typical Recreation/pool plaza character.....



Drainage easements bound the site to the east and south and form major physical and visual links within this development. The treatment of the drainage channel and the grassed reserve as well as the Bio Retention device shall be such that these areas provide both a functional and aesthetic back drop to the site. The images above are indicative of typical detention basin planting character and planting detail

storm water management zone character



Myoporum ellipticum Lomandra longifolia Isolepis nodosa Baumea species Dianella caerulea Dianella silver streak Gahnia aspera



Syzygium aus 'cascade' Backhousia citriodora Callistemon 'Little John' Cordyline petiolaris Cordyline fruiticosa Grevillea Robyn Gordon Melaleuca thymifolia Randia fitzalanii



Caesalpinnea ferra Delonix regia



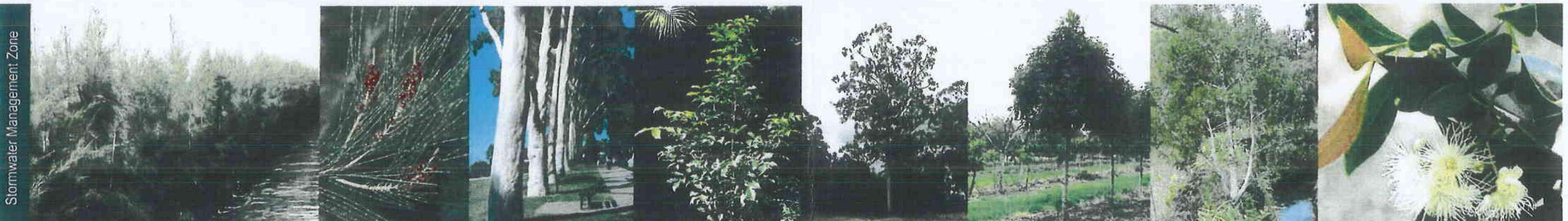
Archontophoenix alexandrae Arc. cunninghamiana Livinstonia australis



Mango mangera sp Lime - Tahitian Olea europea Citrus Valencia



Acmena smithii Acmena smithii - detail Cupaniopsis anarcardiodes Elaeocarpus reticulatus Elaeocarpus reticulatus - detail Harpulea pendula Syzygium leuamanii Syzygium leuamani - detail



Casuarina glauca Casuarina glauca Corymbia citriodora Diploglottis campbelli Eucalyptus tereticornis Flindersia australis Melaleuca quinquenervia Syzygium oleosum

TREES + PALMS

Acmena smithii
Archontophoenix alexandrae
Caesalpinnea ferra
Citrus Valencia
Cupaniopsis anarcardiodes
Delonix regia
Elaeocarpus reticulatus
Harpulea pendula
Syzygium leuamanii
Casuarina glauca
Corymbia citriodora
Diploglottis campbelli
Eucalyptus tereticornis
Flindersia australis
Livinstonia australis

Lime - Tahitian
Mango mangera sp
Melaleuca quinquenervia
Olea europea
Syzygium oleosum

SHRUBS

Acmena smithii minor
Backhousia citriodora
Callistemon 'Little John'
Cordyline petiolaris
Cordyline fruiticosa
Grevillea Robyn Gordon
Melaleuca thymifolia
Melastroma species
Randia fitzalanii
Syzygium aus 'cascade'

GROUNDCOVERS

Myoporum ellipticum
Lomandra longifolia
Lysmachia Gold Clusters
Isolepis nodosa
Baumea species
Dianella caerulea
Dianella silver streak
Gahnia aspera

plant palette

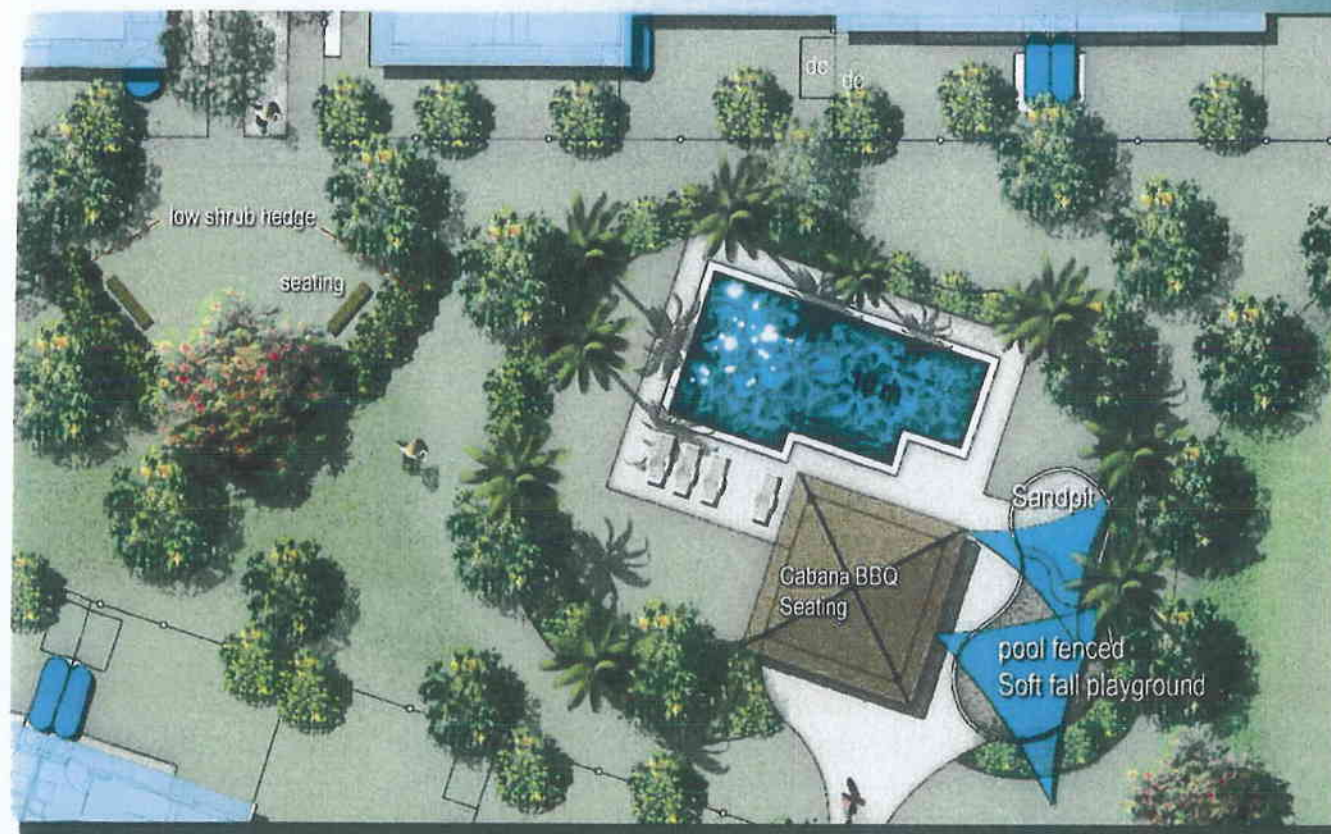
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Manager's office/ entry courtyard detail



Recreation area - pool plaza detail.



Street tree island planting detail view

detail callouts



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June 1, 2010
Coles Cashmere, North Street
170-180-190, North Street, QLD 4550

Residential Unit Development
170-180-190, North Street, QLD 4550



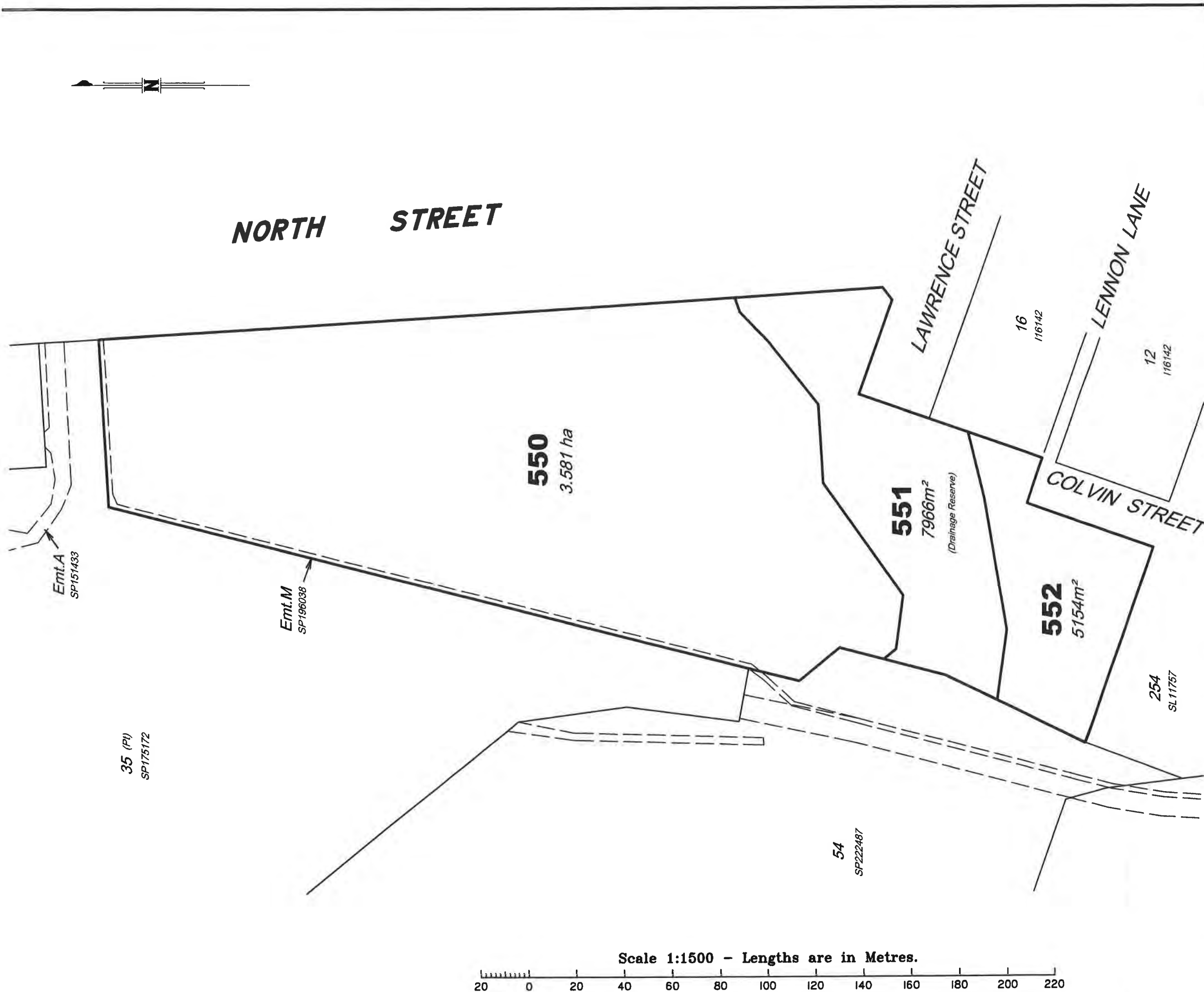
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North Street, North Ipswich.
Our Ref. 874206.

Appendix 5

Subdivision Plan.



LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES



NOTES & DISCLAIMERS

This plan was prepared for LEDA DEVELOPMENTS PTY LTD for the purpose of accompanying and supporting a Subdivision Application to Ipswich City Council and must not be used for any other purpose.

The dimensions, areas and total number of lots shown on the plan are subject to field survey and also to the requirements of any Authority which may have requirements under any relevant legislation

No reliance should be placed on the information on this plan for detailed subdivision design or for any commercial dealings involving the land.

This note is an integral part of this plan.



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admin@michelservices.com.au**

PROJECT NORTH STREET UNITS

CLIENT
LEDA DEVELOPMENTS PTY LTD

**DRAWING
TITLE**
**Plan of Proposed Subdivision
of Proposed Lots 550-552
North Street, North Ipswich**

PARISH: Chuwar		COUNTY: Stanley
SCALE 1:1500@A3	DATE 3/18/2009	DRAWN BY J. H. HARRIS
LEVEL DATUM N/A	LEVEL ORIGIN N/A	ORIGIN N/A
AZIMUTH SP222487	CO-ORD SYSTEM NAD 83	CO-ORD ORIGIN N/A
EASTING N/A	NORTHING N/A	SURVEY N/A
AUTOCAD FILE 8742-233B	GEOCOMP FILE N/A	JOB NO. 8742
CHECKED TR	QT GT	DATE IMAGE 15/4/2009

SHEET NUMBER 1 of 1

PLAN No. 8742-233

ISSUED FOR CONSTRUCTION E

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Appendix 6

Engineering Services Report.



LAND AND HYDROGRAPHIC SURVEYING
TOWN PLANNING SERVICES

CIVIL

WATER

STRUCTURAL

INFRASTRUCTURE

PROJECT DELIVERY

URBAN DEVELOPMENT



Engineering Services Report

RIVERLINK - NORTH STREET - IPSWICH
Residential Unit Development

LEDA HOLDINGS PTY LTD

MARCH 2010

REVISION 02

BRISBANE

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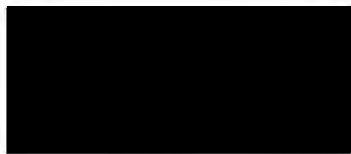
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This document has been reviewed and approved by the following appropriately qualified and experienced Registered Professional Engineer of Queensland (RPEQ)



(RPEQ No. 7825)

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Project manager: Brandon Yeats
Name of organisation: Yeats Consulting Pty Ltd
Name of project: Riverlink - North Street - Ipswich
Name of document: YC0175 R001 Engineering Report - Riverlink - North Street - Ipswich
Document version: REV 02
Project number: YC0175

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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.

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.

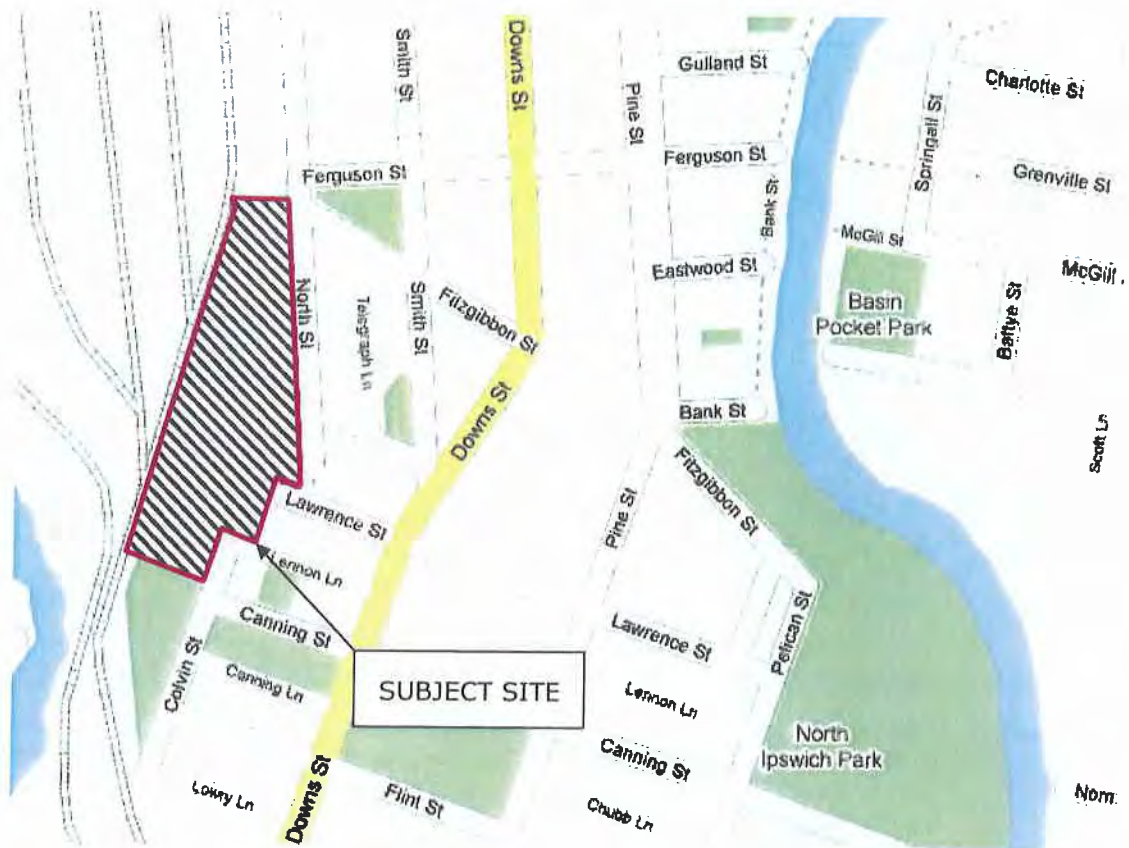


Figure 1.1 Site Location - Street Plan

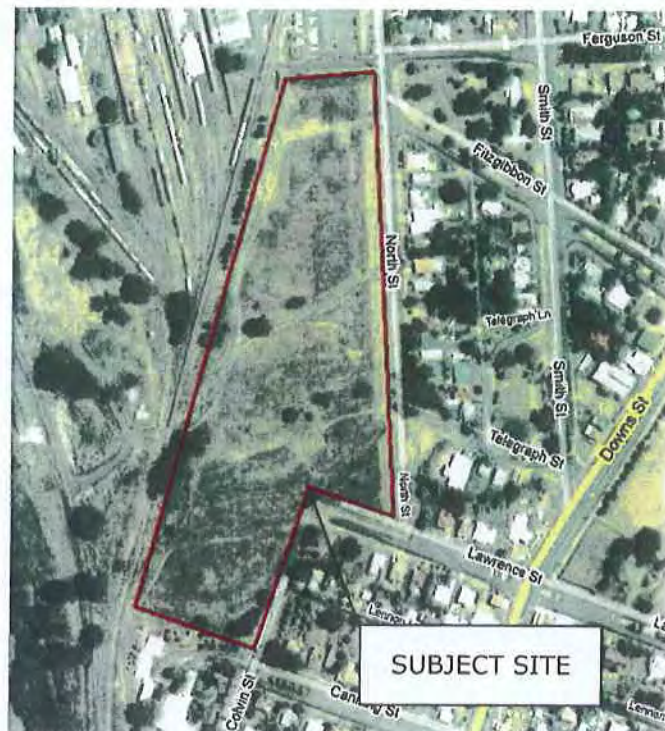


Figure 1.2 Site Location – Satellite View

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

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	27,589
Cut to Fill	7,523
Fill (Imported)	20,066

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

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

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.

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

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.

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.

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)

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.

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 limited railway operations (now railway museum) upstream; the existing 300mm line is believed to have sufficient capacity to take the flows from the developed site.

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.

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
No. of Lots/Dwellings	39 x 2 Bed – 1.5 EP/dwelling 73 x 3 Bed – 1.75 EP/dwelling (112 Units Total)
Equivalent Persons (EP)	186.25 EP
Average Day Demand (AD)	320 L/EP/Day = 59.60 kL/day
Unaccounted for Water (UFW)	50 L/EP/day = 9.31 kL/day
Average Day Flow (ADF)	EP x (AD + UFW) = 68.91 kL/day
Mean Day Maximum Month (MDMM)	1.5 x ADF = 103.37 kL/day
Maximum Day (MD)	2.0 x ADF = 137.83 kL/day
Maximum Hour (MH)	53.3 L/EP/hour + UFW (2.08L/EP/hour) = 10.31 kL/hour or 2.86 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 2.86 L/s plus an additional fire flow demand of 15 L/s. Based on this total flow of 17.86 L/s and a maximum velocity of 2.5 m/s it is proposed to provide a 100mm diameter water main to service all of the facilities within the proposed development.

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
No. of Lots/Dwellings	3 x 2 Bed – 1.5 EP/dwelling 3 x 3 Bed – 1.75 EP/dwelling (6 Units Total)
Equivalent Persons (EP)	9.75 EP
Average Day Demand (AD)	320 L/EP/Day = 3.12 kL/day
Unaccounted for Water (UFW)	50 L/EP/day = 0.488 kL/day
Average Day Flow (ADF)	EP x (AD + UFW) = 3.61 kL/day
Mean Day Maximum Month (MDMM)	1.5 x ADF = 5.42 kL/day
Maximum Day (MD)	2.0 x ADF = 7.22 kL/day
Maximum Hour (MH)	EP x (53.3 L/EP/hour + UFW (2.08L/EP/hour)) = 0.54 kL/hour or 0.15 L/s

The water infrastructure to the Stage 2 Development Area will need to be of sufficient size to cater for the maximum hour demand of 0.15 L/s plus an additional fire flow demand of 15 L/s. Based on this total flow of 15.15 L/s and a maximum velocity of 2.5 m/s it is proposed to provide a 100mm diameter water main to service all of the units within the proposed development.

7.3 Water Network Analysis

A digital water network model was set up and analysed using Bentley WaterCAD Version 8 XM. Appropriate water main sizes, corresponding 'C' factors and various demands have been adopted in accordance with the provisions of the current Ipswich Planning Scheme. Starting hydraulic grade lines and connection points have been modelled in accordance with existing network pressure readings provided by Ipswich Water (refer Appendix F for details). A Starting Hydraulic Grade of 58m has been adopted at the intersection of Colvin Street and Canning Street.

The proposed water reticulation network, including pipe sizes, flows and demands are depicted on drawing YC0175-WA-01 (Appendix F). The analysis includes both peak Maximum Hour demand, taken at the 19th hour with a 'Fraction of Daily Flow' equal to 2.0, and a Fire Fighting demand scenario to ensure that residual pressures can be achieved as required at all locations within the network.

Results of the modelling are included in Appendix F. Results confirm that:

- Minimum residual pressures during the maximum hour are achieved across both stages of the development.
- Adequate pressures and flows are available for fire fighting purposes.
- Staging of the development will not adversely affect the available flows and pressures available across the preliminary stages.

7.4 Proposed Works

Stage 1 – North Street Site

It is proposed to connect the 100mm diameter water supply network of Stage 1 North Street site to the 100mm diameter main located at the intersection of North Street and Fitzgibbon Street.

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.

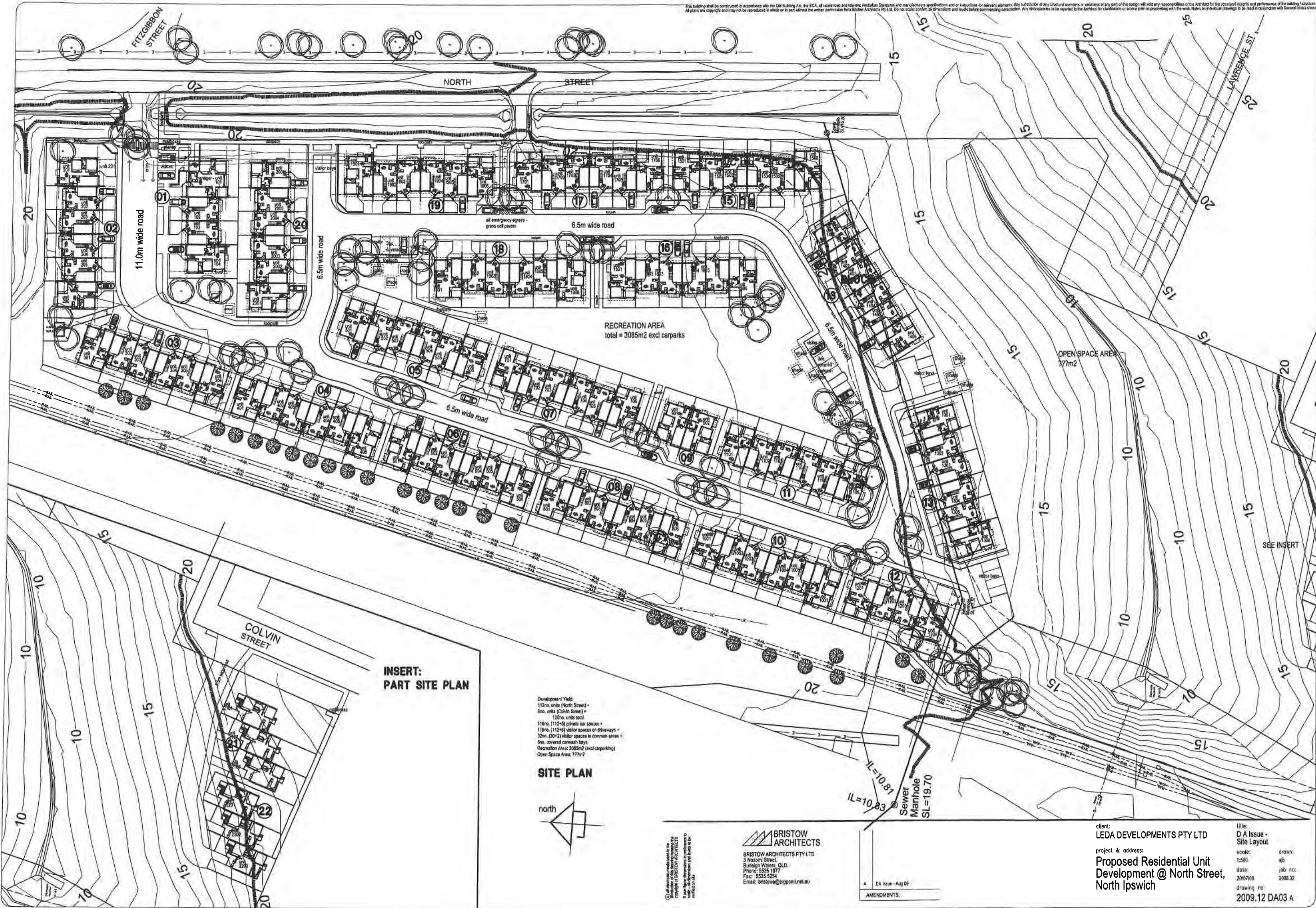
Based on our experience and the information gathered and examined, Yeats Consulting Pty Ltd does not anticipate any major issues that would impede development of the site.



Appendix A

Development Layout Plan

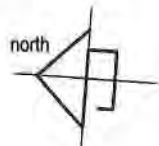
This building shall be constructed in accordance with the Code Building Act, the BCA, all referenced and relevant Australian Standards and manufacturers specifications and or instructions for relevant elements. Any substitution of any structural members or variations of any part of the design will void 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: confirm 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) +
8no. units (Colvin Street) =
120no. units total
118no. (112-5) private car spaces +
18no. (112-6) visitor spaces on driveways +
12no. (20-2) visitor spaces in common areas =
6no. covered carwealth bays
Recreation Area: 3085m² (excl carparks)
Open Space Area: 777m²

SITE PLAN



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A DA Issue - Aug 09
AMENDMENTS:

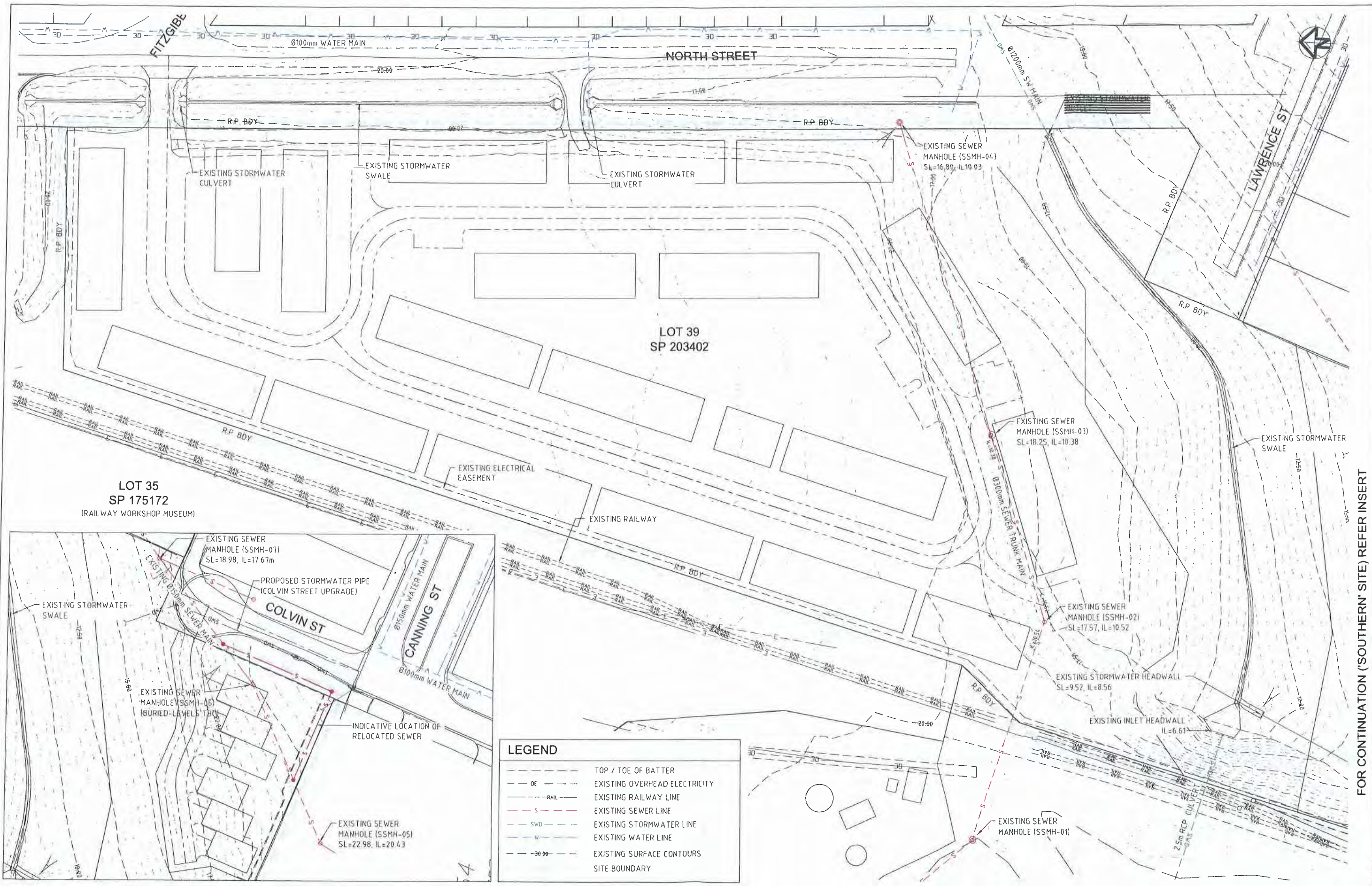
client:
LEDA DEVELOPMENTS PTY LTD
project & address:
**Proposed Residential Unit
Development @ North Street,
North Ipswich**

title:
**D A Issue -
Site Layout**
scale:
1:500
date:
20/07/09
drawing no:
2006.32
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



FOR CONTINUATION ('SOUTHERN' SITE) REFER INSERT

STATUS

FOR ISSUE

REV	DESCRIPTION	H.V.	DATE
A	ORIGINAL ISSUE		25.09.09

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LEDA
Developments Pty Ltd

PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

YEATS
CONSULTING ENGINEERS

LEVEL 2, 9 QUAYAN STREET BUNDALL QLD 4211 AUSTRALIA
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TITLE

EXISTING SERVICES PLAN

TASK	BY	INITIAL	DATE	APPROVED	RPEO No
REVIEW	B.Y.		25.09.09		7825
DESIGN	H.V.		25.09.09		
DRAWN	H.V.		25.09.09		

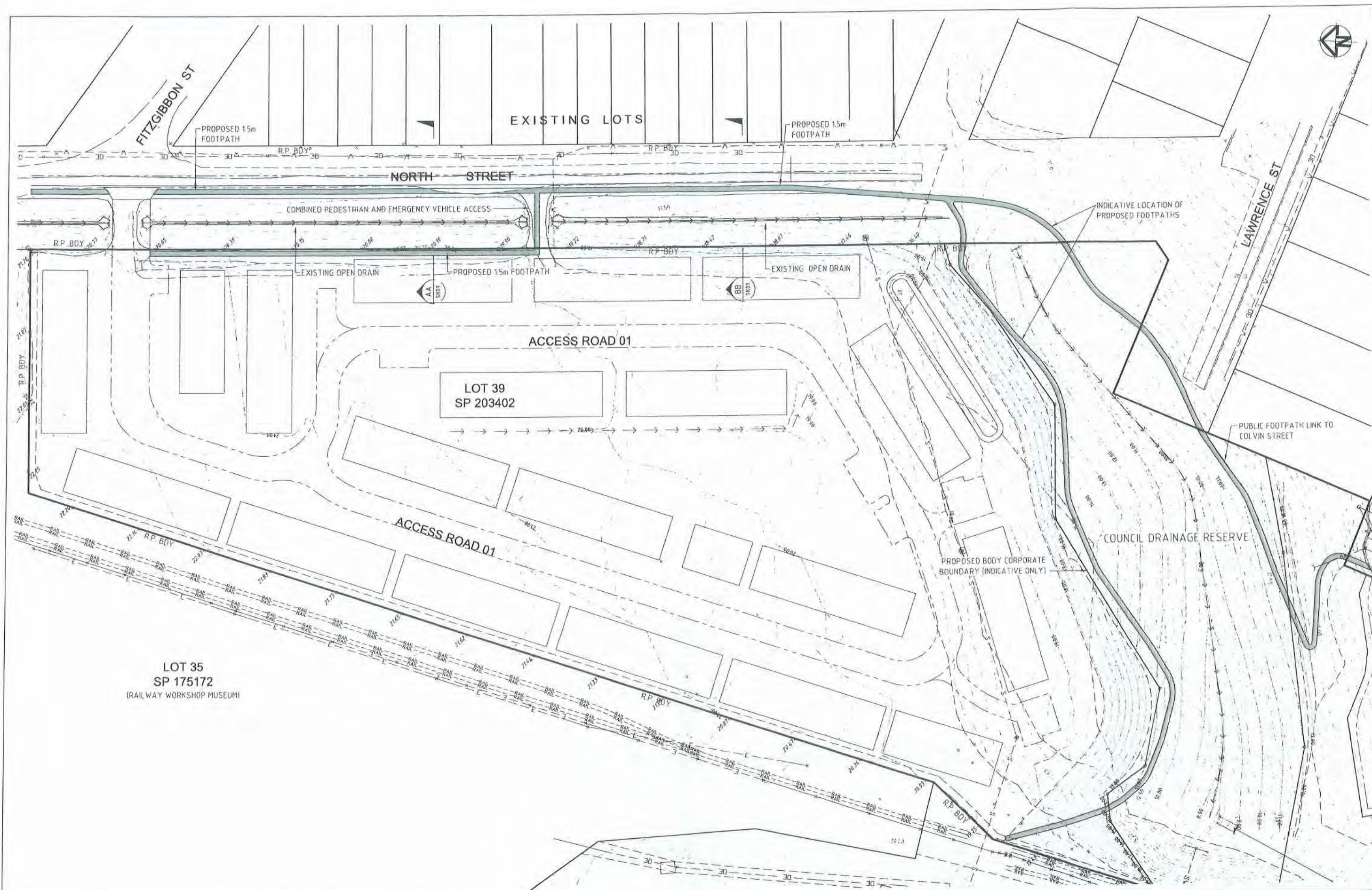
DRAWING NUMBER
YC0175-SK01

REVISION
A

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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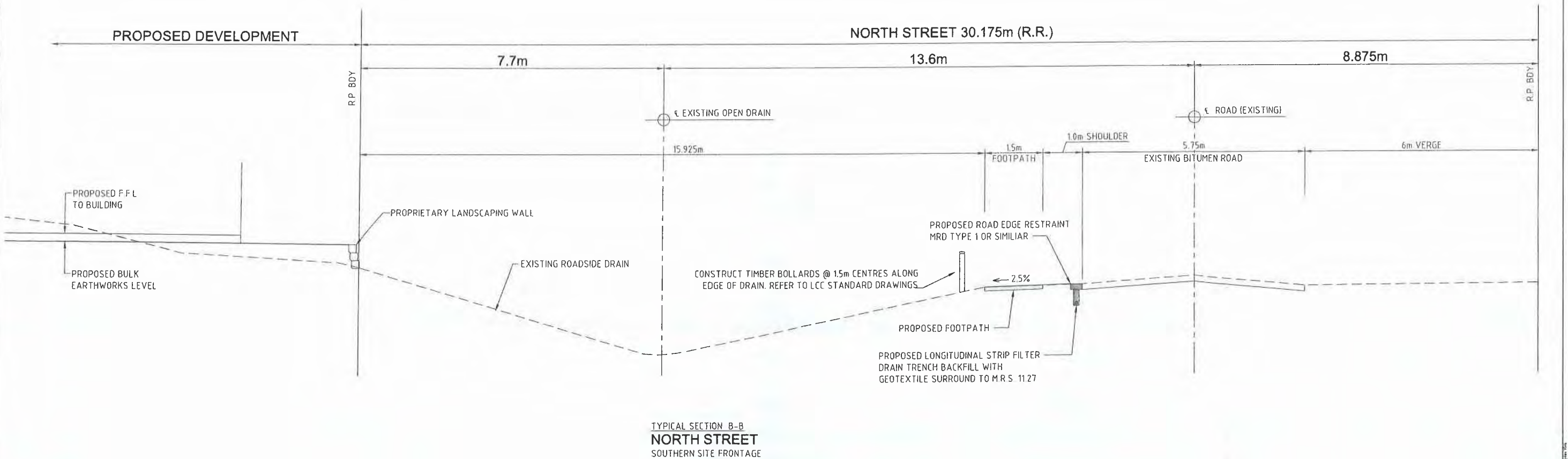
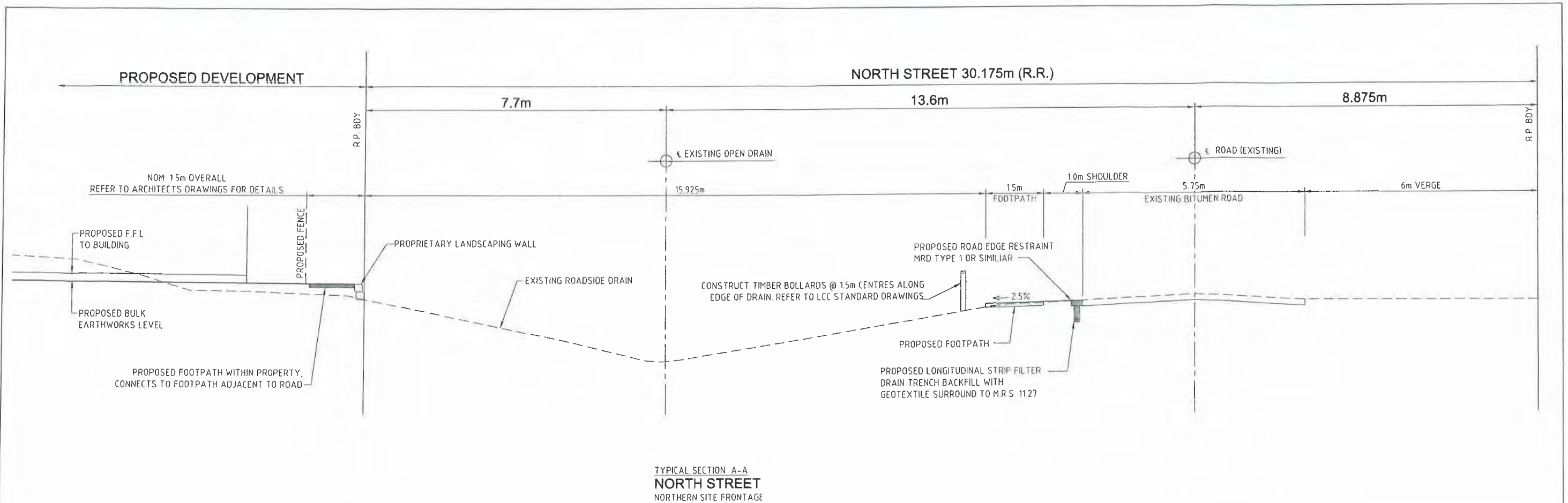
PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

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TITLE NORTH STREET - CIVIL WORKS LAYOUT PLAN				
TASK	BY	INITIAL	DATE	APPROVED
REVIEW	C.W.		16.09.09	RPEO No 7825
DESIGN	C.W.		16.09.09	
DRAWN	N.M.		16.09.09	
DRAWING NUMBER YC0175-SK08				REVISION B



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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TITLE NORTH STREET - CIVIL WORKS TYPICAL CROSS SECTIONS					
TASK	BY	INITIAL	DATE	APPROVED	RPE# No 7825
REVIEW	B.Y.		06.10.09		
DESIGN	H.V.		06.10.09		
DRAWN	H.V.		06.10.09		
DRAWING NUMBER				YC0175-SK09	
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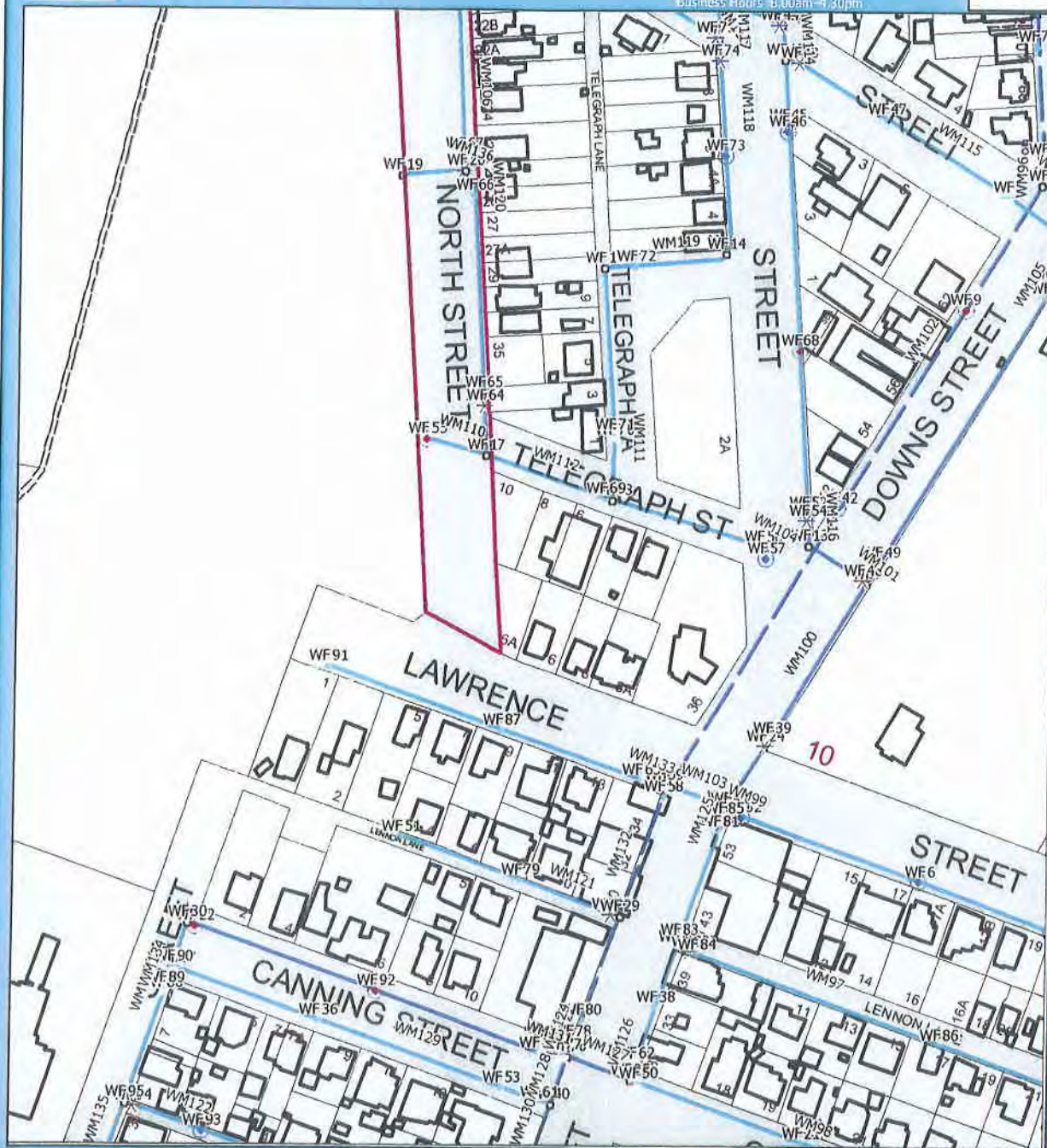
Appendix D

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



Key Map



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



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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

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
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		25.09	0.00		Survey ICC	Survey ICC		476,501.93	6,946,959.47
WF46	309756	Ipswich Water	Fire Hydrant		29.69	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	Fire Hydrant	100	30.67	0.00		Photogrammetry	Photogrammetry		476,493.61	6,946,789.24
WF57	309740	Ipswich Water	Valve Sluice	100x80	31.05	0.00		Photogrammetry	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	Valve Sluice	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

Map Ref	Asset	Owner	Fitting Type	Fitting Size (mm)	SL (AHD m)	Obvert Level	Date Constructed	Horizontal Accuracy	Vertical Accuracy Obvert	Eastings	Northings
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			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	CICL		0.00	202.09	1/6/1968
WM97	354142	Ipswich Water	100	CICL		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	CICL		0.00	106.57	1/6/1976
WM101	354123	Ipswich Water	150	CICL		0.00	28.60	1/6/1976
WM102	354119	Ipswich Water	300	CICL		0.00	286.27	1/6/1968
WM103	354130	Ipswich Water	100	CICL		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	CICL		0.00	149.89	1/6/1976
WM106	354223	Ipswich Water	100	CICL		0.00	120.58	1/6/1965
WM107	354073	Ipswich Water	100	CICL		0.00	132.06	1/6/1976
WM108	354077	Ipswich Water	100	CICL		0.00	29.34	1/6/1976
WM109	354118	Ipswich Water	300	CICL		0.00	20.52	1/6/1968
WM110	354132	Ipswich Water	100	CICL		0.00	25.36	1/6/1980

Printed: 03 Aug 2009 10:34 AM

ICC Search No. 45134

Water Mains

Map Ref	Asset	Owner	Diameter (mm)	Pipe Type	Pipe Class	Depth (m)	Length (m)	Date Constructed
WM111	354133	Ipswich Water	100	CiCL		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	CiCL		0.00	14.12	1/6/1976
WM115	354079	Ipswich Water	100	CiCL		0.00	138.20	1/6/1974
WM116	354080	Ipswich Water	100	CiCL		0.00	196.12	1/6/1976
WM117	354081	Ipswich Water	100	CiCL		0.00	17.69	1/6/1968
WM118	354082	Ipswich Water	100	CiCL		0.00	86.88	1/6/1968
WM119	354083	Ipswich Water	100	CiCL		0.00	50.99	1/6/1968
WM120	354224	Ipswich Water	100	CiCL		0.00	117.27	1/6/1980
WM121	354136	Ipswich Water	100	CiCL		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	CiCL		0.00	56.94	1/6/1984
WM124	354141	Ipswich Water	300	CiCL		0.00	59.55	1/6/1968
WM125	354124	Ipswich Water	100	CiCL		0.00	59.51	1/6/1976
WM126	354143	Ipswich Water	100	CiCL		0.00	56.69	1/6/1976
WM127	354148	Ipswich Water	150	CiCL		0.00	27.00	1/6/1963
WM128	354149	Ipswich Water	300	CiCL		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	CiCL		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	CiCL		0.00	56.07	1/6/1968
WM133	354135	Ipswich Water	100	CiCL		0.00	148.09	1/6/1979
WM134	354137	Ipswich Water	100	CiCL		0.00	19.03	1/6/1984
WM135	354139	Ipswich Water	100	CiCL		0.00	81.73	1/6/1984
WM136	358788	Ipswich Water	100	CiCL		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]
Senior Technical Officer
Network Asset Manager SEQ Office
SEQ Division

Ph [REDACTED]
Fa [REDACTED]

QR Network Pty Ltd ACN 132 181 116
20th Floor, Pipenetworks House
127 Creek Street Brisbane Q 4000

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Appendix F

Water Network Analysis



LEGEND			
	DESIGN CONTOURS		
	EXISTING CONTOURS (0.5m INTERVALS)		
	WATER MAIN		
	STAGE BOUNDARY		
	JUNCTION		

STATUS FOR ISSUE			
REV	DESCRIPTION	DATE	
A	ORIGINAL ISSUE	22.02.10	CE

THIS DESIGN AND PLAN IS COPYRIGHT AND IS NOT TO BE USED OR REPRODUCED WHOLLY OR IN PART OR TO BE USED ON ANY PROJECT WITHOUT THE WRITTEN PERMISSION OF YEATS CONSULTING PTY LTD			
DRAWING IS NOT TO BE SCALED			
SCALE (AT ORIGINAL SHEET SIZE)			
SCALE 1:1000			
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 WATER NETWORK ANALYSIS LAYOUT					
TASK	BY	INITIAL	DATE	APPROVED	RPEQ No 7825
REVIEW	BY		22.02.10		
DESIGN	CE		22.02.10		
DRAWN	TW		22.02.10		
DRAWING NUMBER YC0175-WA-01					REVISION A



WATER NETWORK ANALYSIS



PROJECT: YC0175 - RIVERLINK - NORTH STREET, IPSWICH
AUTHOR : XXXXXXXXXX
DATE: 22.02.2010
REVISION: 1
REFERENCE DWG: YC0175-WA-01

JUNCTION TABLE						
Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (Minimum) (m)	Hydraulic Grade (Maximum) (m)	Pressure (Minimum) (m H2O)	Pressure (Maximum) (m H2O)
J-1	21.81	0.604	57.73	58.51	35.9	36.6
J-2	21.37	0.452	57.56	58.49	36.1	37.1
J-3	19.54	0.599	57.48	58.48	37.9	38.9
J-4	19.16	0.339	57.48	58.48	38.2	39.2
J-5	19.34	0.491	57.48	58.48	38.1	39.1
J-6	20.75	0.339	57.53	58.49	36.7	37.7
J-7	20.76	0.746	57.5	58.49	36.7	37.7
J-8	19.99	0.638	57.49	58.48	37.4	38.4
J-9	20.7	0	58.07	58.55	37.3	37.8
J-10	21.2	0	48	48	26.7	26.7
J-11	19	0.102	48	48	28.9	28.9
J-12	18.35	0.102	48	48	29.6	29.6

PIPE TABLE						
Label	Scaled Length (m)	Diameter (mm)	Material	Hazen-Williams C	Flow (Maximum) (L/s)	Velocity (Maximum) (m/s)
P-1	76.02	100	PVC	120	4.209	0.54
P-2	52.55	100	PVC	120	3.604	0.46
P-4	38.33	100	PVC	120	0.14	0.02
P-5	65.84	100	PVC	120	-0.059	0.03
P-7	39.18	100	PVC	120	-0.497	0.21
P-8	92.87	100	PVC	120	1.485	0.19
P-9	102.86	100	PVC	120	0.739	0.09
P-10	66.39	100	PVC	120	-0.206	0.09
P-11	68.15	100	PVC	120	-0.396	0.17
P-12	192.9	100	PVC	120	-1.097	0.42
P-13	282.23	100	PVC	120	-4.554	0.68
P-14	50.57	100	PVC	120	0.204	0.03
P-15	42.83	100	PVC	120	0.204	0.03
P-16	37.53	100	PVC	120	0.102	0.01

WATER NETWORK ANALYSIS



RESERVOIR TABLE			
Label	Elevation (m)	Hydraulic	
		Outflow (L/s)	Grade (m)
R-2	58	-1.097	58
R-3	60	5.306	60
R-4	48	0.204	48

FIRE FLOW TABLE					
Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (L/s)	Fire Flow (Available) (L/s)	Pressure (Residual Lower Limit)	Pressure (Calculated Residual Lower Limit)
				(m H2O)	(m H2O)
J-1	TRUE	15	16	12	25.6
J-2	TRUE	15	16	12	22
J-3	TRUE	15	16	12	19.7
J-4	TRUE	15	16	12	20
J-5	TRUE	15	16	12	20
J-6	TRUE	15	16	12	21
J-7	TRUE	15	16	12	19.7
J-8	TRUE	15	16	12	20.2
J-9	TRUE	15	16	12	32.9
J-10	TRUE	15	16	12	24
J-11	TRUE	15	16	12	23.9
J-12	TRUE	15	16	12	22.6

Yeats Consulting Pty Ltd

Level 2, 9 Ouyan Street

Bundall Qld 4217

Email: info@yeats.com.au

Appendix 7

Remediation Plan addressing contaminated land issues.



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9 February 2010

[REDACTED]
LEDA Developments
PO Box 1914
Surfers Paradise,
QLD, 4217

Our Reference: 2-08-112

Dear [REDACTED]

Re: TPR Review of Remediation Plan– Ipswich Riverlink

As the Queensland Government Department of Environment Resources and Management (DERM) appointed Third Party Reviewer (TPR) for the above site, I have reviewed the following documents:

- Current approved Site Management Plan (SMP).
- GeoEnvironmental Consultants Pty Ltd (GeoEnvironmental) "Proposed Scope for Contamination Related Services Ipswich Riverlink Project – Northern Region Lot 39 on SP203402" letter dated 4th September 2008 Ref 6908/25.
- Earth Tech Engineering Pty Ltd (EarthTech) "Ipswich Riverlink Northern Region Summary" report dated October 2007 Ref REP001-B Project No. 101371 (brief review).
- 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 3rd April 2009 Ref 6062/01.
- GeoEnvironmental Email "Ipswich Data Update" dated 21st December 2008.
- GeoEnvironmental Email "Ipswich Riverlink Remediation – EarthTech stockpile details" including RAP figures dated 4th February 2009.
- GeoEnvironmental Email "Ipswich Riverlink Stockpiles" dated 20th April 2008.

- GeoEnvironmental Email – "Hugh Street Data" dated 6 April 2009.
- GeoEnvironmental draft Remediation Plan (RP) dated 1 October 2009.
- GeoEnvironmental Reviewed draft RP dated 17 December 2009.
- GeoEnvironmental Final RP dated 4 February 2010.

1 INTRODUCTION

Robin Wagland of WSP Environmental Pty Ltd (WSP) was commissioned by LEDA Developments (LEDA) to undertake a Third Party Reviewer role to review the soil and groundwater investigations and remedial activities undertaken at the Ipswich Riverlink site, formerly described as Lot 39 on SP203402 now reconfigured to include Lot 51-55 on SP222487. It should be noted that the RP only covers the Lots 53, 54 and 55 on SP222487.

The comments and advice outlined below are provided for the benefit of the Department of Environmental Resources and Management (DERM) to confirm the TPR's agreement of the final Remediation Plan prepared by GeoEnvironmental dated 4 February 2010.

2 REVIEW OF REMEDIAL PLAN

The TPR has reviewed the final Remedial Plan (RP) put forward by GeoEnvironmental in their report (4 February 2010).

The TPR recommendations should be noted with the following comments:

- It is noted that the previous reports for the site have been received and assessed to have been reviewed by DERM and as such will not require further TPR review. It is also noted that there is an existing Site Management Plan (SMP) for the site (referenced to the former Lot 39 on SP203402) dated 14/11/2008. More recent work undertaken by GE is recognised to supersede the previous investigations in relation to the stockpiles on site. This work has been previously assessed and approved by the TPR.
- It is also noted that a requirement of the SMP was to provide a groundwater monitoring program by the end of September 2008 based on additional groundwater assessment to be undertaken at the site (also by the end of September 2008). The groundwater monitoring program requirements have been included in the RP.
- It should be noted that copies of previous reports have not been provided to the TPR with the exception of the Groundwater Technology Stage 1 assessment dated July 1995 (in part) and the Earth Tech Summary Report dated October 2007. Data from all the reports relevant to the former Lot 39, have been assumed to have been utilised by GE in production of their RP.
- It is assumed, at this stage, that no statutory outcome is required from DERM, but the RP will form the basis of the remediation strategy for the newly created Lots. Further upon completion of a Remediation and Validation report, a Certification Report will be provided (as appropriate). At this future stage, it would be suggested that the SMP is updated.

- The TPR agrees that the final Remediation Plan, prepared by GeoEnvironmental, adequately addresses DERM guidelines for the remediation and validation of the portion of the Ipswich Riverlink site in question (Lots 53-55).

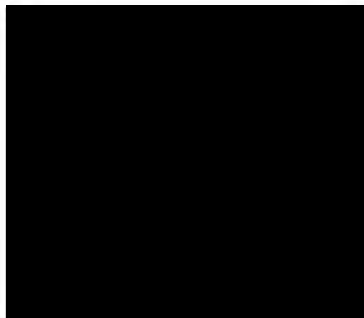
3 CONCLUSION

It is assumed at this stage, that the RP, will form the basis of the management of the future site works including options for the previously noted stockpiles material. The TPR approves the final Remediation Plan dated 4 February 2010. In addition, it is noted that a construction Environmental Management Plan will be developed as part of the Operational Works approval and forms a requirement of the RP.


It is also noted that there will be the future requirements for groundwater monitoring as part of the ongoing management of the site. In addition, the SMP will be reviewed upon completion of the remedial work.

I trust the above review and advice is self explanatory, however, feel free to call to discuss any queries you may have.

Yours sincerely,



Third Party Reviewer
MACH1Environmental

CC 
Department of Environment and Resource Management

REMEDIATION PLAN (9th February 2010)

LOTS: 53-55

PLAN: SP222487

RIVERLINK PROJECT, NORTH IPSWICH, QLD

**Prepared for LEDA Developments
By GeoEnvironmental Consultants**

1. INTRODUCTION

This Remediation Plan has been prepared for Lots 53-55 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).

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 in accordance with Section 381 of the Environmental Protection Act 1994 (EP Act) 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 Area (Lot 54) on the EMR under an approved Site Management Plan (SMP).

2. BACKGROUND

Lot 39 on SP203402 (now Lots 51-55) has been used in the past for rail purposes and is the subject of an existing SMP (File Ref: BNE10011) effective from 14th November 2008. The Suitability Statement for Lot 39 on SP203402 lists previous studies and states that the site is suitable for its current use (vacant land).

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;

Drawing Nos. 1 and 2 make reference to locations sampled previously by Groundwater Technology (1995), GHD (1996) and Earthtech (2003). The *Ipswich Riverlink Northern Region Summary Report* by Earthtech dated August 2007 has also been referred to in completion of this Remediation Plan. These reports detailing and summarising the completed assessment work have been submitted previously to the Department of Environment & Resource Management (DERM) as confirmed by the list of studies presented in the Suitability Statement for Lot 39 on SP203402 dated 17th November 2008.

Contamination has been identified mainly within fill and stockpiled material. Maximum concentrations of contaminants of potential concern are as follows.

<u>Analyte</u>	<u>Maximum Concentration (mg/kg)</u>
Cadmium	12
Chromium	79
Copper	20,000
Lead	19,000
Zinc	29,000
Mercury	2.4
Total PAHs	440

<u>Leachable (TCLP)</u>	<u>Maximum Concentration (mg/L)</u>
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Lead	59
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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 Area 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 Area	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). Differences in volumes between the tables and annotated drawings are due to the application of a bulking factor, generally about 15%.

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.

Off-site disposal of contaminated soil must be carried out in accordance with the conditions of a Section 424 *Disposal Permit*, granted under the *Environmental Protection Act 1994*. Contaminated soil must not be removed off-site without a *Disposal Permit*. The *Disposal Permit* application must be agreed and approved by the TPR prior to submission to the DERM for issue.

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 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.

Remedial goals for soil are presented below. These goals will ensure that the remediated soil does not pose a risk to human health or the environment.

Soil Remediation Goals

Compound	Remediation Criteria mg/kg
Heavy Metals	
Cadmium	3
Chromium VI	100
Copper	200
Lead	300
Zinc	400
Mercury	1
PAH	
Total PAH	20
Benzo (a) pyrene	1

4.1 Lot 53 – Hughes Street

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. Remediation areas are shown on attached Drawing No. 1. Validation testing is to be completed across the base of excavated areas on an approximate 25m x 25m grid pattern. Excavation walls within the lot boundaries are to be sampled at approximate 25m intervals with multiple samples where excavations are deeper than 0.5m. Validation sampling densities will take into account past sampling results for natural soil where tested and considered valid. Parameters to be tested include metals arsenic (As), copper (Cu), lead (Pb), zinc (Zn), total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH). TPH and PAH tests will be conducted in areas of staining, odour and/or ash occurrence.

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 in accordance with engineering designs 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. The southern area is shown on attached Drawing No. 3.

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 including Borrow Pit locations are shown on VDM Bulk Earthworks Plans C3754:03 – SK04B and SK05A. 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. The central and northern parts of the River bank area are shown on attached Drawing Nos. 4 and 5.

The material to be placed in the excavated borrow pits is of low leaching potential and hence low risk to both the underlying groundwater and the Bremer River. Should relatively impermeable material (silty or sandy) be encountered in excavated borrow pit areas then the suitability of the excavated material for use as capping will be assessed. The suitability of the borrow pit to provide a relatively impermeable containment area for placed contaminated soil will be assessed.

4.4 Lot 55 – North Street

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. Remediation areas are shown on attached Drawing No. 2. Validation testing is to be completed across the base of excavated areas on an approximate 25m x 25m grid pattern. Excavation walls within the lot boundaries are to be sampled at approximate 25m intervals with multiple samples where excavations are deeper than 0.5m. Validation sampling densities will take into account past sampling results for natural soil where tested and considered valid. Parameters to be tested include metals (As, Cu, Pb, Zn), total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH). TPH and PAH tests will be conducted in areas of staining, odour and/or ash occurrence.

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.

4.6 Environmental Protection

All earthworks are to be undertaken in accordance with general environmental protection measures to avoid unwanted migration and deposition of soil. These measures include the control of dust, noise, stormwater or sediment runoff, erosion, spillage from haulage trucks and odour releases involving the handling or movement of contaminated material.

Any stockpile on site must be managed as to prevent contamination of surrounding environment through leachate seepage, erosion, dust generation, runoff or any other mechanism.

Groundwater monitoring is to include the inspection and re-establishment of existing monitoring wells along the riverbank. Unserviceable wells located in appropriate locations relevant to the proposed riverbank earthworks will be replaced. Depending on the coverage provided by existing wells new wells may be installed.

If during any site earthworks or excavation, offensive or noxious odours and/or evidence of gross contamination not previously detected is observed, site works are to cease in that area and action taken to immediately abate the environmental harm. The administering authority is to be notified in writing within two (2) business days of detection and advised of appropriate remedial action.

A Workplace Health and Safety Plan (WH&S plan), which conforms to the requirements of the *Workplace Health and Safety Act 1995*, is to be developed for any excavation works at the site. The WH&S plan must address site-specific contaminants of concern identified in Section 1.0 of this SMP.

The site work and subsequent reporting is to be reviewed by a DERM appointed Third Party Reviewer (TPR). All validation requirements will first be confirmed by the TPR and any clarification issues will be referred to the TPR prior to DERM. The TPR will review the proposed validation methodology, pre-validation sampling results, surface and groundwater results (if applicable), Disposal Permit applications and the final report.

A public complaints system will be established prior to the commencement of the remedial works, to address any issues that may arise in the community as a result of works on the site. Rapid, pro-active response to any complaints received will be provided.

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. Works will be conducted under a site specific Health and Safety 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 the TPR and 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 to 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
8. Yeats Drawing No. YC0176-BE03 Rev A 23/07/09 Hughes Street
9. Yeats Drawing No. YC0175-BE02 Rev B 05/08/09 North Street
10. VDM Drawing No. C3754:03 SK04B – Finished Surface Levels
11. VDM Drawing No. C3754:03 SK05A – Borrow Pits

**IPSWICH RIVERLINK - NORTHERN REGION
RIVERBANK STOCKPILE CLASSIFICATION**

For LEDA Developments
by GeoEnvironmental Consultants

2-Oct-09

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 countours 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 countours 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 countours 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)

Clean	m3
Class 1	6585
Class 2	87450
Class 3	20114
Class 4	3940
	0
Separated Rubble	9110
Total	127199

Rubble would include some proportion requiring offsite disposal to landfill and some suitable for retention onsite.

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	328°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	4/15120186	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"	2-0
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		37°00'	6-356
15	Pin		55°16'38"	6-826
16	GI Nail in Bit		48°20'10"	15-425
17	O.GI Nail	8/SP151433	82°13'	2-808
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	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	16/15120186	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	189°21'50"	0-604
51	GI Nail in Bit		248°44'15"	11-647
52	OIP	12/15120186	110°28'	1-0
53	GI Nail in Bit		229°30'25"	27-245

85°37' ~ 3-51
49°26' ~ 5-525

Amendments by Michel Group Services
Pvt Ltd on 7/8/2009.
Cadastral Surveyor - 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
15/7/2009.



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:

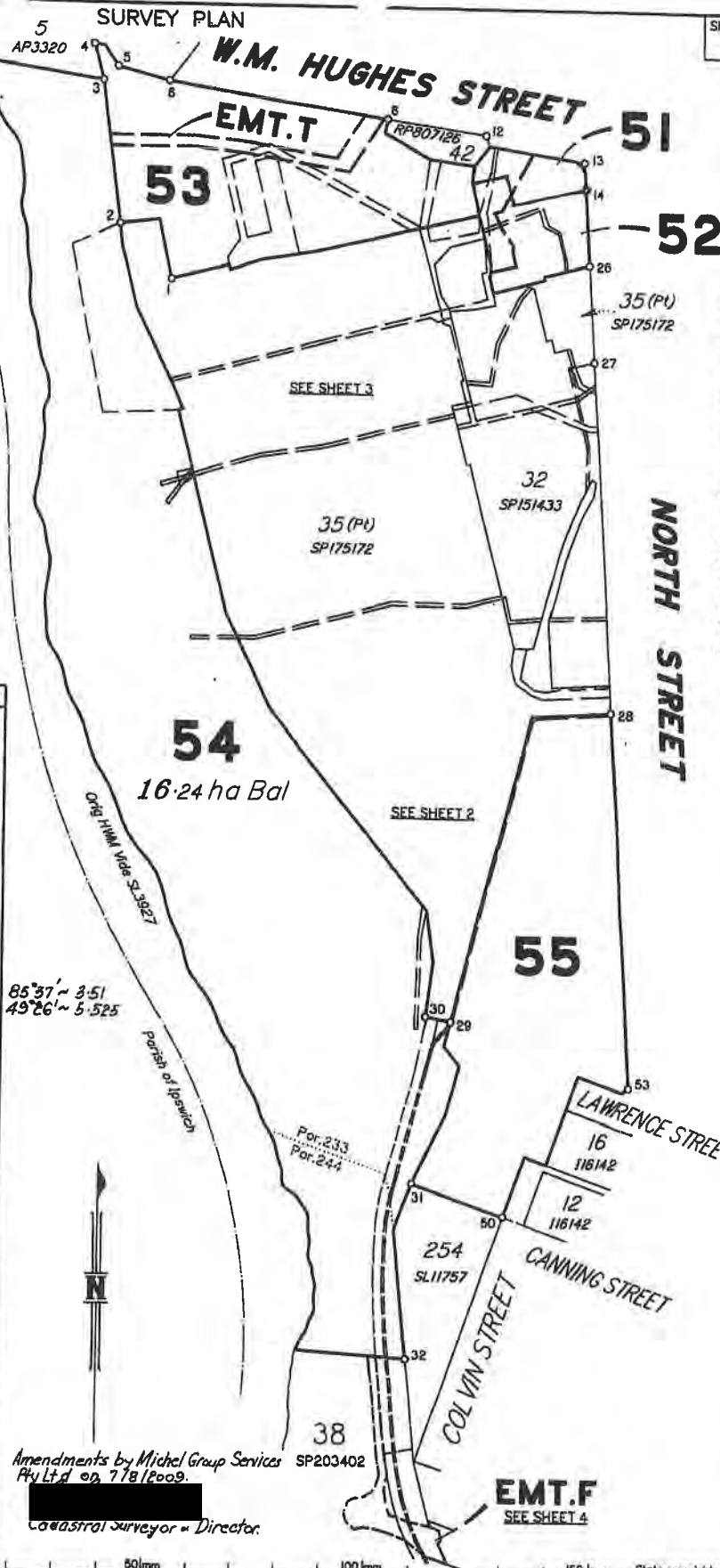
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Format: **STANDARD**



SP222487

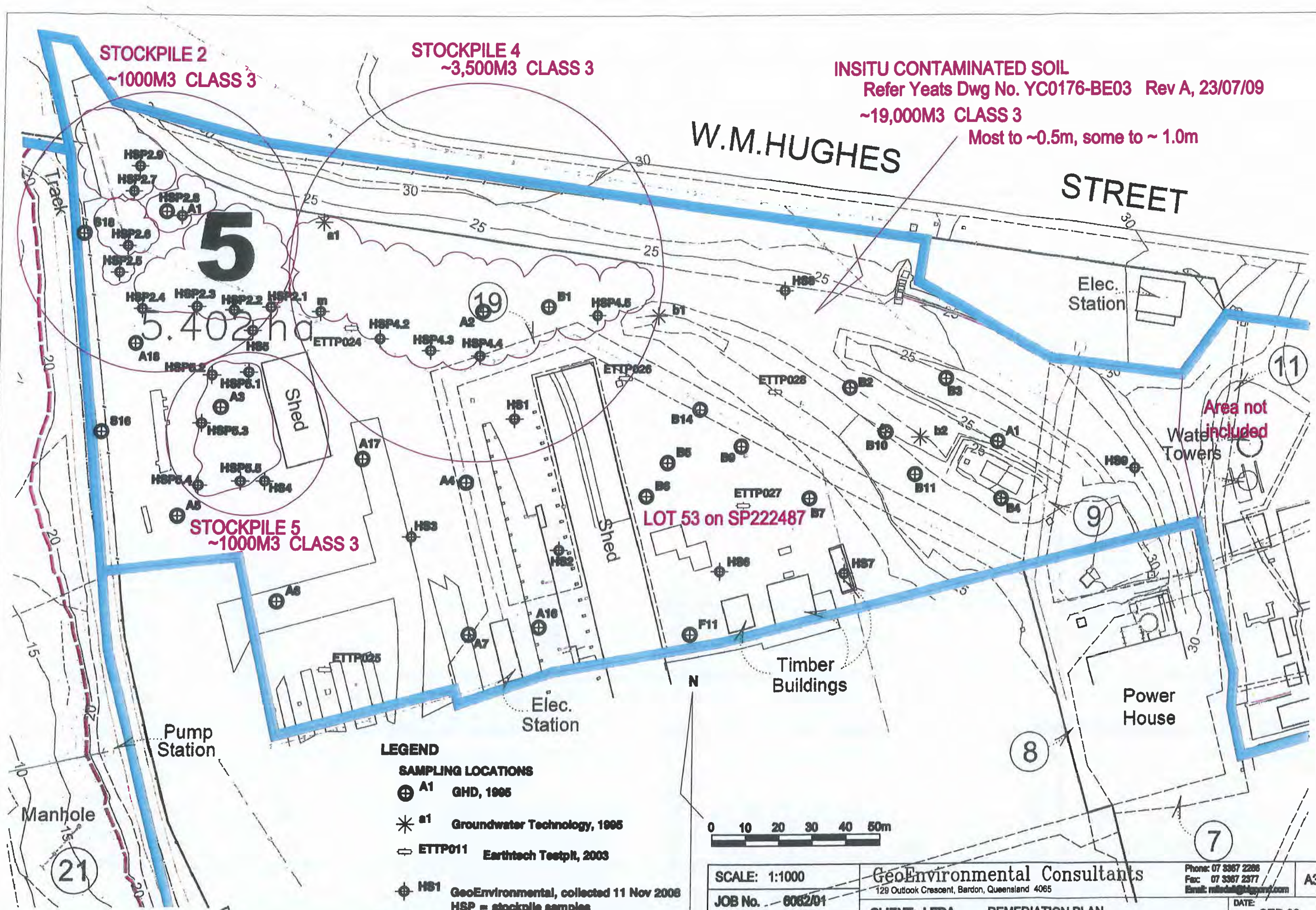
Plan Status:



Sheet 1 of 4

Scale 1:4000 - Lengths are in Metres.

8742-02 AS



LEGEND

SAMPLING LOCATIONS

- ⊕ A1 GHD, 1995
- * a1 Groundwater Technology, 1995
- ⇨ ETTP011 Earthtech Testpit, 2003
- ⊕ H51 GeoEnvironmental, collected 11 Nov 2008
HSP = stockpile samples
Stockpiles - existing at end 2008



SCALE: 1:1000	GeoEnvironmental Consultants 129 Outlook Crescent, Bardon, Queensland 4065	Phone: 07 3367 2286 Fax: 07 3367 2377 Email: info@geoenv.com.au	A3
JOB No. 6062/01			
DRAWN: MWT	CLIENT: LEDA REMEDIATION PLAN	DATE: SEP 09	
CHECKED: MWT	HUGHES STREET LAYOUT AND SAMPLING LOCATIONS FORMER RAIL SITE, HUGHES STREET, NORTH IPSWICH, QLD	DRAWING No. 1	

LEGEND

SAMPLING LOCATIONS

- N1 GHD, 1995
- n1 Groundwater Technology, 1995
- ETTP011 Earthtech Testpit, 2003
- V31 GeoEnvironmental, collected 11 Nov 2008



N

NORTH

STREET

INSITU CONTAMINATED SOIL
Refer Yeats Dwg No. YC0175-BE02 Rev A 05/08/09
~13,000M3 CLASS 2
Most to between 0.3m and 0.5m

NS15 Area
Estimate 500m3
CLASS 3

STOCKPILE
~6,000M3 CLEAN

9

Stormwater
Headwall
SL=6.61

ETTP007
Large Headwall
Stormwater Inlet

Sewer
Manhole
SL=17.57

Sewer
Manhole
SL=18.25

Sewer
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SL=16.80

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ETTP007
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Stormwater Inlet

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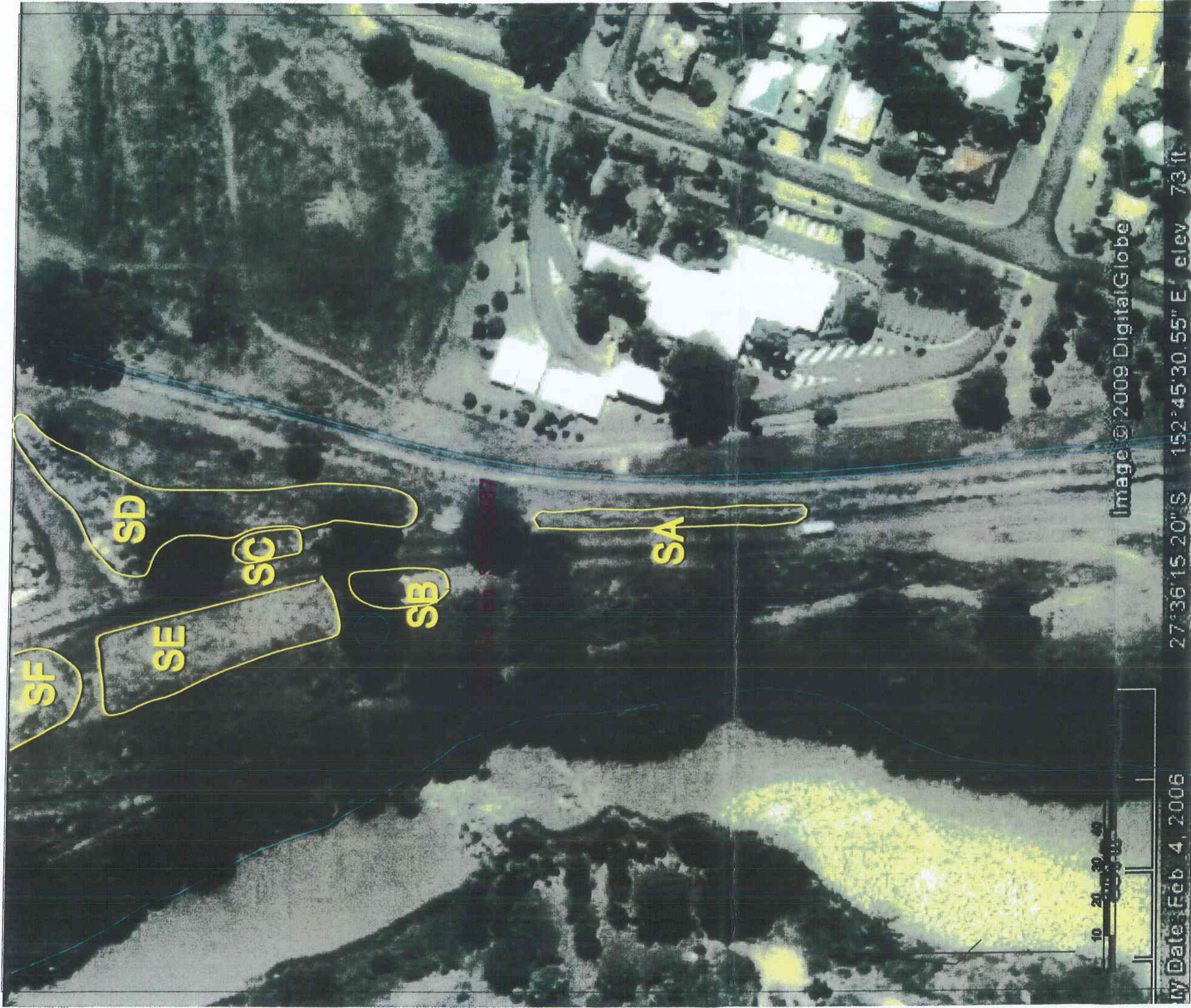
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LEGEND

SAMPLING LOCATIONS

- ⊕ N1 GHD, 1995
- * n1 Groundwater Technology, 1995
- ETPP011 Earthtech Testpit, 2003
- ⊕ V01 GeoEnvironmental

SCALE: 1:1000	GeoEnvironmental Consultants		Phone: 07 3367 2268	A3
JOB No. 6062/01	129 Outlook Crescent, Bardon, Queensland 4065		Fax: 07 3367 2377 Email: info@geoenv.com.au	
DRAWN: MWT	CLIENT: LEDA	REMEDICATION PLAN	DATE	SEP 09
CHECKED: MWT	RIVER SOUTH LAYOUT		DRAWING No.	
FORMER RAIL SITE, NORTH STREET, NORTH IPSWICH, QLD				
3				

SL

SK

SQ
On top of SI

LOT 54 on SP222487

SI

SH

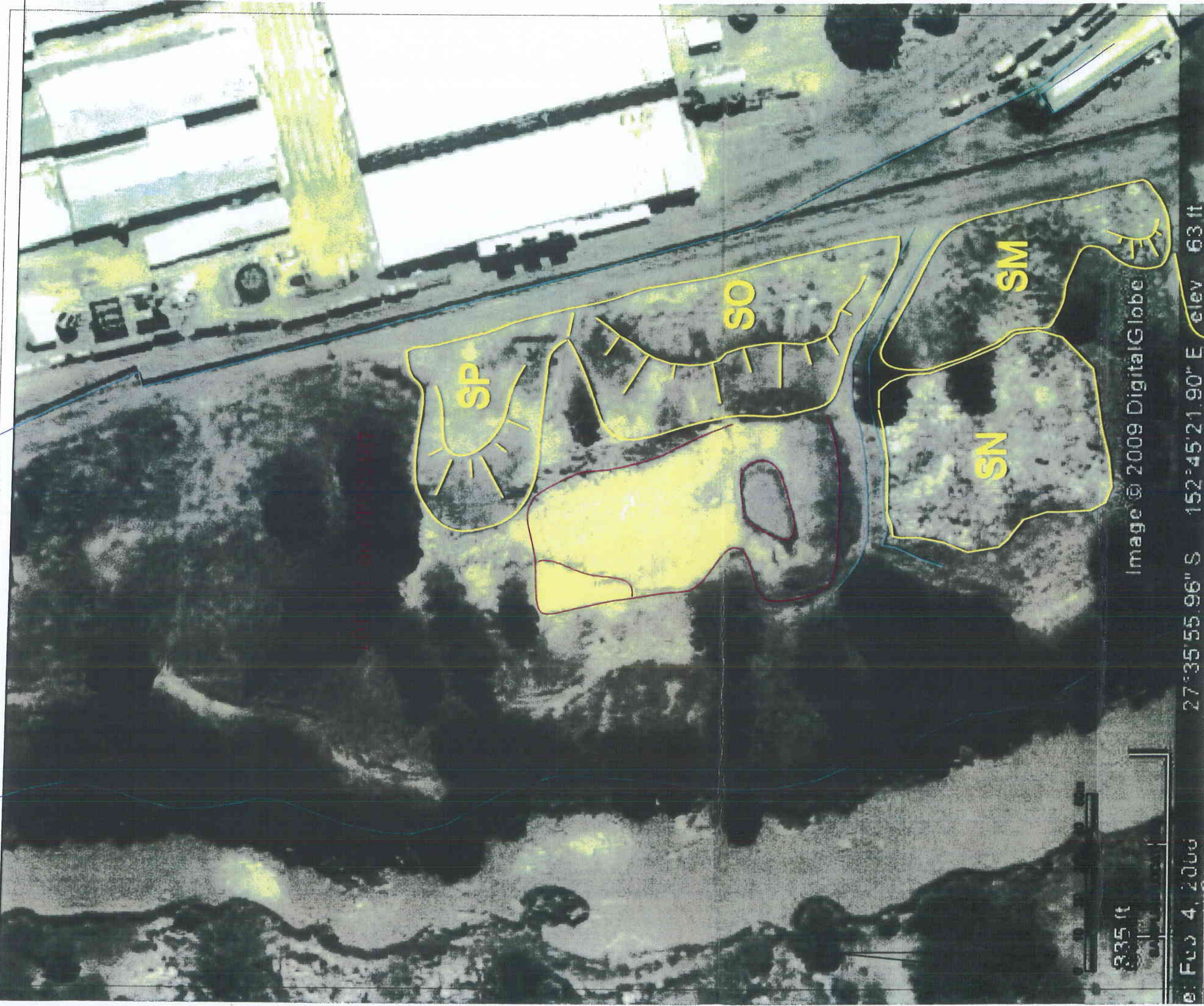
SG

SF

Stockpile - existing

SCALE	1:1000	Client: JEC	DATE	SEP 09
JOB NO.	802	PROJECT: RIVER CENTRAL LAYOUT		
DRAWN	MWT	FORMER RAIL SITE, HUG...		
CHECKED	MWT			

Google



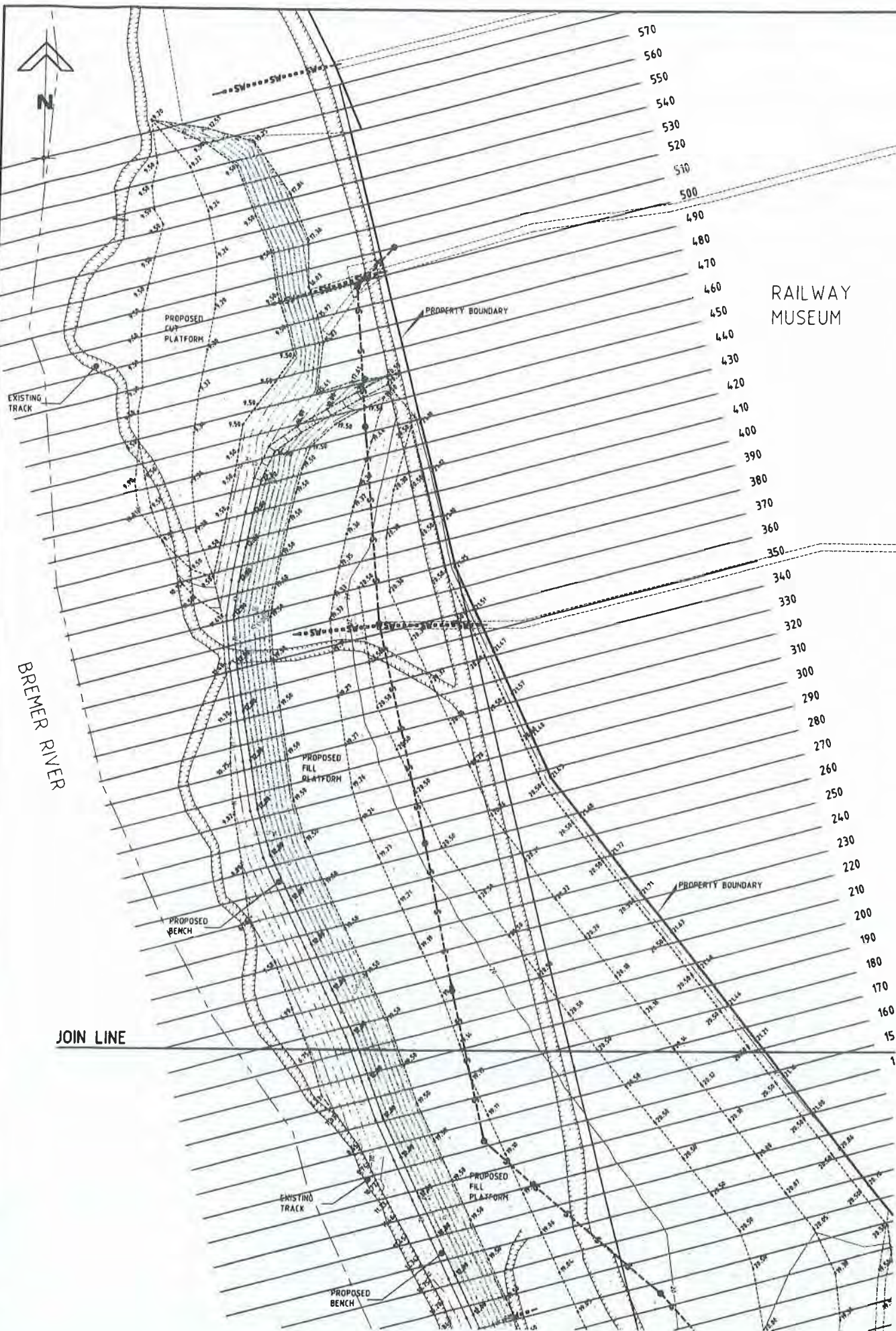
* n1 Groundwater Technology, 1995

ETTP011 Earthtech Testpit, 2003

V81 GeoEnvironmental

SCALE: 1:1000
JOB No. 6062/01
DRAWN: MWT
CHECKED: MWT

GeoEnvironmental Consultants 129 Outlook Crescent, Bardonia, Queensland 4065 Phone: 07 3367 2288 Fax: 07 3367 2377 Email: info@geogood.com	A3
CLIENT: LEDA	REMEDIAL PLAN
RIVER NORTH LAYOUT	DATE SEP 09
FORMER RAIL SITE, NORTH STREET, NORTH IPSWICH, QLD	DRAWING No. 5



PLAN (NORTH)

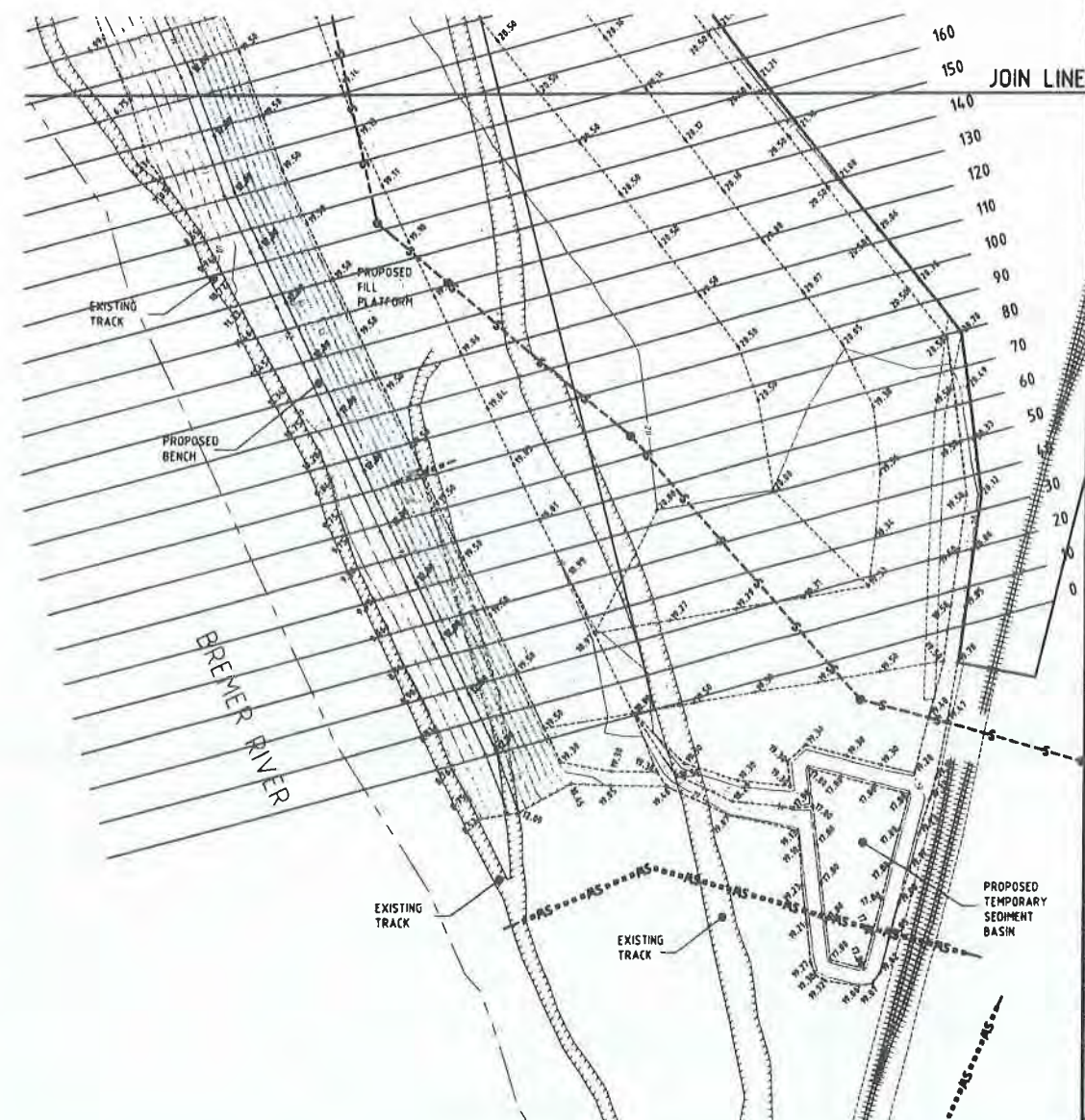
SCALE 10 0 10 20 30 40 50 (metres)
1 : 1000 (FULL SIZE)

LEGEND

- EXISTING TRACK/PATH
- EXISTING RAILWAY LINE
- EXISTING GRAVITY SEWER MAIN (INDICATIVE LOCATION ONLY)
- EXISTING UNDERGROUND STORMWATER CULVERT (INDICATIVE LOCATION ONLY)
- FINISHED SURFACE CONTOUR (0.2m INTERVAL)
- FINISHED SURFACE LEVEL AND LOCATION
- STRING LINE

EARTHWORKS VOLUMES (PROVISIONAL)

AVAILABLE CUT	CLAY	OTHER
SOLID CUT FROM BORROW PITS AND PLATFORMS:	109,650 cu.m.	132,040 cu.m.
COMPACTION LOSS:	85%	85%
GIVING AVAILABLE FILL:	93,200 cu.m.	112,230 cu.m.
VOLUME OF EXISTING STOCKPILES (APPROX):	-	130,000 cu.m.
COMPACTION LOSS:	-	80%
GIVING AVAILABLE FILL:	-	104,000 cu.m.
TOTAL AVAILABLE FILL:	93,200 cu.m.	216,230 cu.m.
FILL REQUIRED	CLAY	OTHER
COMPACTED FILL BELOW CAPPING (INCLUDING BACKFILL TO BORROW PITS):	-	230,580 cu.m.
TOPSOIL REPLACEMENT:	-	9,460 cu.m.
COMPACTED CLAY CAPPING LAYER:	79,360 cu.m.	-
TOTAL FILL REQUIRED:	79,360 cu.m.	240,040 cu.m.
BALANCE:	SURPLUS 13,840 cu.m. TO STAGE 2 CAPPING	DEFICIT 23,810 cu.m. FROM STAGE 2 EXCAVATION



PLAN (SOUTH)



RIVERSIDE CENTRAL

for
LEDA DEVELOPMENTS PTY LTD

REV.	DESCRIPTION	APPR.	DATE
B	LEVELS AND VOLUMES AMENDED, TEMP SEDIMENT BASIN ADDED		06.08.06
A	VOLUMES ADDED		27.07.07



BURCHILL
Consulting Engineers & Planners
Evandale Place, 142 Bundell Road
Surfers Paradise QLD 4217
Phone +61 7 5574 0511
Fax Civil +61 7 5574 0011
Fax Structural +61 7 5574 0506
Email burchill@vdmgroup.com.au

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Figured dimensions take precedence over scale. Do not scale from this drawing. Verify dimensions prior to commencing any works.

PROJECT:
**RIVERSIDE CENTRAL
NORTHERN
BULK EARTHWORKS**

DRAWING TITLE:
**REVISED BULK
EARTHWORKS

FINISHED
SURFACE LEVELS**

DEVEL. APPLIC. No.:	DATE: 23.07.07
PROJECT LEADER: DALE KLEMEYER	
DESIGNER: PAUL COUCHMAN	
DRAFTER/PERSON: PAUL COUCHMAN	
CHECKED:	
APPROVED FOR AND ON BEHALF OF BURCHILL VDM PTY LIMITED ACH 010 140 495	
R.P.E.Q. No.:	
SCALE: AS SHOWN	DATUM: AHD
PROJECT No.: C3574:03	DRAWING No.: SK04
	REVISION: B



ASSOCIATED CONSULTANTS

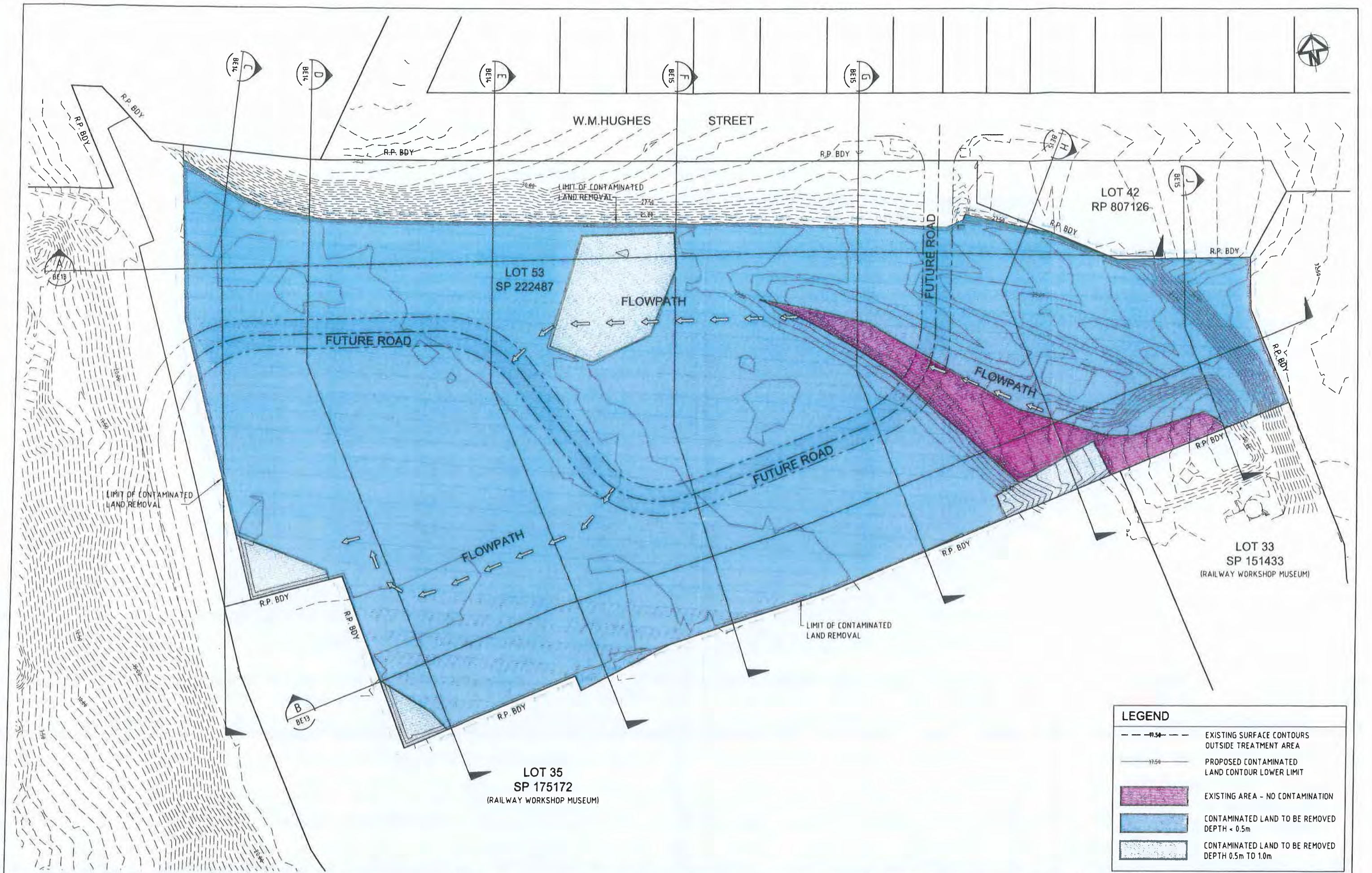
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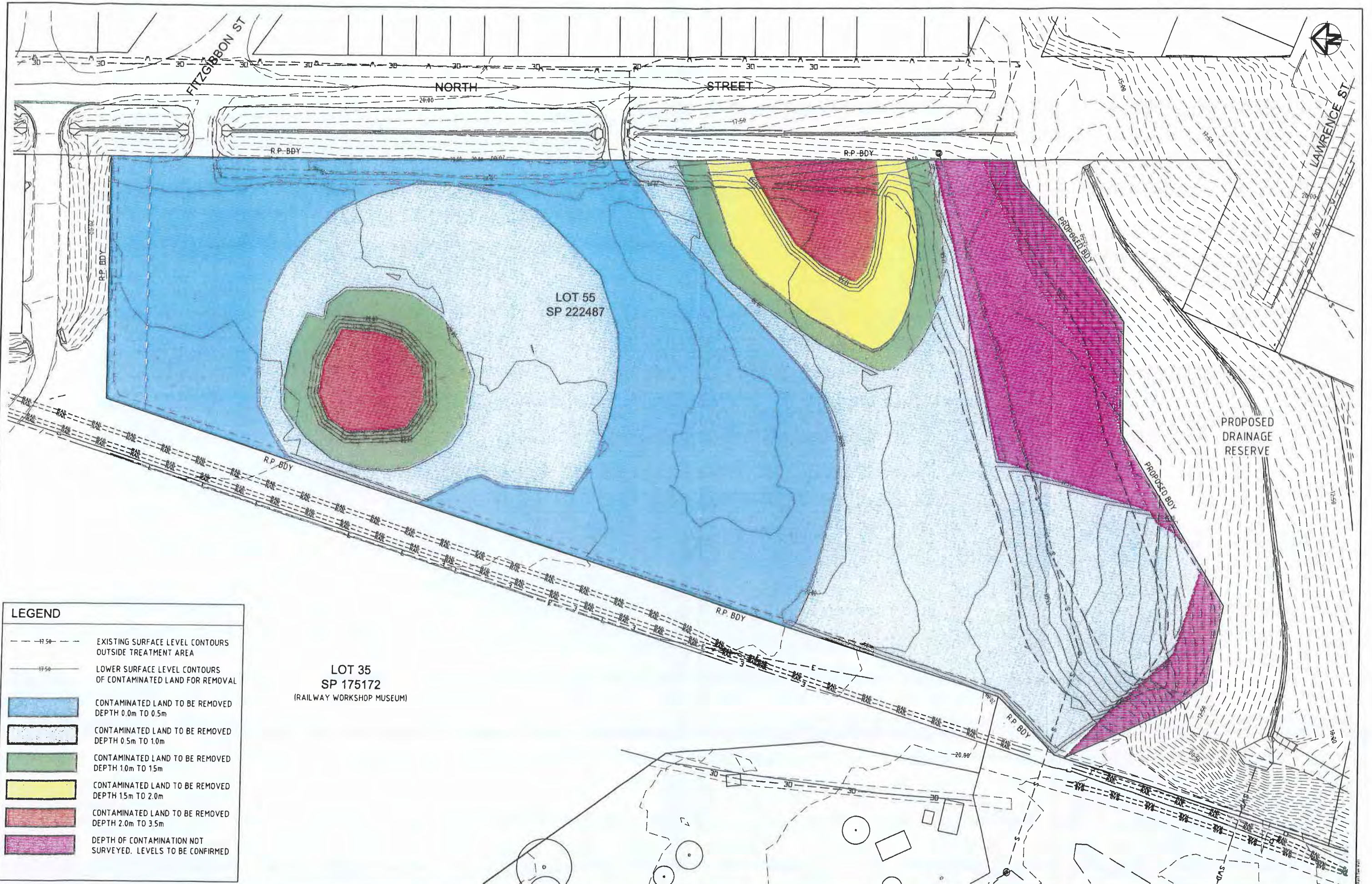
BORROW
PITS

DRAWING No. : AMENDMENT :

PLOTTED: 06 Sep 2009



STATUS				COUNCIL APPROVED				THIS DESIGN AND PLAN IS COPYRIGHT AND IS NOT TO BE USED OR REPRODUCED WHOLLY OR IN PART OR TO BE USED ON ANY PROJECT WITHOUT THE WRITTEN PERMISSION OF YEATS CONSULTING PTY LTD				CLIENT				PROJECT				TITLE			
								DRAWING IS NOT TO BE SCALED				LEDADevelopments Pty Ltd				RIVER LINK DEVELOPMENT SITE BULK EARTHWORKS WM HUGHES ST & NORTH ST, IPSWICH				BULK EARTHWORKS CONTAMINATED LAND REMOVAL PLAN			
								SCALE (AT ORIGINAL SHEET SIZE)				ORIGINAL SHEET SIZE											
								SCALE 10 0 10 20 1:500				A1											
B				COUNCIL RFI AMENDMENTS				S.S.				10.03.10											
A				ORIGINAL ISSUE				N.M.				23.07.09											
REV				DESCRIPTION				DRAWN				DATE											
								</															



LEGEND

- 17.50 --- EXISTING SURFACE LEVEL CONTOURS OUTSIDE TREATMENT AREA
- 17.50 — LOWER SURFACE LEVEL CONTOURS OF CONTAMINATED LAND FOR REMOVAL
- [Blue Box] CONTAMINATED LAND TO BE REMOVED DEPTH 0.0m TO 0.5m
- [Light Blue Box] CONTAMINATED LAND TO BE REMOVED DEPTH 0.5m TO 1.0m
- [Green Box] CONTAMINATED LAND TO BE REMOVED DEPTH 1.0m TO 1.5m
- [Yellow Box] CONTAMINATED LAND TO BE REMOVED DEPTH 1.5m TO 2.0m
- [Red Box] CONTAMINATED LAND TO BE REMOVED DEPTH 2.0m TO 3.5m
- [Magenta Box] DEPTH OF CONTAMINATION NOT SURVEYED. LEVELS TO BE CONFIRMED

LOT 35
SP 175172
(RAILWAY WORKSHOP MUSEUM)

STATUS		FOR ISSUE	
REV	DESCRIPTION	T.W.	DATE
B	RFI AMENDMENTS AND BOUNDARY ADJUSTMENT	N.M.	29.01.10
A	ORIGINAL ISSUE	N.M.	05.08.09

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DRAWING IS NOT TO BE SCALED

SCALE (AT ORIGINAL SHEET SIZE)

SCALE 10 0 10 20 1:500

ORIGINAL SHEET SIZE

A1

CLIENT

LEDA
Developments Pty Ltd

PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

YEATS
CONSULTING ENGINEERS

LEVEL 2, 9 OUYAN STREET BUNDALL QLD 4217 AUSTRALIA

TITLE					CONTAMINATED LAND REMOVAL LAYOUT PLAN	
TASK	BY	INITIAL	DATE	APPROVED	RPED No: 7825	
REVIEW	C.W.		05.08.09		DRAWING NUMBER	
DESIGN	N.M.		05.08.09		VC0475 RE02	

Appendix 8

Flood Report.



RIVERLINKS CENTRAL

Flood Study

Cardno (Qld) Pty Ltd

ABN 57 051 074 992

Level 11 Green Square North Tower

515 St Paul's Terrace

Fortitude Valley Qld 4006

Locked Bag 4006 Fortitude Valley

Queensland 4006 Australia

Telephone: 07 3369 9822

Facsimile: 07 3369 9722

International: +61 7 3369 9822

cardno@cardno.com.au

www.cardno.com.au

Document Control

Version	Date	Author		Reviewer	
		Name	Initials	Name	Initials
1	1 October 2009		ZS		MG
2	6 October 2009		ZS		MG
3	7 October 2009		ZS		

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RIVERLINKS CENTRAL FLOOD STUDY

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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.

It can be noted that the post development case considered the full urbanisation of the site without detention basins in place.

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*".

FIGURES

- Figure 1 Site Location**
- Figure 2 Hydrologic Catchment Extents**
- Figure 3 XP-SWMM Hydraulic Model**



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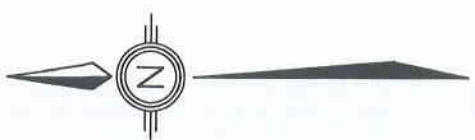
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FIGURE 1 SITE LOCATION

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PRINT DATE: 27 October, 2009 - 1:18pm



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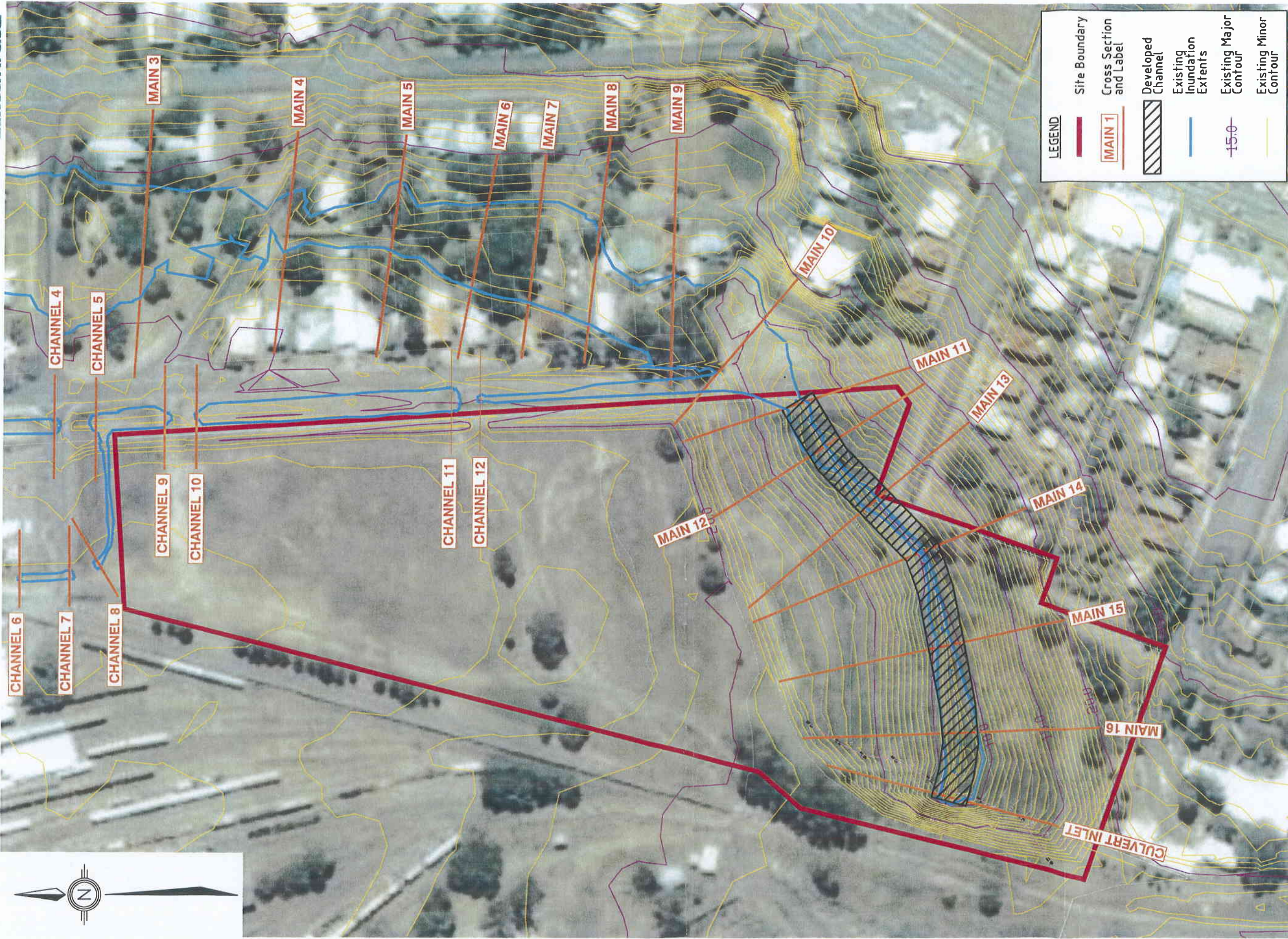
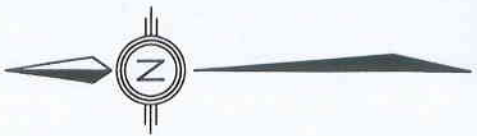
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FIGURE 2 HYDRAULIC CATCHMENT EXTENTS

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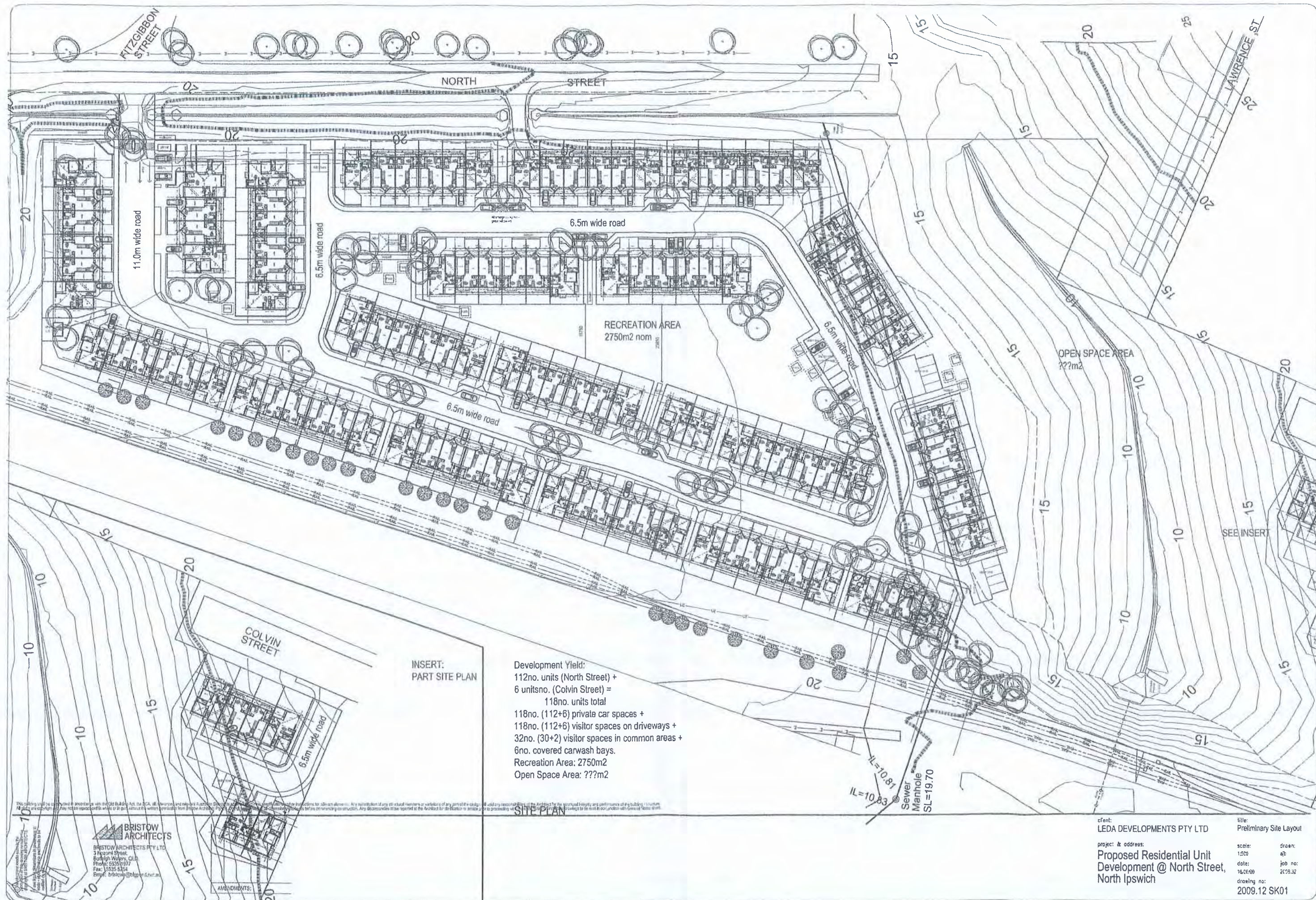
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FIGURE 3
XP-SWMM HYDRAULIC MODEL

Project No.: 3503-70

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Reference Drawings



INSERT:
PART SITE PLAN

Development Yield:
112no. units (North Street) +
6 unitsno. (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: 2750m2
Open Space Area: ???m2

SITE PLAN

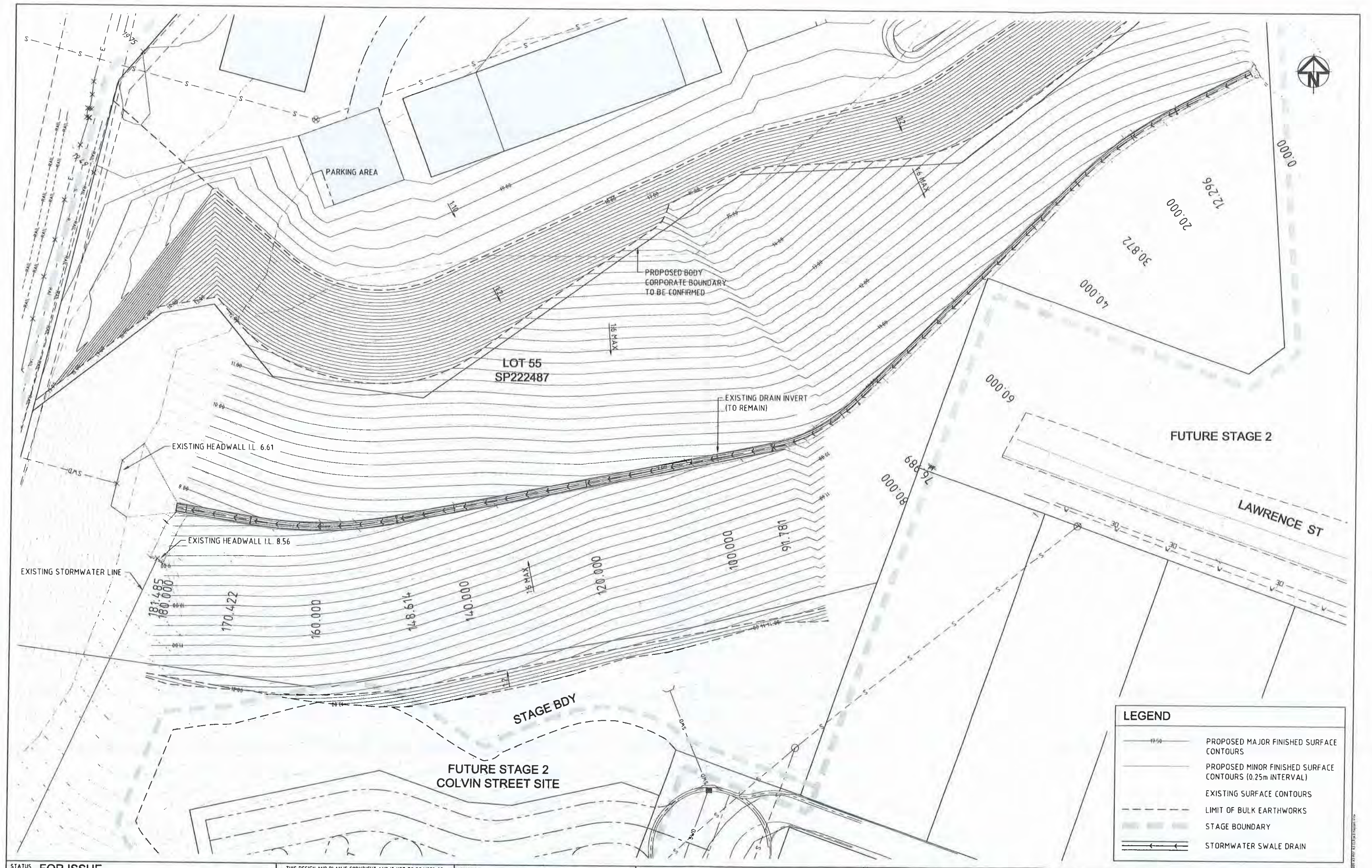
BRISTOW ARCHITECTS
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Client:
LEDA DEVELOPMENTS PTY LTD

Project & address:
Proposed Residential Unit
Development @ North Street,
North Ipswich

Title:
Preliminary Site Layout

Scale: 1:500
Date: 16.06.09
Drawing no: 2009.12 SK01
Drawn: ac
Job no: 2009.12



LEGEND	
	PROPOSED MAJOR FINISHED SURFACE CONTOURS
	PROPOSED MINOR FINISHED SURFACE CONTOURS (0.25m INTERVAL)
	EXISTING SURFACE CONTOURS
	LIMIT OF BULK EARTHWORKS
	STAGE BOUNDARY
	STORMWATER SWALE DRAIN

STATUS FOR ISSUE			
REV	DESCRIPTION	G.S.	DATE
A	ORIGINAL ISSUE		25.09.09

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PROJECT

RIVERLINK - PROPOSED RESIDENTIAL UNIT DEVELOPMENT AT NORTH STREET, NORTH IPSWICH

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TITLE BULK EARTHWORKS CENTRAL GULLY LAYOUT PLAN					
TASK	BY	INITIAL	DATE	APPROVED	RPEQ No 7825
REVIEW	H.V.		25.09.09		
DESIGN	N.M.		25.09.09		
DRAWN	G.S.		25.09.09		
DRAWING NUMBER YC0175-BE18				REVISION	A

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				BREM5 year ARI Flood				BREM 2 year ARI Flood			
	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd	Exist mAHd	Dev mAHd	Afflux (mm)	Exist mAHd
1010020	19.12	19.07	-51	17.17	17.13	-46	12.68	12.59	-100	12.68	12.59	-100	12.68	12.59	-100	8.29	8.25	-46	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	12.54	12.43	-105	8.17	8.12	-49	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	12.43	12.37	-67	8.07	8.02	-51	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	12.42	12.37	-53	8.06	8.01	-51	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	12.37	12.36	-3	7.91	7.85	-54	7.91	7.85	-54	4.52	4.52	0
1010430	18.87	18.78	-91	16.93	16.87	-64	12.36	12.36	-2	12.36	12.36	-2	12.36	12.36	-2	7.80	7.76	-45	7.80	7.76	-45	4.52	4.52	0
1010510	18.78	18.70	-75	16.84	16.80	-48	12.36	12.36	-1	12.35	12.35	-1	12.35	12.35	-1	7.65	7.65	0	7.65	7.65	0	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	12.35	12.35	-1	7.65	7.65	0	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	12.35	12.35	-1	7.65	7.65	0	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	12.35	12.35	-1	7.65	7.65	0	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	12.34	12.34	-1	7.65	7.65	0	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	12.34	12.34	-1	7.65	7.65	0	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	12.34	12.34	-1	7.65	7.65	0	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	12.34	12.33	-1	7.65	7.65	0	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	12.33	12.33	-1	7.64	7.64	0	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	12.33	12.33	-1	7.64	7.64	0	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	12.33	12.33	-1	7.64	7.64	0	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	12.33	12.33	0	7.64	7.64	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	12.32	12.32	0	7.64	7.64	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	12.32	12.32	0	7.64	7.64	0	7.64	7.64	0	4.52	4.52	0
1011790	17.26	17.28	25	15.50	15.50	5	12.32	12.32	0	12.32	12.32	0	12.32	12.32	0	7.64	7.64	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	12.31	12.31	-1	7.64	7.64	0	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	12.30	12.30	-1	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1011930	16.88	16.86	-27	15.16	15.14	-20	12.30	12.30	0	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1012045	16.79	16.79	0	15.08	15.08	0	12.30	12.30	0	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1012050	16.84	16.84	0	15.13	15.12	0	12.30	12.30	0	12.30	12.30	0	12.30	12.30	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1012070	16.82	16.82	0	15.10	15.10	0	12.29	12.29	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1012200	16.75	16.75	0	15.04	15.04	0	12.29	12.29	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1012870	16.71	16.71	0	15.01	15.01	0	12.29	12.29	0	12.29	12.29	0	12.29	12.29	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1013380	16.66	16.66	0	14.95	14.95	0	12.28	12.28	0	12.28	12.28	0	12.28	12.28	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1013700	16.62	16.62	0	14.92	14.92	0	12.28	12.28	0	12.28	12.28	0	12.28	12.28	0	7.64	7.64	0	7.64	7.64	0	4.51	4.51	0
1014220	16.43	16.43	0	14.74	14.74	0	12.28	12.28	0	12.28	12.28	0	12.28	12.28	0	7.63	7.63	0	7.63	7.63	0	4.51	4.51	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	10.46	-17	
1011040	17.56	17.54	-16		15.59	15.57	-25		12.95	12.92	-31		10.45	10.43	-21	
1011090	17.52	17.51	-10		15.56	15.54	-19		12.93	12.90	-27		10.44	10.42	-20	
1011185	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	
1011465	17.33	17.32	-4		15.36	15.35	-12		12.74	12.73	-8		10.25	10.25	-3	
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	

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

MARCH 2010

REVISION 02

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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:

1. Pre and post development flows for the 2, 5, 10, 20, 50 and 100 year return interval storms;
2. Assessment of water quantity objectives
3. Nomination of the legal point of discharge;
4. MUSIC Modelling to demonstrate that water quality objectives can be achieved;
5. Details of the stormwater quality treatment strategy; and
6. 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.

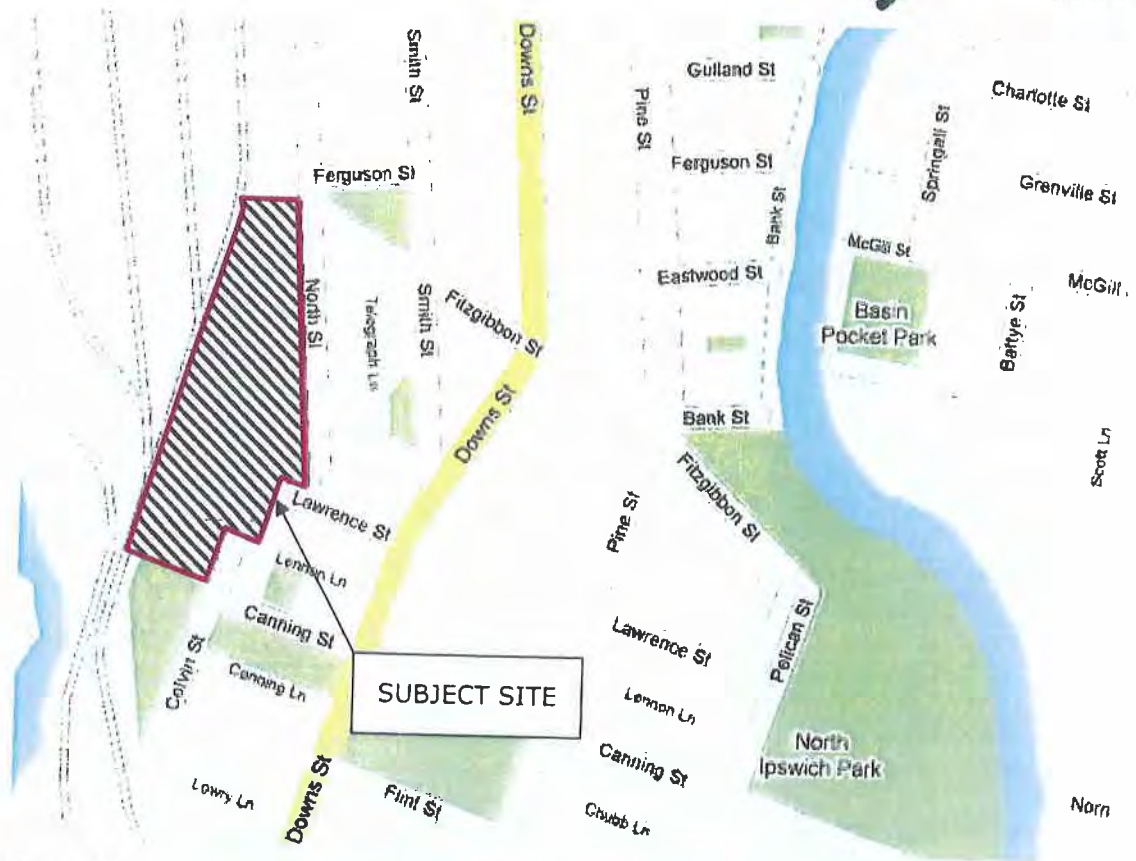


Figure 1.1 Site Location - Street Plan



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, $I_{10} = 60-64$ 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).

The proposed minor drainage network shall be designed to convey all runoff from the proposed development, including, but not limited to, runoff from all internal roads, car parking areas, driveways, pervious yard areas, roof areas and overflows from roof water tanks. The minor

drainage system shall discharge to the proposed bio-retention treatment devices outlined in Section 4.0 below.

Refer to the attached Stormwater Management Plan within Appendix D for the preliminary minor drain system layout (to be refined during detailed operational works design).

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 **18.31mAH**.

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 18.79mAH to the south of the main drain alignment. Assuming broad crested weir flow, a flood level of 19.20mAH 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 mAH
DESIGN 100 YEAR ARI FLOOD LEVEL	
Railway Embankment overland flow level	18.79 mAH

Q100 Flow over Railway Line	19.20 mAHD
Adopted Minimum Earthworks Pad Level	19.20 mAHD

3.7.2 Overland Flow Path Capacity – Visitor Carpark (Stage 1)

In response to the Ipswich City Council Development Application Information Request (Section 3.3.6), dated 18 November 2009, Item 7 – Stormwater (*refer below*), we comment as follows:

"7. Stormwater - The Applicant is requested to demonstrate, by the provision of preliminary hydraulic calculations for major and minor storm events, that the nominated overland flow path to cater for the proposed major (Q100) overland flows through the visitor carpark bay on the northern stage is in accordance with QUDM requirements."

QUDM Volume 1, Second Edition 2007, Section 7.04 states that, for pedestrian safety, depth velocity products shall be less than or equal to $0.6\text{m}^2/\text{s}$ for roadway flow paths with 'No Obvious Danger', and $0.4\text{m}^2/\text{s}$ for flow paths with 'Obvious Danger'

The flowing table summarises the results of the preliminary hydraulic calculations undertaken on the proposed overland flow path through the visitor carpark:

Table 3.4 Hydraulic Calculations Summary

Item	Value
Q100 ARI Major Storm Peak Flow	$1.889\text{m}^3/\text{s}$
Roadway Width (at access road to carpark area)	4.5m
Longitudinal grade	1%
Q100 Flow Depth (d)	0.16m
Q100 Flow Velocity (V)	2.11m/s
Depth Velocity Product (d x V)	$0.40\text{m}^2/\text{s}$

Refer to Appendix C for flow calculations (Rational Method Calculations – Post Development) and Appendix F for roadway capacity calculations (Mannings open channel flows).

The above table shows that the proposed visitor carpark bay will have sufficient capacity to convey the Q100 major storm flow, with flows meeting the requirements of QUDM. The flow path is considered to be of 'No Obvious Danger' however, based on the above analysis, the flow path also satisfies the requirements should a 'Obvious Danger' be seen to exist.

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 Train

4.2.1 Northern Site (Stage 1)

The proposed stormwater conveyance and treatment train for the northern site comprises the following elements:

- Roofwater tanks shall be provided for each of the proposed units in accordance with the Queensland Development Code Part MP 4.2 Water Savings Targets
- All runoff from the developed site is conveyed, via the minor drainage network, to the proposed bio-retention basin.
- A bifurcation (high flow bypass) structure shall be constructed upstream of the proposed bio-retention basin, diverting flows exceeding the $Q_{3\text{month}}$ ARI flows around the basin discharging directly into the existing drain.
- Flows up to the $Q_{3\text{month}}$ ARI Event shall be discharged to a coarse sediment forebay located upstream of the proposed bio-retention basin. Design of the sediment forebay has been undertaken in accordance with Section 5.3.3.2 of Healthy Waterways 'WSUD Technical Design Guidelines for South East Queensland – Version 1 June 2006'. Scour protection shall be provided at the pipe outlet.
- A 0.3m high rock check dam shall be constructed to separate the proposed sediment forebay from the bio-retention basin
- Construction of a bio-retention basin in accordance with Chapter 5 of Healthy Waterways 'WSUD Technical Design Guidelines for South East Queensland – Version 1 June 2006'. An overflow pit shall be constructed to convey minor flows to the invert of the existing drain. A lined overflow spillway shall also be constructed to discharged flows during extreme rainfall events in a controlled manner.

4.2.2 Southern Site (Stage 2)

The proposed stormwater conveyance and treatment train for the southern site comprises the following elements:

- Roofwater tanks shall be provided for each of the proposed units in accordance with the Queensland Development Code Part MP 4.2 Water Savings Targets
- All runoff from the developed site is conveyed, via the minor drainage network, to the proposed bio-retention swale.
- Construction of a bio-retention swale in accordance with Chapter 3 of Healthy Waterways 'WSUD Technical Design Guidelines for South East Queensland – Version 1 June 2006'. An overflow pit shall be constructed at the downstream end of the swale to convey minor flows to the invert of the existing drain. A lined overflow spillway shall also be constructed to discharge flows during extreme rainfall events in a controlled manner.

Refer to Appendix D for the proposed stormwater management plan and WSUD treatment strategy.

4.3 Proposed Treatment Measures

Detailed description of the proposed treatment measures are provided below:

4.3.1 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.

All overflows from the proposed roof water tanks shall be connected to the reticulated stormwater network, which in turn shall be treated via the proposed bio-retention areas.

4.3.2 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.

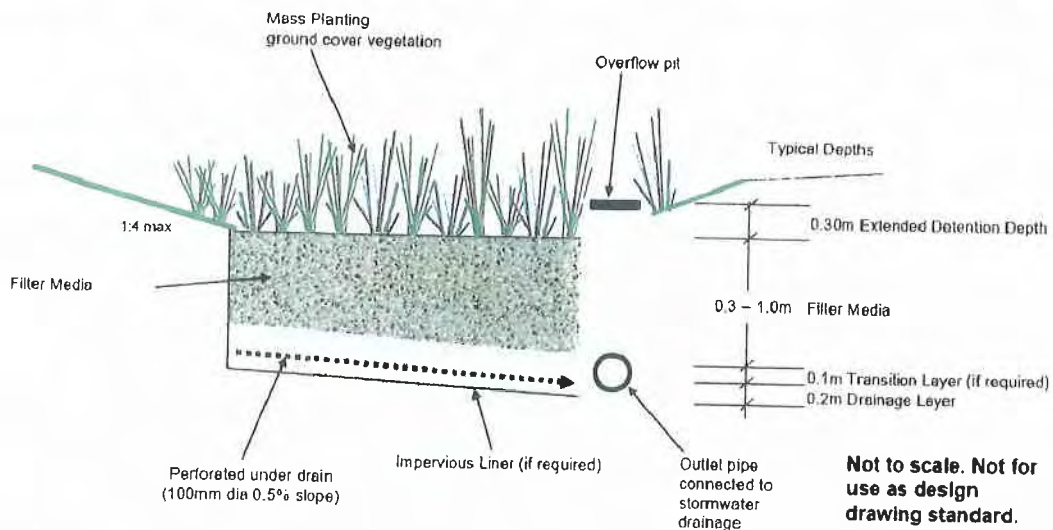


Figure 5-2: Typical Cross Section of a Bioretention Basin

Figure 4.1 Bio Basin – Typical Section

(Source: Healthy Waterways WSUD Technical Design Guidelines)

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.

4.3.3 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.

4.4 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.

4.4.1 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.

4.4.2 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

4.5 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
Meteorological Data	Bureau of Meteorology AMBERLY Station (Stn. No. 040004) Jan 1990 to Dec 1999
Model time step	6 min rainfall intensity (Pluviograph Data)
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

Parameter	Value
	0.1744 Ha - Urban
Treatment Devices	
CATCHMENT A	
Bio-Retention Basin	Filter media - sandy loam Median particle diameter = 0.45mm Saturated hydraulic conductivity = 200mm/hr Seepage Loss = 0.00mm/hr Storage surface area = 240.0m ² Filter media surface area = 75.0m 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 = 18kL (3kL tank/dwelling) Surface area = half the tank volume = 9m ² Daily re-use demand = 1.956 kL/day (0.326kL/household/day) Equivalent Overflow Pipe Diameter = 220mm (Assumed 90mm outlet on each tank)

4.6 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)	2290	449	80.4
Total Phosphorous (kg/yr)	5.28	1.63	69.0
Total Nitrogen (kg/yr)	35.3	16.9	52.0
Gross Pollutants (kg/yr)	493	0.0	100.0

Table 4.5 MUSIC Pollutant Load Assessment Catchment C

Parameter	Post-Development	Post-Development (Mitigated)	Reduction (%)
Total Suspended Solids (kg/yr)	167	15.0	91.1
Total Phosphorous (kg/yr)	0.362	0.088	75.7
Total Nitrogen (kg/yr)	2.28	1.06	53.7
Gross Pollutants (kg/yr)	33.0	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 been achieved for the post-developed catchment.

4.7 Monitoring and Maintenance

4.7.1 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.

4.7.2 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 5.2 & 5.3 respectively.

All erosion and sediment control measures shall be generally undertaken in accordance with AECA (Australasia) Best Practice Erosion and Sediment Control, November 2008.

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. Refer to the attached Erosion and Sediment for details of the proposed sediment basin

The sedimentation basins have been designed in accordance with 'IECA (Australasia) Best Practice Erosion and Sediment Control'.

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

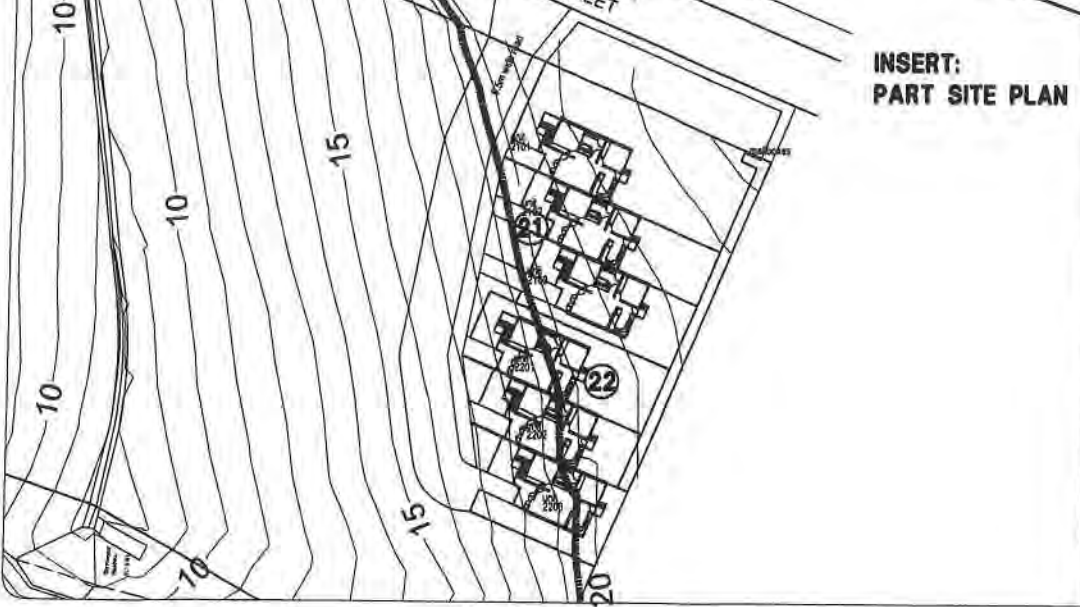
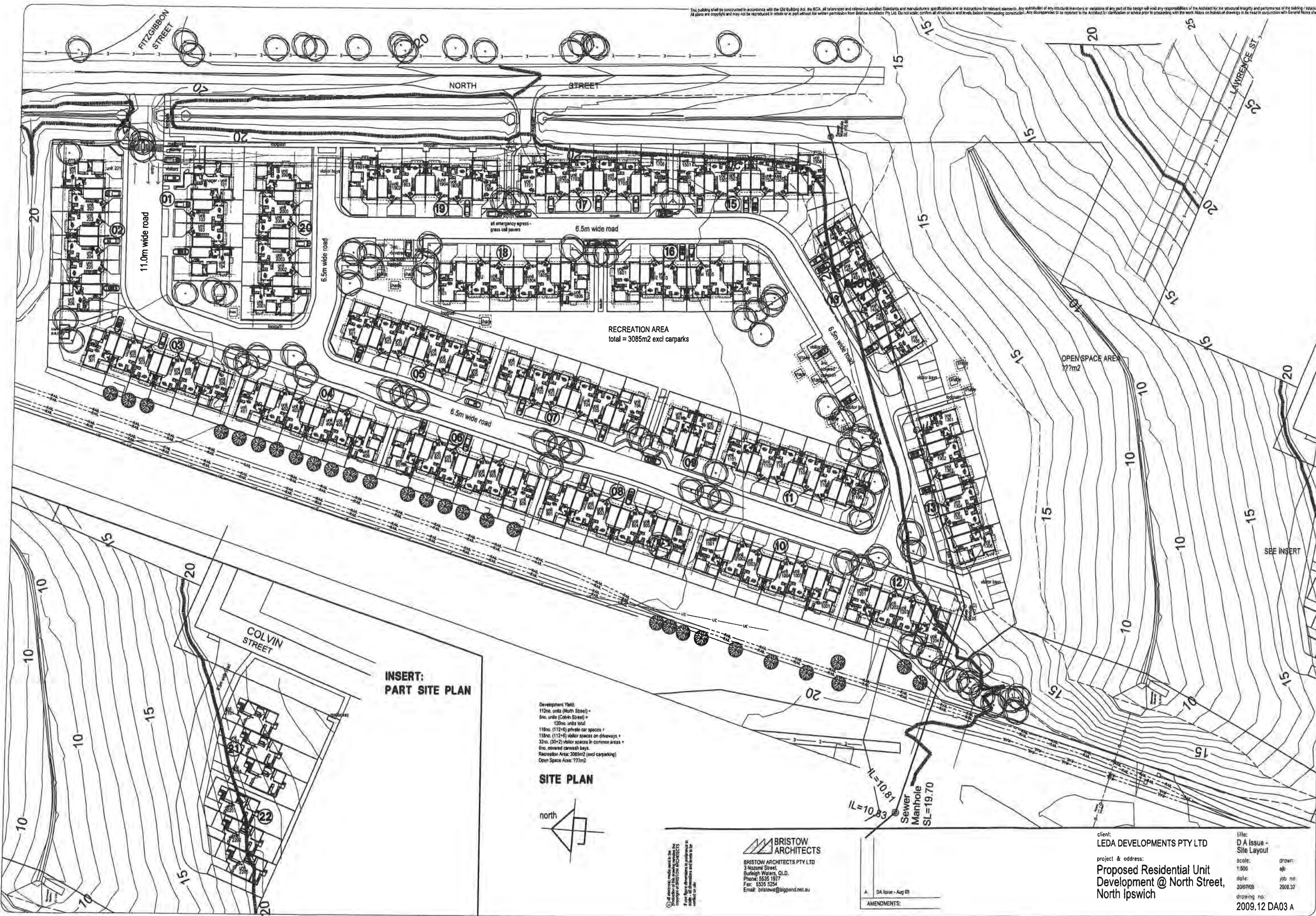


Appendix A

Proposed Development

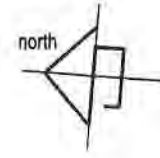
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Development Yield:
 112no. units (North Street) +
 120no. units (Colvin Street) =
 232no. units total
 118no. (112+6) private car spaces +
 118no. (112+6) visitor spaces on driveways +
 32no. (20+12) visitor spaces in common areas +
 6no. covered carwash bays
 Recreation Area: 3085m2 (extd carparking)
 Open Space Area: 777m2

SITE PLAN



All electronic media used in the preparation of this drawing shall be the property of Bristow Architects Pty Ltd. If any figure alterations or omissions to scale, all dimensions and levels to be verified on site.

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

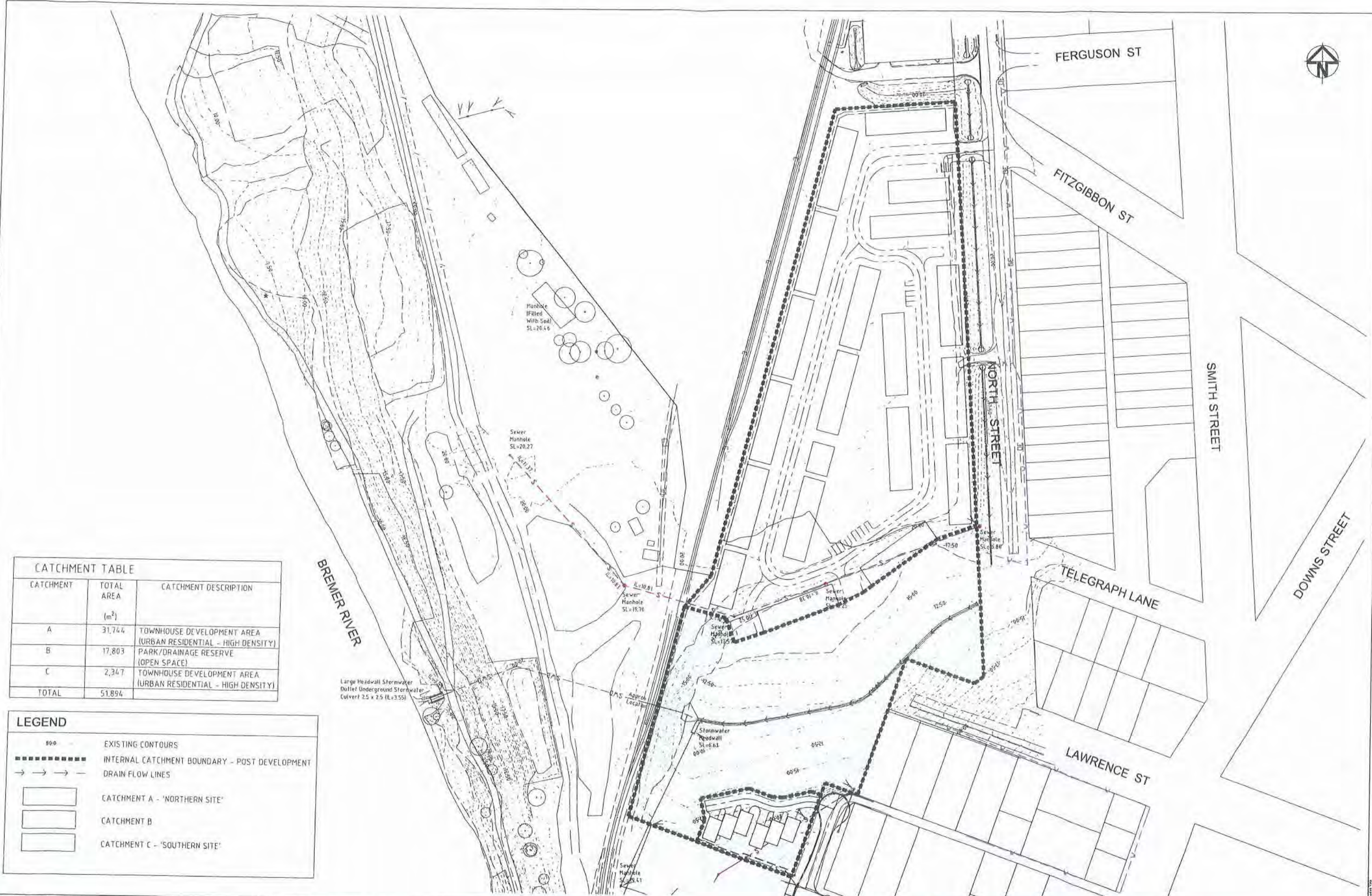
A DA Issue - Aug 07
 AMENDMENTS:

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

title:
**DA Issue -
 Site Layout**
 scale:
 1:500
 date:
 20/07/09
 drawing no:
 2009.12 DA03 A

SEE INSERT

Appendix B
Catchment Plan



CATCHMENT TABLE		
CATCHMENT	TOTAL AREA (m ²)	CATCHMENT DESCRIPTION
A	31,744	TOWNHOUSE DEVELOPMENT AREA (URBAN RESIDENTIAL - HIGH DENSITY)
B	17,803	PARK/DRAINAGE RESERVE (OPEN SPACE)
C	2,347	TOWNHOUSE DEVELOPMENT AREA (URBAN RESIDENTIAL - HIGH DENSITY)
TOTAL	51,894	

LEGEND

80.0

EXISTING CONTOURS

INTERNAL CATCHMENT BOUNDARY - POST DEVELOPMENT

→ → →

DRAIN FLOW LINES

CATCHMENT A - 'NORTHERN SITE'

CATCHMENT B

CATCHMENT C - 'SOUTHERN SITE'

STATUS FOR ISSUE

REV	DESCRIPTION	H.V.	DATE
A	ORIGINAL ISSUE		25.09.09

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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

YEATS CONSULTING ENGINEERS

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

SITE CATCHMENT PLAN

TASK	BY	INITIAL	DATE	APPROVED	HPED 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

REVISION



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



PARAMETERS

VALUE

Catchment Name A
 Catchment Size 3.1744 ha
 C10 Coefficient of Runoff 0.66

Friend's Equation for Time of Concentration of Overland Flow

$$QUDM.4.06.6 - t_c = (107 \times n \times L^{0.77}) / S$$

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

$$\text{Overland flow } t_c (19.1) + \text{Stream flow } t_c (5.5)$$

Total time of Concentration (tc) 25.0 mins

Rational Method for Peak Catchment flow

$$Q = 0.00778 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m³/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

Friend's Equation for Time of Concentration of Overland Flow

$$QUDM 4.06.6 - t_c = (10.7 \times n \times L^{0.77}) / S^{0.48}$$

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 4.04.5 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

$$\text{Overland flow } t_c (F1) + \text{Stream flow } t_c (F2)$$

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

$$QUDM: 4.066 = t_c = (107 \times n \times L^{0.77}) / S$$

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 4.05.5 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 (t_c) + Stream flow t_c (t_c)

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)	Fy	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

$QUDM: 4.966 \cdot t_c = (102 \cdot n \cdot L)^{0.777} / S$

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 4.94.5 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 (1.42) + Stream flow tc (1.20)

Total time of Concentration (tc) 15.0 mins

Rational Method for Peak Catchment flow

$Q = 0.00278 \cdot C \cdot i \cdot A$

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: $t_c = (107 \times n \times L)^{0.76} / S^{0.38}$

Horton's roughness coefficient (n) 0
Overland stream flow path length (L) 0 m
Slope of the surface (S) 1 %
Time of concentration (t_c) 0.0 mins

Stream Flow for catchments less than 5km²

Table 4.06.5 Horton QUDM

Stream Length (L) 150 m
Catchment Slope % 5.0 %
Velocity (m/s) 0.9 m/s
Time of concentration (t_c) 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 (t_c) 0.0 mins

Total Time of Concentration

Overland flow t_c (t_{c1}) + Stream flow t_c (t_{c2})

Total time of Concentration (t_c) 15.0 mins

Rational Method for Peak Catchment flow

$Q = 0.00278 \times C_p \times I \times A$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	F _y	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

$$QUDM 4.06.6 \quad t_c = (107 \times n \times L^{0.77}) / S^{0.38}$$

Horton's roughness coefficient (n) 0.035
Overland stream flow path length (L) 0 m
Slope of the surface (S) 1 %
Time of concentration (t_c) 0.0 mins

Stream Flow for catchments less than 5km²

Table 4.06.5 from SUDM

Stream Length (L) 0 m
Catchment Slope % 0.0 %
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) 50.0 m
Inlet Time (min) 5.0
Pipe Flow Time of concentration (t_c) 6.4 mins

Total Time of Concentration

$$\text{Overland flow } t_1 + \text{Stream flow } t_2 + \text{Inlet } t_3$$

Total time of Concentration (t_c) 15.0 mins

Rational Method for Peak Catchment flow

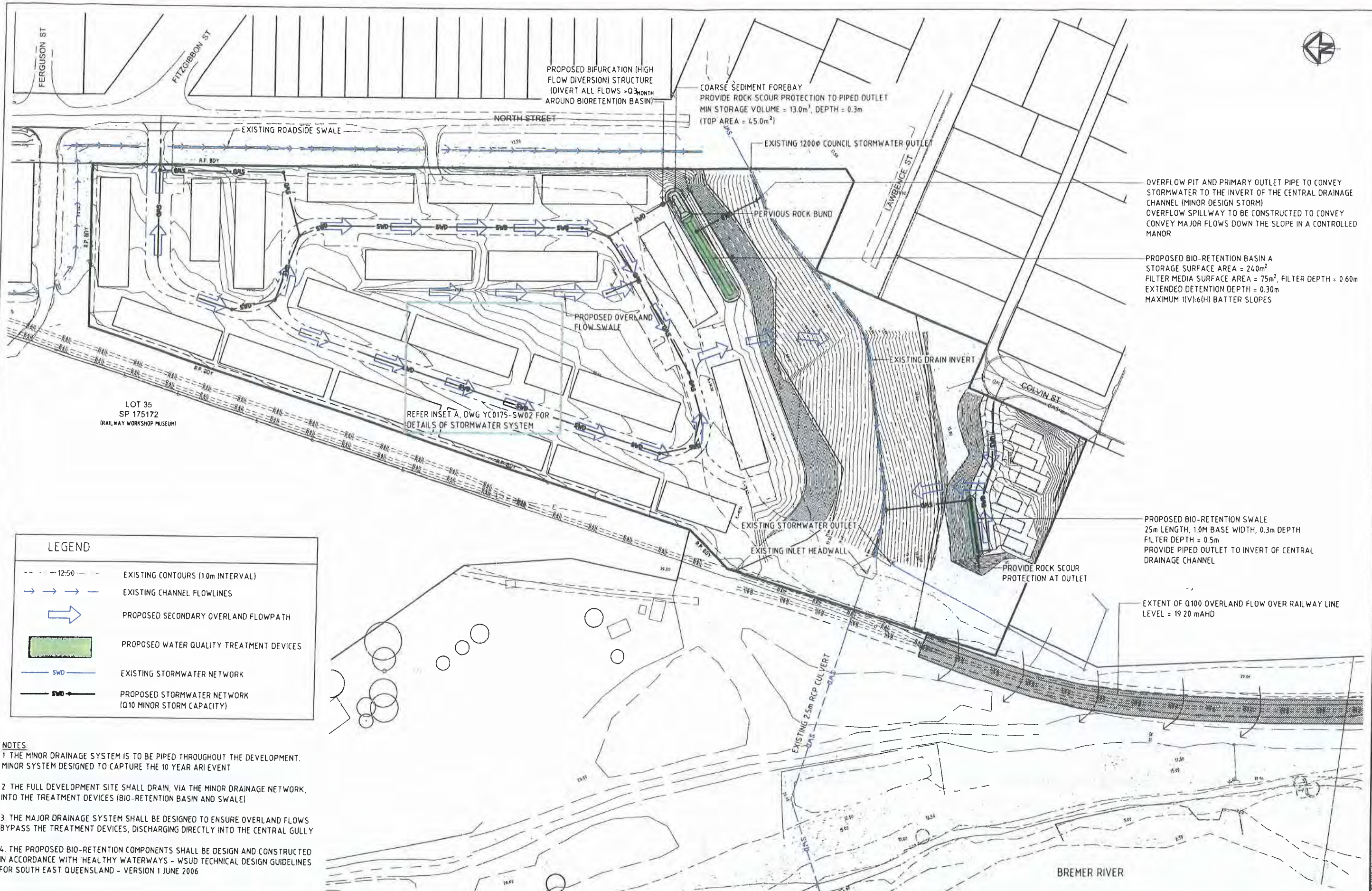
$$Q = 0.00278 \times C \times I \times A$$

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	F _y	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



LEGEND

12.50

10m INTERVAL

EXISTING CHANNEL FLOWLINES

PROPOSED SECONDARY OVERLAND FLOWPATH

PROPOSED WATER QUALITY TREATMENT DEVICES

SWD

EXISTING STORMWATER NETWORK

SWD

PROPOSED STORMWATER NETWORK (Q10 MINOR STORM CAPACITY)

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
4. THE PROPOSED BIO-RETENTION COMPONENTS SHALL BE DESIGN AND CONSTRUCTED IN ACCORDANCE WITH 'HEALTHY WATERWAYS - WSUD TECHNICAL DESIGN GUIDELINES FOR SOUTH EAST QUEENSLAND - VERSION 1 JUNE 2006

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

PROPOSED BIO-RETENTION BASIN A
STORAGE SURFACE AREA = 240m²
FILTER MEDIA SURFACE AREA = 75m², FILTER DEPTH = 0.60m
EXTENDED DETENTION DEPTH = 0.30m
MAXIMUM 1(V):6(H) BATTER SLOPES

PROPOSED BIO-RETENTION SWALE
25m LENGTH, 1.0M BASE WIDTH, 0.3m DEPTH
FILTER DEPTH = 0.5m
PROVIDE PIPED OUTLET TO INVERT OF CENTRAL DRAINAGE CHANNEL

EXTENT OF Q100 OVERLAND FLOW OVER RAILWAY LINE
LEVEL = 19.20 mAH

STATUS FOR ISSUE

B	RESPONSE TO COUNCIL RFI	H.V.	05.03.10
A	ORIGINAL ISSUE	H.V.	25.09.09
REV	DESCRIPTION	DRAWN	DATE

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SCALE (AT ORIGINAL SHEET SIZE)

SCALE 15 0 15 30 1:750

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

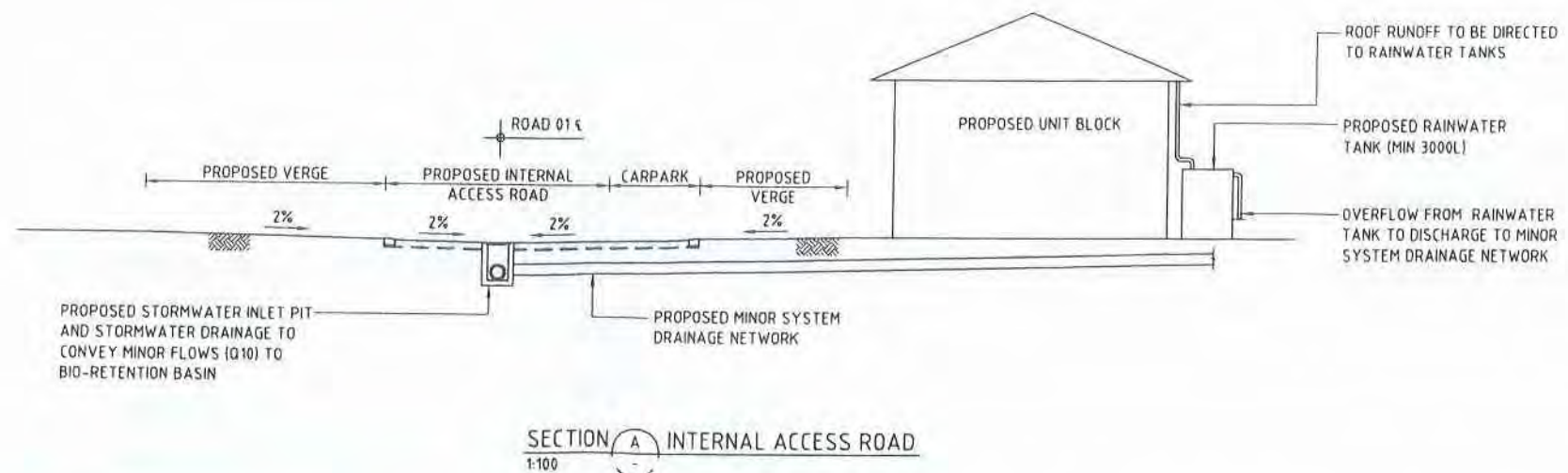
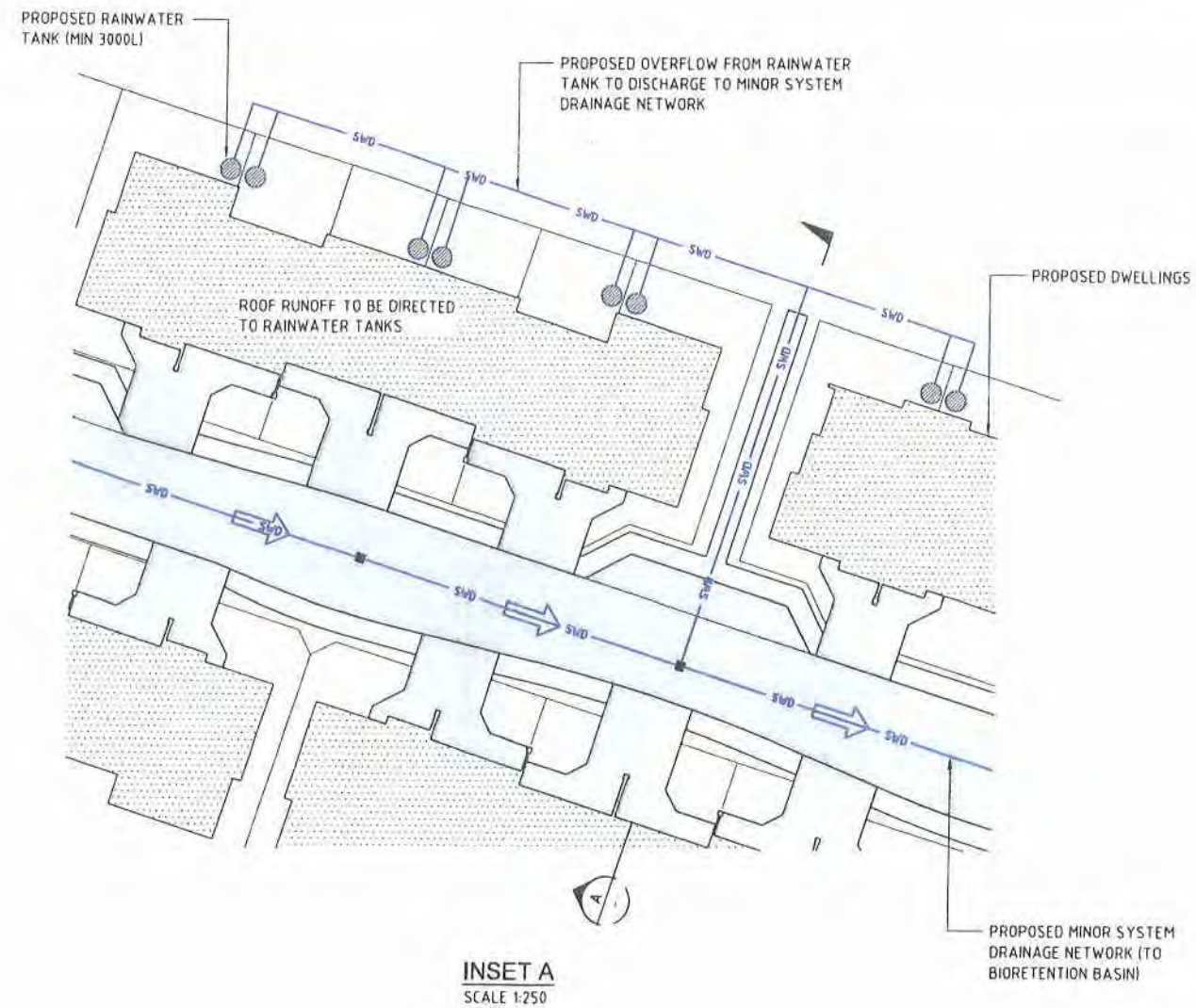
TITLE

STORMWATER MANAGEMENT PLAN

TASK	BY	INITIAL	DATE	APPROVED	RPEQ No	7825
REVIEW	B.Y.		25.09.09			
DESIGN	H.V.		25.09.09			
DRAWN	H.V.		25.09.09			

DRAWING NUMBER YC0175-SW01

REVISION B



LEGEND

- SWD — PROPOSED STORMWATER NETWORK
- ➔ PROPOSED SECONDARY OVERLAND FLOWPATH
- PROPOSED STORMWATER PIT
- ▭ PROPOSED ROAD/DRIVEWAYS
- ▭ PROPOSED FOOTPATHS
- ▨ PROPOSED DWELLINGS

STATUS FOR ISSUE

REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE	T.W.	03.02.10

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SCALE (AT ORIGINAL SHEET SIZE)

SCALE 1:100

SCALE 1:250

ORIGINAL SHEET SIZE
A1

CLIENT

LEDA
Developments Pty Ltd

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 4977 info@yeats.com.au www.yeats.com.au

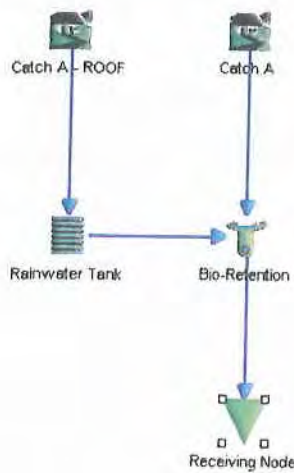
TITLE

STORMWATER MANAGEMENT DETAILS

TASK	BY	INITIAL	DATE	APPROVED	RPEG No	7825
REVIEW	B.Y.		03.02.10			
DESIGN	H.V.		03.02.10			
DRAWN	T.W.		03.02.10			
DRAWING NUMBER					YC0175-SW02	A
REVISION						

Appendix E

Water Quality Treatment Strategy and Details

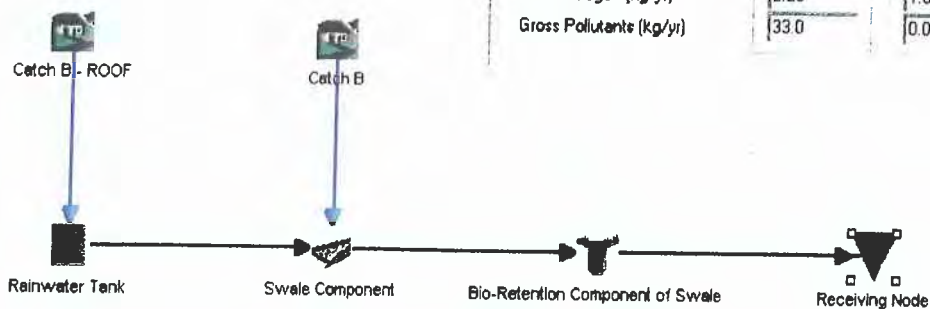


Model of Catchment A - MUSIC Model

	Sources	Residual Load	% Reduction
Flow (ML/yr)	16.9	11.8	29.9
Total Suspended Solids (kg/yr)	2.29E3	449	80.4
Total Phosphorus (kg/yr)	5.28	1.63	69.0
Total Nitrogen (kg/yr)	35.3	16.9	52.0
Gross Pollutants (kg/yr)	493	51.3E-3	100.0



Catchment A MUSIC Model



Model of Catchment C - MUSIC Model

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.09	0.819	24.9
Total Suspended Solids (kg/yr)	167	15.0	91.1
Total Phosphorus (kg/yr)	0.362	88.0E-3	75.7
Total Nitrogen (kg/yr)	2.28	1.06	53.7
Gross Pollutants (kg/yr)	33.0	0.00	100.0



Catchment C MUSIC Model

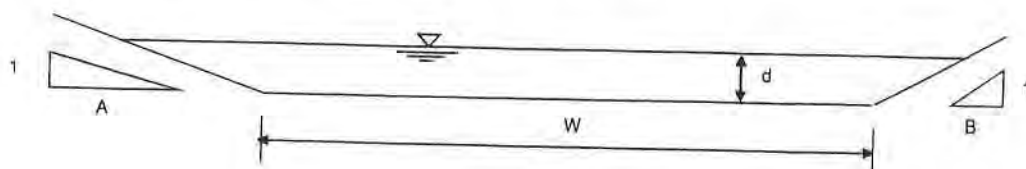


Appendix F

Response to RFI – Roadway Overland Flow
Path Capacity

MANNINGS FLOW CALCULATION

Project:	RIVERLINK - North Street
Date:	1-Mar-10
Designed:	HV
Comments:	Response to RFI Item 7 - Visitor Carpark Bay Flow Capacity
Q100 Flow	



PARAMETERS TABLE

W	4.5	Channel width in metres (Width of Carpark Access)
A	1	Grade of left hand channel bank
B	1	Grade of right hand channel bank
S	1	Slope of channel bed in percent
n	0.015	Manning's "n" which is the channel roughness
d	0.18	flow Depth

OPEN CHANNEL FLOW CALCULATIONS

FLOW AREA m^2	WET PERIM. m	HYDRAULIC RADIUS m	FLOW RATE m^3/s	VELOCITY m/s	D-V PRODUCT
0.90	5.04	0.18	1.89	2.11	0.40

Notes

- 1 This spreadsheet calculates flow in an open channel using Manning's equation.
- 2 Typical roughness values are:

Concrete	0.013
Bitumen	0.015
Turf	0.032
Med grass	0.035
Long grass	0.050
Heavy weeds	0.050
Dense brush	0.100
- 3 For further examples of Manning's n refer OPEN-CHANNEL HYDRAULICS by Chow.
- 4 The table of parameters to be specified refer to the following design channel.
- 4 Rectangular channel can be modelled by setting "A" and "B" to equal zero.

Yeats Consulting Pty Ltd
Level 2, 9 Ouyan Street
Bundall Qld 4217
Email: info@yeats.com.au

Attachment BD-18

6293/09 Brett Davey:

29 October 2010

MEMORANDUM

TO: TEAM COORDINATOR (CENTRAL WEST)
FROM: SENIOR PLANNER (DEVELOPMENT) - BRETT DAVEY
RE: DEVELOPMENT APPLICATION - CODE ASSESSMENT
INTEGRATED PLANNING ACT 1997 - SECTION 3.2.1(1)

Appn No: 6293/09

Applicant: Lipoma Pty Ltd

Real Property Description: Lot 55 SP 222487

Property Location: 21a North Street, North Ipswich

Division: Six (6)

Proposal	Development	Approval Type Requested
Multiple Residential (100 Units)	Making a Material Change of Use of Premises	Development Permit.

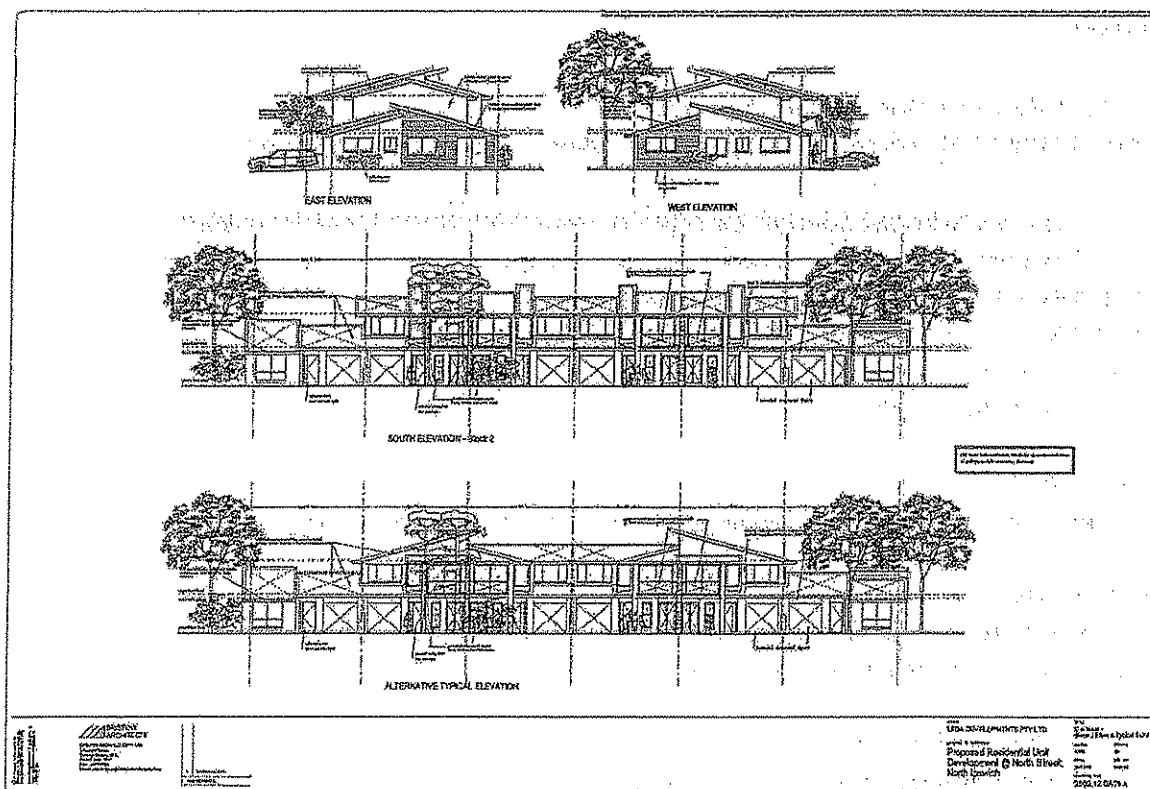
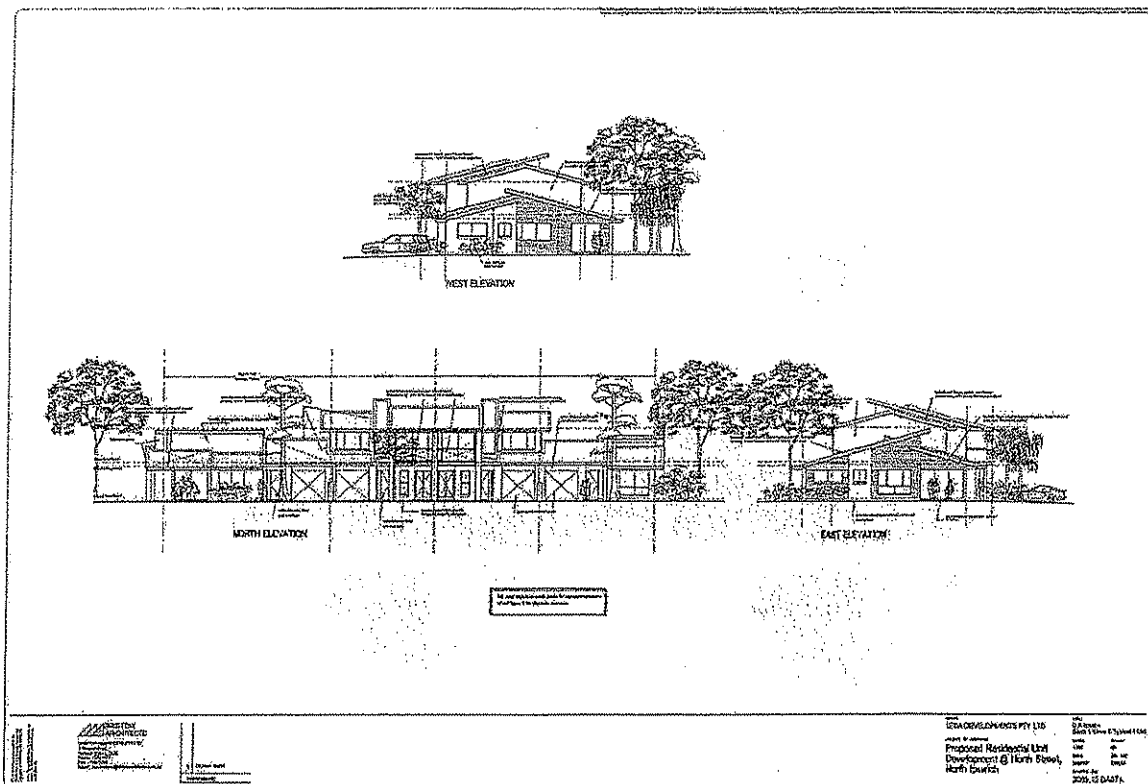
Date Received: 8 October 2009

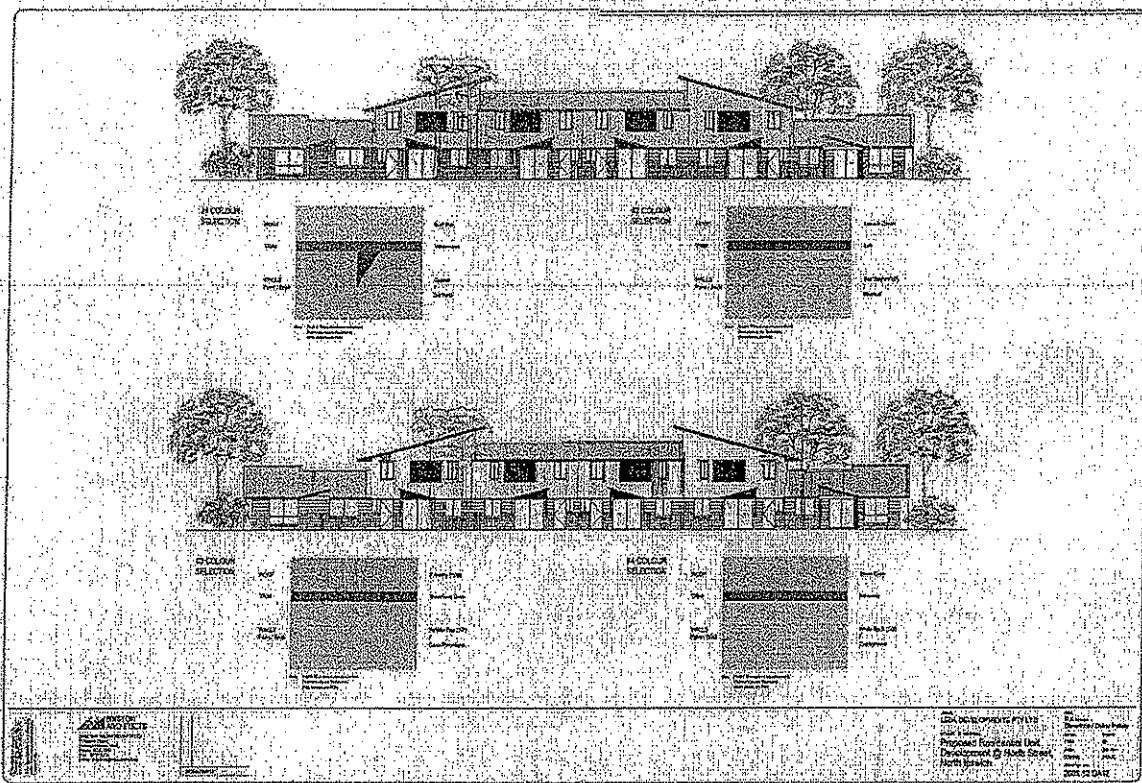
Start Date for Decision Stage: 1 October 2010

Stat. Date for Determination: 26 November 2010

Site Area: 4.893 ha

Zone: Special Opportunity (SA2: North Ipswich Railyards)





SUMMARY

SITE ADDRESS: 21a North Street, North Ipswich

APPLICATION TYPE: Material Change of Use: Multiple Residential (100 units)

ZONE:

- Planning Scheme: Special Opportunity Zone (SA2: North Ipswich Railyards)
- Preliminary Approval: Mixed Use Urban Village Precinct and Parkland Precinct

OVERLAYS: OV5: Flooding and Stormwater Flowpaths.

APPLICANT: Lipoma Pty Ltd C/- Michel Group Services

OWNER: Lipoma Pty Ltd

APPLICATION NO: 6293/09

DIVISION: Six (6)

AREA: 4.893 ha

REFERRAL AGENCIES: DERM (Development Adjacent to a Heritage Place / Contaminated Land) and Energex (Electricity Easement)

EXISTING USE: Vacant

PREVIOUS RELATED APPROVALS: Riverlink Preliminary Approval 682/03 and Reconfiguring a Lot Approval 5026/08 which created this lot.

DATE RECEIVED: 27 April 2010

DECISION STAGE START DATE: 1 October 2010

EXPECTED DETERMINATION DATE: 29 October 2010

PROPOSAL:

This application seeks development approval for a material change of use for the development of 100 two (2) and three (3) bedroom units in three (3) stages on the above referenced site. The proposal is generally consistent with the Riverlink sub-areas in

accordance with the Riverlink Preliminary Approval Plan (Application 682/03, approved on 1 July 2004 by the Minister for State Development and Innovation).

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 Railyards, to the north by Ipswich Railway Museum and to the east by North Street. The site is affected by the 1 in 20 year and the 1 in 100 year flood events as identified by the development constraint overlays, however the part of the site proposed for residential dwellings is outside of the 1 in 100 flood event.

OTHER RELEVANT INFORMATION:

Owing to the effect of the above referenced Preliminary Approval, the proposal is assessable against the Riverlink Preliminary Approval Conditions, the Preliminary Approval Code and the requirements of the Ipswich Planning Scheme pertaining to Residential Uses. As a consequence, the proposal is not assessable against the current Ipswich Planning Scheme. Notwithstanding, the proposal does generally satisfy the Urban Areas Code and in particular the requirements for the Special Opportunity SA2 – Ipswich Railyards Sub Area, the Residential Code and the Development Constraint Overlay Code. The proposal is also generally consistent with the Riverlink Preliminary Approval Being Located within the Mixed Use Urban Village Precinct and Parkland Precinct of this Preliminary Approval.

The Department of Environment and Resource Management (DERM) is a Concurrence and Advice agency for the application in respect to Heritage Related matters and Contaminated Land Matters. DERM provided a coordinated response dated 28 September 2010 which identified no objection to the proposal and required that no conditions be imposed. Further, Energex is an advice agency for the application in respect to the presence of electricity easements on the land. Energex provided a response dated 4 June 2010 identifying no objection with respect to the proposal.

PUBLIC NOTIFICATION:

Not applicable.

NOTEWORTHY CONDITIONS OF APPROVAL:

- As part of the development of the North Street side of the property, the Developer has been conditioned to upgrade North Street, the Intersection of North Street and Fitzgibbon Street. A cul de sac is also required at the termination of North Street.
- The Developer has been conditioned to provide footpaths and cycleways connecting from the development into the existing footpath and cycleway network. Specifically between the development site and Downs Street to be consistent with future planning for the Brassall bikeway extension and a concrete footpath via Canning Street and Colvin Street to Downs Street.
- The Developer is required to contribute \$ 1,486,400.00 towards infrastructure for Water, Sewer, Roads, Parks and Community Infrastructure in accordance with Planning Scheme Policy 5: Infrastructure.
- The developer is required to contribute \$ 25,000.00 towards the provision of a bus shelter nearby to the development in the future.

- The developer is required to reconstruct the existing concrete lined drain through the subject property to a natural drainage channel design to be dedicated to Council as drainage reserve.
- Specific conditions are recommended to be included in the approval in respect to fencing of the development to ensure that fencing along all road reserves provides for surveillance opportunities.
- Upon completion of the works associated with the drainage area to a satisfactory standard to be approved by Council (by way of an Operational Works Application) the land may be dedicated to Council as drainage reserve.

In summary, it is considered that the proposal to permit the Multiple Residential (100 Units) development is suitable for the subject site and should be approved, subject to the conditions detailed below.

RECOMMENDATION

- A. That the Developer be advised that Development Application No. 6293/09 is determined as outlined in the table below and is subject to the conditions specified below.

Proposal	Development	Decision	Approval Type
Multiple Residential (100 Units)	Making a material change of use of premises	Approved	Development Permit.

Further Development Permits Required

Further Development Permits, as required by the *Integrated Planning Act 1997*, shall be obtained in respect of any Operational Works, Building Works and Plumbing Works in relation to this approval before any such works are commenced.

Conditions of Assessment Manager (Ipswich City Council)

1. **Basis of Approval**

This approval is subject to these conditions, the facts and circumstances set out in the application and adherence to all relevant Council Local Laws and/or Planning Scheme Policies.

2. **Minor Alterations**

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications accepted in writing by the assessment manager will suffice.

3. **Development Plans**

The development of the site must be undertaken generally in accordance with the approved plans outlined in part 3 of the decision notice.

Plan Number and Revision	Title	Date	Prepared By
2009.12 DA01B	Development Details	April 2010	Bristow Architects Pty Ltd
2009.12 DA02D	Site Plan	April 2010	Bristow Architects Pty Ltd
2009.12 DA03D	Site Layout	April 2010	Bristow Architects Pty Ltd
2009.12 DA04B	Unit Floor Plans 'A' and 'B'	April 2010	Bristow Architects Pty Ltd
2009.12 DA05A	Unit Floor Plans 'C', 'D' & 'E'	August 2009	Bristow Architects Pty Ltd
2009.12 DA06A	Block 1 Plan and Typical 4 unit layout	August 2009	Bristow Architects Pty Ltd
2009.12 DA07A	Block 1 Elevations & Typical 4 Unit	August 2009	Bristow Architects Pty Ltd
2009.12 DA08A	Block 2 Plans and typical 6 unit	August 2009	Bristow Architects Pty Ltd
2009.12 DA09A	Block 2 Elevations and Typical 6 Unit	August 2009	Bristow Architects Pty Ltd
2009.1 DA10B	Site Entry Areas & Part East Elevation	October 2009	Bristow Architects Pty Ltd
2009.1 DA11C	Pedestrian Network	April 2010	Bristow Architects Pty Ltd
2009.1 DA12	Elevations / Colour Palette	7 August 2009	Bristow Architects Pty Ltd
2009.1 DA14	Block 19 Units (North St Frontage)	1 October 2009	Bristow Architects Pty Ltd
2009.1 DA15A	Development Staging Plan	April 2010	Bristow Architects Pty Ltd

4. Proposed Stages

The staging of the proposal shall be in accordance with Plan Number 2009.12 DA15A prepared by Bristow Architects Pty Ltd and dated 11 March 2010. The staging must be sequenced in the order identified on the approved plans. Where a terminating road is proposed to be extended as part of a later stage, a temporary turnaround area must be provided to the satisfaction of the Senior Development Engineer.

5. Drainage reserve

Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for Stage 3, whichever comes first, the proposed drainage reserve (proposed Lot 551 of Reconfiguring a Lot Approval

2727/10) must be dedicated as drainage reserve in favour of Council and not included within parkland dedication.

6. Visual Privacy

The private open spaces and living rooms of adjacent dwelling units are to be protected from direct overlooking by dwelling unit layout, screening devices, distance or landscaping. At minimum, windows of one dwelling are not to be located opposite the windows of another dwelling unless direct views are controlled by blinds or other screening devices, or by sufficient distance or height to discourage overlooking, to the satisfaction of the assessment manager.

7. Fencing

Unless otherwise approved in writing by the assessment manager, front fences and walls must have a maximum height of:

- (a) Where the boundary is a common boundary to a road or drainage reserve, the fence shall comprise solid fencing to a maximum height of 1200 mm with a panel of minimum 50% transparency between the top of the solid fencing and maximum height of 1800 mm.
- (b) Where the boundary is between a common area and a road or a drainage reserve, the fence must be powder coated aluminium pool style fencing.

Details of the proposed fencing must be submitted in conjunction with the landscaping plan required by Condition 23.

Note: Where a boundary fence shares a common boundary with private land, the consent of the relevant land owner must be sought pursuant to the *Dividing Fences Act 1991*.

- (c) Fences to roads and drainage reserves must not exceed 10m in length without some form of articulation or detailing to provide visual interest.

8. Letter Boxes, Laundering and Storage Facilities

- (a) Unless otherwise approved by the assessment manager, one letter box must be provided per unit plus one letter box for use by the body corporate or management. Such letter boxes must form an integral part of the design of the development and must be located on the road frontage boundary to which the site has been allocated its street address, unless otherwise approved by the assessment manager.
- (b) Each dwelling unit within the development must be provided with individual laundry and clothes drying facilities screened and located to the satisfaction of the assessment manager.
- (c) Alternatively, communal facilities must be provided, screened and located not more than 100 metres from any dwelling unit, to the satisfaction of the assessment manager.

- (c) Alternatively, communal facilities must be provided, screened and located not more than 100 metres from any dwelling unit, to the satisfaction of the assessment manager.

9. Colour Scheme

The colour scheme must include textures and / or colours which will blend aesthetically with the surrounding environment. Extensive use of very bright colours or dark colours externally should be avoided unless they are unlikely to detract from the amenity and character of adjacent development or public or semi-public spaces.

10. Streetscape Works

- (a) The Developer shall plant street trees for the length of the North Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
 - (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;
 - (ii) Identify the location/ proximity of services within the road reserve; and
 - (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (b) Such streetscaping must be completed in accordance with the approved streetscape plan to the satisfaction of the Chief Operating Officer (Health Parks and Recreation) and must be completed prior to the signing of any plan of survey.
- (c) The developer must maintain street trees for a period of eighteen (18) months after an 'On Maintenance' inspection by the Chief Operating Officer (Health Parks and Recreation).

Note:

Species must be in accordance with the Ipswich City Council Street Tree Strategy. Root intrusive trees must not be planted in the road reserve. The developer or agent must liaise with Council's Health, Parks and Recreation Department prior to any planting for determination of species selection.

11. Carparking - Use and Maintenance

- (a) Car parking spaces shall be provided on site for the proposed development generally in accordance with the development plans referenced in Condition 3 (a). To this end, parking must be provided at the following rates:
 - (i) A minimum of one (1) covered carparking space per dwelling for exclusive resident use

- (ii) A minimum of 0.5 spaces per dwelling for visitor parking
- (iii) A minimum of 0.5 spaces per dwelling for use by both residents and visitors.
- (b) Unless otherwise indicated on the approved plan of development or approved by the assessment manager, parking areas must not be:
 - (i) Exclusively used for visitor parking at the expense of resident parking; or
 - (ii) Exclusively used for resident parking at the expense of visitor parking, or
- (c) All parking areas must be:
 - (i) Kept exclusively for parking;
 - (ii) Used exclusively for parking;
 - (iii) Appropriately signposted at the entry/entries to the car park, to the satisfaction of the assessment manager in accordance with AS1742; and
 - (iv) Maintained to the satisfaction of the assessment manager.

12. Carparking - Landscaping

Unless approved by the assessment manager, the equivalent of one (1) car parking bay for every eight contiguous (8) bays should be fully landscaped to provide shading to the carparks unless otherwise approved by the assessment manager. Such landscaped areas are required in addition to the number of car parking bays required under this approval and/or indicated on the approved plan of development. These areas should be landscaped with at least one shade tree centrally located and groundcovers as a minimum requirement. Details shall be included in the Landscaping Plan required by this Development Permit.

13. Hours of Construction

Unless otherwise determined in writing by the assessment manager, hours of construction must not exceed:

Monday to Saturday 6:30am to 6:30pm

Construction work must not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

14. Particular Use

This approval is for the particular use stated, and does not imply approval for other similar uses. The use of any of the structures associated with the Multiple Residential Use inclusive of car parking and any associated outdoor areas on the site, are not permitted to be used for any other purpose, unless, in the written

			No Credits Applicable TOTAL= 89.25 EP	
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	21 x 2 bedroom units @ 3.8 VT = 79.8 VT 33 x 3 bedroom units @ 5.6 VT = 184.8 VT TOTAL: 264.6 VT No Credits Applicable	264.6 VT x \$ 725.00 x 1.1281 = \$ 216,409.0635 = \$ 216,409.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 797,498.00

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Stage 2:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP 10 x 3 bedroom units @ 2.34 EP = 23.4 EP TOTAL: 32.88 EP No Credits Applicable	32.88 EP x \$ 338.62 x 1.1724 = \$13,053.29713 = \$13,053.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP 10 x 3 bedroom units @ 2.34 EP = 23.4 EP TOTAL: 110.4 EP No Credits Applicable	32.88 EP x \$ 2506.99 x 1.1724 = \$96,640.7341 = \$96,641.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP 10 x 3 bedroom units @ 1.75 EP = 17.5 EP No Credits Applicable	26.5 EP x \$ 1,120.00 x 1.1724 = \$ 34,796.832 = \$ 34,797.00

opinion of the assessment manager, such use is ancillary and incidental to the predominant use of the site for a Multiple Residential Use.

15. Contributions

In accordance with the relevant Council Policies, the Developer shall pay, prior to the issue of Form 21 – 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for each stage, whichever comes first, the following monies to Council:-

Stage 1:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	21 x 2 bedroom units @ 1.58 EP = 33.18 EP 33 x 3 bedroom units @ 2.34 EP = 77.22 EP TOTAL: 110.4 EP No Credits Applicable	110.4 EP x \$338.62 x 1.1724 = \$43,828.58892 = \$43,829.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	21 x 2 bedroom units @ 1.58 EP = 33.18 EP 33 x 3 bedroom units @ 2.34 EP = 77.22 EP TOTAL: 110.4 EP No Credits Applicable	110.4 EP x \$2,506.99 x 1.1724 = \$324,487.1364 = \$324,487.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	21 x 2 bedroom units @ 1.5 EP = 31.5 EP 33 x 3 bedroom units @ 1.75 EP = 57.75 EP TOTAL= 89.25 EP No Credits Applicable	89.25 EP x \$ 1,120.00 x 1.1724 = \$ 117,193.104 = \$ 117,193.00
Sewerage	5W25 – SP49	\$ 923.00 1.1724	21 x 2 bedroom units @ 1.5 EP = 31.5 EP 33 x 3 bedroom units @ 1.75 EP = 57.75 EP	89.25 EP x \$ 923.00 x 1.1724 = \$ 96,579.6741 = \$ 96,580.00

			TOTAL= 26.5 EP	
Sewerage	SW25 – SP49	\$ 923.00 Index 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP 10 x 3 bedroom units @ 1.75 EP = 17.5 EP No Credits Applicable TOTAL= 26.5 EP	26.5 EP x \$ 923.00 x 1.1724 = \$ 28,676.3178 = \$ 28,676.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	6 x 2 bedroom units @ 3.8 VT = 22.8 VT 10 x 3 bedroom units @ 5.6 VT = 56 VT TOTAL: 78.8 VT No Credits Applicable	78.8 VT x \$ 725.00 x 1.1281 = \$ 64,448.353 = \$ 64,448.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 237,615.00

Stage 3:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	10 x 2 bedroom units @ 1.58 EP = 15.8 EP 20 x 3 bedroom units @ 2.34 EP = 46.8 EP TOTAL: 62.6 EP No Credits Applicable	62.6 EP x \$338.62 x 1.1724 = \$24,852.08031 = \$24,852.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	10 x 2 bedroom units @ 1.58 EP = 15.8 EP 20 x 3 bedroom units @ 2.34 EP = 46.8 EP TOTAL: 62.6 EP No Credits Applicable	62.6 EP x \$2506.99 x 1.1724 = \$183,993.6118 = \$183,994.00

Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	10 x 2 bedroom units @ 1.5 EP = 15 EP 20 x 3 bedroom units @ 1.75 EP = 35 EP No Credits Applicable TOTAL= 50 EP	50 EP x \$ 1,120.00 x 1.1724 = \$ 65,654.40 = \$ 65,654.00
Sewerage	SW25 – SP49	\$ 923.00 Index: 1.1724	10 x 2 bedroom units @ 1.5 EP = 15 EP 20 x 3 bedroom units @ 1.75 EP = 35 EP No Credits Applicable TOTAL= 50 EP	50 EP x \$ 923.00 x 1.1724 = \$ 54,106.26 = \$ 54,106.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	10 x 2 bedroom units @ 3.8 VT = 38 VT 20 x 3 bedroom units @ 5.6 VT = 112 VT TOTAL: 150 VT No Credits Applicable	150 VT x \$ 725.00 x 1.1281 = \$ 122,680.875 = \$ 122,681.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 451,287.00

The contributions above must be applicable for a period of **twelve (12) months from the date of the development approval**, and thereafter must be based on the infrastructure contribution policies and rates applicable at the date when payment is made.

Note * Contributions are towards the establishment of a footpath system in the general location of the development.

The developer is advised that direct debit, personal and/or company cheques cannot be accepted as payment for the above contributions. The only acceptable forms of payments are cash (EFT payments included) or bank cheques.

16. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) must make reference to the relevant, approved place name under the Place Names Act 1994 in a contrasting colour to the background, in lettering no less than 50% of the estate name and in the same orientation as the estate name.
- (b) Any reference to the regional location of the site or the development must not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

17. Engineering Requirements

The following engineering requirements, detailed in Conditions 18 – 34, shall be completed to the satisfaction of the Senior Development Engineer.

Terms

- (a) RPEQ - A Registered Professional Engineer of Queensland, suitably qualified and experienced in the particular area of expertise required. Furthermore, the RPEQ required for the analysis and reporting for mining shall be experienced in the analysis of underground and surface mining within the Ipswich area.
- (b) QUDM – *The Queensland Urban Drainage Manual (2007 Edition)*, produced by the Queensland Department of Environment and Natural Resources.
- (c) MUTCD - *The Manual of Uniform Traffic Control Devices*, published by DTMR.
- (d) QUU – Queensland Urban Utilities – trading name of the Central SEQ Distributor-Retailer Authority, providing water and wastewater services to Ipswich City under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.
- (e) DTMR - Department of Transport and Main Roads.
- (f) DERM - Department of Environment and Resource Management.
- (g) DIP – Department of Infrastructure and Planning.
- (h) ARI – Average Return Interval - used to define flood frequency and severity.

18. Roadworks

- (a) All roadworks must be designed and constructed in accordance with Council's Policies and Standards, the DMR *Road Planning & Design Manual*, Austroads Publications and any other documentation accepted as best practice by Council. The design and construction of each road or street must ensure that the speed environment, geometry, sight distances, carriageway widths, lighting, facilities for bus stops, refuse collection vehicle movements, pedestrians and cyclists, and on-street parking and other physical attributes are consistent with the function and role of the road or street in the transportation network.

- (b) Road pavements must be designed and constructed in accordance with the Ipswich City Council's Planning Scheme Policy 3 - General Works, Chapter 5 - Roadworks. All roads must have two way cross-falls in accordance with Council's adopted standards.
- (c) Kerb ramps must be constructed in accordance with Council's Standard Drawing SR.18 at all intersections and at additional locations where they are required to connect concrete pathways and cycleways. Generally at "T" intersections, four (4) kerb ramps are required.
- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the Developer must upgrade / reconfigure North Street across the frontage of the development site between Ferguson Street and the site's access point in accordance with Council's Standards for a collector street (refer Standard Drawing SR.02). Additionally, the developer must upgrade / reconfigure North Street across the frontage of the development site between the site's access point and the Telegraph Street road reserve in accordance with Council's Standards for an access street (refer Standard Drawing SR.02). Works must include the following:-
 - (i) Kerb and channel and associated stormwater drainage. Works must occur on both sides of North Street and extend to the tangent point into Fitzgibbon Street;
 - (ii) Reconstructed pavement;
 - (iii) Concrete footpaths as per conditions below;
 - (iv) Timber bollards and railings along the drainage corridor;
- (i) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the intersection of North Street / Fitzgibbon Street/ Site Access Point must be reconfigured as recommended in the Traffic Impact Assessment Report prepared by Bitzios Consulting dated September 2009. The site access point leg of the intersection must be designed as if for a public roadway including 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 site access point must be configured with kerb and channelling that is clearly recognised by road users and pedestrians and with a finished level that matches with the existing road surface in North Street. The existing culverts at this crossing must be extended to a minimum width of 20.0m to allow for all proposed road and verge works to be accommodated. Approved pedestrian safety railings located at the headwalls must be provided.
- (e) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete path for shared use by pedestrians and cyclists (minimum 2.5m wide) must be constructed between the site, the existing community facilities on Downs Street

(at the intersection of downs and Lawrence Street) and the future extension of the "Brassall Bikeway Phase 1". The shared path must be constructed:

- (i) in accordance with Council standards;
 - (ii) with lighting in open space areas in accordance with the AS1158 series;
 - (iii) generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) with an alignment generally in accordance with that outlined on either Attachment A or Attachment B;
 - (v) to integrate with Council's planning for the Brassall Bikeway;
 - (vi) with route markers/direction signs;
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site and Downs Street (via Colvin Street and Canning Street). The footpath must be constructed:
- (i) in accordance with Council standards;
 - (ii) with lighting in open space areas in accordance with the AS1158 series;
 - (iii) be constructed generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) with an alignment generally in accordance with that outlined on Attachment B;
 - (v) with route markers/direction signs;
 - (vi) in accordance with Council's Standard Drawing SR.19
- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site entry roadway and extend north to join to the existing concrete footpath located along the western side of North Street.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a monetary contribution of AUD\$25,000 must be paid to Council for future bus stop infrastructure. This amount must be fixed for 12 months from the date of the Decision Notice and then must be adjusted in accordance with Road & Bridge Construction Cost Index applicable to Queensland at the time of payment.

This contribution is applicable once only for the entire development (comprising of Development Application 6293/09 and 2727/10). The payment of this contribution is required once to satisfy the relevant conditions of each development approval.

- (i) The road pavement widths and geometric layouts, internal and external to the development must make adequate provision for Council's refuse collection vehicles and public transport movements where appropriate.
 - (j) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a vehicle turning area must be provided at the southern end of the works in North Street. Circular cul-de-sac turning heads, based on a minimum turning circle of 9.0 m radius, must be provided.
 - (k) Access to existing driveways for properties affected by all extended works associated with this development must be maintained between 6:30pm and 6:30 am Monday to Saturday.
 - (l) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, an emergency driveway and access at the secondary culvert crossing adjacent to Unit Block 17 must be provided. This access way must consist of min. 3.0m wide concrete driveway extending from a layback in the kerb and channel in North Street, through to connect to the proposed internal road. Lockable removable bollards and approved pedestrian safety railings located at the headwalls must be provided at this location.
 - (m) "No Through Road" signs must be erected at the entries to all culs-de-sac and terminating roads.
19. Access and Parking
- (a) All access and parking must be designed and constructed in accordance with the provisions of the Planning Scheme Parking Code and Australian Standards (2890 Series).
 - (b) Parking and manoeuvring areas must accommodate the largest anticipated vehicle to use the site.
 - (c) Adequate facilities for servicing the development must be provided on site to ensure loading and/or unloading activities do not occur on-street.
 - (d) Provision must be made for all vehicles to enter and exit the site in forward gear.
 - (e) All parking, access and manoeuvring areas must be constructed of concrete, bitumen or equivalent materials approved by the Senior Development Engineer, and must be line-marked in accordance with the relevant Australian Standard. Associated signage in accordance with MUTCD internal to the site must also be provided as required.

- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in North Street to the property boundary for access to the proposed unit development in accordance with Council's Standard Drawing SR.13.
- (h) The Developer must provide concrete footpaths of minimum width 1.5 m on one side of all internal roads within the development. Footpaths must be external to the road widths nominated on the approved drawings.
- (i) Any internal roads within the unit development that may be extended as a part of a later stage must be provided with a minimum 18m diameter gravel turn around area with a two-coat bitumen seal. Hazard markers and delineator posts must be erected to define the turnarounds.
- (j) Garage doors to all units must be a minimum 2.7m wide to facilitate effective manoeuvring of vehicles.

20. Stormwater Quantity

- (a) The Developer must provide all necessary internal and external stormwater drainage to service the development. Such drainage works (except for building gutters and downpipes) must be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years.

In the case where the piped system is carrying part of the flow, the overland flow paths must be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system.

- (b) Registered drainage easements, if related to piped drainage (generally 375mm diameter or greater), must be centrally located over such underground pipe system and must be not less than 4.0m wide. In addition, the easements must be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location.
- (c) No ponding, concentration or redirection of stormwater may occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land.
- (d) All stormwater headwall structures must be constructed in accordance with the relevant DMR standard drawings for reinforced concrete headwalls and aprons.
- (e) Stormwater drainage plans and calculations must be submitted for approval by the Senior Development Engineer, as part of the Operational Works application.
- (f) Appropriate works must be carried out to ensure that stormwater drainage from the new kerb and channel discharges suitably into the existing drainage system.

- (g) 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 within Table 3.3, the minimum pad level for any of the units on this site must be 19.2m AHD.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the finished surface profile approved under the bulk earthworks approval for operational works application no. 3262/2010 west of the existing railway line must be achieved.
- (i) The developer must provide a coarse sediment forebay, suitable sized for the upstream contributing catchment designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event at the existing stormwater outlet adjacent to the North and Telegraph Street intersection. The sediment forebay must be designed to allow cleaning by a skid steer bobcat or equivalent. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The sediment forebay must include provision for all weather maintenance access.
- (j) The existing concrete lined stormwater drain through the site must be reconstructed as a Rock and Vegetation Low-Flow Channel, generally in accordance with Fig. 9.13 of QUDM 2007. The channel must be designed and constructed in accordance with the following criteria:-
 - (i) Rock channel must be sized to cater for a Q10 ARI storm event from the upstream contributing catchment;
 - (ii) A 3.0m wide minimum access driveway culvert must be provided midway to allow maintenance access to either side of the overland flowpath;
 - (iii) The rock lined channel must extend from the existing outlet headwall adjacent to the western end of Telegraph Street through to the existing culvert underneath the railway embankment at the western side of the site;
 - (iv) Landscaping must be provided along the entire length of this channel firstly to provided a "mowing edge" (Iomandras or equivalent can be used in this instance), secondly, to provide appropriate planting in accordance with WSUD TDG within the rock channel itself, and thirdly, appropriate planting provided to ensure partial shading of the rock lined portion of the overland flowpath to limit weed growth. Plans detailing required landscaping must be submitted to Council for approval.
- (k) For stormwater management purposes the development must be designed and constructed in accordance with the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010), subject to the following amendments and/or clarifications:
 - (i) All flows between Q3 month and Q10 must be piped directly to the invert of the overland flow path in proposed lot 51 and must bypass the bioretention basins.

- (ii) As part of the operational works application the developer must demonstrate satisfactory management of overland flows in terms of erosion and scour protection for storm events that are between Q10 and Q100 ARI from the building pad and internal road level within the unit development down the batters through the proposed drainage reserve and into the invert of the existing stormwater overland flowpath.
- (iii) Construction of the bio retention basins in close proximity to the top of the proposed batters must incorporate the recommendations made by Morrison Geotechnic Pty Ltd in correspondence to Leda Developments Pty Ltd dated 5 March 2010.

21. Stormwater Quality

- (a) Stormwater quality for the development must achieve a reduction in the average annual pollutant load as follows prior to discharge from the site:
 - 80% for total suspended solids;
 - 60% for total phosphorus;
 - 45% for total nitrogen; and
 - 90% for gross pollutants.
- (b) The water quality objectives listed at (a) must be achieved through the implementation of the treatment train outlined in the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010) subject to the amendments outlined in this Condition and Condition 4 above relating to Stormwater Quantity.
- (c) In conjunction with an application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, amended Stormwater Quality Management drawings prepared by a RPEQ in accordance with the Water Sensitive Urban Design Technical Design Guidelines (WSUD TDG) for South East Queensland, the Approved Site Based Stormwater Management Plan and the requirements of this Condition. The Operational Works drawings must detail, amongst other necessary items, the following:
 - (i) Plans and cross sections showing the final locations for rainwater tanks, bioretention basins and stormwater infrastructure required by this Condition, consistent with Council's Standard Drawings and the WSUD TDG (version current at the time of detailed design). The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) The bioretention basin(s) parameters represented in Table 1;

Table 1

	<i>Catchment A</i>	<i>Catchment C</i>
<i>Surface Area (m²)</i>	240	25

Filter Media Area (m ²)	75	25
Filter Media Median Particle Size (mm)	0.45	0.45
Filter Media material	Sandy loam	Sandy loam
Filter Media Depth (m)	0.6	0.5
Hydraulic conductivity (mm/hr)	180	180
Transition layer depth (mm)	0.1	0.1
Minimum drainage layer depth (mm) [#]	0.2	0.2
Extended detention depth (m)	0.3	0.3
Pre-treatment method	Sediment forebay ##	Sediment forebay ##
Maximum batter slope	1:4	1:4

[#] The length of the bioretention basin will dictate the depth of the drainage layer, in order to maintain a minimum fall of 0.5% within the drainage pipes.

^{##} The area required for sediment forebay must be confirmed during detailed design, in accordance with Condition (iii).

- (iii) A suitable fore-bay or pre-treatment area designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The pre-treatment area is to be located external to the area required for the bioretention basin filter media and is to include provision for all weather maintenance access.
- (iv) The area required for scour protection, in accordance with the design principles outlined in the WSUD TDG. The area required for scour protection must be in addition to that required for the bioretention basin filter area.
- (v) The plans must detail the overflow weir/outlet that has been positioned at the height of the extended detention specified at item (ii). Calculations must be provided to demonstrate that the velocities across the bioretention basin comply with those listed in Section 5.2.2 of the WSUD TDG and that any temporary flood storage can drain rapidly following storm events;
- (vi) Drainage and transitional layers that have been designed in accordance with Section 5.3.4 of the WSUD TDG and an underdrain design in accordance with Section 5.3.5 of the WSUD TDG;
- (vii) The slotted 100mm uPVC pipes placed within the drainage layer of the bioretention basin. The drawings must specify that these are not to be substituted with aggr pipes nor wrapped in geofabric;
- (viii) Detail the grade at which drainage pipes must be laid, the relevant density and size of slots in the drainage pipes. A minimum fall of 0.5% is required for the drainage pipes and depending on the length of the bioretention this may impact significantly on the depth of the drainage layer specified at (ii). The length of all 100mm slotted

drainage pipes must not exceed 25m. For longer lengths the pipe diameter must be increased or duplicated to increase conveyance;

- (ix) A uPVC inspection riser with screw cap lid at the head of each slotted pipe, for maintenance flushing. The risers are to be generally in accordance with BCC drawing UMS153, however, must extend a minimum of 150mm above the surface of the filter media. The drawings must contain a note that states that risers are not to be slotted;
 - (x) A level (flat) surface of the bioretention basin filter media in order to allow even absorption through the filter media;
 - (xi) Soil specifications for the various bioretention basin filter media layers, which are provided in accordance with the current version of the Guidelines For Soil Filter Media In Bioretention Systems, Facility for Advancing Water Biofiltration (FAWB);
 - (xii) Provide geofabric around the base of the drainage layer, walls and batters of the basins. Geofabric must not be laid between any of the filter layers or used to wrap the slotted uPVC drainage pipes;
 - (xiii) Landscaping to the bioretention basin, including filter media and batters, in accordance with plant species and densities outlined in Appendix A of the WSUD TDG. Detailed planting schedules (plant species, number and planting densities) for each of the bioretention basin filter area, bioretention basin batter areas and other landscaped and embankment areas as shown on the Stormwater Management Plan (YC0175-SW01 Revision B dated 5 March 2010) must be shown on the operational works drawings. A minimum species variety of 3 different species must be utilised within the bioretention basin filter area; and.
 - (xiv) Include a note which refers to the Healthy Waterways Bioretention Basin Construction and Establishment Sign Off Forms (including Forms A-G) for use throughout construction. The Operational Works drawings must include notes referring to the staging and timing of the commissioning of the bioretention basins and measures to protect the filter media during development within the contributing catchment.
- (d) An amended catchment plan that demonstrates how all flows up to the 3 month ARI event from the site will enter and be treated through the bioretention basins. The plan must include surface levels and invert levels for all piped stormwater infrastructure.
- (e) A copy of the calculations used to size the drainage, as required by Condition (c), must be provided at the time of lodging the Operational Works application. Similarly, calculations must be provided to demonstrate that the pipes connected downstream of the drainage pipes are suitably sized to avoid becoming the hydraulic control and the filter media is free draining.
- (f) A staged implementation approach must be employed for the bioretention areas ensuring that filter media is either laid after, or the filter is protected until, 90% of the construction and building works have been completed for the area contributing

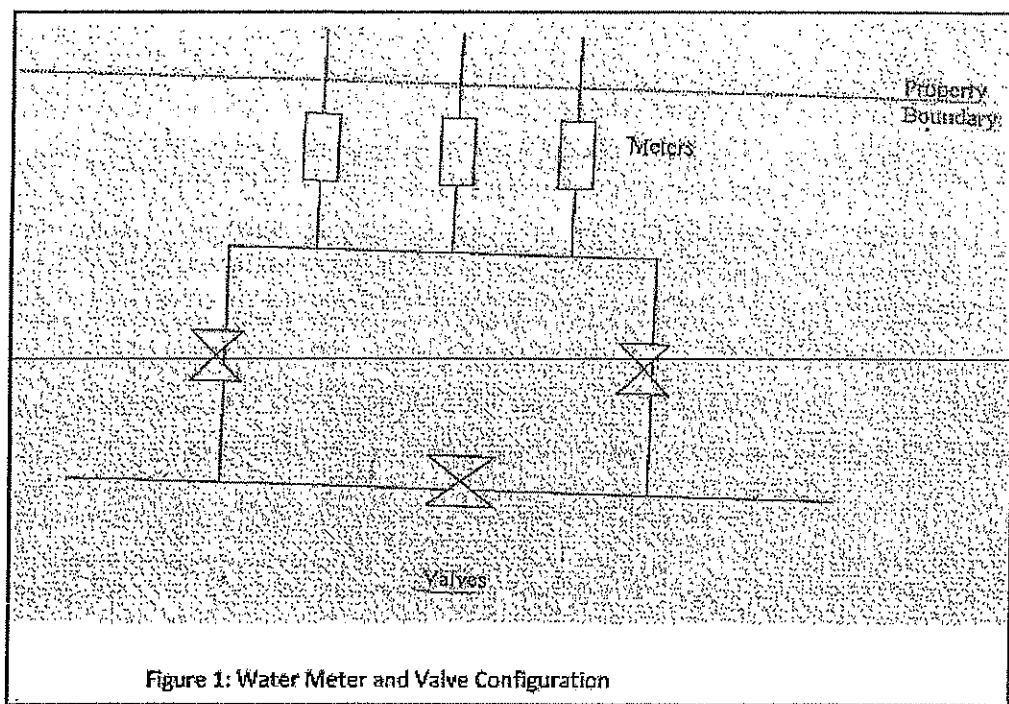
to the bioretention basin. The staging and timing of the commissioning of the bioretention basin must be outlined as part of the Operational Works application and notes must be included on the plans accordingly.

- (g) Prior to lodgement of detailed Operational Works drawings the Developer must receive certification from a RPEQ that the detailed drawings are in accordance with the approved Stormwater Management Plan, these Conditions of Approval and the WSUD TDG. A copy of the certification must be lodged in conjunction with an Operational Works application along with completed copies of the WSUD TDG Design Assessment Checklists and Calculation Summary Checklists.

22. Water Supply

- (a) The Developer must provide a reticulated water supply system within the development which connects into Council's existing reticulation system, together with valves and fire hydrants, in accordance with the *Guidelines for Planning and Design of Urban Water Supply Systems*.
- (b) All works on live water mains must be carried out by QUU in accordance with *Planning Scheme Policy 3 Section 11.1.2*, and at the Developer's expense.
- (c) The Developer must lodge a private works request for QUU to:
 - (i) Supply and install suitable metered water connections to each segment of the proposed development, generally in accordance with Figure 1 below;
 - (ii) Amend the existing connection if necessary; and
 - (iii) Seal off any existing water connections if necessary.

The relevant fees must be paid and evidence of payment submitted to Council in conjunction with any application for signing of plan of survey.



- (d) Wherever possible, the water main must be constructed on the opposite side of the road to the concrete footpaths.
- (e) Where the Developer is required to supply a water connection to the development, the connections must be installed in accordance with Standard Drawings SW.14 and SW.15.
- (f) Where the water main is under a concrete footpath, the Developer must provide a water connection to each allotment, excluding the provision of meters, but including the provision of approved pre-cast concrete or cast iron path boxes over the stop cock, in accordance with *Standard Drawing SW.08*. The boxes must be placed flush with the finished turf surface level.
- (g) The QUU water supply system has been designed to achieve the target levels of service as outlined in Planning Scheme Policy 3 Section 4.1.2 *Standard of Service*. It is the responsibility of the Developer to provide any fire fighting requirements over and above QUU's target levels of service, at their expense, internally and without adverse impact to the water supply system.

23. Sewerage

- (a) Structures constructed on the Colvin Street side of the development site (Stage 1) must be positioned to comply with one of the following in order of preference:
 - (i) No part of a structure, including footings, must be located within 1.5m of the outer edge of the sewer main, or within 2.0m of the access chamber respectively;
 - (ii) If any structure cannot be positioned outside these limits, the sewer must be located, removed and re-laid around the proposed structure(s);

- (iii) Should (i) and (ii) above be deemed impractical by the Senior Development Engineer, then the Developer must submit to Council for approval, an Application to Build Over Infrastructure.
 - (b) The Developer must pay the full cost for QUU to provide suitable connections into the existing sewerage reticulation system. All works on live sewers must be carried out by QUU at the Developer's expense in accordance with *Planning Scheme Policy 3 Section 10.1.2*, unless arranged otherwise with QUU.
 - (c) The connection for the development fronting must be into the existing sewerage reticulation system at the connection point, which is at the existing sewer manhole adjacent to the North / Telegraph Street intersection (Gasset 706,066).
 - (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, any existing sewerage or sanitary drainage that crosses proposed lot boundaries (other than the 300mm dia. private main from the existing Railways Museum and Workshops) must be located, disconnected and removed to the satisfaction of the Senior Development Engineer.
 - (e) The existing private sewer underneath Unit Blocks 13 and 14 must be sufficiently protected against damage due to construction activities associated with this development. Any damage sustained during this construction period must be repaired by the developer.
 - (f) No work on the sewerage reticulation system may commence prior to the approval of the Operational Works application.
24. Noise
- (a) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the Developer must implement all the recommendations as stated in Section 7.1 of the Environmental Noise Impact Report, prepared by TTM Consulting (report no. 874206 dated 19 August 2009), relevant to the "Ipswich Workshops Scenarios 1 and 2". The Developer must submit certification from an appropriately qualified and experienced practicing acoustics professional that demonstrates compliance with this condition and that the development has been constructed to achieve compliance with the internal rail and aircraft noise limits specified within the approved acoustic report.
 - (b) All stormwater grates within trafficable areas must be secured, or otherwise treated, to ensure that these grates do not rattle when vehicles pass over them.
25. Landscaping
- (a) Landscape Master Plan must utilise non-invasive natives to replace:
 - Poinciana (Delonix regia)
 - Leopardwood (Caesalpinnea ferra)

- European Olive (*Olea Europaea*)
- (b) In conjunction with the Operational Works application a Landscape Plan, which conforms to the approved Development Plan and the Residential Medium Density and Commercial and Industrial Zone Codes, must be submitted to Council for Approval by the Engineering and Environment Manager. Such plan must include, amongst other necessary items:
- (i) Clear delineation of areas required for stormwater management, landscaping and public and private open space areas. The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) Planting to bioretention basin filter areas and batter slopes, required by Conditions 20 and 21 of this approval, in accordance with the Water Sensitive Urban Design Technical Design Guidelines for South East Queensland;
 - (iii) Planting within landscaped areas must exclude the use of exotics and environmental weeds. Consideration shall be given to utilising Council's Vegetation Communities Rehabilitation Guide 4 Open Forests and Woodlands.
- (c) The Developer must complete landscaping and fencing works in accordance with the approved landscape plans to the satisfaction of the Engineering and Environment Manager prior to the commencement of the use of the land unless Council determines otherwise. Such landscaping and fencing shall be maintained in perpetuity to Council's satisfaction by the existing or future owners and occupiers of the property.

26. Waste Storage and Collection

- (a) An adequate domestic waste service must be provided that includes waste and recyclable storage equivalent to the following:
 - (i) A minimum of one (1) 240L general waste wheelie bin for every two (2) dwellings;
 - (ii) A minimum of one (1) 240L recyclables wheelie bin for every two (3) dwellings
- (b) Where dedicated communal waste storage areas are provided these areas must be level, concreted and constructed in conjunction with the driveway surface with no intervening step, ledge, kerb or other obstruction and must be enclosed with a suitable screen fence;
- (c) The waste storage and collection areas must allow for forward motion entry to the waste containers and forward motion entry and exit to and from the site. Further, any proposed bin service area must be of sufficient proportions that it does not require the vehicle to reverse any further than two vehicle lengths or breach any Workplace Health and Safety requirements.
- (d) Vehicle manoeuvring templates must be provided to Council demonstrating compliance with this condition as part of the operational works submission.

- (e) In conjunction with the application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, detailed plans and certification from a Civil Engineer (RPEQ) which demonstrate that the requirements of this condition have been incorporated into the development.

27. Lighting

- (a) All lighting, including security and flood lighting, must be designed, constructed, located and maintained so as not to cause nuisance to the occupants of nearby properties (existing or proposed) or passing traffic.
- (b) Carparks and pedestrian walkways shall be illuminated where night use parking is anticipated. Illumination levels shall be 15 lux for open surface carparks.
- (c) All car park lighting shall comply with the requirements outlined in Australian Standard for Off-Street Carparking (AS 2890.1:2004) or any Australian Standard in substitution for this standard.
- (d) Consideration shall be given to light spillage onto adjoining land and roadways. Illumination levels outside the boundaries of the site shall not exceed 8 lux when measured 1.5 metres outside the boundary of the site at any level upwards from the ground. Footpath crossings shall be illuminated to 50 lux.

28. Earthworks and Retaining Walls

- (a) In conjunction with any application for Operational Works the Developer must provide details of the proposed earthworks for the development including cut/fill depths, batter slopes, retaining wall heights, typical cross-sections etc. Earthworks and any retaining structures must comply with the requirements of Ipswich Planning Scheme Part 12, Division 15 – Earthworks Code. Notably, cut/fill should not exceed a maximum height of 2.0 metres. Retaining walls should not exceed a maximum height of 1.2 metres with 1 in 4 batters from the top and toe of the wall.
- (b) Where earthworks are proposed within three metres of the property boundary or are likely to affect adjoining property owners, the Developer must notify the affected property owners in writing, and obtain written comments from them, as detailed in Part 12, Div 15 - Specific Outcome 19 and Note 12.15.4K. Written comments from the affected owners (or at least the supporting documentation of notification and consultation with the adjoining property owners to the Council's satisfaction) must be submitted to Council for consideration, in conjunction with any Operational Works application.
- (c) Retaining walls, including footings and drainage systems, must be constructed entirely within the boundaries of the lot and in accordance with the requirements of Planning Scheme Policy 3 – General Works. All retaining walls greater than 1.0m in height must be RPEQ certified to be structurally sound. Retaining walls greater than 1.0 m in public places must be provided with railings or other barriers to provide pedestrian safety

- (c) Retaining walls, including footings and drainage systems, must be constructed entirely within the boundaries of the lot and in accordance with the requirements of Planning Scheme Policy 3 – General Works. All retaining walls greater than 1.0m in height must be RPEQ certified to be structurally sound. Retaining walls greater than 1.0 m in public places must be provided with railings or other barriers to provide pedestrian safety
- (d) Any fill within a Building Location Envelope must be compacted in accordance with Section 5 (Compaction Criteria) of AS 3798 – 1996 *"Guidelines on Earthworks for Commercial and Residential Developments"*.
- (e) 3.0m minimum clearance must be maintained from the toe of the 1 in 2 batters internal to both unit development sites to the common boundary with the proposed drainage reserve.
- (f) Once all bulk earthworks and associated rehabilitation are completed on Lot 55 on SP222487, the maximum batter slope contained within any disturbed area of the proposed drainage reserve must not exceed 1 in 6.

29. Erosion & Silt Management

- (a) As part of the application for Operational Works, the Developer must submit with the Operational Works application, an Erosion and Silt Management Plan designed in accordance with *"Best Practice Erosion and Sediment Control"* published by the International Erosion Control Association (Australasia) November 2008, or equivalent. Plans must be certified by a suitable qualified professional.
- (b) The Developer must install silt management facilities at commencement of construction and maintain these facilities until the development has been released off maintenance by Council.
- (c) Silt traps must be sited upstream from any park or reserve area discharge point such that no silt impinges on the park or reserve areas. The silt trap areas may be phased out after the development work is complete and adequate grass cover is obtained.
- (d) Diversion drains and ponds, as necessary, must be installed on the site before any other work is undertaken on site to ensure that water containing silt, clay, solids or contaminants is contained and/or isolated.
- (e) Prior to the Pre-Start meeting for Operational Works, the Developer must lodge a \$10,000.00 Siltation and Erosion Performance Bond with Council. This bond shall only be released by Council at the termination of the maintenance period.
- (f) If the Senior Development Engineer determines that silt damage has occurred as a result of this development, the Developer shall be responsible for restoration of any damage. Such restoration must be completed within a time to be advised by the Senior Development Engineer. Should the Developer fail to complete the works determined by the Senior Development Engineer within the specified time, Council

may elect to complete the works and recover all costs associated with that work from the Developer.

- (g) Where Council determines that a draw-down of the bond is required, the Developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.

30. Public Utilities

- (a) Adequate provision must be made in all proposed dedicated roads, access strips and access easements, to cater for the public utility services that would normally serve the development.
- (b) The Developer must provide appropriate road crossing conduits in accordance with Council's Standard Drawings SR.22 and SR.23. Where concrete footpaths are to be constructed, the conduits must be extended to the property boundaries.
- (c) The Developer must provide an RPEQ certified electrical reticulation layout plan with the Operational Works application.
- (d) The Developer must provide underground electricity and telecommunications externally where necessary and within the development, constructed in the approved allocation as detailed in Council's Standard Drawings SR.22 and SR.23. Electricity and telecommunication drawings must be co-ordinated with the civil engineering design documents, to ensure that service conflicts are avoided. Where allotments front an existing overhead electricity or telecommunication service, these allotments may connect to such service subject to the approval and requirements of the service provider.
- (e) The Developer must provide Council with a copy of a Certificate for Electricity Supply to the development from a registered energy service provider, prior to the signing of the Plan of Survey.
- (f) Street lighting must be installed by the Developer within the upgraded sections of North and Colvin Streets in accordance with the Australian Standard 1158.3.1 Series for Pedestrians and Vehicles and installed in accordance with Energex Rate 2. All street lighting associated with the development must be certified by an RPEQ. Street lighting must be installed on the same side as concrete footpaths (where applicable).
- (g) The Developer must make suitable arrangements for the provision of electricity, telephone and (where applicable) cable services to all proposed units within the development. Documentary evidence that electricity, telephone and/or cable services will be provided, must be submitted to Council prior to the signing of the plan of survey.
- (h) Telephone and cable services may be laid in a combined trench with electricity cables, subject to the approval of the relevant energy service provider and the authorised telephone or cable service provider.

31. Operational Works – Municipal Works
(ie Works being handed over to Council)

External Municipal Works relates to those works external to the subject site and located in dedicated public areas, for example existing road or drainage reserve, or private property not subject to Developer ownership.

- (a) Municipal works must be completed in accordance with a detailed design certified by an RPEQ and approved by Council Engineers with appropriate fees payable, a works pre-start meeting on-site and various detailed construction and audit inspections by Council Officers. In accordance with Planning Scheme Policy 3, a maintenance period applies for the works and a maintenance security deposit is required.
- (b) The requirements of Council's Planning Scheme Policy 3 - General Works and Council's Standard Drawings shall apply to the municipal works. Where inconsistencies between any documents occur, Planning Scheme Policy 3 has precedence and must prevail to the extent of the inconsistency.
- (c) All engineering drawings must be submitted in accordance with *Planning Scheme Policy 2 – Information Local Government May Request* and include as a minimum the following:
 - (i) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ;
 - (ii) The drawings must be submitted as four (4) hardcopy, A3 size sets. Reports and supporting information must be submitted as two (2) hardcopy sets.

The submission must also include a compact disk containing electronic data as follows:

- (a) One (1) full set of all engineering drawings contained in one file;
- (a) Separate individual files containing layout plans for sewerage, water supply and drainage;
- (b) Any reports submitted in support of the application. Each report must be included as a separate file; and
- (c) An index of all files on the compact disk including descriptions of contents of each file.

All files must be submitted in PDF format.

- (d) The Developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) All works must be supervised by an RPEQ competent in civil works and must be undertaken by a nominated principal contractor experienced in the construction of

municipal works. Council reserves the right to request evidence of the principal contractor's competency. Should the contractor not be able to demonstrate the necessary competency to the satisfaction of the Senior Development Engineer or if the contractor has constructed substandard works for Council in the past, Council reserves the right to reject the nominated contractor.

- (f) Prior to the Pre-Start meeting, the Developer must submit to Council a Development Performance Bond of not less than 10% of the value of external municipal works (minimum \$5,000.00), as security for the performance of the various construction and certification obligations (including provision of "As Constructed" information).
- (g) Municipal works must be accepted "On Maintenance" prior to commencement of use. On completion of the works an "On Maintenance" acceptance inspection may be arranged by submission of a certificate signed by an RPEQ certifying that the works have been constructed in accordance with the approved plans and specifications and in compliance with Council's construction standards. It is expected that the RPEQ will undertake the necessary inspections to make this certification.
- (h) Upon formal acceptance of the works "On Maintenance", the Development Performance Bond shall be reduced to an amount not less than 5% of the value of the works or \$5,000.00 whichever is greater, and shall be retained by Council during the maintenance period as a Maintenance Security Bond for the performance of the maintenance obligations. Alternatively the Developer may submit a separate Maintenance Security Bond of equivalent value. This Bond shall be retained by Council in accordance with *Planning Scheme Policy 3*, until the works are accepted "Off Maintenance" by Council.
- (i) "As Constructed" information and final construction issue engineering design drawings, compiled in accordance with *Planning Scheme Policy 2 for Municipal Works*, with a Contributed Assets Financial Apportionment Form, must be submitted to Council and approved prior to the formal acceptance of the works "On Maintenance". This data must be submitted electronically on a compact disk labelled appropriately to indicate the contents.
- (j) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent in regard to the works relevant to the Operational Works approval.

32. Operational Works – Internal Works
(ie Works not being handed over to Council)

Internal Works refers to engineering works performed within private property and includes but is not limited to, earthworks, retaining walls, driveways and stormwater management systems.

- (a) Engineering plans must be submitted to Council prior to the commencement of construction on site and must show full construction details, layout dimensions, and finished surface levels.

- (b) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ.
- (c) The drawings must be submitted as four (4) hardcopy A3 size sets and one (1) full size set with two (2) hardcopy sets of any reports and supporting information. One set of drawings will be returned to the applicant with the Decision Notice. The submission must also include a compact disk containing electronic data as follows:
 - (i) A full set of all engineering drawings contained in one file;
 - (ii) Separate individual files containing layouts for sewerage, water supply and drainage;
 - (iii) Any reports submitted in support of the application. Each report must be included as a separate file; and
 - (iv) An index of all files on the Compact Disc including descriptions of contents of each file.

All files must be submitted in PDF format.

Where municipal works are also being undertaken, it is usually appropriate to make a combined submission.

- (d) The Developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) On completion of the works a certificate signed by an RPEQ must be submitted to Council, certifying that the works have been constructed in compliance with the approved plans and specifications and in accordance with Council's construction standards. The RPEQ must personally undertake the necessary inspections to make this certification.
- (f) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent.

33. Easements

- (a) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (b) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (c) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (d) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.
- (e) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (f) Adequate number of permanent survey marks must be installed to ensure clear definition of the development.

34 General

- (a) All works required for this development must take due regard of any and all existing services and, if considered necessary by the relevant authority or the Senior Development Engineer, such works must be altered at the cost of the Developer.
- (b) Any fill intended to be placed over Council's underground services must be approved in advance by the Senior Development Engineer.
- (c) Should any works be proposed on land under other private ownership, written permission for the works must be obtained and forwarded to Council as part of the Operational Works application. Similarly, written clearances must be obtained after the works are completed, unless otherwise accepted by the Senior Development Engineer.
- (d) Any allotment or other filling creating a soil depth greater than 500mm must be conducted in accordance with *Australian Standard 3798* at Responsibility Level 1. Test results as required by *Australian Standard 3798*, and a certificate of quality and uniformity of fill, must be provided by an RPEQ.
- (e) Batters and slopes greater than 1:4 resulting from cutting and filling of the site must be certified by an RPEQ as stable and properly drained.
- (f) All imported and exported materials may be transported only on routes approved by the Senior Development Engineer.
- (g) All disturbed verge, park, allotment and other grassed areas must be rehabilitated and revegetated (including provision of topsoil to a minimum depth of 50mm) and turfed or seeded to the satisfaction of the Senior Development Engineer and in accordance with Planning Scheme Policy 3 - General Works (specifically part 6.1.6). Grass cover must be achieved as early as possible during the development and a minimum grass coverage of 80% must be achieved before the development can be accepted "Off Maintenance".

- (h) If, after the preparation of detailed design plans for the various roads, it is found necessary to provide any additional dedicated road area, or modify the proposed dedicated roads to enable the full requirements of Council's standards and Austroads documents to be incorporated in any way (but particularly in the production of the required speed environment or because of longitudinal and cross sectional constraints) then the development layout plan must be altered accordingly and approved in writing by the Senior Development Engineer.

35. Compliance with Conditions

- (a) All conditions must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

36. When Approval Takes Effect

This approval has effect in accordance with the provisions of Section 3.5.19 of the *Integrated Planning Act 1997* as follows:

- (a) If the applicant does not appeal the decision to the court - from the time the decision notice is given (or if a negotiated decision notice is given, from the time the negotiated decision notice is given); or
- (b) If an appeal is made to the court - subject to the decision of the court, when the appeal is finally decided.

37. When Approval Lapses

- (a) This approval lapses at the end of the relevant period, unless the change of use happens before the end of the relevant period. The relevant period for this approval is 4 years starting the day the approval takes effect.
- (b) An extended relevant period may be agreed upon, pursuant to Section 3.5.22 of the *Integrated Planning Act 1997*, provided a written notice to Council is made before the end of the relevant period. Such written notice is to be on Council's approved form, accompanied by the owner's consent and the prescribed fee in Council's Register of General Charges.
- (c) All of the development the subject of this approval shall be completed within the periods stated in Condition (a)(i) above. This approval shall lapse for any part of the development of the site that has not commenced within the relevant period stated in Condition (a)(i) above.

Conditions of Concurrence Agencies

1. The Department of Environment and Resource Management is a concurrence agency with regard to this development approval. The attached concurrence agency response, dated 28 September 2010, forms part of this Decision Notice.
 2. Energex is a advice agency with regard to this development approval. The attached concurrence agency response, dated 4 June 2010, forms part of this Decision Notice.
- B. The Developer be further advised of the following:-
1. Further Subdivision

Where the land and/or buildings are to be subdivided in accordance with the *Body Corporate and Community Management Act 1997* all buildings must be substantially completed prior to the release of survey plans.
 2. Signage

Signage should generally provide for identification rather than advertisement and should contribute to an attractive streetscape and integrate with the overall design and layout of a development. Emphasis should be placed upon:

 - (a) Visual attractiveness
 - (b) Fewer and more easily interpreted signs
 - (c) Scales and proportions for signage which reflect and reinforce the architectural design of individual buildings or the streetscape in terms of location and dimension
 - (d) The removal of undesirable signs
 - (e) Compatibility with the scale of development and the amenity of surrounding land uses - sky/tower signs, revolving signs, signs projecting from building facades and bunting are discouraged
 - (f) Maintaining views to key building features such as pediments and fenestration to ensure that they are not obscured, and
 - (g) Grouping multiple tenancy signage into one structure.
 3. Fire Ants

In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species *Solenopsis invicta*) and to eradicate it from the State.

It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the

Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

Director General
Department of Primary Industries
GPO Box 46, Brisbane QLD 4001

It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of a Department of Primary Industries Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

The development approved herein, by its very nature, includes activities considered to be "high risk" in respect of controlling the spread of Fire Ants. The following lists show high risk activities and some precautions should be considered for implementation.

- (a) High risk activities can include:
 - (i) Earthworks of a minor or major scale;
 - (ii) Revegetation or rehabilitation;
 - (iii) Import of fill onto a site;
 - (iv) Export of fill or other materials such as soils, gravel, mulch and plants; and
 - (v) Export off or import on to a site of construction and demolition waste and materials or green waste.
- (b) Precautions for implementation
 - (i) Checking for ants regularly;
 - (ii) Checking all soil, fill and waste materials (construction and green waste) for ants;
 - (iii) Asking questions about the quality and source of soil, fill and waste materials (construction and green waste);
 - (iv) Keeping records of all movements of soil, fill and waste materials (construction and green waste);
 - (v) Cleaning of all earthmoving or other soiled vehicles prior to exit from the site; and
 - (vi) Informing staff and contractors about these precautions.

4. Portable Long Service Leave

From 1 January 2001, the Building and Construction Industry (Portable Long Service

Leave) Levy must be paid prior to the issue of a development permit where one is required for the 'Building and Construction Industry'. This applies to Building Works, operational works and Plumbing and Drainage Works applications, as defined under the *Sustainable Planning Act 2009*, where the works are \$80 000 or more and matching the definition of 'Building and Construction Industry' under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*.

Council will not be able to issue a decision notice without receipt of details that the levy has been paid. Should you require clarification in regard to the amendments to the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, you should contact QLeave on 1800 803 481 (free call) or (07) 3212 6855.

5. Vehicle and Bin Washdown Facilities

The use of vehicle and bin washdown facilities are subject to any water restrictions that are current at the time of the requirement for the use of potable water.

6. Water Meter

All new commercial, industrial or large multi-residential property connections with a projected annual consumption greater than or equal to 20,000kL must have installed, at the customer's expense, an electronic water meter with a data logger and an approved back-to-base communication system as specified by QUU.

Properties with electronic water meters are subject to billing on a monthly basis in accordance with the metered monthly consumption.

If the proposed development is likely to have an annual water consumption equal to or greater than 20,000kL, the developer will be required to contact QUU on telephone 13 26 57 to arrange installation of an electronic flow meter.

7. Bonding of Incomplete Works Associated with Reconfiguring a Lot

Council may approve the signing of the Plan of Survey prior to the acceptance of works "On Maintenance", subject to compliance with the conditions listed in Planning Scheme Policy 3 Clause 14.1.4.

8. Submission of Drawings

Any engineering drawings submitted for Council review and approval in conjunction with an operational works application should be arranged to leave a blank space with minimum dimensions 6 cm wide and 14 cm high near the right border for a Council Stamp of Approval, so that any existing notes are not over-written by the stamp.

9. Water Reticulation Plans

The developer must submit hydraulic plans that comply with the requirements of the *Water Supply (Safety and Reliability) Act* for scrutiny by Council.

10. Plumbing and Drainage Approval

Scrutiny fees in accordance with the Council's Schedule of Fees and Charges must be paid at the time of lodgement of plans. No work on the plumbing and drainage may commence prior to the approval of the plan and the issuing of a permit, by this Council, to a Licensed Plumber/Drainer.

Tests and inspections must be arranged with the Plumbing Section upon payment of the appropriate current fee.

11. Drainage Reserve

The land nominated on the proposal plans as drainage reserve may not be dedicated as drainage reserve until the development works associated with this drainage reserve are completed in accordance with the Material Change of Use Approval and to the satisfaction of the assessment manager.

12. Further Development Infrastructure Contributions

The Applicant is advised that infrastructure contributions, footpath, and kerb and channelling contributions were not required as part of the Reconfiguring a Lot approval. Additionally, it is advised that there are no existing credits available for sewer, water, roadworks, parks and social infrastructure pursuant to Planning Scheme Policy 5 'Infrastructure', or for footpath, and kerb and channel for the site, therefore infrastructure contributions or requirements for construction may be applied accordingly as a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

13. Connection to Services

The Applicant is advised that connection to sewer, water and stormwater infrastructure are not required as part of the Reconfiguring a Lot development approval, therefore connection to sewer, water and stormwater infrastructure may be a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

14. Protected Fauna Species

It is strongly suggested that the developer confirm that there are no fauna species which are protected under the *Environmental Protection and Biodiversity 1999*. Specifically, the developer should confirm the presence of protection status of bats which may be nesting in the culvert of the proposed drainage reserve.

Pursuant to the provisions of the *Sustainable Planning Act 2009*, I also enclose herewith a copy of the relevant sections concerning:

- C. A copy of this decision be forwarded to the following referral agencies:

1. DERM
SE Region
PO Box 1164
BEENLIEGH QLD 4207

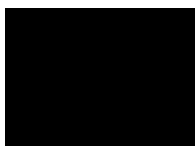
2. Energex
GPO Box1461
BRISBANE QLD 4001



Brett Davey
SENIOR PLANNER (DEVELOPMENT)

I have this day adopted the recommendation specified in this report.

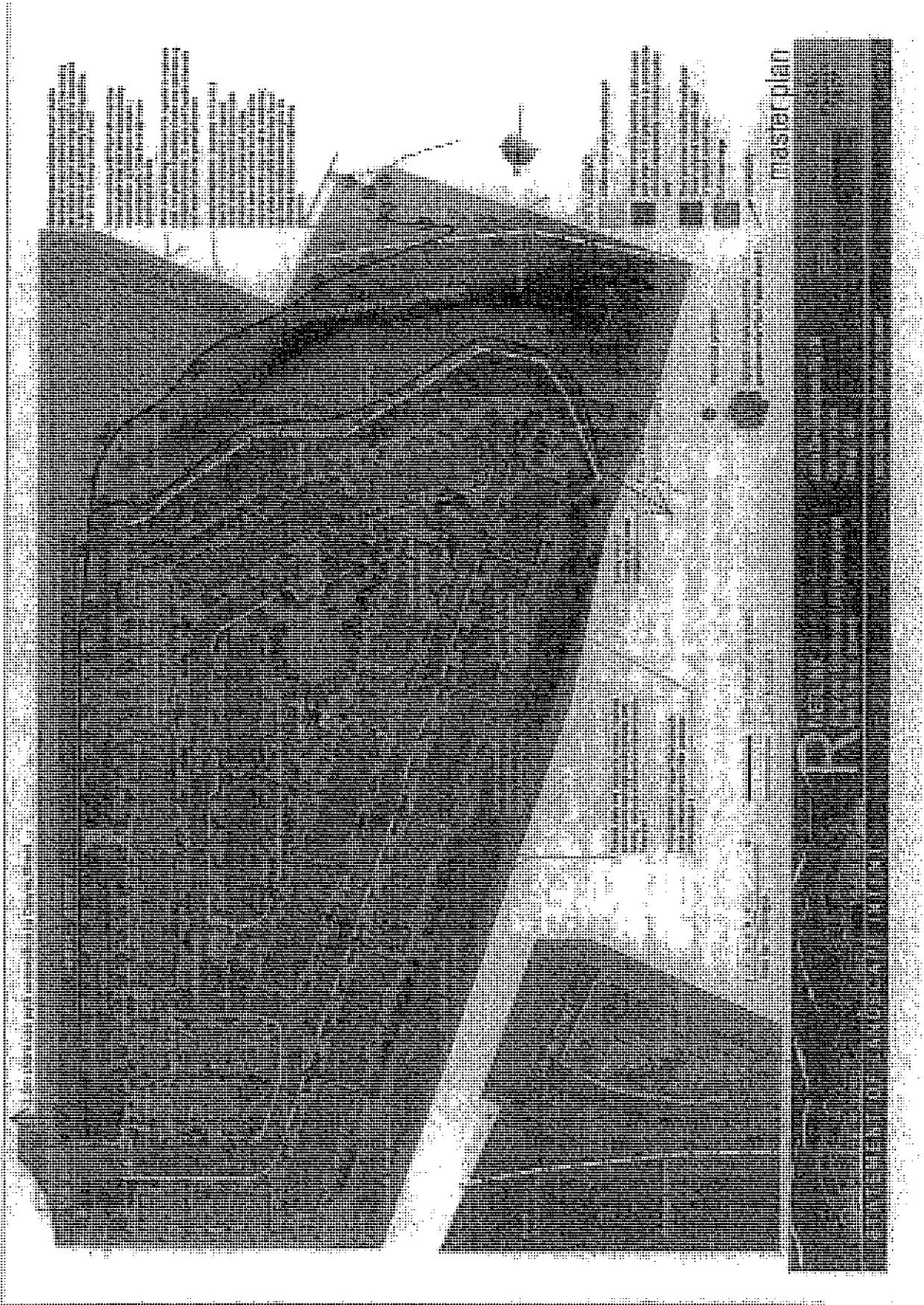
Such action was taken pursuant to the delegation entitled "Determination of Development Applications, Precinct Plans, Area Development Plans and Related Matters" granted to me by the Chief Executive Officer dated 1 April 2009.

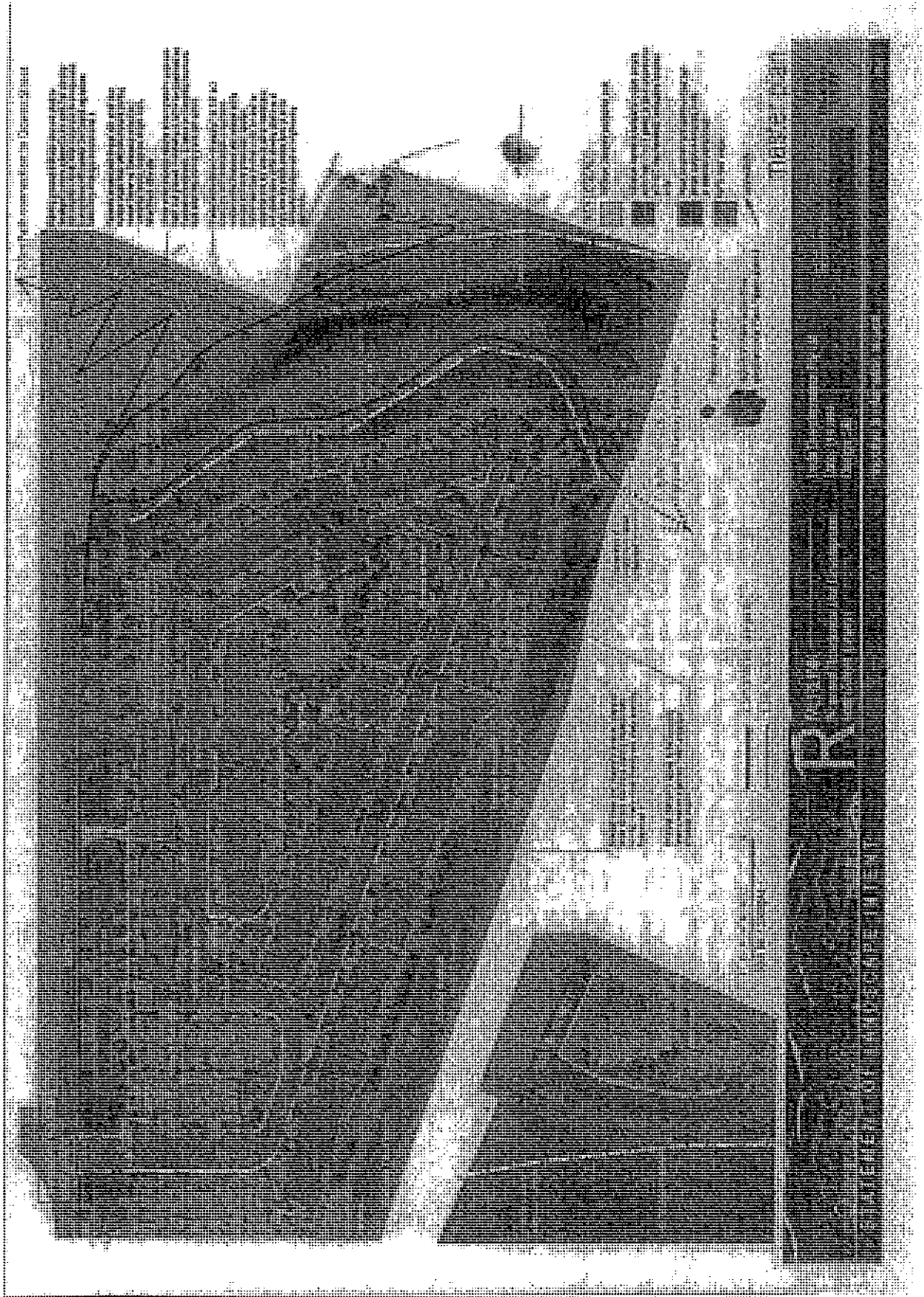


Joanne Pocock
TEAM COORDINATOR (CENTRAL WEST)

Date

01/11/10







Assessment Checklist

Code Assessable Development

A. Application Details

Appln No.: 6293/09

Division: 6

B. Preamble Assessment

1. Are the real property description and location details provided on the Application Form correct? ☒ Yes ☐ No
2. Has the 'consent of owner' been correctly obtained? ☒ Yes ☐ No
3. Has the correct fee been paid? ☒ Yes ☐ No

C. Supporting Information

1. (a) Was any supporting material lodged with the application? ☒ Yes ☐ No

Comment: Planning Report, Extract from previous approval, Proposal Plans, Services Report, Stormwater Report, Contaminated Land Remediation Plan, Traffic Report, flood Report, Advice from Queensland Rail, Noise report

- (b) Are there any planning issues associated with this material? ☒ Yes ☐ No

Comment: A number of issues were identified in respect to fencing, pedestrian access, drainage, water supply, the provision of car washing bays, land stability, traffic, stormwater, noise and contaminated land.

2. (a) Is there a need for an Information Request? ☒ Yes ☐ No

Comment: Further Information was sought on 18 November 2009 regarding the above matters.

C. Supporting Information

(b) Are there any outstanding issues associated with the Information Response?

☐ Yes ☒ No ☐ N/A

D. Referral / Advice Agencies

1. Are there any referral or advice agencies applicable to this development?

☒ Yes ☐ No

Comment: DERM Contaminated Land Unit (Concurrence); DERM Heritage Unit (Advice); and Energex (Advice)

2. Are there any issues associated with advice received from a Referral / Advice Agency?

☐ Yes ☒ No ☐ N/A

Comment: The Department of Environment and Resource Management (DERM) is a Concurrence and Advice agency with respect to the application provided a coordinate response dated 28 September 2010. This response identified no objection to the proposal and required that no conditions be imposed.

Energex as an advice agency with respect to the application provide a response dated 4 June 2010. This response identified no objection with respect to the proposal.

E. State Planning Policies (SPP's)

1. Are there any SPP's applicable to this development?

☐ Yes ☒ No

2. Does the development comply with any relevant SPP's?

☐ Yes ☐ No ☒ N/A

F. Zone Code

1. What is the relevant zone code(s) for this development?

Riverlink Preliminary Approval Plan (Application 682/03) and the conditions of approval for this development application.

2. (a) Does the development require Code assessment under the relevant assessment table for the zone?

☒ Yes ☐ No

Comment: Code Assessment is required pursuant to the Preliminary Approval.

The assessable codes are nominated as the relevant use codes within the Ipswich Planning Scheme and the relevant planning scheme policies in accordance with the Ipswich Planning Scheme. On this basis, assessment is required against the Preliminary Approval 682/03, the Residential Code of the Ipswich Planning Scheme, the Parking Code of the Ipswich Planning Scheme, Planning Scheme Policy 3: General Works, and Planning Scheme Policy 5: Infrastructure.

3. (a) Are there any overall or specific outcomes for the locality which apply to the development?

☐ Yes ☐ No ☒ N/A

- (b) Does the development comply with any relevant overall or specific outcomes for the locality?

☐ Yes ☐ No ☒ N/A

4. Does the development comply with the overall outcomes for the zone?

☐ Yes ☐ No ☒ N/A

5. Does the development comply with the "Effects of Development – General" (including the specific outcomes and any applicable probable solutions or acceptable solutions) for the zone?

☐ Yes ☐ No ☒ N/A

6. (a) Are there any Sub Area or Precinct provisions within the zone which apply to this development?

☐ Yes ☒ No

- (b) Does the development comply with these provisions?

☐ Yes ☐ No ☒ N/A

**G. Codes for a Stated Purpose or of a Stated Type
(refer Part 12 of the Planning Scheme)**

1. Are there any codes under Part 12 of the Planning Scheme applicable to the development?

☒ Yes ☐ No

Comment: The Residential Code of the Ipswich Planning Scheme, the Parking Code of the Ipswich Planning Scheme

2. Does the development comply with these codes?

☒ Yes ☐ No ☐ N/A

H. Overlays (refer Part 11 of the Planning Scheme)

1. (a) Is the site affected by a Character Places Overlay?

☐ Yes ☒ No

- (b) Is the assessment category changed (refer Table 11.3.2)?

☐ Yes ☒ No ☐ N/A

- (c) Does the development comply with the Character Places Overlay Code and the Character Code?

☐ Yes ☐ No ☒ N/A

2. (a) Is the site affected by a Development Constraints Overlay?

☒ Yes ☐ No

Comment: The site is affected by Development Constraints Overlays, however these are not an applicable code pursuant to the Preliminary Approval.

Nonetheless, the proposal has been assessed against this code. Specifically, the subject site is affected by flooding and a stormwater flow path. The proposal is located on land free of flooding and the effects of the overland flow path and flooding are proposed to be contained within a future drainage reserve. As a consequence, the proposal is generally compliant with the requirements of the Overlays Code.

- (b) Is the assessment category changed (refer Table 11.4.3 and 11.4.4)?

☐ Yes ☐ No ☒ N/A

- (c) Does the development comply with the relevant provisions of the Development Constraints Overlay Code?

☐ Yes ☐ No ☒ N/A

I. Other Relevant Matters

1. (a) Are there any Planning Scheme Policy provisions which specifically apply to this development? ☐ Yes ☐ No ☒ N/A

(b) Does the development comply with these provisions? ☐ Yes ☐ No ☒ N/A

2. (a) Are there any Implementation Guidelines which specifically apply to this development? ☐ Yes ☒ No

(b) Does the development comply with these Guidelines? ☐ Yes ☐ No ☒ N/A

3. Are there any other relevant matters which pertain to this development? ☐ Yes ☒ No ☐ N/A

4. Infrastructure Contributions – Calculation Sheet attached to this checklist? ☒ Yes ☐ No ☐ N/A

The contribution calculations are outlined in the condition. It should be further noted that no credits are applicable to this proposal as the Reconfiguring a Lot Development Approval (5026/08) dated 12 February 2009 did not require the payment of infrastructure contributions, nor the connection of services.

J. Summary

1. Recommended for:

- ☒ Approval - Subject to Conditions
- ☐ Refusal
- ☐ Part Refusal / Part Approval -Subject to conditions

2. Assessment Against Previous Approvals

The Riverlink Preliminary Approval (Application 682/03) is applicable to the proposal. Overall, the proposed development is consistent with the Preliminary Approval Conditions and the Riverlink Preliminary Approval Code document.

J. Summary

2. Other relevant Matters:

Following initial assessment of the application, it was identified that the level of assessment on which the application was based was incorrect. The Preliminary Approval to override the Planning Scheme which was in effect over the land identified that part of the site the subject of the application was actually in the 'parkland precinct' of the Preliminary Approval to override the Planning Scheme. As a consequence, it was necessary for the application to be Impact Assessable and not Code. To rectify this situation, by letter date 22 April 2010, the Applicant elected to modify the application to limit the application to those parts of the site zoned 'mixed use urban village' and therefore made the application Code Assessable. In response to the correspondence, a new acknowledgement notice was prepared by Council to restart the assessment process..

Separately, the Applicant lodged development application 2727/10. the purpose of this application was for the development of units and a Reconfigure a Lot Development Application over the land including the area nominated as 'parkland precent' in accordance with the Preliminary Approval to Override the Planning Scheme. This application is Impact Assessable and is the subject of a separate assessment.


Brett Davey
SENIOR PLANNER (DEVELOPMENT)

Date: 1/11/10


Jo Pocock
TEAM COORDINATOR (CENTRAL/WEST)

Date: 01/11/10

Your reference
Our reference 6293/09 BJD:RH
Contact Officer Brett Davey
Telephone 3810 6258



Ipswich City Council

45 Roderick St
PO Box 191
Ipswich QLD 4305
Australia

Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Lipoma Pty Ltd
C/- Michel Group Services
PO Box 2695
NERANG QLD 4211

1 November 2010

INTEGRATED PLANNING ACT 1997

DEVELOPMENT APPLICATION DECISION NOTICE

Application Details

Application No: 6293/09

Real Property Description: Lot 55 on SP222487

Property Location: 21A North Street, North Ipswich

Names and Addresses of all Referral Agencies: Department of Environment and Resource Management
South East Region
PO Box 1164
BEENLEIGH QLD 4207

Energex
GPO Box 1461
BRISBANE QLD 4001

Decision Date: 1 November 2010

Decision: Approved subject to the conditions detailed below.

Decision Authority: Team Co-ordinator - Central West

Approval Details:

Proposal	Development	Decision	Approval Type
Multiple Residential (100 Units)	Making a Material Change of Use of Premises	Approved	Development Permit.

Further Development Permits Required

Further Development Permits, as required by the *Integrated Planning Act 1997*, shall be obtained in respect of any Operational Works, Building Works and Plumbing Works in relation to this approval before any such works are commenced.

Conditions**Assessment Manager (Ipswich City Council)*****Conditions applicable to this approval under Integrated Planning Act:*****1. Basis of Approval**

This approval is subject to these conditions, the facts and circumstances set out in the application and adherence to all relevant Council Local Laws and/or Planning Scheme Policies.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications accepted in writing by the assessment manager will suffice.

3. Development Plans

The development of the site must be undertaken generally in accordance with the approved plans outlined in part 3 of the decision notice.

Plan Number and Revision	Title	Date	Prepared By
2009.12 DA01B	Development Details	April 2010	Bristow Architects Pty Ltd
2009.12 DA02D	Site Plan	April 2010	Bristow Architects Pty Ltd
2009.12 DA03D	Site Layout	April 2010	Bristow Architects Pty Ltd
2009.12 DA04B	Unit Floor Plans 'A' and 'B'	April 2010	Bristow Architects Pty Ltd
2009.12 DA05A	Unit Floor Plans 'C', 'D' & 'E'	August 2009	Bristow Architects Pty Ltd

2009.12 DA06A	Block 1 Plan and Typical 4 unit layout	August 2009	Bristow Architects Pty Ltd
2009.12 DA07A	Block 1 Elevations & Typical 4 Unit	August 2009	Bristow Architects Pty Ltd
2009.12 DA08A	Block 2 Plans and typical 6 unit	August 2009	Bristow Architects Pty Ltd
2009.12 DA09A	Block 2 Elevations and Typical 6 Unit	August 2009	Bristow Architects Pty Ltd
2009.1 DA10B	Site Entry Areas & Part East Elevation	October 2009	Bristow Architects Pty Ltd
2009.1 DA11C	Pedestrian Network	April 2010	Bristow Architects Pty Ltd
2009.1 DA12	Elevations / Colour Palette	7 August 2009	Bristow Architects Pty Ltd
2009.1 DA14	Block 19 Units (North St Frontage)	1 October 2009	Bristow Architects Pty Ltd
2009.1 DA15A	Development Staging Plan	April 2010	Bristow Architects Pty Ltd

4. Proposed Stages

The staging of the proposal shall be in accordance with Plan Number 2009.12 DA15A prepared by Bristow Architects Pty Ltd and dated 11 March 2010. The staging must be sequenced in the order identified on the approved plans. Where a terminating road is proposed to be extended as part of a later stage, a temporary turnaround area must be provided to the satisfaction of the Senior Development Engineer.

5. Drainage reserve

Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for Stage 3, whichever comes first, the proposed drainage reserve (proposed Lot 551 of Reconfiguring a Lot Approval 2727/10) must be dedicated as drainage reserve in favour of Council and not included within parkland dedication.

6. Visual Privacy

The private open spaces and living rooms of adjacent dwelling units are to be protected from direct overlooking by dwelling unit layout, screening devices, distance or landscaping. At minimum, windows of one dwelling are not to be located opposite the windows of another dwelling unless direct views are controlled by blinds or other screening devices, or by sufficient distance or height to discourage overlooking, to the satisfaction of the assessment manager.

7. Fencing

Unless otherwise approved in writing by the assessment manager, front fences and walls must have a maximum height of:

- (a) Where the boundary is a common boundary to a road or drainage reserve, the fence shall comprise solid fencing to a maximum height of 1200 mm with a panel of minimum 50% transparency between the top of the solid fencing and maximum height of 1800 mm.
- (b) Where the boundary is between a common area and a road or a drainage reserve, the fence must be powder coated aluminium pool style fencing.

Details of the proposed fencing must be submitted in conjunction with the landscaping plan required by Condition 23.

Note: Where a boundary fence shares a common boundary with private land, the consent of the relevant land owner must be sought pursuant to the *Dividing Fences Act 1991*.

- (c) Fences to roads and drainage reserves must not exceed 10m in length without some form of articulation or detailing to provide visual interest.

8. Letter Boxes, Laundering and Storage Facilities

- (a) Unless otherwise approved by the assessment manager, one letter box must be provided per unit plus one letter box for use by the body corporate or management. Such letter boxes must form an integral part of the design of the development and must be located on the road frontage boundary to which the site has been allocated its street address, unless otherwise approved by the assessment manager.
- (b) Each dwelling unit within the development must be provided with individual laundry and clothes drying facilities screened and located to the satisfaction of the assessment manager.
- (c) Alternatively, communal facilities must be provided, screened and located not more than 100 metres from any dwelling unit, to the satisfaction of the assessment manager.

9. Colour Scheme

The colour scheme must include textures and / or colours which will blend aesthetically with the surrounding environment. Extensive use of very bright colours or dark colours externally should be avoided unless they are unlikely to detract from the amenity and character of adjacent development or public or semi-public spaces.

10. Streetscape Works

- (a) The Developer shall plant street trees for the length of the North Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
 - (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;

- (ii) Identify the location/ proximity of services within the road reserve; and
- (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (b) Such streetscaping must be completed in accordance with the approved streetscape plan to the satisfaction of the Chief Operating Officer (Health Parks and Recreation) and must be completed prior to the signing of any plan of survey.
- (c) The developer must maintain street trees for a period of eighteen (18) months after an 'On Maintenance' inspection by the Chief Operating Officer (Health Parks and Recreation).

Note:

Species must be in accordance with the Ipswich City Council Street Tree Strategy. Root intrusive trees must not be planted in the road reserve. The developer or agent must liaise with Council's Health, Parks and Recreation Department prior to any planting for determination of species selection.

11. Carparking - Use and Maintenance

- (a) Car parking spaces shall be provided on site for the proposed development generally in accordance with the development plans referenced in Condition 3 (a). To this end, parking must be provided at the following rates:
 - (i) A minimum of one (1) covered carparking space per dwelling for exclusive resident use
 - (ii) A minimum of 0.5 spaces per dwelling for visitor parking
 - (iii) A minimum of 0.5 spaces per dwelling for use by both residents and visitors.
- (b) Unless otherwise indicated on the approved plan of development or approved by the assessment manager, parking areas must not be:
 - (i) Exclusively used for visitor parking at the expense of resident parking; or
 - (ii) Exclusively used for resident parking at the expense of visitor parking, or
- (c) All parking areas must be:
 - (i) Kept exclusively for parking;
 - (ii) Used exclusively for parking;
 - (iii) Appropriately signposted at the entry/entries to the car park, to the satisfaction of the assessment manager in accordance with AS1742; and
 - (iv) Maintained to the satisfaction of the assessment manager.

12. Carparking - Landscaping

Unless approved by the assessment manager, the equivalent of one (1) car parking bay for every eight contiguous (8) bays should be fully landscaped to provide shading to the car parks unless otherwise approved by the assessment manager. Such landscaped areas are required in addition to the number of car parking bays required under this approval and/or indicated on the approved plan of development. These areas should be landscaped with at least one shade tree centrally located and groundcovers as a minimum requirement. Details shall be included in the Landscaping Plan required by this Development Permit.

13. Hours of Construction

Unless otherwise determined in writing by the assessment manager, hours of construction must not exceed:

Monday to Saturday 6:30am to 6:30pm

Construction work must not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

14. Particular Use

This approval is for the particular use stated, and does not imply approval for other similar uses. The use of any of the structures associated with the Multiple Residential Use inclusive of car parking and any associated outdoor areas on the site, are not permitted to be used for any other purpose, unless, in the written opinion of the assessment manager, such use is ancillary and incidental to the predominant use of the site for a Multiple Residential Use.

15. Contributions

In accordance with the relevant Council Policies, the Developer shall pay, prior to the issue of Form 21 – 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for each stage, whichever comes first, the following monies to Council:-

Stage 1:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	21 x 2 bedroom units @ 1.58 EP = 33.18 EP	110.4 EP x \$338.62 x 1.1724 = \$43,828.58892
			33 x 3 bedroom units @ 2.34 EP = 77.22 EP	= \$43,829.00
			TOTAL: 110.4 EP	
			No Credits Applicable	

Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	21 x 2 bedroom units @ 1.58 EP = 33.18 EP 33 x 3 bedroom units @ 2.34 EP = 77.22 EP TOTAL: 110.4 EP No Credits Applicable	110.4 EP x \$2,506.99 x 1.1724 = \$324,487.1364 = \$324,487.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	21 x 2 bedroom units @ 1.5 EP = 31.5 EP 33 x 3 bedroom units @ 1.75 EP = 57.75 EP TOTAL= 89.25 EP No Credits Applicable	89.25 EP x \$ 1,120.00 x 1.1724 = \$ 117,193.104 = \$ 117,193.00
Sewerage	SW25 – SP49	\$ 923.00 1.1724	21 x 2 bedroom units @ 1.5 EP = 31.5 EP 33 x 3 bedroom units @ 1.75 EP = 57.75 EP No Credits Applicable TOTAL= 89.25 EP	89.25 EP x \$ 923.00 x 1.1724 = \$ 96,579.6741 = \$ 96,580.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	21 x 2 bedroom units @ 3.8 VT = 79.8 VT 33 x 3 bedroom units @ 5.6 VT = 184.8 VT TOTAL: 264.6 VT No Credits Applicable	264.6 VT x \$ 725.00 x 1.1281 = \$ 216,409.0635 = \$ 216,409.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 798,498.00

Stage 2:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP 10 x 3 bedroom units @ 2.34 EP = 23.4 EP TOTAL: 32.88 EP No Credits Applicable	32.88 EP x \$338.62 x 1.1724 = \$13,053.29713 = \$13,053.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP 10 x 3 bedroom units @ 2.34 EP = 23.4 EP TOTAL: 110.4 EP No Credits Applicable	32.88 EP x \$2506.99 x 1.1724 = \$96,640.7341 = \$96,641.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP 10 x 3 bedroom units @ 1.75 EP = 17.5 EP No Credits Applicable TOTAL= 26.5 EP	26.5 EP x \$ 1,120.00 x 1.1724 = \$ 34,796.832 = \$ 34,797.00
Sewerage	SW25 – SP49	\$ 923.00 Index 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP 10 x 3 bedroom units @ 1.75 EP = 17.5 EP No Credits Applicable TOTAL= 26.5 EP	26.5 EP x \$ 923.00 x 1.1724 = \$ 28,676.3178 = \$ 28,676.00

Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	6 x 2 bedroom units @ 3.8 VT = 22.8 VT 10 x 3 bedroom units @ 5.6 VT = 56 VT TOTAL: 78.8 VT No Credits Applicable	78.8 VT x \$ 725.00 x 1.1281 = \$ 64,448.353 = \$ 64,448.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 237,615.00

Stage 3:

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	10 x 2 bedroom units @ 1.58 EP = 15.8 EP 20 x 3 bedroom units @ 2.34 EP = 46.8 EP TOTAL: 62.6 EP No Credits Applicable	62.6 EP x \$338.62 x 1.1724 = \$24,852.08031 = \$24,852.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	10 x 2 bedroom units @ 1.58 EP = 15.8 EP 20 x 3 bedroom units @ 2.34 EP = 46.8 EP TOTAL: 62.6 EP No Credits Applicable	62.6 EP x \$2506.99 x 1.1724 = \$183,993.6118 = \$183,994.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	10 x 2 bedroom units @ 1.5 EP = 15 EP 20 x 3 bedroom units @ 1.75 EP = 35 EP No Credits Applicable TOTAL= 50 EP	50 EP x \$ 1,120.00 x 1.1724 = \$ 65,654.40 = \$ 65,654.00

Sewerage	SW25 – SP49	\$ 923.00 Index: 1.1724	10 x 2 bedroom units @ 1.5 EP = 15 EP 20 x 3 bedroom units @ 1.75 EP = 35 EP No Credits Applicable TOTAL= 50 EP	50 EP x \$ 923.00 x 1.1724 = \$ 54,106.26 = \$ 54,106.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	10 x 2 bedroom units @ 3.8 VT = 38 VT 20 x 3 bedroom units @ 5.6 VT = 112 VT TOTAL: 150 VT No Credits Applicable	150 VT x \$ 725.00 x 1.1281 = \$ 122,680.875 = \$ 122,681.00
Footpath*	n/a	\$260/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Kerb and Channel	n/a	\$540/m	Works Required, Contributions Not Applicable	Works Required, Contributions Not Applicable
Total				\$ 451,287.00

The contributions above must be applicable for a period of **twelve (12) months from the date of the development approval**, and thereafter must be based on the infrastructure contribution policies and rates applicable at the date when payment is made.

Note * Contributions are towards the establishment of a footpath system in the general location of the development.

The developer is advised that direct debit, personal and/or company cheques cannot be accepted as payment for the above contributions. The only acceptable forms of payments are cash (EFT payments included) or bank cheques.

16. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) must make reference to the relevant, approved place name under the Place Names Act 1994 in a contrasting colour to the background, in lettering no less than 50% of the estate name and in the same orientation as the estate name.
- (b) Any reference to the regional location of the site or the development must not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

17. Engineering Requirements

The following engineering requirements, detailed in Conditions 18 – 34, shall be completed to the satisfaction of the Senior Development Engineer.

Terms

- (a) RPEQ - A Registered Professional Engineer of Queensland, suitably qualified and experienced in the particular area of expertise required. Furthermore, the RPEQ required for the analysis and reporting for mining shall be experienced in the analysis of underground and surface mining within the Ipswich area.
- (b) QUDM – The *Queensland Urban Drainage Manual (2007 Edition)*, produced by the Queensland Department of Environment and Natural Resources.
- (c) MUTCD - *The Manual of Uniform Traffic Control Devices*, published by DTMR.
- (d) QUU – Queensland Urban Utilities – trading name of the Central SEQ Distributor-Retailer Authority, providing water and wastewater services to Ipswich City under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.
- (e) DTMR - Department of Transport and Main Roads.
- (f) DERM - Department of Environment and Resource Management.
- (g) DIP – Department of Infrastructure and Planning.
- (h) ARI – Average Return Interval - used to define flood frequency and severity.

18. Roadworks

- (a) All roadworks must be designed and constructed in accordance with Council's Policies and Standards, the DMR *Road Planning & Design Manual*, Austroads Publications and any other documentation accepted as best practice by Council. The design and construction of each road or street must ensure that the speed environment, geometry, sight distances, carriageway widths, lighting, facilities for bus stops, refuse collection vehicle movements, pedestrians and cyclists, and on-street parking and other physical attributes are consistent with the function and role of the road or street in the transportation network.
- (b) Road pavements must be designed and constructed in accordance with the Ipswich City Council's Planning Scheme Policy 3 - General Works, Chapter 5 - Roadworks. All roads must have two way cross-falls in accordance with Council's adopted standards.
- (c) Kerb ramps must be constructed in accordance with Council's Standard Drawing SR.18 at all intersections and at additional locations where they are required to connect concrete pathways and cycleways. Generally at "T" intersections, four (4) kerb ramps are required.

- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the Developer must upgrade / reconfigure North Street across the frontage of the development site between Ferguson Street and the site's access point in accordance with Council's Standards for a collector street (refer Standard Drawing SR.02). Additionally, the developer must upgrade / reconfigure North Street across the frontage of the development site between the site's access point and the Telegraph Street road reserve in accordance with Council's Standards for an access street (refer Standard Drawing SR.02). Works must include the following:-
- (i) Kerb and channel and associated stormwater drainage. Works must occur on both sides of North Street and extend to the tangent point into Fitzgibbon Street;
 - (ii) Reconstructed pavement;
 - (iii) Concrete footpaths as per conditions below;
 - (iv) Timber bollards and railings along the drainage corridor;
- (i) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the intersection of North Street / Fitzgibbon Street/ Site Access Point must be reconfigured as recommended in the Traffic Impact Assessment Report prepared by Bitzios Consulting dated September 2009. The site access point leg of the intersection must be designed as if for a public roadway including 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 site access point must be configured with kerb and channelling that is clearly recognised by road users and pedestrians and with a finished level that matches with the existing road surface in North Street. The existing culverts at this crossing must be extended to a minimum width of 20.0m to allow for all proposed road and verge works to be accommodated. Approved pedestrian safety railings located at the headwalls must be provided.
- (e) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete path for shared use by pedestrians and cyclists (minimum 2.5m wide) must be constructed between the site, the existing community facilities on Downs Street (at the intersection of Downs and Lawrence Street) and the future extension of the "Brassall Bikeway Phase 1". The shared path must be constructed:
- (i) In accordance with Council standards;
 - (ii) With lighting in open space areas in accordance with the AS1158 series;
 - (iii) Generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) With an alignment generally in accordance with that outlined on either Attachment A or Attachment B;

- (v) To integrate with Council's planning for the Brassall Bikeway;
- (vi) With route markers/direction signs;
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site and Downs Street (via Colvin Street and Canning Street). The footpath must be constructed:
 - (i) in accordance with Council standards;
 - (ii) With lighting in open space areas in accordance with the AS1158 series;
 - (iii) Be constructed generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) With an alignment generally in accordance with that outlined on Attachment B;
 - (v) With route markers/direction signs;
 - (vi) In accordance with Council's Standard Drawing SR.19
- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site entry roadway and extend north to join to the existing concrete footpath located along the western side of North Street.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a monetary contribution of AUD\$25,000 must be paid to Council for future bus stop infrastructure. This amount must be fixed for 12 months from the date of the Decision Notice and then must be adjusted in accordance with Road & Bridge Construction Cost Index applicable to Queensland at the time of payment.

This contribution is applicable once only for the entire development (comprising of Development Application 6293/09 and 2727/10). The payment of this contribution is required once to satisfy the relevant conditions of each development approval.
- (i) The road pavement widths and geometric layouts, internal and external to the development must make adequate provision for Council's refuse collection vehicles and public transport movements where appropriate.
- (j) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a vehicle turning area must be provided at the southern end of the works in North Street. Circular cul-de-sac turning heads, based on a minimum turning circle of 9.0 m radius, must be provided.

- (k) Access to existing driveways for properties affected by all extended works associated with this development must be maintained between 6:30pm and 6:30 am Monday to Saturday.
- (l) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, an emergency driveway and access at the secondary culvert crossing adjacent to Unit Block 17 must be provided. This access way must consist of min. 3.0m wide concrete driveway extending from a layback in the kerb and channel in North Street, through to connect to the proposed internal road. Lockable removable bollards and approved pedestrian safety railings located at the headwalls must be provided at this location.
- (m) "No Through Road" signs must be erected at the entries to all culs-de-sac and terminating roads.

19. Access and Parking

- (a) All access and parking must be designed and constructed in accordance with the provisions of the Planning Scheme Parking Code and Australian Standards (2890 Series).
- (b) Parking and manoeuvring areas must accommodate the largest anticipated vehicle to use the site.
- (c) Adequate facilities for servicing the development must be provided on site to ensure loading and/or unloading activities do not occur on-street.
- (d) Provision must be made for all vehicles to enter and exit the site in forward gear.
- (e) All parking, access and manoeuvring areas must be constructed of concrete, bitumen or equivalent materials approved by the Senior Development Engineer, and must be line-marked in accordance with the relevant Australian Standard. Associated signage in accordance with MUTCD internal to the site must also be provided as required.
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in North Street to the property boundary for access to the proposed unit development in accordance with Council's Standard Drawing SR.13.
- (h) The Developer must provide concrete footpaths of minimum width 1.5 m on one side of all internal roads within the development. Footpaths must be external to the road widths nominated on the approved drawings.
- (i) Any internal roads within the unit development that may be extended as a part of a later stage must be provided with a minimum 18m diameter gravel turn around area with a two-coat bitumen seal. Hazard markers and delineator posts must be erected to define the turnarounds.
- (j) Garage doors to all units must be a minimum 2.7m wide to facilitate effective manoeuvring of vehicles.

20. Stormwater Quantity

- (a) The Developer must provide all necessary internal and external stormwater drainage to service the development. Such drainage works (except for building gutters and downpipes) must be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years.

In the case where the piped system is carrying part of the flow, the overland flow paths must be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system.

- (b) Registered drainage easements, if related to piped drainage (generally 375mm diameter or greater), must be centrally located over such underground pipe system and must be not less than 4.0m wide. In addition, the easements must be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location.
- (c) No ponding, concentration or redirection of stormwater may occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land.
- (d) All stormwater headwall structures must be constructed in accordance with the relevant DMR standard drawings for reinforced concrete headwalls and aprons.
- (e) Stormwater drainage plans and calculations must be submitted for approval by the Senior Development Engineer, as part of the Operational Works application.
- (f) Appropriate works must be carried out to ensure that stormwater drainage from the new kerb and channel discharges suitably into the existing drainage system.
- (g) 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 within Table 3.3, the minimum pad level for any of the units on this site must be 19.2m AHD.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the finished surface profile approved under the bulk earthworks approval for operational works application no. 3262/2010 west of the existing railway line must be achieved.
- (i) The developer must provide a coarse sediment forebay, suitable sized for the upstream contributing catchment designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event at the existing stormwater outlet adjacent to the North and Telegraph Street intersection. The sediment forebay must be designed to allow cleaning by a skid steer bobcat or equivalent. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The sediment forebay must include provision for all weather maintenance access.

- (j) The existing concrete lined stormwater drain through the site must be reconstructed as a Rock and Vegetation Low-Flow Channel, generally in accordance with Fig. 9.13 of QUDM 2007. The channel must be designed and constructed in accordance with the following criteria:-
- (i) Rock channel must be sized to cater for a Q10 ARI storm event from the upstream contributing catchment;
 - (ii) A 3.0m wide minimum access driveway culvert must be provided midway to allow maintenance access to either side of the overland flowpath;
 - (iii) The rock lined channel must extend from the existing outlet headwall adjacent to the western end of Telegraph Street through to the existing culvert underneath the railway embankment at the western side of the site;
 - (iv) Landscaping must be provided along the entire length of this channel firstly to provide a "mowing edge" (Iomandras or equivalent can be used in this instance), secondly, to provide appropriate planting in accordance with WSUD TDG within the rock channel itself, and thirdly, appropriate planting provided to ensure partial shading of the rock lined portion of the overland flowpath to limit weed growth. Plans detailing required landscaping must be submitted to Council for approval.
- (k) For stormwater management purposes the development must be designed and constructed in accordance with the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010), subject to the following amendments and/or clarifications:
- (i) All flows between Q3 month and Q10 must be piped directly to the invert of the overland flow path in proposed lot 51 and must bypass the bioretention basins.
 - (ii) As part of the operational works application the developer must demonstrate satisfactory management of overland flows in terms of erosion and scour protection for storm events that are between Q10 and Q100 ARI from the building pad and internal road level within the unit development down the batters through the proposed drainage reserve and into the invert of the existing stormwater overland flowpath.
 - (iii) Construction of the bio retention basins in close proximity to the top of the proposed batters must incorporate the recommendations made by Morrison Geotechnic Pty Ltd in correspondence to Leda Developments Pty Ltd dated 5 March 2010.

21. Stormwater Quality

- (a) Stormwater quality for the development must achieve a reduction in the average annual pollutant load as follows prior to discharge from the site:
- 80% for total suspended solids;
 - 60% for total phosphorus;
 - 45% for total nitrogen; and
 - 90% for gross pollutants.

- (b) The water quality objectives listed at (a) must be achieved through the implementation of the treatment train outlined in the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010) subject to the amendments outlined in this Condition and Condition 4 above relating to Stormwater Quantity.
- (c) In conjunction with an application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, amended Stormwater Quality Management drawings prepared by a RPEQ in accordance with the Water Sensitive Urban Design Technical Design Guidelines (WSUD TDG) for South East Queensland, the Approved Site Based Stormwater Management Plan and the requirements of this Condition. The Operational Works drawings must detail, amongst other necessary items, the following:
- (i) Plans and cross sections showing the final locations for rainwater tanks, bioretention basins and stormwater infrastructure required by this Condition, consistent with Council's Standard Drawings and the WSUD TDG (version current at the time of detailed design). The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
- (ii) The bioretention basin(s) parameters represented in Table 1;

Table 1

	<i>Catchment A</i>	<i>Catchment C</i>
<i>Surface Area (m²)</i>	240	25
<i>Filter Media Area (m²)</i>	75	25
<i>Filter Media Median Particle Size (mm)</i>	0.45	0.45
<i>Filter Media material</i>	<i>Sandy loam</i>	<i>Sandy loam</i>
<i>Filter Media Depth (m)</i>	0.6	0.5
<i>Hydraulic conductivity (mm/hr)</i>	180	180
<i>Transition layer depth (mm)</i>	0.1	0.1
<i>Minimum drainage layer depth (mm)[#]</i>	0.2	0.2
<i>Extended detention depth (m)</i>	0.3	0.3
<i>Pre-treatment method</i>	<i>Sediment forebay^{##}</i>	<i>Sediment forebay^{##}</i>
<i>Maximum batter slope</i>	1:4	1:4

[#] The length of the bioretention basin will dictate the depth of the drainage layer, in order to maintain a minimum fall of 0.5% within the drainage pipes.

^{##} The area required for sediment forebay must be confirmed during detailed design, in accordance with Condition (iii).

- (iii) A suitable fore-bay or pre-treatment area designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The pre-treatment area is to be located external to the area required for the bioretention basin filter media and is to include provision for all weather maintenance access.
- (iv) The area required for scour protection, in accordance with the design principles outlined in the WSUD TDG. The area required for scour protection must be in addition to that required for the bioretention basin filter area.
- (v) The plans must detail the overflow weir/outlet that has been positioned at the height of the extended detention specified at item (ii). Calculations must be provided to demonstrate that the velocities across the bioretention basin comply with those listed in Section 5.2.2 of the WSUD TDG and that any temporary flood storage can drain rapidly following storm events;
- (vi) Drainage and transitional layers that have been designed in accordance with Section 5.3.4 of the WSUD TDG and an underdrain design in accordance with Section 5.3.5 of the WSUD TDG;
- (vii) The slotted 100mm uPVC pipes placed within the drainage layer of the bioretention basin. The drawings must specify that these are not to be substituted with aggr pipes nor wrapped in geofabric;
- (viii) Detail the grade at which drainage pipes must be laid, the relevant density and size of slots in the drainage pipes. A minimum fall of 0.5% is required for the drainage pipes and depending on the length of the bioretention this may impact significantly on the depth of the drainage layer specified at (ii). The length of all 100mm slotted drainage pipes must not exceed 25m. For longer lengths the pipe diameter must be increased or duplicated to increase conveyance;
- (ix) A uPVC inspection riser with screw cap lid at the head of each slotted pipe, for maintenance flushing. The risers are to be generally in accordance with BCC drawing UMS153, however, must extend a minimum of 150mm above the surface of the filter media. The drawings must contain a note that states that risers are not to be slotted;
- (x) A level (flat) surface of the bioretention basin filter media in order to allow even absorption through the filter media;
- (xi) Soil specifications for the various bioretention basin filter media layers, which are provided in accordance with the current version of the Guidelines For Soil Filter Media In Bioretention Systems, Facility for Advancing Water Biofiltration (FAWB);
- (xii) Provide geofabric around the base of the drainage layer, walls and batters of the basins. Geofabric must not be laid between any of the filter layers or used to wrap the slotted uPVC drainage pipes;

- (xiii) Landscaping to the bioretention basin, including filter media and batters, in accordance with plant species and densities outlined in Appendix A of the WSUD TDG. Detailed planting schedules (plant species, number and planting densities) for each of the bioretention basin filter area, bioretention basin batter areas and other landscaped and embankment areas as shown on the Stormwater Management Plan (YC0175-SW01 Revision B dated 5 March 2010) must be shown on the operational works drawings. A minimum species variety of 3 different species must be utilised within the bioretention basin filter area; and.
- (xiv) Include a note which refers to the Healthy Waterways Bioretention Basin Construction and Establishment Sign Off Forms (including Forms A-G) for use throughout construction. The Operational Works drawings must include notes referring to the staging and timing of the commissioning of the bioretention basins and measures to protect the filter media during development within the contributing catchment.
- (d) An amended catchment plan that demonstrates how all flows up to the 3 month ARI event from the site will enter and be treated through the bioretention basins. The plan must include surface levels and invert levels for all piped stormwater infrastructure.
- (e) A copy of the calculations used to size the drainage, as required by Condition (c), must be provided at the time of lodging the Operational Works application. Similarly, calculations must be provided to demonstrate that the pipes connected downstream of the drainage pipes are suitably sized to avoid becoming the hydraulic control and the filter media is free draining.
- (f) A staged implementation approach must be employed for the bioretention areas ensuring that filter media is either laid after, or the filter is protected until, 90% of the construction and building works have been completed for the area contributing to the bioretention basin. The staging and timing of the commissioning of the bioretention basin must be outlined as part of the Operational Works application and notes must be included on the plans accordingly.
- (g) Prior to lodgement of detailed Operational Works drawings the Developer must receive certification from a RPEQ that the detailed drawings are in accordance with the approved Stormwater Management Plan, these Conditions of Approval and the WSUD TDG. A copy of the certification must be lodged in conjunction with an Operational Works application along with completed copies of the WSUD TDG Design Assessment Checklists and Calculation Summary Checklists.

22. Water Supply

- (a) The Developer must provide a reticulated water supply system within the development which connects into Council's existing reticulation system, together with valves and fire hydrants, in accordance with the *Guidelines for Planning and Design of Urban Water Supply Systems*.
- (b) All works on live water mains must be carried out by QUU in accordance with *Planning Scheme Policy 3 Section 11.1.2*, and at the Developer's expense.
- (c) The Developer must lodge a private works request for QUU to:

- (i) Supply and install suitable metered water connections to each segment of the proposed development, generally in accordance with Figure 1 below;
- (ii) Amend the existing connection if necessary; and
- (iii) Seal off any existing water connections if necessary.

The relevant fees must be paid and evidence of payment submitted to Council in conjunction with any application for signing of plan of survey.

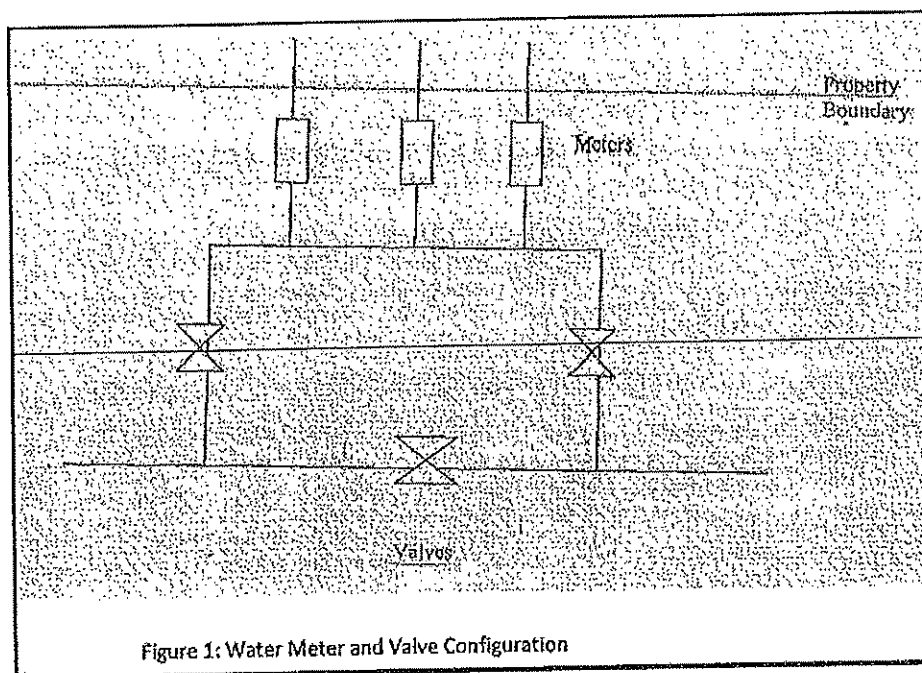


Figure 1: Water Meter and Valve Configuration

- (d) Wherever possible, the water main must be constructed on the opposite side of the road to the concrete footpaths.
- (e) Where the Developer is required to supply a water connection to the development, the connections must be installed in accordance with Standard Drawings SW.14 and SW.15.
- (f) Where the water main is under a concrete footpath, the Developer must provide a water connection to each allotment, excluding the provision of meters, but including the provision of approved pre-cast concrete or cast iron path boxes over the stop cock, in accordance with *Standard Drawing SW.08*. The boxes must be placed flush with the finished turf surface level.
- (g) The QUU water supply system has been designed to achieve the target levels of service as outlined in Planning Scheme Policy 3 Section 4.1.2 *Standard of Service*. It is the responsibility of the Developer to provide any fire fighting requirements over and above QUU's target levels of service, at their expense, internally and without adverse impact to the water supply system.

23. Sewerage

- (a) Structures constructed on the Colvin Street side of the development site (Stage 1) must be positioned to comply with one of the following in order of preference:
 - (i) No part of a structure, including footings, must be located within 1.5m of the outer edge of the sewer main, or within 2.0m of the access chamber respectively;
 - (ii) If any structure cannot be positioned outside these limits, the sewer must be located, removed and re-laid around the proposed structure(s);
 - (iii) Should (i) and (ii) above be deemed impractical by the Senior Development Engineer, then the Developer must submit to Council for approval, an Application to Build Over Infrastructure.
- (b) The Developer must pay the full cost for QUU to provide suitable connections into the existing sewerage reticulation system. All works on live sewers must be carried out by QUU at the Developer's expense in accordance with *Planning Scheme Policy 3 Section 10.1.2*, unless arranged otherwise with QUU.
- (c) The connection for the development fronting must be into the existing sewerage reticulation system at the connection point, which is at the existing sewer manhole adjacent to the North / Telegraph Street intersection (Gasset 706,066).
- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, any existing sewerage or sanitary drainage that crosses proposed lot boundaries (other than the 300mm dia. private main from the existing Railways Museum and Workshops) must be located, disconnected and removed to the satisfaction of the Senior Development Engineer.
- (e) The existing private sewer underneath Unit Blocks 13 and 14 must be sufficiently protected against damage due to construction activities associated with this development. Any damage sustained during this construction period must be repaired by the developer.
- (f) No work on the sewerage reticulation system may commence prior to the approval of the Operational Works application.

24. Noise

- (a) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the Developer must implement all the recommendations as stated in Section 7.1 of the Environmental Noise Impact Report, prepared by TTM Consulting (report no. 874206 dated 19 August 2009), relevant to the "Ipswich Workshops Scenarios 1 and 2". The Developer must submit certification from an appropriately qualified and experienced practicing acoustics professional that demonstrates compliance with this condition and that the development has been constructed to achieve compliance with the internal rail and aircraft noise limits specified within the approved acoustic report.

- (b) All stormwater grates within trafficable areas must be secured, or otherwise treated, to ensure that these grates do not rattle when vehicles pass over them.

25. Landscaping

- (a) Landscape Master Plan must utilise non-invasive natives to replace:
 - Poinciana (Delonix regia)
 - Leopardwood (Caesalpinnea ferra)
 - European Olive (Olea Europaea)
- (b) In conjunction with the Operational Works application a Landscape Plan, which conforms to the approved Development Plan and the Residential Medium Density and Commercial and Industrial Zone Codes, must be submitted to Council for Approval by the Engineering and Environment Manager. Such plan must include, amongst other necessary items:
 - (i) Clear delineation of areas required for stormwater management, landscaping and public and private open space areas. The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) Planting to bioretention basin filter areas and batter slopes, required by Conditions 20 and 21 of this approval, in accordance with the Water Sensitive Urban Design Technical Design Guidelines for South East Queensland;
 - (iii) Planting within landscaped areas must exclude the use of exotics and environmental weeds. Consideration shall be given to utilising Council's Vegetation Communities Rehabilitation Guide 4 Open Forests and Woodlands.
- (c) The Developer must complete landscaping and fencing works in accordance with the approved landscape plans to the satisfaction of the Engineering and Environment Manager prior to the commencement of the use of the land unless Council determines otherwise. Such landscaping and fencing shall be maintained in perpetuity to Council's satisfaction by the existing or future owners and occupiers of the property.

26. Waste Storage and Collection

- (a) An adequate domestic waste service must be provided that includes waste and recyclable storage equivalent to the following:
 - (i) A minimum of one (1) 240L general waste wheelie bin for every two (2) dwellings;
 - (ii) A minimum of one (1) 240L recyclables wheelie bin for every two (3) dwellings
- (b) Where dedicated communal waste storage areas are provided these areas must be level, concreted and constructed in conjunction with the driveway surface with no intervening step, ledge, kerb or other obstruction and must be enclosed with a suitable screen fence;

- (c) The waste storage and collection areas must allow for forward motion entry to the waste containers and forward motion entry and exit to and from the site. Further, any proposed bin service area must be of sufficient proportions that it does not require the vehicle to reverse any further than two vehicle lengths or breach any Workplace Health and Safety requirements.
- (d) Vehicle manoeuvring templates must be provided to Council demonstrating compliance with this condition as part of the operational works submission.
- (e) In conjunction with the application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, detailed plans and certification from a Civil Engineer (RPEQ) which demonstrate that the requirements of this condition have been incorporated into the development.

27. Lighting

- (a) All lighting, including security and flood lighting, must be designed, constructed, located and maintained so as not to cause nuisance to the occupants of nearby properties (existing or proposed) or passing traffic.
- (b) Carparks and pedestrian walkways shall be illuminated where night use parking is anticipated. Illumination levels shall be 15 lux for open surface carparks.
- (c) All car park lighting shall comply with the requirements outlined in Australian Standard for Off-Street Carparking (AS 2890.1:2004) or any Australian Standard in substitution for this standard.
- (d) Consideration shall be given to light spillage onto adjoining land and roadways. Illumination levels outside the boundaries of the site shall not exceed 8 lux when measured 1.5 metres outside the boundary of the site at any level upwards from the ground. Footpath crossings shall be illuminated to 50 lux.

28. Earthworks and Retaining Walls

- (a) In conjunction with any application for Operational Works the Developer must provide details of the proposed earthworks for the development including cut/fill depths, batter slopes, retaining wall heights, typical cross-sections etc. Earthworks and any retaining structures must comply with the requirements of Ipswich Planning Scheme Part 12, Division 15 – Earthworks Code. Notably, cut/fill should not exceed a maximum height of 2.0 metres. Retaining walls should not exceed a maximum height of 1.2 metres with 1 in 4 batters from the top and toe of the wall.
- (b) Where earthworks are proposed within three metres of the property boundary or are likely to affect adjoining property owners, the Developer must notify the affected property owners in writing, and obtain written comments from them, as detailed in Part 12, Div 15 - Specific Outcome 19 and Note 12.15.4K. Written comments from the affected owners (or at least the supporting documentation of notification and consultation with the adjoining property owners to the Council's satisfaction) must be submitted to Council for consideration, in conjunction with any Operational Works application.

- (c) Retaining walls, including footings and drainage systems, must be constructed entirely within the boundaries of the lot and in accordance with the requirements of Planning Scheme Policy 3 – General Works. All retaining walls greater than 1.0m in height must be RPEQ certified to be structurally sound. Retaining walls greater than 1.0 m in public places must be provided with railings or other barriers to provide pedestrian safety
- (d) Any fill within a Building Location Envelope must be compacted in accordance with Section 5 (Compaction Criteria) of AS 3798 – 1996 *"Guidelines on Earthworks for Commercial and Residential Developments"*.
- (e) 3.0m minimum clearance must be maintained from the toe of the 1 in 2 batters internal to both unit development sites to the common boundary with the proposed drainage reserve.
- (f) Once all bulk earthworks and associated rehabilitation are completed on Lot 55 on SP222487, the maximum batter slope contained within any disturbed area of the proposed drainage reserve must not exceed 1 in 6.

29. Erosion & Silt Management

- (a) As part of the application for Operational Works, the Developer must submit with the Operational Works application, an Erosion and Silt Management Plan designed in accordance with *"Best Practice Erosion and Sediment Control"* published by the International Erosion Control Association (Australasia) November 2008, or equivalent. Plans must be certified by a suitable qualified professional.
- (b) The Developer must install silt management facilities at commencement of construction and maintain these facilities until the development has been released off maintenance by Council.
- (c) Silt traps must be sited upstream from any park or reserve area discharge point such that no silt impinges on the park or reserve areas. The silt trap areas may be phased out after the development work is complete and adequate grass cover is obtained.
- (d) Diversion drains and ponds, as necessary, must be installed on the site before any other work is undertaken on site to ensure that water containing silt, clay, solids or contaminants is contained and/or isolated.
- (e) Prior to the Pre-Start meeting for Operational Works, the Developer must lodge a \$10,000.00 Siltation and Erosion Performance Bond with Council. This bond shall only be released by Council at the termination of the maintenance period.
- (f) If the Senior Development Engineer determines that silt damage has occurred as a result of this development, the Developer shall be responsible for restoration of any damage. Such restoration must be completed within a time to be advised by the Senior Development Engineer. Should the Developer fail to complete the works determined by the Senior Development Engineer within the specified time, Council may elect to complete the works and recover all costs associated with that work from the Developer.

- (g) Where Council determines that a draw-down of the bond is required, the Developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.

30. Public Utilities

- (a) Adequate provision must be made in all proposed dedicated roads, access strips and access easements, to cater for the public utility services that would normally serve the development.
- (b) The Developer must provide appropriate road crossing conduits in accordance with Council's Standard Drawings SR.22 and SR.23. Where concrete footpaths are to be constructed, the conduits must be extended to the property boundaries.
- (c) The Developer must provide an RPEQ certified electrical reticulation layout plan with the Operational Works application.
- (d) The Developer must provide underground electricity and telecommunications externally where necessary and within the development, constructed in the approved allocation as detailed in Council's Standard Drawings SR.22 and SR.23. Electricity and telecommunication drawings must be co-ordinated with the civil engineering design documents, to ensure that service conflicts are avoided. Where allotments front an existing overhead electricity or telecommunication service, these allotments may connect to such service subject to the approval and requirements of the service provider.
- (e) The Developer must provide Council with a copy of a Certificate for Electricity Supply to the development from a registered energy service provider, prior to the signing of the Plan of Survey.
- (f) Street lighting must be installed by the Developer within the upgraded sections of North and Colvin Streets in accordance with the Australian Standard 1158.3.1 Series for Pedestrians and Vehicles and installed in accordance with Energex Rate 2. All street lighting associated with the development must be certified by an RPEQ. Street lighting must be installed on the same side as concrete footpaths (where applicable).
- (g) The Developer must make suitable arrangements for the provision of electricity, telephone and (where applicable) cable services to all proposed units within the development. Documentary evidence that electricity, telephone and/or cable services will be provided, must be submitted to Council prior to the signing of the plan of survey.
- (h) Telephone and cable services may be laid in a combined trench with electricity cables, subject to the approval of the relevant energy service provider and the authorised telephone or cable service provider.

31. Operational Works – Municipal Works
(ie Works being handed over to Council)

External Municipal Works relates to those works external to the subject site and located in dedicated public areas, for example existing road or drainage reserve, or private property not subject to Developer ownership.

- (a) Municipal works must be completed in accordance with a detailed design certified by an RPEQ and approved by Council Engineers with appropriate fees payable, a works pre-start meeting on-site and various detailed construction and audit inspections by Council Officers. In accordance with Planning Scheme Policy 3, a maintenance period applies for the works and a maintenance security deposit is required.
- (b) The requirements of Council's Planning Scheme Policy 3 - General Works and Council's Standard Drawings shall apply to the municipal works. Where inconsistencies between any documents occur, Planning Scheme Policy 3 has precedence and must prevail to the extent of the inconsistency.
- (c) All engineering drawings must be submitted in accordance with *Planning Scheme Policy 2 – Information Local Government May Request* and include as a minimum the following:
 - (i) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ;
 - (ii) The drawings must be submitted as four (4) hardcopy, A3 size sets. Reports and supporting information must be submitted as two (2) hardcopy sets.

The submission must also include a compact disk containing electronic data as follows:

- (a) One (1) full set of all engineering drawings contained in one file;
 - (b) Separate individual files containing layout plans for sewerage, water supply and drainage;
 - (c) Any reports submitted in support of the application. Each report must be included as a separate file; and
 - (d) An index of all files on the compact disk including descriptions of contents of each file.
- All files must be submitted in PDF format.
- (d) The Developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
 - (e) All works must be supervised by an RPEQ competent in civil works and must be undertaken by a nominated principal contractor experienced in the construction of municipal works. Council reserves the right to request evidence of the principal contractor's competency. Should the contractor not be able to demonstrate the necessary competency to the satisfaction of the Senior Development Engineer or if the contractor has constructed substandard works for Council in the past, Council reserves the right to reject the nominated contractor.
 - (f) Prior to the Pre-Start meeting, the Developer must submit to Council a Development Performance Bond of not less than 10% of the value of external municipal works (minimum \$5,000.00), as security for the performance of the various construction and certification obligations (including provision of "As Constructed" information).

- (g) Municipal works must be accepted "On Maintenance" prior to commencement of use. On completion of the works an "On Maintenance" acceptance inspection may be arranged by submission of a certificate signed by an RPEQ certifying that the works have been constructed in accordance with the approved plans and specifications and in compliance with Council's construction standards. It is expected that the RPEQ will undertake the necessary inspections to make this certification.
- (h) Upon formal acceptance of the works "On Maintenance", the Development Performance Bond shall be reduced to an amount not less than 5% of the value of the works or \$5,000.00 whichever is greater, and shall be retained by Council during the maintenance period as a Maintenance Security Bond for the performance of the maintenance obligations. Alternatively the Developer may submit a separate Maintenance Security Bond of equivalent value. This Bond shall be retained by Council in accordance with *Planning Scheme Policy 3*, until the works are accepted "Off Maintenance" by Council.
- (i) "As Constructed" information and final construction issue engineering design drawings, compiled in accordance with *Planning Scheme Policy 2 for Municipal Works*, with a Contributed Assets Financial Apportionment Form, must be submitted to Council and approved prior to the formal acceptance of the works "On Maintenance". This data must be submitted electronically on a compact disk labelled appropriately to indicate the contents.
- (j) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent in regard to the works relevant to the Operational Works approval.

32. Operational Works – Internal Works
(ie Works not being handed over to Council)

Internal Works refers to engineering works performed within private property and includes but is not limited to, earthworks, retaining walls, driveways and stormwater management systems.

- (a) Engineering plans must be submitted to Council prior to the commencement of construction on site and must show full construction details, layout dimensions, and finished surface levels.
- (b) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ.
- (c) The drawings must be submitted as four (4) hardcopy A3 size sets and one (1) full size set with two (2) hardcopy sets of any reports and supporting information. One set of drawings will be returned to the applicant with the Decision Notice. The submission must also include a compact disk containing electronic data as follows:
 - (i) A full set of all engineering drawings contained in one file;
 - (ii) Separate individual files containing layouts for sewerage, water supply and drainage;
 - (iii) Any reports submitted in support of the application. Each report must be included as a separate file; and

- (iv) An index of all files on the Compact Disc including descriptions of contents of each file.
All files must be submitted in PDF format.

Where municipal works are also being undertaken, it is usually appropriate to make a combined submission.

- (d) The Developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) On completion of the works a certificate signed by an RPEQ must be submitted to Council, certifying that the works have been constructed in compliance with the approved plans and specifications and in accordance with Council's construction standards. The RPEQ must personally undertake the necessary inspections to make this certification.
- (f) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent.

33. Easements

- (a) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (b) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (c) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (d) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.
- (e) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (f) Adequate number of permanent survey marks must be installed to ensure clear definition of the development.

34 General

- (a) All works required for this development must take due regard of any and all existing services and, if considered necessary by the relevant authority or the Senior Development Engineer, such works must be altered at the cost of the Developer.
- (b) Any fill intended to be placed over Council's underground services must be approved in advance by the Senior Development Engineer.
- (c) Should any works be proposed on land under other private ownership, written permission for the works must be obtained and forwarded to Council as part of the Operational Works application. Similarly, written clearances must be obtained after the works are completed, unless otherwise accepted by the Senior Development Engineer.
- (d) Any allotment or other filling creating a soil depth greater than 500mm must be conducted in accordance with *Australian Standard 3798* at Responsibility Level 1. Test results as required by *Australian Standard 3798*, and a certificate of quality and uniformity of fill, must be provided by an RPEQ.
- (e) Batters and slopes greater than 1:4 resulting from cutting and filling of the site must be certified by an RPEQ as stable and properly drained.
- (f) All imported and exported materials may be transported only on routes approved by the Senior Development Engineer.
- (g) All disturbed verge, park, allotment and other grassed areas must be rehabilitated and revegetated (including provision of topsoil to a minimum depth of 50mm) and turfed or seeded to the satisfaction of the Senior Development Engineer and in accordance with Planning Scheme Policy 3 - General Works (specifically part 6.1.6). Grass cover must be achieved as early as possible during the development and a minimum grass coverage of 80% must be achieved before the development can be accepted "Off Maintenance".
- (h) If, after the preparation of detailed design plans for the various roads, it is found necessary to provide any additional dedicated road area, or modify the proposed dedicated roads to enable the full requirements of Council's standards and Austroads documents to be incorporated in any way (but particularly in the production of the required speed environment or because of longitudinal and cross sectional constraints) then the development layout plan must be altered accordingly and approved in writing by the Senior Development Engineer.

35. Compliance with Conditions

- (a) All conditions must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

36. When Approval Takes Effect

This approval has effect in accordance with the provisions of Section 3.5.19 of the *Integrated Planning Act 1997* as follows:

- (a) If the applicant does not appeal the decision to the court - from the time the decision notice is given (or if a negotiated decision notice is given, from the time the negotiated decision notice is given); or
- (b) If an appeal is made to the court - subject to the decision of the court, when the appeal is finally decided.

37. When Approval Lapses

- (a) This approval lapses at the end of the relevant period, unless the change of use happens before the end of the relevant period. The relevant period for this approval is 4 years starting the day the approval takes effect.
- (b) An extended relevant period may be agreed upon, pursuant to Section 3.5.22 of the *Integrated Planning Act 1997*, provided a written notice to Council is made before the end of the relevant period. Such written notice is to be on Council's approved form, accompanied by the owner's consent and the prescribed fee in Council's Register of General Charges.
- (c) All of the development the subject of this approval shall be completed within the periods stated in Condition (a)(i) above. This approval shall lapse for any part of the development of the site that has not commenced within the relevant period stated in Condition (a)(i) above.

Concurrence Agency

Conditions applicable to this approval imposed by the following Concurrence Agencies:

- 1. The Department of Environment and Resource Management is a concurrence agency and advice agency with regard to this development approval. The attached concurrence agency response, dated 28 September 2010, forms part of this Decision Notice.
- 2. Energex is a advice agency with regard to this development approval. The attached concurrence agency response, dated 4 June 2010, forms part of this Decision Notice.

Advice

*The following advices are offered for your information only
and should not be viewed as mandatory conditions of this approval.*

Assessment Manager (Ipswich City Council)

1. Further Subdivision

Where the land and/or buildings are to be subdivided in accordance with the *Body Corporate and Community Management Act 1997* all buildings must be substantially completed prior to the release of survey plans.

2. Signage

Signage should generally provide for identification rather than advertisement and should contribute to an attractive streetscape and integrate with the overall design and layout of a development. Emphasis should be placed upon:

- (a) Visual attractiveness
- (b) Fewer and more easily interpreted signs
- (c) Scales and proportions for signage which reflect and reinforce the architectural design of individual buildings or the streetscape in terms of location and dimension
- (d) The removal of undesirable signs
- (e) Compatibility with the scale of development and the amenity of surrounding land uses - sky/tower signs, revolving signs, signs projecting from building facades and bunting are discouraged
- (f) Maintaining views to key building features such as pediments and fenestration to ensure that they are not obscured, and
- (g) Grouping multiple tenancy signage into one structure.

3. Fire Ants

In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species *Solenopsis invicta*) and to eradicate it from the State.

It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

Director General
Department of Primary Industries
GPO Box 46, Brisbane QLD 4001

It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of a Department of Primary Industries Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

The development approved herein, by its very nature, includes activities considered to be "high risk" in respect of controlling the spread of Fire Ants. The following lists show high risk activities and some precautions should be considered for implementation.

- (a) High risk activities can include:
 - (i) Earthworks of a minor or major scale;
 - (ii) Revegetation or rehabilitation;
 - (iii) Import of fill onto a site;
 - (iv) Export of fill or other materials such as soils, gravel, mulch and plants; and
 - (v) Export off or import on to a site of construction and demolition waste and materials or green waste.
- (b) Precautions for implementation
 - (i) Checking for ants regularly;
 - (ii) Checking all soil, fill and waste materials (construction and green waste) for ants;
 - (iii) Asking questions about the quality and source of soil, fill and waste materials (construction and green waste);
 - (iv) Keeping records of all movements of soil, fill and waste materials (construction and green waste);
 - (v) Cleaning of all earthmoving or other soiled vehicles prior to exit from the site; and
 - (vi) Informing staff and contractors about these precautions.

4. Portable Long Service Leave

From 1 January 2001, the Building and Construction Industry (Portable Long Service Leave) Levy must be paid prior to the issue of a development permit where one is required for the 'Building and Construction Industry'. This applies to Building Works, operational works and Plumbing and Drainage Works applications, as defined under the *Sustainable Planning Act 2009*, where the works are \$80 000 or more and matching the definition of 'Building and Construction Industry' under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*.

Council will not be able to issue a decision notice without receipt of details that the levy has been paid. Should you require clarification in regard to the amendments to the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, you should contact QLeave on 1800 803 481 (free call) or (07) 3212 6855.

5. Vehicle and Bin Washdown Facilities

The use of vehicle and bin washdown facilities are subject to any water restrictions that are current at the time of the requirement for the use of potable water.

6. Water Meter

All new commercial, industrial or large multi-residential property connections with a projected annual consumption greater than or equal to 20,000kL must have installed, at the customer's expense, an electronic water meter with a data logger and an approved back-to-base communication system as specified by QUU.

Properties with electronic water meters are subject to billing on a monthly basis in accordance with the metered monthly consumption.

If the proposed development is likely to have an annual water consumption equal to or greater than 20,000kL, the developer will be required to contact QUU on telephone 13 26 57 to arrange installation of an electronic flow meter.

7. Bonding of Incomplete Works Associated with Reconfiguring a Lot

Council may approve the signing of the Plan of Survey prior to the acceptance of works "On Maintenance", subject to compliance with the conditions listed in Planning Scheme Policy 3 Clause 14.1.4.

8. Submission of Drawings

Any engineering drawings submitted for Council review and approval in conjunction with an operational works application should be arranged to leave a blank space with minimum dimensions 6 cm wide and 14 cm high near the right border for a Council Stamp of Approval, so that any existing notes are not over-written by the stamp.

9. Water Reticulation Plans

The developer must submit hydraulic plans that comply with the requirements of the *Water Supply (Safety and Reliability) Act* for scrutiny by Council.

10. Plumbing and Drainage Approval

Scrutiny fees in accordance with the Council's Schedule of Fees and Charges must be paid at the time of lodgement of plans. No work on the plumbing and drainage may commence prior to the approval of the plan and the issuing of a permit, by this Council, to a Licensed Plumber/Drainer.

Tests and inspections must be arranged with the Plumbing Section upon payment of the appropriate current fee.

11. Drainage Reserve

The land nominated on the proposal plans as drainage reserve may not be dedicated as drainage reserve until the development works associated with this drainage reserve are completed in accordance with the Material Change of Use Approval and to the satisfaction of the assessment manager.

12. Further Development Infrastructure Contributions

The Applicant is advised that infrastructure contributions, footpath, and kerb and channelling contributions were not required as part of the Reconfiguring a Lot approval. Additionally, it is advised that there are no existing credits available for sewer, water, roadworks, parks and social infrastructure pursuant to Planning Scheme Policy 5 'Infrastructure', or for footpath, and kerb and channel for the site, therefore infrastructure contributions or requirements for construction may be applied accordingly as a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

13. Connection to Services

The Applicant is advised that connection to sewer, water and stormwater infrastructure are not required as part of the Reconfiguring a Lot development approval, therefore connection to sewer, water and stormwater infrastructure may be a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

14. Protected Fauna Species

It is strongly suggested that the developer confirm that there are no fauna species which are protected under the *Environmental Protection and Biodiversity 1999*. Specifically, the developer should confirm the presence of protection status of bats which may be nesting in the culvert of the proposed drainage reserve.

Pursuant to the provisions of the *Sustainable Planning Act 2009*, I also enclose herewith a copy of the relevant sections concerning:

Pursuant to the provisions of the *Integrated Planning Act 1997*, I also enclose herewith a copy of the relevant sections concerning:

- Making representations about conditions during the applicant's appeal period (i.e. Negotiated Decision Notice); and
- The institution of an appeal.

Yours faithfully

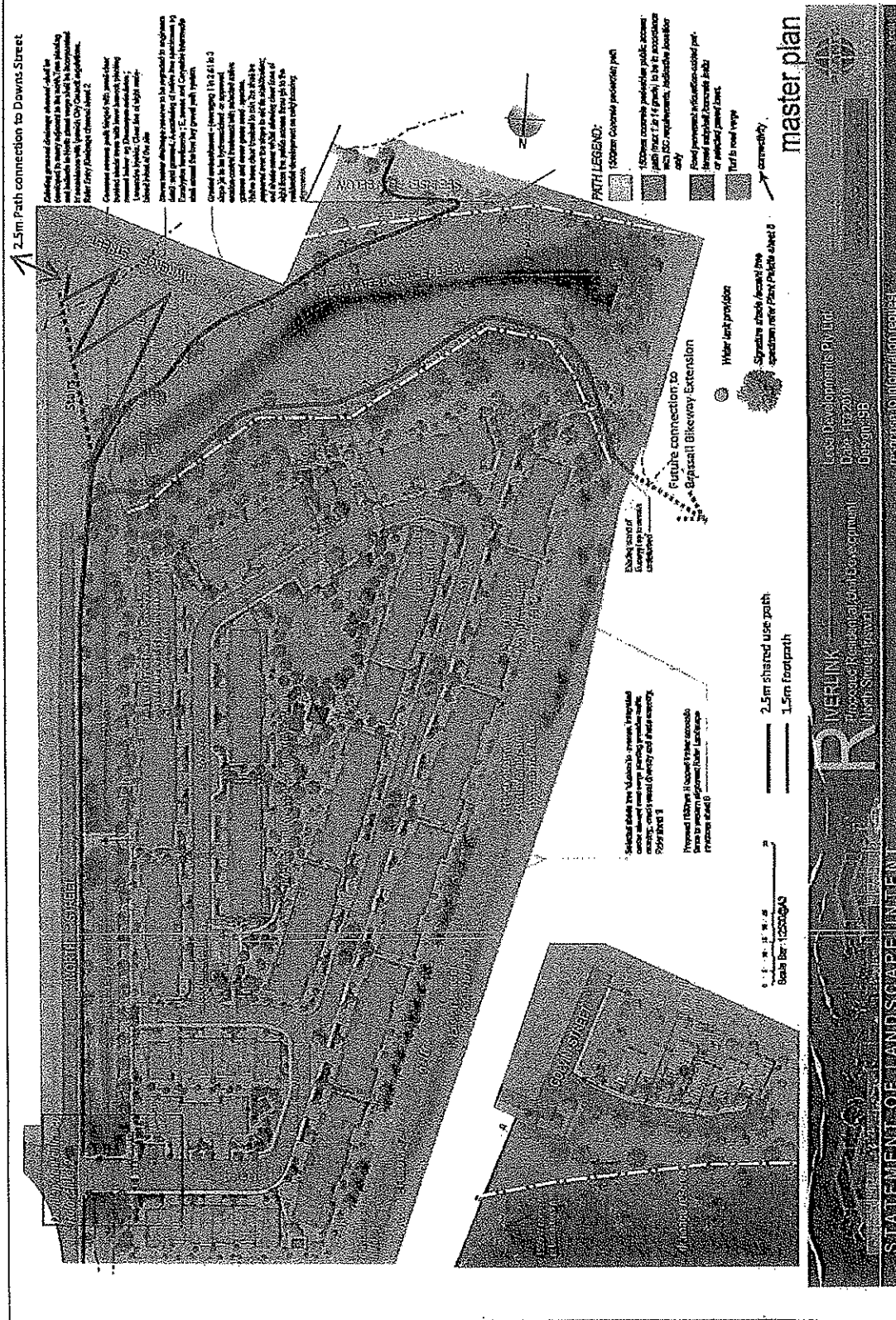


Jo Pocock

TEAM COORDINATOR (CENTRAL/WEST)

[illegible]

Attachment B



Extract from the Integrated Planning Act

Division 4 – Representations about conditions and other matters

Application of div 4

3.5.16 This division applies only during the applicants appeal period.

Changing conditions and other matters during the applicant's appeal period

- 3.5.17 (1) This section applies if the applicant makes representations to the assessment manager about a matter stated in the decision notice, other than a refusal or a matter about which a concurrence agency told the assessment manager under section 3.3.18(1).
- (2) If the assessment manager agrees with any of the representations, the assessment manager must give a new decision notice (the *negotiated decision notice*) to –
- (a) the applicant; and
 - (b) each principal submitter; and
 - (c) each referral agency; and
 - (d) if the assessment manager is not the local government and the development is in a local government area – the local government.
- (3) Only 1 negotiated decision notice may be given.
- (4) The negotiated decision notice –
- (a) must be given within 5 business days after the day the assessment manager agrees with the representations; and
 - (b) must be in the same form as the decision notice previously given; and
 - (c) must state the nature of the changes; and
 - (d) replaces the decision notice previously given.
- (5) If the assessment manager does not agree with any of the representations, the assessment manager must, within 5 business days after the day the assessment manager decides not to agree with any of the representations, give a written notice to the applicant stating the decision about the representations.
- (6) Before the assessment manager agrees to a change under this section, the assessment manager must reconsider the matters considered when the original decision was made, to the extent the matters are relevant.
- (7) If the development approved by the negotiated decision notice is different from the development approved in the decision notice in a way that affects the amount of an infrastructure charge or regulated infrastructure charge, the local government may give the applicant a new infrastructure charges notice under 5.1.8 or regulated infrastructure charges notice under section 5.1.18 to replace the original notice.
- (8) If the development approved by the negotiated decision notice is different from the development approved in the decision notice in a way that affects the amount of a regulated State infrastructure charge, the relevant State infrastructure provider may give the applicant a new regulated State infrastructure charges notice under section 5.3.4 to replace the original notice.

Applicant may suspend applicant's appeal period

- 3.5.18 (1) If the applicant needs more time to make the written representations, the applicant may, by written notice given to the assessment manager, suspend the applicants appeal period.
- (2) The applicant may act under subsection (1) only once.
- (3) If the written representations are not made within 20 business days after the day written notice was given to the assessment manager, the balance of the applicants appeal period restarts.
- (4) If the written representations are made within 20 business days after the day written notice was given to the assessment manager –
- (a) if the applicant gives the assessment manager a notice withdrawing the notice under subsection (1) – the balance of the applicants appeal period restarts the day after the assessment manager receives the notice of withdrawal; or
 - (b) if the assessment manager gives the applicant a notice under section 3.5.17(5) – the balance of the applicant's appeal period restarts the day after the applicant receives the notice; or
 - (c) if the assessment manager gives the applicant a negotiated decision notice – the applicant's appeal period starts again the day after the applicant receives the negotiated decision notice.

Division 8—Appeals to court relating to development applications**Appeals by applicants**

- 4.1.27. (1) An applicant for a development application may appeal to the court against any of the following—
- (a) the refusal, or the refusal in part, of a development application;
 - (b) a matter stated in a development approval, including any condition applying to the development, and the identification of a code under Section 3.1.6;
 - (c) the decision to give a preliminary approval when a development permit was applied for;
 - (d) the length of a period mentioned in 3.5.21;
 - (e) a deemed refusal.
- (2) An appeal under subsection (1)(a) to (d) must be started within 20 business days (the “applicant’s appeal period”) after the day the decision notice or negotiated decision notice is given to the applicant.
- (3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

Appeals by submitters

- 4.1.28. (1) A submitter for a development application may appeal to the court only against—
- (a) the part of the approval relating to the assessment manager’s decision under section 3.5.14 or 3.5.14A; or
 - (b) for an application processed under section 6.1.28(2) the part of the approval about the aspects of the development that would have required public notification under the repealed Act.
- (2) To the extent an appeal may be made under subsection (1), the appeal may be against 1 or more of the following—
- (a) the giving of development approval;
 - (b) any provision of the approval including —
 - (i) a condition of, or lack of condition for, the approval; or
 - (ii) the length of a period mentioned in section 3.5.21 for the approval.
- (3) However, a submitter may not appeal if the submitter—
- (a) withdraws the submission before the application is decided; or
 - (b) has given the assessment manager a notice under section 3.5.19(1)(b)(ii)
- (4) The appeal must be started within 20 business days (the *submitter’s appeal period*) after the decision notice or negotiated decision notice is given to the submitter.

Appeals for matters arising after approval given (co-respondents)

- 4.1.30. (1) For a development approval given for a development application, a person to whom any of the following notices have been given may appeal to the court against the decision in the notice—
- (a) a notice giving a decision on a request for an extension of a period mentioned in section 3.5.21;
 - (b) a notice giving a decision on a request to make a minor change to an approval
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.
- (3) Subsection (1)(a) does not apply if the approval resulted from a development application (superseded planning scheme) that was assessed as if it were an application made under a superseded planning scheme.
- (4) Also, a person who has made a request mentioned in subsection (1) may appeal to the court against a deemed refusal of the request.
- (5) An appeal under subsection (4) may be started at any time after the last day the decision on the matter should have been made.

Appeals for matters arising after approval given (no co-respondents)

- 4.1.31. (1) A person to whom any of the following notices have been given may appeal to the court against the decision in the notice—
- (a) a notice giving a decision on a request to change or cancel a condition of a development approval;
 - (b) a notice under section 3.5.33A(9)(b) or 6.1.44 giving a decision to change or cancel a condition of a development approval.
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.
- (3) Also, a person who has made a request mentioned in subsection (1)(a) may appeal to the court against a deemed refusal of the request.
- (4) An appeal under subsection (3) may be started at any time after the last day the decision on the matter should have been made.

Appeals on matters relating to the Building Act 1975 the following also applies: -

Jurisdiction of tribunals

- 4.2.7. (1) A tribunal has jurisdiction to decide any matter that under this or another Act may be appealed to it.
(2) However, an appeal to a tribunal under this Act may only be about—
(a) a matter under this Act that relates to the *Building Act 1975* (other than a matter under that Act that may or must be decided by the Building Services Authority) or the *Plumbing and Drainage Act 2002*; or
(b) a matter prescribed under a regulation.

Appeals by applicants

- 4.2.9. (1) An applicant for a development application may appeal to a tribunal against any of the following—
(a) the refusal, or the refusal in part, of a development application;
(b) a matter stated in a development approval, including any condition applying to the development, but not including the identification of a code under section 3.1.6;
(c) the decision to give a preliminary approval when a development permit was applied for;
(d) the length of a period mentioned in section 3.5.21;
(e) a deemed refusal.
(2) An appeal under subsection (1)(a) to (d) must be started within 20 business days (the “applicant’s appeal period”) after the day the decision notice or negotiated decision notice is given to the applicant.
(3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

Assessment Manager Ref: 6293/09
Applicant Reference: 874205
DERM Reference: IC0610BEE0005_IPS7658_342590



Queensland
Government

28 September 2010

Department of
Environment and Resource
Management

Michel Group Services Pty Ltd
PO Box 2895
NERANG QLD 4211

Attention: [REDACTED]

Dear Sir / Madam

**DEVELOPMENT PERMIT FOR MCU MULTIPLE RESIDENTIAL 100 UNITS LOT 55
SP222487 (21A NORTH STREET, NORTH IPSWICH) - IPSWICH CITY COUNCIL -
REFERRAL AGENCY RESPONSE**

The Chief Executive of the Department of Environment and Resource Management (DERM) advises that the Referral Agency Response for the abovementioned application, prepared pursuant to section 3.3.16 of the *Integrated Planning Act 1997*, has been forwarded to the Assessment Manager. A copy of the Referral Agency Response is enclosed for your reference.

We further advise that section 3.5.9 of the *Integrated Planning Act 1997* makes provision for you to give written notice to the Assessment Manager to stop the decision-making period (for not more than 3 months) at any time before the decision is made, to enable you to make representations to the Chief Executive of DERM about the Referral Agency Response.

Should you have any questions about the above, please contact Nick Domalewski in the Planning and Development Unit (Beenleigh) on 07 3884 8061, quoting reference number IC0610BEE0005.

Yours sincerely

[REDACTED]
[REDACTED]
**Principal Biodiversity Planning Officer (Planning and Assessment)
Woolloongabba – South East Region**

Encl.

DERM European Heritage Advice Agency Response Permit no. 34590 QHR601526 SPAR00534410

DERM Contaminated Land Concurrence Agency Response Permit Number: IPCL0226910

Department of
Environment and Resource Management
SE Region
32 Tansey Street
PO Box 1164
BEENLEIGH QLD 4207

Telephone + 61 7 3884 8001
Facsimile + 61 7 3884 8024
Website www.derm.qld.gov.au
ABN 83 705 537 585

Assessment Manager Ref: 6293/09
Applicant Reference: 874206
DERM Reference: IC0610BEE0005_IPS7658_342590



**Queensland
Government**

28 September 2010

Department of
Environment and Resource
Management

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

Attention: Brett Davey

Dear Sir / Madam

**DEVELOPMENT PERMIT FOR MCU MULTIPLE RESIDENTIAL 100 UNITS LOT 55
SP222487 (21A NORTH STREET, NORTH IPSWICH) - IPSWICH CITY COUNCIL –
REFERRAL AGENCY RESPONSE**

The Chief Executive of the Department of Environment and Resource Management (DERM) advises that the Referral Agency Response for the above mentioned application, prepared pursuant to section 3.3.16 of the *Integrated Planning Act 1997* (IPA), is enclosed. A copy of the Referral Agency Response has been sent to the applicant.

DERM looks forward to receiving a copy of the Decision Notice for the application in due course.

Should you have any questions about the above, please contact Nick Domalewski in the Planning and Development Unit (Beenleigh) on 07 3884 8061, quoting reference number IC0610BEE0005.

Yours sincerely

[Redacted signature]

[Redacted name]

**Principal Biodiversity Planning Officer (Planning and Assessment)
Woolloongabba – South East Region**

Encl.

DERM European Heritage Advice Agency Response Permit no. 34590 QHR601526 SPAR00534410

DERM Contaminated Land Concurrence Agency Response Permit Number: IPCL0226910

Department of
Environment and Resource Management
SE Region
32 Tansey Street
PO Box 1164
BEENLEIGH QLD 4207

Telephone + 61 7 3884 8001
Facsimile + 61 7 3884 8024
Website www.derm.qld.gov.au
ABN 83 705 537 586

Notice

Department of Environment and Resource Management (DERM) Contaminated Land Unit (CLU) Concurrence Agency Response

Concurrence agency response

Sections 3.3.16 and 3.3.18 *Integrated Planning Act 1997*

Applicant:	Lipoma Pty Ltd C/ Leda Developments
Application Number:	6293/09
EPA Permit Numbers:	IPCL0226910
Date application received by EPA:	8 June 2010
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i>
Jurisdiction:	Chapter 7, Part 8 <i>Environmental Protection Act 1994</i>

Development Description:

Material Change of Use (100 Multiple Residential Units)

where:

- ☒ the land is on the Environmental Management Register or Contaminated Land Register under the *Environmental Protection Act 1994*.

at the following place(s):

21A North Street, NORTH IPSWICH
(Lot 55 on SP222487)

Response to Development Application

Department of Environment and Resource Management (DERM) – Contaminated Land Unit (CLU), acting as a concurrence agency under the *Integrated Planning Act 1997*, provides its response to the application detailed above.

The concurrence agency response is that

- ☒ there are no concurrence agency requirements

**Department of Environment and Resource Management (DERM)
Contaminated Land Unit (CLU) Concurrence Agency Response**

Conditions of the development approval

n/a

Additional comments or advice about the application

At all times while the use continues and the subject land is on the Environmental Management Register (EMR) the applicant must comply with the approved Site Management Plan (SMP) for Lot 55 on SP222487 issued under the *Environmental Protection Act 1994* by the Department of Environment and Resource Management (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.


Reasons for inclusion of development conditions or refusal

In accordance with section 3.3.18 of the *Integrated Planning Act 1997* and section 27B of the *Acts Interpretation Act 1954*, a concurrence response must include reasons for a refusal or for the inclusion of development conditions.

Department of Environment and Resource Management is recognised as a concurrence agency under the *Integrated Planning Regulation 1998* for the protection of the environment by the management of contaminated land. Department of Environment and Resource Management concurrence agency conditions for this proposed development that are contained within this response are required to prevent or mitigate any potential risk to human health or the environment from possible hazardous contaminants present on the site.

Additional information for applicants

This concurrence response pursuant to Chapter 7, Part 8 of the *Environmental Protection Act 1994* applies only to contaminated land issues and does not remove the need to obtain any further approval for this development which may be required by this or other legislation, State and/or Commonwealth. Applicants are advised to check with all relevant statutory authorities for such approvals as may be required. Should you require any further information please do not hesitate to contact Allen Johns on 3330 5694.

..........
Signed
Date 27/9/10
Delegate of Administering Authority
Environmental Protection Act 1994.

~ End of Concurrence Agency Response ~

Notice

Advice Agency Response — Heritage Place (Common boundary)

This notice is issued by the Department of Environment and Resource Management pursuant to section 3.3.19 of the *Integrated Planning Act 1997*.

Ipswich City Council
PO Box 191
IPSWICH QLD 4305

CC: Lipoma Pty Ltd
C/- Leda Developments
PO Box 1914
SURFERS PARADISE QLD 4217

Your reference : 6293/09.

Our reference : 342590:601526:SPAR00534410

Dear Sir/Madam:

Advice concerning application for development at 21A North Street, North Ipswich QLD 4305 (Lot 55 SP222487). Please treat this response as a properly made submission

DERM referral number: SPAR00534410

Response type: Advice Agency Response

Date application received by DERM: 18 May 2010

ADVICE AGENCY JURISDICTION:	Item 22 of Table 3 of Schedule 2 of the <i>Integrated Planning Regulation 1998</i> .
ASSESSMENT MANAGER REFERENCE NUMBER:	6293/09
APPLICANT:	Lipoma Pty Ltd
ACTIVITY DESCRIPTION:	Material Change of Use (multiple residential units) on land that shares a common boundary with a Registered Place under the Queensland Heritage Act 1992
DESCRIPTION OF SUBJECT LAND:	21A North Street, North Ipswich QLD 4305
	Lot: 55 Plan: SP222487

Response to Development Application

The DERM, acting as an advice agency under the *Integrated Planning Act 1997*, provides the following advice to the application as detailed above.

DERM advice

The proposal, as stated in the application, will have no impact on the cultural heritage values of the North Ipswich Railway Workshops Complex and consequently no advice agency recommendations are provided.

Additional information for applicants

It is a requirement of the *Environmental Protection Act 1994* that if the owner or occupier of this site becomes aware that a Notifiable Activity (as defined under Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on this land or that the land has been affected by a hazardous contaminant, they must, within thirty (30) days after becoming aware the activity is being carried out, give notice to the Department of Environment and Resource Management. A list of Notifiable Activities is provided within Schedule 2 of the *Environmental Protection Act 1994*.

Yours sincerely

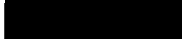

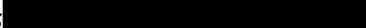



Signature

30/09/10

Date

Enquiries:


Cultural Heritage
South East Regional Office, Land Services
GPO Box 2771
BRISBANE Q 4001
Telephone: 
Email: 


Principal Heritage Officer
Delegate for
Department of Environment and Resource
Management

4 June 2010

Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Attention: Brett Davey

RECEIVED	
07 JUN 2010	
Doc. No.	
Applic. No.	6293/09
Action Off.	B. Davey

cc Michel Group Services Pty Ltd
PO Box 2695
NERANG QLD 4211
Attention: Tim Riches



Dear Brett,

Development Application - Material Change of Use (Multiple Residential 100 Units) located at 21A North Street, described as Lot 55 on SP 222487.

Applicant Ref: 874206

Council Ref: 6293/09

Our Ref: HBD 1456272 236537

We refer to your correspondence regarding the above application. ENERGEX Limited acting as an Advice Agency has no objection to the proposed Material Change of Use, subject to the following conditions:

1. All easement conditions must be maintained
2. All previous conditions must be adhered to and ENERGEX may, at its discretion, audit the finished development to check that it conforms to the conditions of the development.
3. Detailed civil design drawings showing any proposed cut and fill levels on the easement and the location of the ENERGEX assets in relation to the proposed development must be approved by ENERGEX before any works can commence on site.
4. Any proposal for landscaping on the easement must have prior approval from ENERGEX. Please submit the relevant landscaping design to Principal Mains Design Engineer for approval. When considering landscape designs the planting of trees must be kept to the edges of the easement and not under any overhead conductors. When mature, plants or trees must not grow in excess of 3.5 metres in height. If



Enquiries
Kirsten Sellers
Telephone
(07) 3407 4815
Facsimile
(07) 3407 4144
Email
kirstensellers
@energex.com.au

Corporate Office
150 Charlotte Street
Brisbane Qld 4000
GPO Box 1461
Brisbane Qld 4001
Telephone (07) 3407 4000
Facsimile (07) 3407 4609
www.energex.com.au

Reference: HBD 1456272 236537

ENERGEX Limited
ABN 40 078 849 055

pertinent the ENERGEX Guide to "Powerline Friendly Plants" will be enclosed, please refer to this Guide for recommended species.

5. Satisfactory clearance from your proposed structure to the existing (and/or future) electricity wires must be maintained in accordance with the Electrical Safety Regulations 2002.

When considering the construction of a subdivision, either on ENERGEX easements or in the vicinity of ENERGEX assets, please be aware of the following general conditions:

- No civil works are to occur within 5 metres of any part of an ENERGEX Structure (e.g. tower base, pole or stay) without ENERGEX approval.
- If the minimum 5m horizontal separation to the ENERGEX structure cannot be achieved, the Developer must consult ENERGEX with regards to allowable construction methods. This may include full depth shoring of the excavation sides for a minimum of 5 metres either side of the structure.
- Any excavations deeper than 5m must have a minimum horizontal separation from the excavation to any tower, base or pole at least equal to the excavation depth. The excavation is not to be left open overnight and backfill is to be compacted in 150mm layers in the immediate vicinity of the structure.
- 10 metres clear access must be provided around all towers and pole structures after the completion of any works on the easement.
- Natural ground level on the easement should not be disturbed without ENERGEX approval.
- Final ground levels should slope gently to the edge of the easement, surrounding area or kerb such that pooling of water on the easement is avoided and conductor ground clearances are not decreased.
- Stockpiling of spoil on the easement is prohibited.
- Lighting structures are not permitted in the easement without prior written consent of ENERGEX. Lighting designs for proposed developments (e.g. road, carparks etc) on the easement are likely to require reduced height structures. Please submit detailed design to ENERGEX for approval. These drawings must clearly show the following;
 - Proposed height of the lighting structures and the ground level at the structure base,
 - Relative (to lighting structures) ground levels at ENERGEX structures (towers, pole etc) either side of the lighting structures, and
 - The location of the ENERGEX structures in relation to the proposed lighting
- Proposed underground services such as stormwater, sewerage, water and the like are to be kept to the outer edge of the easement. Services crossing the easement should be as near as practicable to right angles to the overhead conductor direction and not within 10 metres of any tower, pole or stay. **Pipelines and crossings are to be clearly marked.** Please submit the relevant design drawings to the Principal Mains Design Engineer for review.

The identification, assessment and mitigation of any possible hazards in the service due to electromagnetically induced voltages, is the responsibility of the Developer.

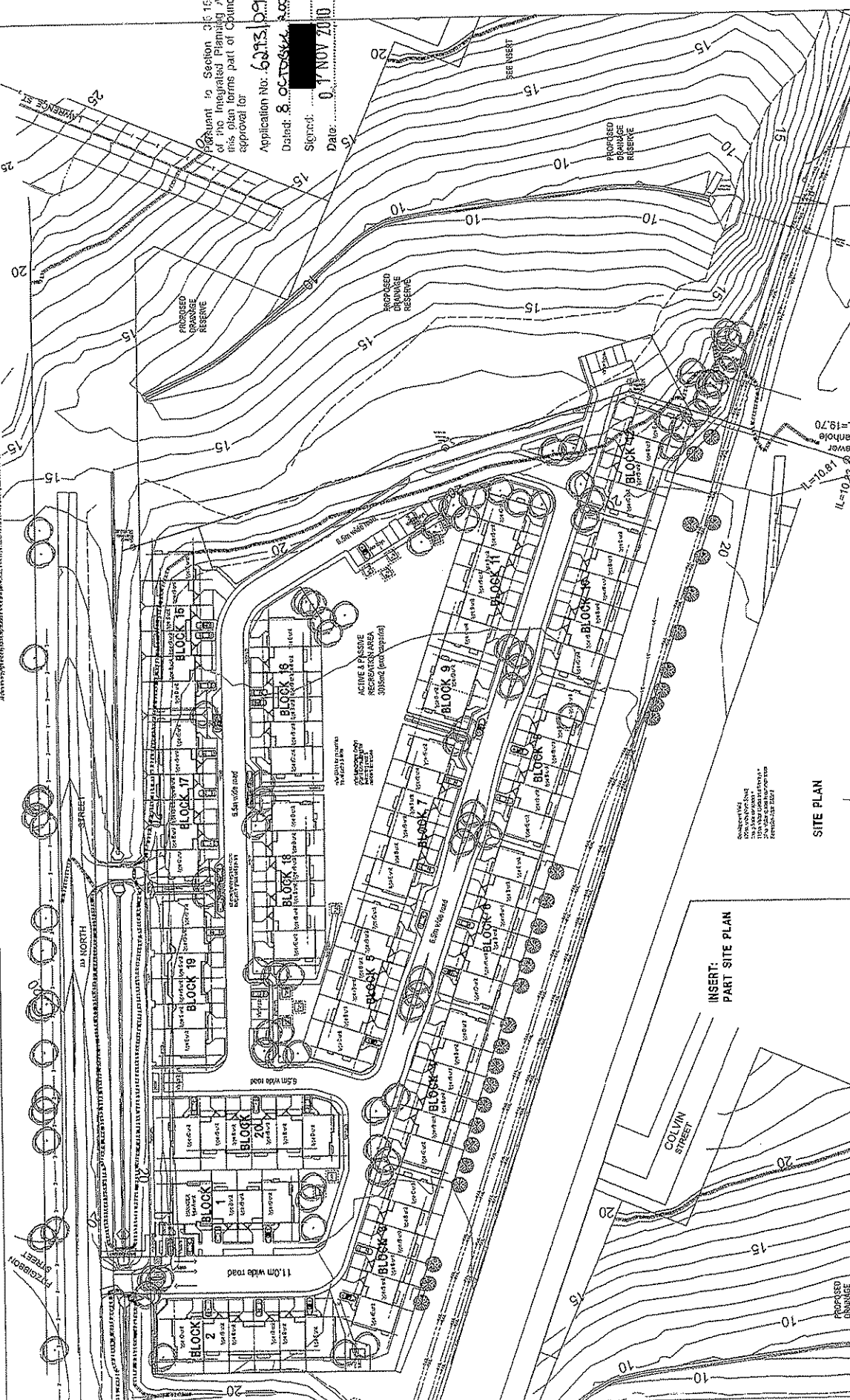
- Any cut in the vicinity of a structure or between a structure and the road kerb will need to be stabilised by a retaining wall. The retaining wall design and location is to be submitted to ENERGEX for approval.
- Any costs incurred by ENERGEX as a result of the works on the easement are to be met by the property Developer / owner.
- Access to the easement and access along the easement must be available to ENERGEX personnel and heavy equipment at all times. ENERGEX will require the Developer / owner to supply and install gates where fencing prohibits access to and along the easement area. To enable travel along the easement at anytime the gates must be series locked with an ENERGEX padlock. Both the padlock and a design drawing of an acceptable gate will be provided by ENERGEX.
- At all times the following clearance must be maintained from the top of any machinery moving in the vicinity of energised conductors:
 - 132kV and 110kV conductors – 4.5m minimum clearance
 - 33kV and 11kV conductors – 3m minimum clearance
 - Should it be necessary to transport equipment or extend any equipment, such that these clearances cannot be confidently maintained, you are required to contact our office to ascertain whether a Safety Officer is required on-site. All operators of machinery are to be made aware of the presence of high voltage conductors.

Should you require any further information on the above matter, please contact [REDACTED]

Yours faithfully,

[REDACTED]
[REDACTED]
Town Planner
Network Development and Property Department
ENERGEX Limited

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF LEGA DEVELOPMENTS PTY LTD. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED, COPIED, EITHER WHOLLY OR IN PART, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF LEGA DEVELOPMENTS PTY LTD.



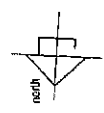
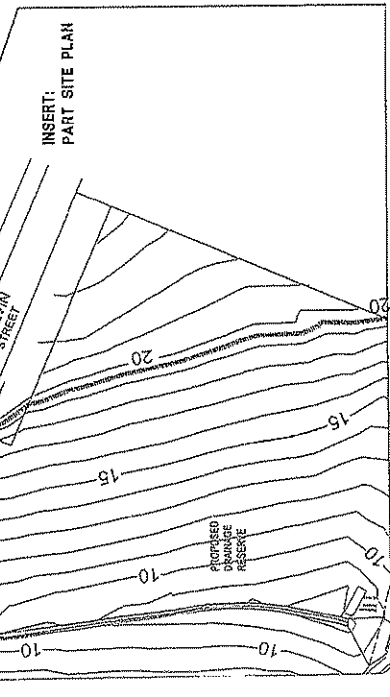
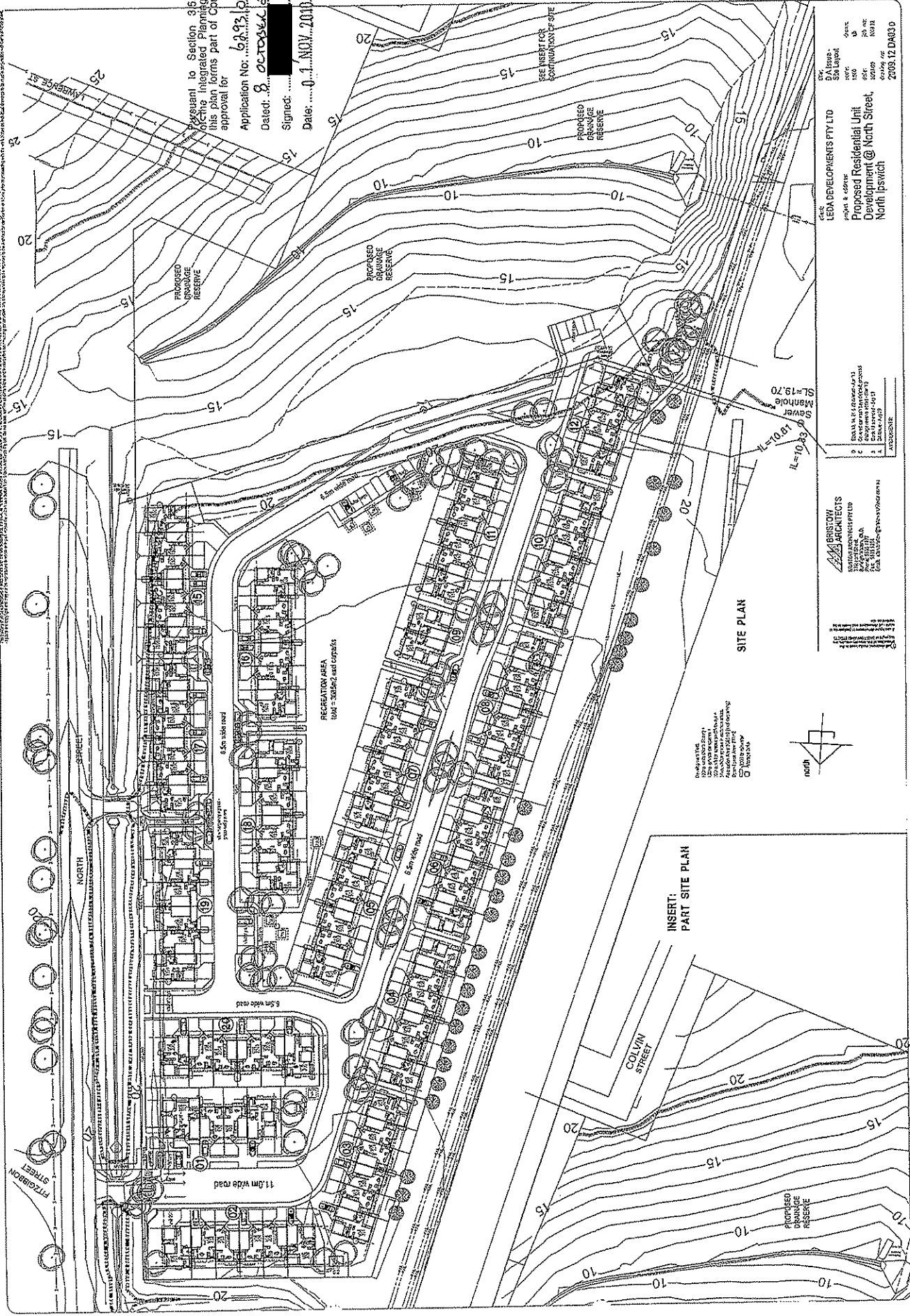
Pursuant to Section 36(1)(c) of the Integrated Planning Act, this plan forms part of Council's approval for
Application No: 6293109
Dated: 8 OCT 2004
Signed: [Signature]
Date: 07 NOV 2010

Site: LEGA DEVELOPMENTS PTY LTD
Project & address: Proposed Residential Unit Development @ North Street, North Ipswich
Scale: 1:500
Date: 07 NOV 2010
Author: [Name]
Check: [Name]
2005.12 DA020

BRISTOL ARCHITECTS
1/11 BRISTOL STREET, IPSWICH QLD 4701
TEL: 07 5531 1111
FAX: 07 5531 1112
WWW.BRISTOLARCHITECTS.COM.AU

LEGAT DEVELOPMENTS PTY LTD
1/11 BRISTOL STREET, IPSWICH QLD 4701
TEL: 07 5531 1111
FAX: 07 5531 1112
WWW.LEGATDEVELOPMENTS.COM.AU

INSERT: PART SITE PLAN
SITE PLAN
north



1. All dimensions are in metres unless otherwise stated.
 2. All levels are in metres above sea level unless otherwise stated.
 3. All areas are in square metres unless otherwise stated.
 4. All roads are to be constructed to the standards of the relevant authority.
 5. All trees to be retained are to be marked with a cross and the number of the tree.
 6. All trees to be removed are to be marked with a circle and the number of the tree.
 7. All trees to be planted are to be marked with a circle and the number of the tree.
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SITE PLAN

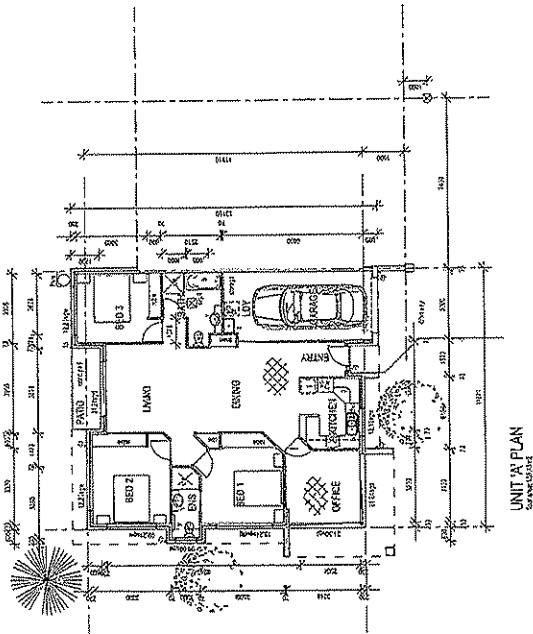
BRISTOW ARCHITECTS
 10/11 The Arcade, North Ipswich, QLD 4304
 Tel: 07 5531 1111
 Fax: 07 5531 1112
 Email: info@bristowarchitects.com.au
 Website: www.bristowarchitects.com.au

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

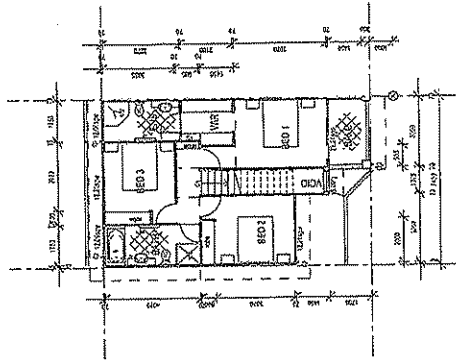
Date: 01 NOV 2010
 Application No: 6292159
 Dated: 8 OCT 2010
 Signed: [Signature]
 Date: 01 NOV 2010

City: Ipswich
 State: QLD
 Project: 1506
 Date: 01/11/2010
 Drawn: [Signature]
 Checked: [Signature]
 2008.12.DA030

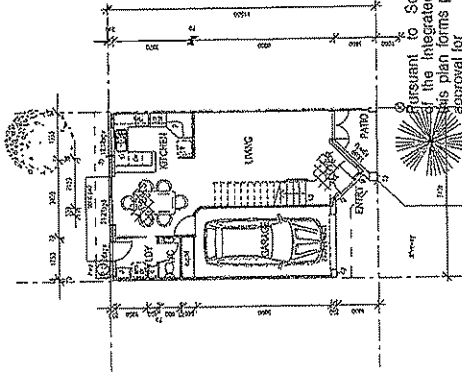
Pursuant to Section 36.15(5)
 of the Integrated Planning Act,
 this plan forms part of Council's
 approval for



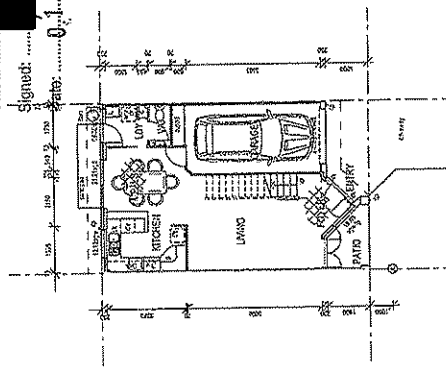
UNIT 1A PLAN: FFL
NOT TO SCALE



UNIT 1B PLAN: FFL
NOT TO SCALE



UNIT 1C PLAN: GFL
NOT TO SCALE



UNIT 1D PLAN: GFL
NOT TO SCALE

Pursuant to Section 3.5(1)(5) of the Integrated Planning Act, this plan forms part of Council's approval for


Application No: 6293/19
Dated: 8 OCTOBER 2019

Signature: [Redacted]
Date: 01 NOV 2019

WINSTON ARCHITECTS
15/1000 WINDSOR STREET
PO BOX 1017
EAST WILMINGTON
2003/12/04/18

LEDA DEVELOPMENTS PTY LTD
Proposed Residential Unit
Development @ North Street,
North Ipswich
2003/12/04/18

Date: 3-1-NOV-77


BRISTOW ARCHITECTS
 EASTON ARCHITECTS P/LTD
 1000010101, LTD.
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 1000000000, LTD.
 1000000000, LTD.

Application No: 6293.09
Dated: 8 OCTOBER 2009
Signed: [Redacted]
Date: 01 NOV 2010

EDDA DEVELOPMENTS PTY LTD
Proposed Residential Unit
Development @ North Street,
North Ipswich

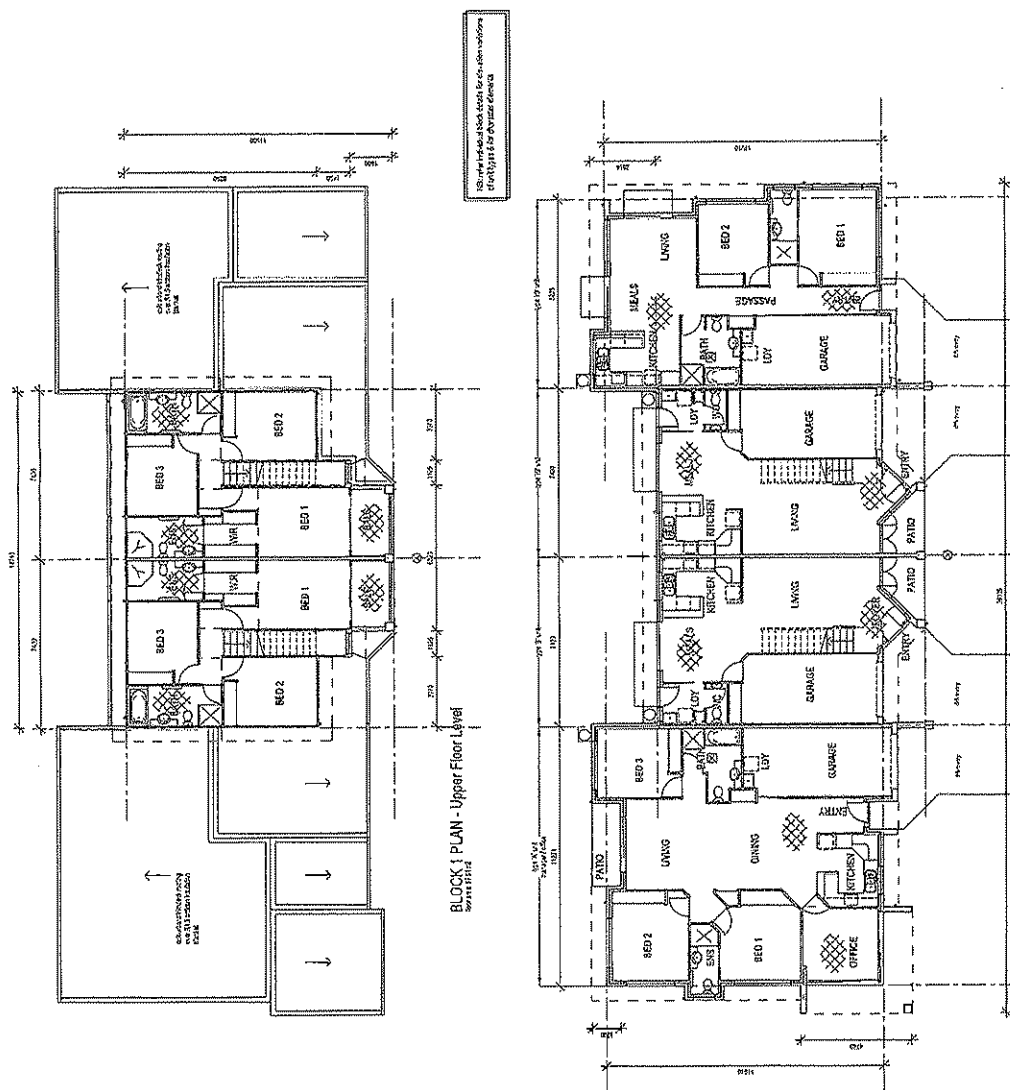
2009-12-DA08A

Site:
Block 1 Plan & Typical 4 Unit
Scale:
1:500
Date:
2009-12
Drawing No:
2009-12

CRUSTON ARCHITECTS
CRUSTON ARCHITECTS P.C.
1000 15th St. N.E.
Atlanta, GA 30309
Tel. 404.525.1111
Fax 404.525.1124
www.crustonarchitects.com

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BLOCK 1 PLAN - Ground Floor Level

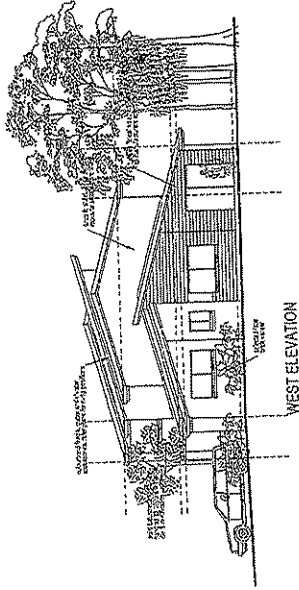
Pursuant to Section 3.5.14(5) of the Integrated Planning Act, this plan forms part of Council's approval for

Application No: 6893109

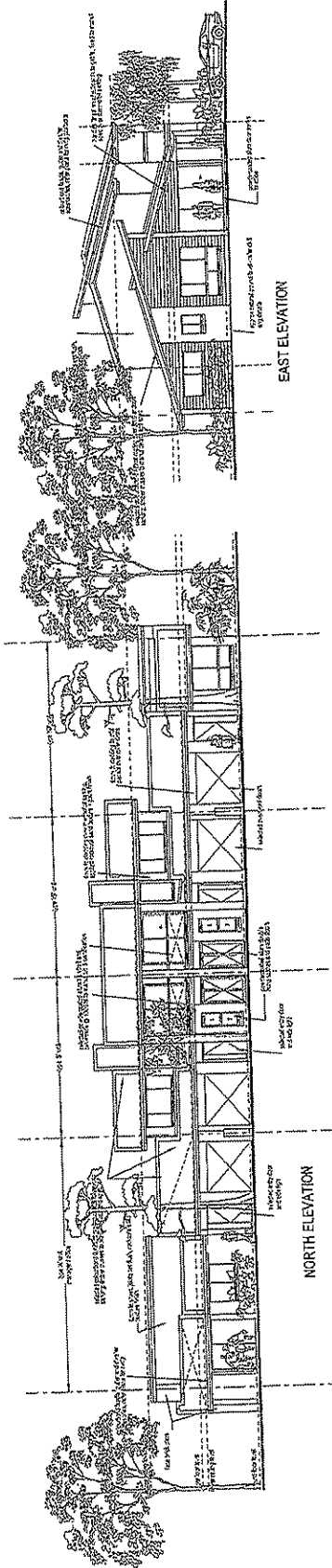
Dated: 8 OCT 2010

Signed: [Redacted]

Date: 07 NOV 2010



WEST ELEVATION



NORTH ELEVATION

EAST ELEVATION

This plan is a preliminary drawing and is not to be used for construction purposes without the approval of the Council.

BRISTOW ARCHITECTS
ARCHITECTS
10/11-12/13
PO BOX 1000
MELBOURNE VIC 3000
Tel: 03 9594 1000
Fax: 03 9594 1001
Email: info@bristowarchitects.com.au

A 10/11-12/13
10/11-12/13

Client: DA Lipp
Project: 10/11-12/13
Proposed Residential Unit
Development @ North Street,
North Ipswich
2009.12.04/07A

Pursuant to Section 2.5.15(3)
of the Integrated Planning Act
1997, this plan forms part of Councils
approval for

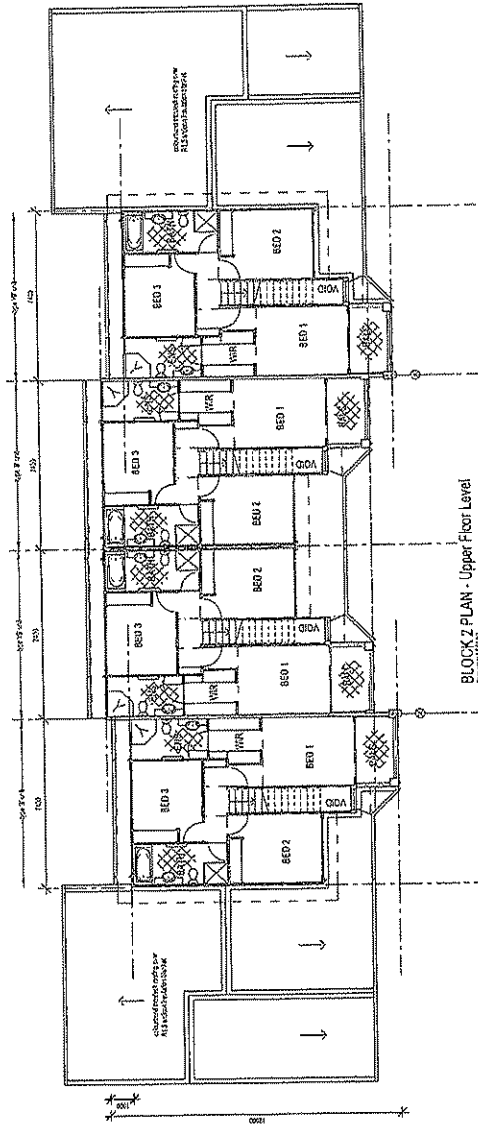
Application No: 6413/09

Dated: 8 October 2009

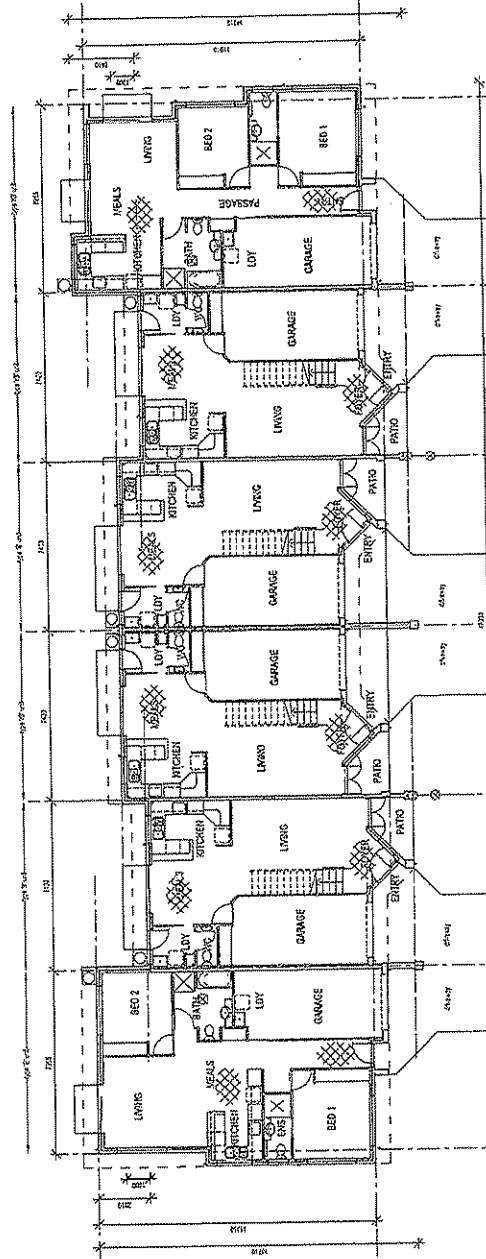
Signed: [Signature]

Date: 01 NOV 2010

NOT TO SCALE. DIMENSIONS IN METERS UNLESS OTHERWISE SPECIFIED.



BLOCK 2 PLAN - Upper Floor Level



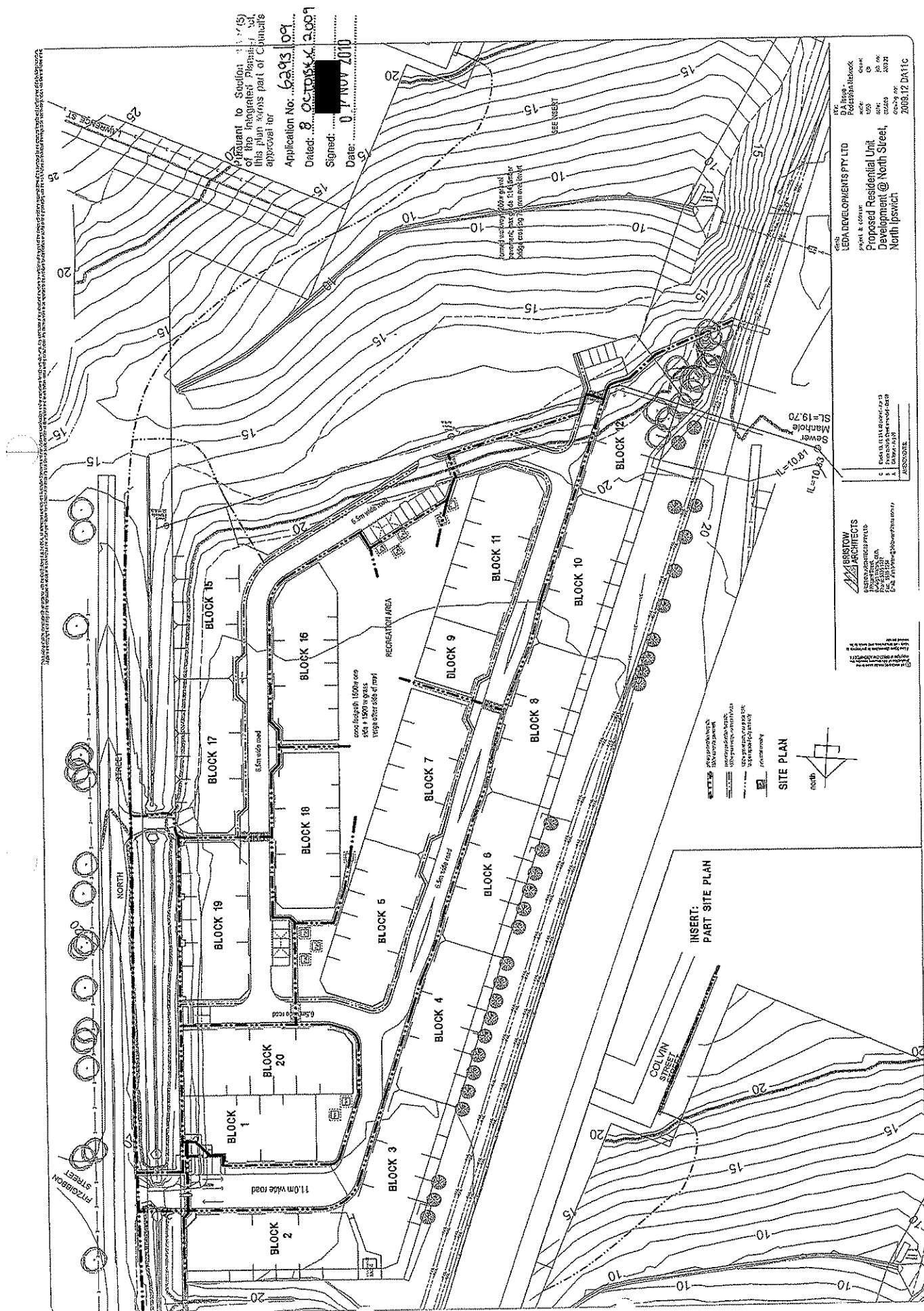
BLOCK 2 PLAN - Ground Floor Level

LEDA DEVELOPMENTS PTY LTD
Proposed Residential Unit
Development @ North Street,
North Ipswich
2009.12 DA08A

ARRISTOW
ARCHITECTS
ARCHITECTS PTY LTD
100/102 NORTH STREET
NORTH IPSWICH QLD 4750
TEL: 07 5531 1111
WWW.ARRISTOWARCHITECTS.COM

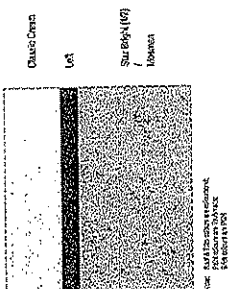
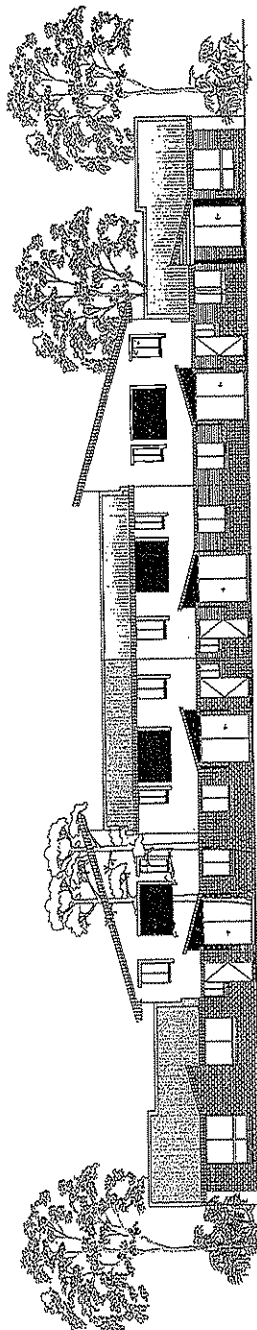
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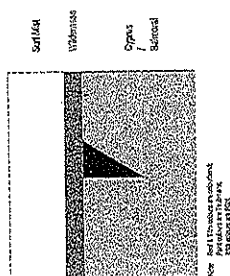


Pursuant to Section 3.5.15(5) of the Integrated Planning Act, this plan forms part of Council's approval for

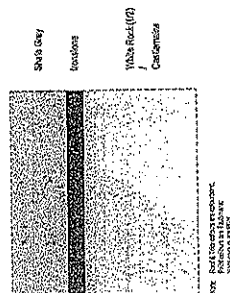
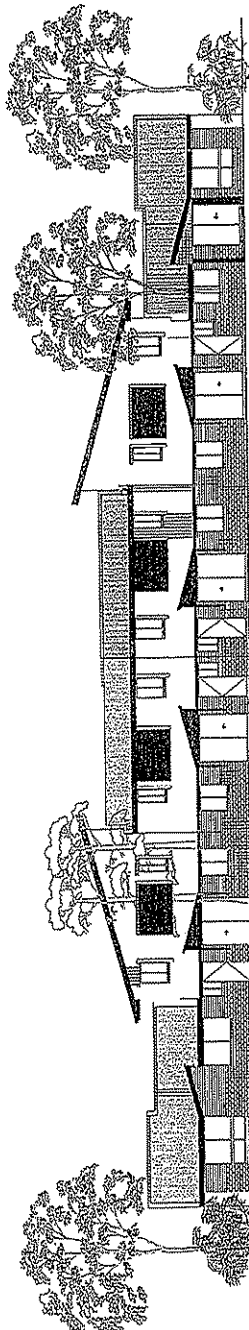
Application No: **6293/09**
 Dated: **8 OCT 2009**
 Signed: **[Signature]**
 Date: **04 NOV 2010**



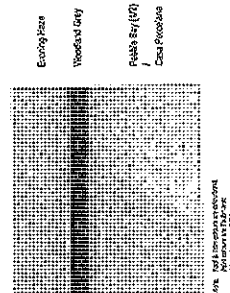
#1 COLOUR SELECTION



#2 COLOUR SELECTION



#3 COLOUR SELECTION

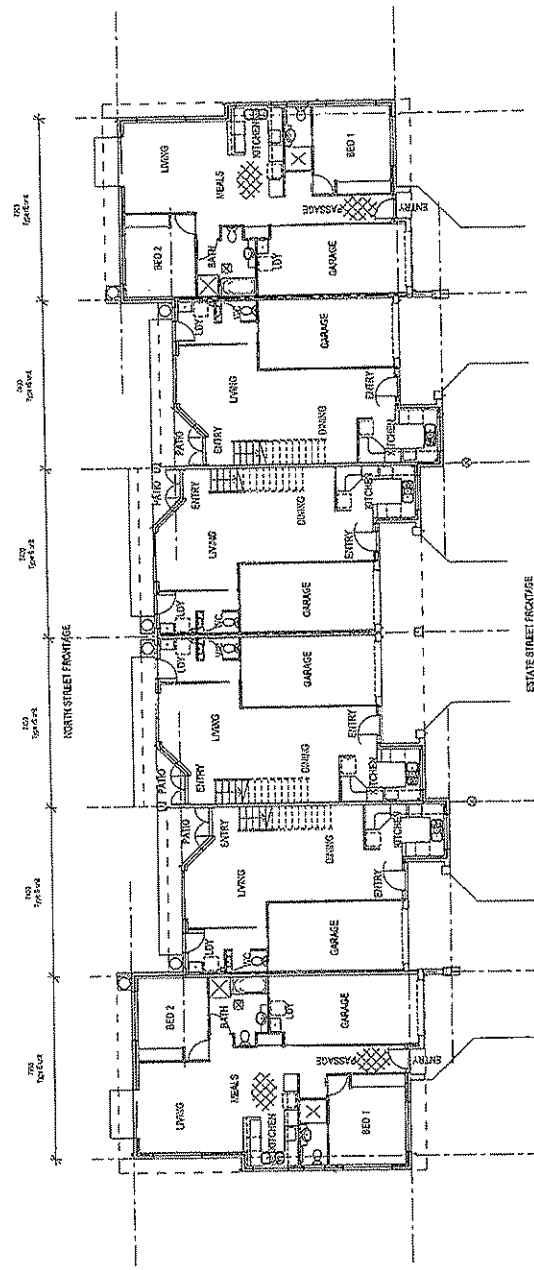


#4 COLOUR SELECTION

CRISTINA ARCHITECTS
 CRISTINA ARCHITECTS PTY LTD
 10/11-12/13
 10/11-12/13
 10/11-12/13

LEDIA DEVELOPMENTS PTY LTD
 Project & address
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich
 Date: 2008.12 DA12

Pursuant to Section 3.5.15(5)
of the Integrated Planning Act,
this plan forms part of Council's
approval for
Application No: 6293/09
Dated: 8 OCTOBER 2009
Signed: [Redacted]
Date: 01 NOV 2010

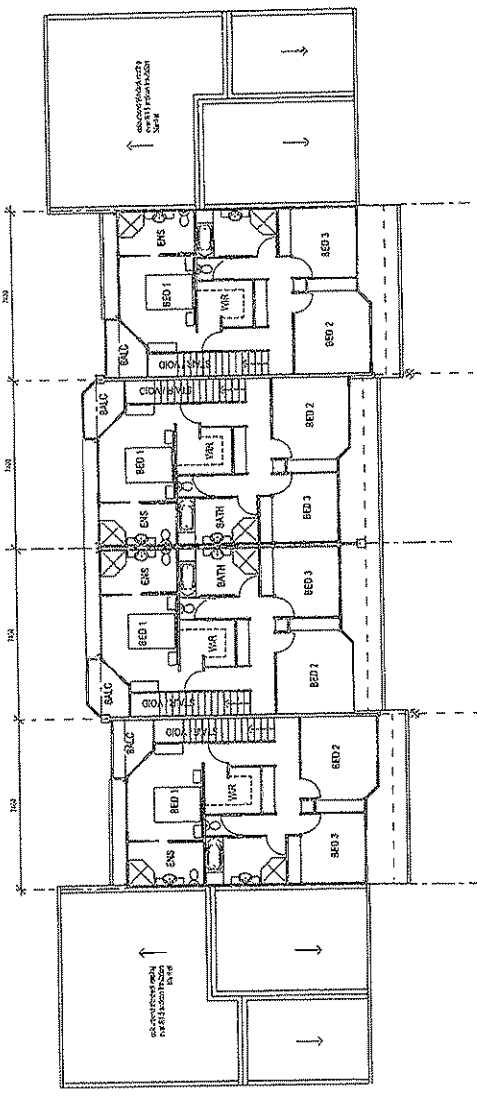


BLOCK 19 PLAN - Ground Floor Level
Rev 01/10/2010

ESTATE STREET FRONTAGE

NORTH STREET FRONTAGE

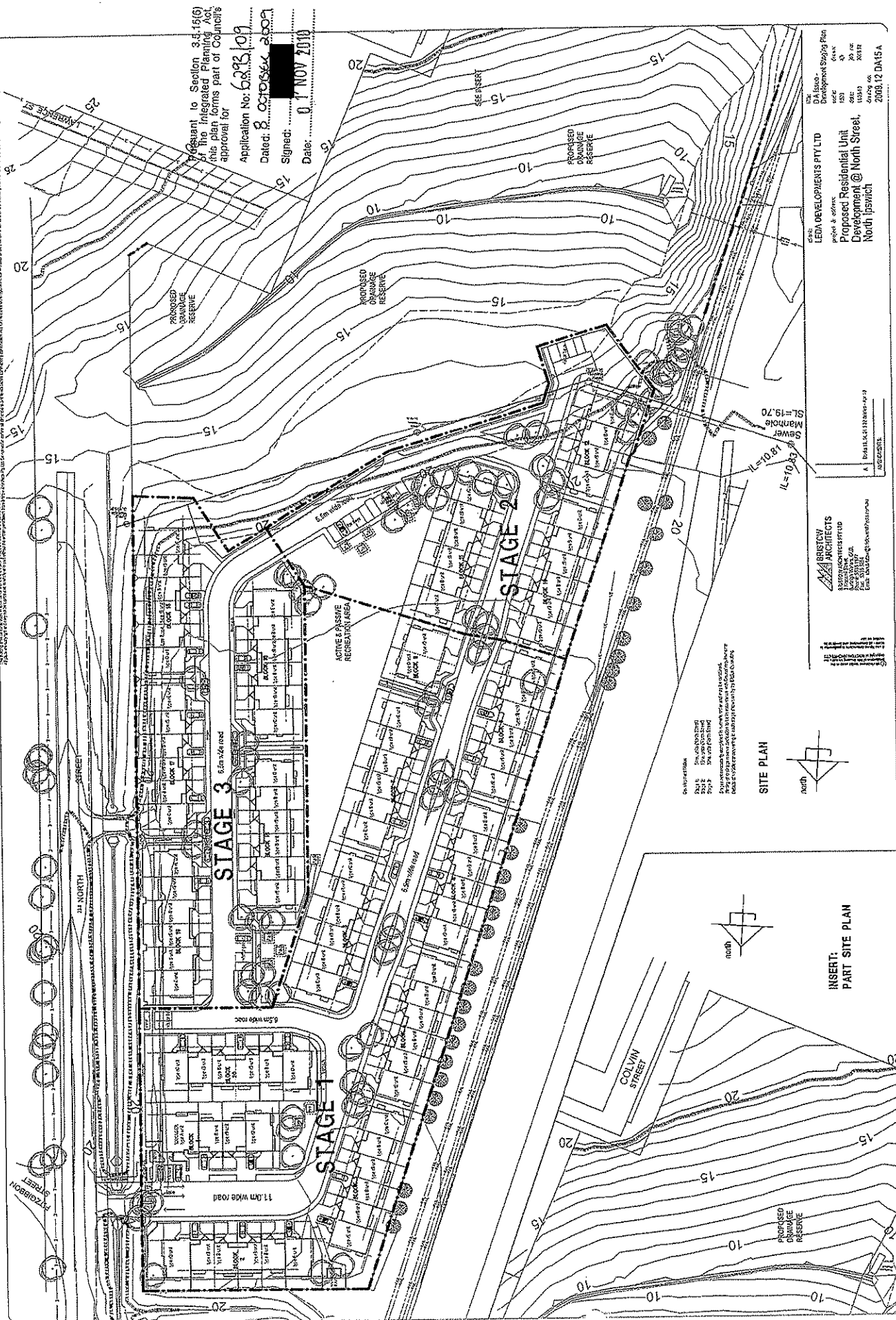
1. Show the technical information for the development in accordance with the relevant standards and codes of practice.



BLOCK 19 PLAN - Upper Floor Level
Rev 01/10/2010

Client: LEDA DEVELOPMENTS PTY LTD
Project: Proposed Residential Unit Development @ North Street, North Ipswich
Date: 2008.12.04.14

BRISTON ARCHITECTS
BRISTON ARCHITECTS PTY LTD
1/100 NORTH STREET
NORTH IPSWICH QLD 4750
Phone: 07 5533 1111
Fax: 07 5533 1112
Email: info@bristonarchitects.com.au



Attachment BD-20

2727/10 Brett Davey

29 October 2010

MEMORANDUM

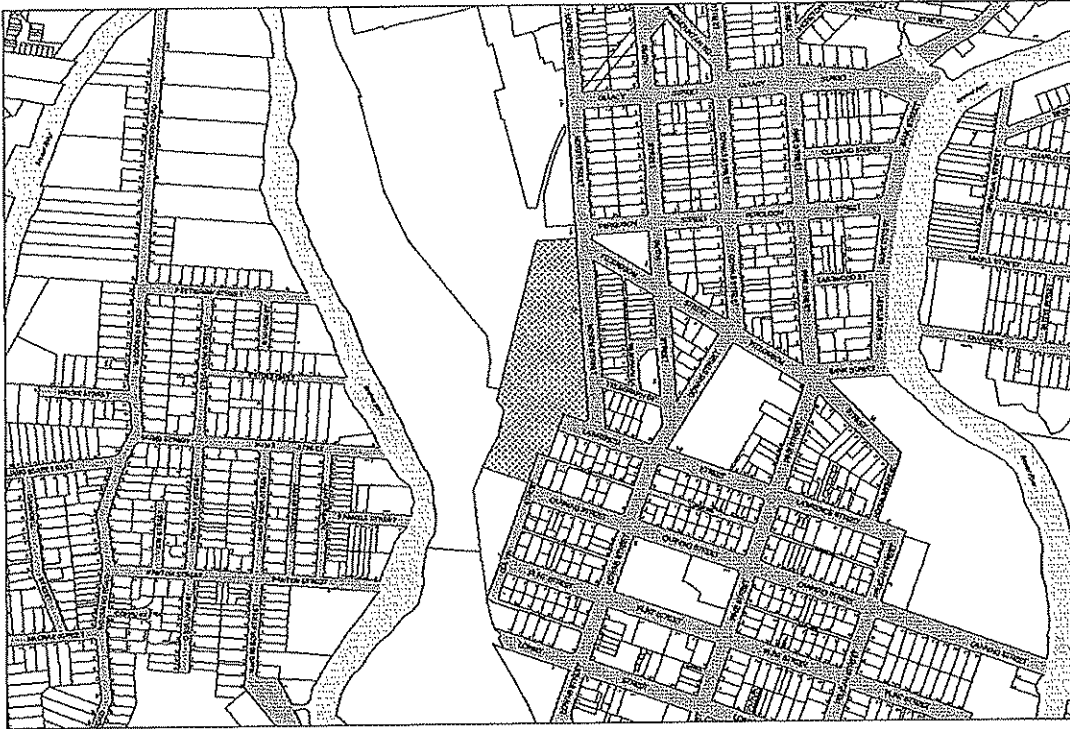
TO: TEAM COORDINATOR (DEVELOPMENT)
FROM: PLANNER (DEVELOPMENT) – BRETT DAVEY
RE: **DEVELOPMENT APPLICATION - IMPACT ASSESSMENT**
SUSTAINABLE PLANNING ACT 2009 - SECTION 314

Appn No: 2727/10
Applicant: Lipoma Pty Ltd C/- Michel Group Services
Real Property Description: Lot 55 SP 222487
Property Location: 21a North Street, North Ipswich
Division: Six (6)

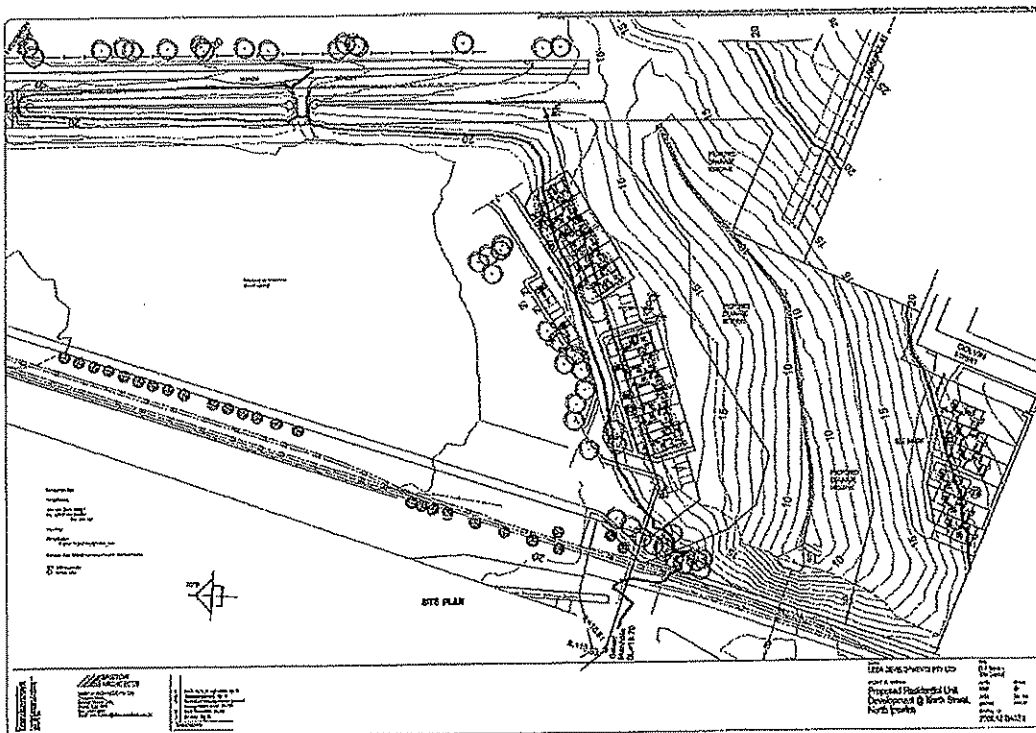
Proposal	Development	Approval Type Requested
Multiple Residential (18 Units)	Making a Material Change of Use of Premises	Development Permit.
One (1) Lot into Three (3) Lots	Reconfiguring a Lot	Development Permit.

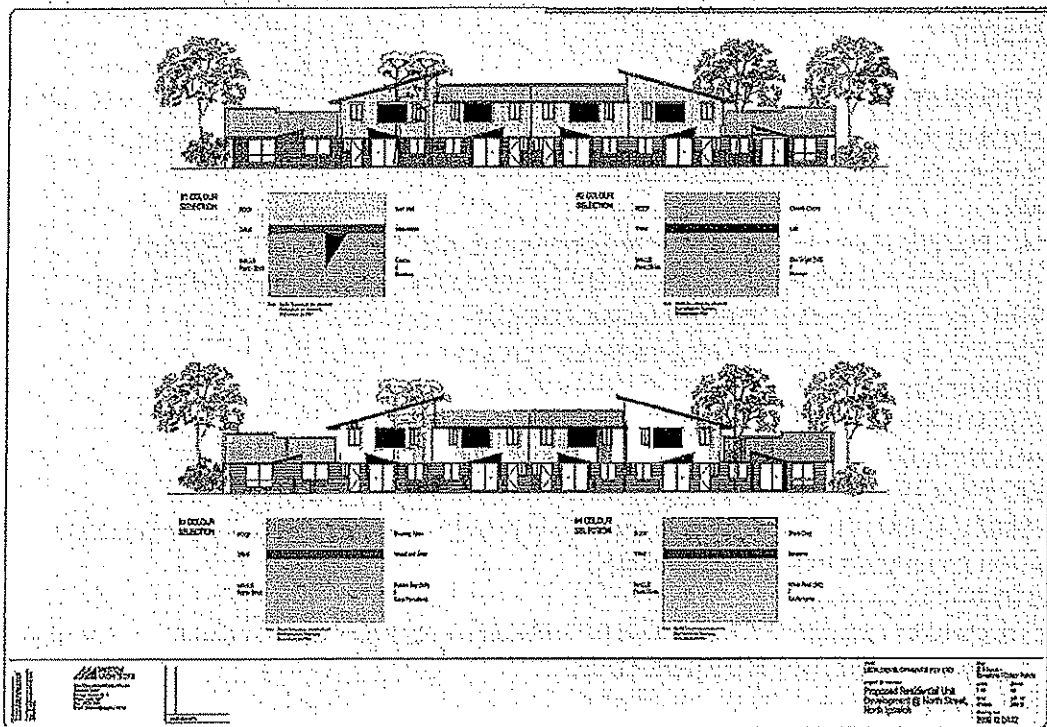
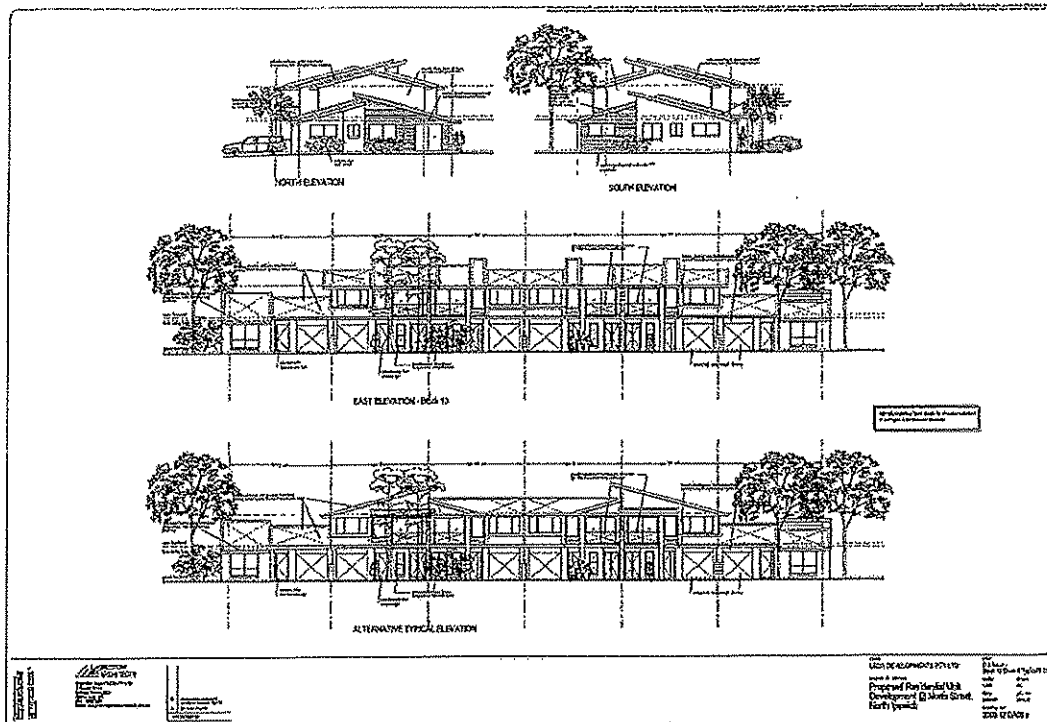
Date Received: 27 April 2010
Start Date for Decision Stage: 1 October 2010
Stat. Date for Determination: 26 November 2010
Site Area: 4.893 ha
Zone: Special Opportunity (SA2: North Ipswich Railyards)

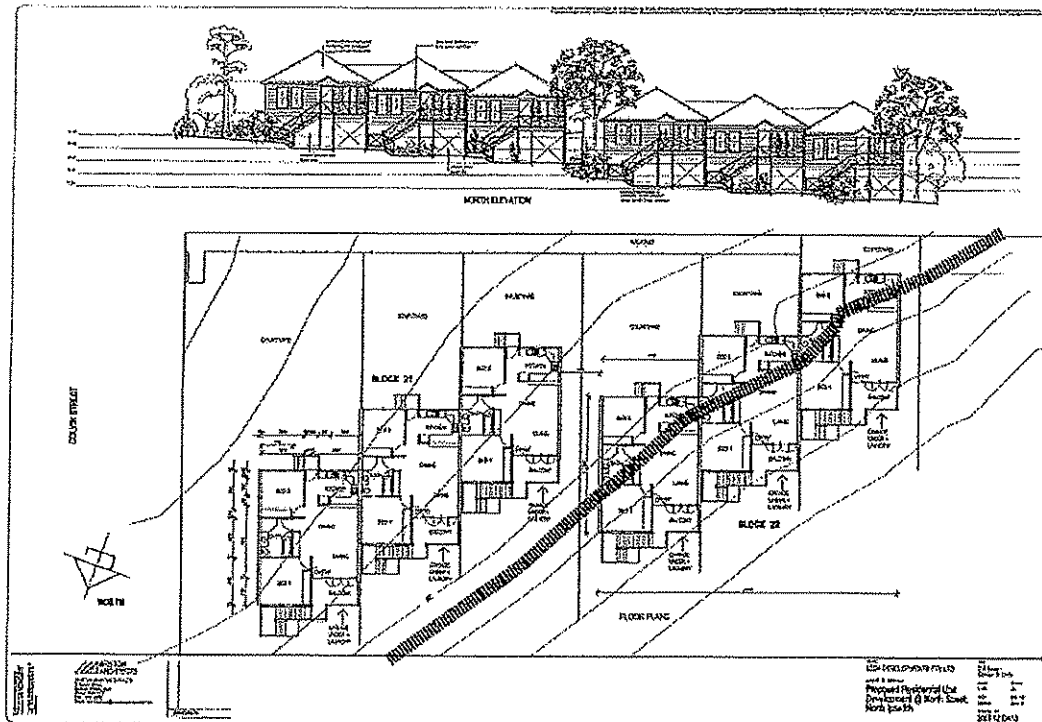
SITE LOCATION



PROPOSAL PLAN







SUMMARY

SITE ADDRESS: 21a North Street, North Ipswich

APPLICATION TYPE: Combined Approval (Material Change of Use for 18 units and Reconfiguring a Lot: one (1) into three (3) lots)

ZONE:

- Planning Scheme: Special Opportunity Zone (SA2: North Ipswich Railyards)
- Preliminary Approval: Mixed Use Urban Village Precinct and Parkland Precinct

OVERLAYS: OV5: Flooding and Stormwater Flowpaths.

APPLICANT: Lipoma Pty Ltd C/- Michel Group Services

OWNER: Lipoma Pty Ltd

APPLICATION NO: 2727/10

DIVISION: Six (6)

AREA: 4.893 ha

REFERRAL AGENCIES: DERM (Development Adjacent to a Heritage Place / Contaminated Land) and Energex (Electricity Easement)

EXISTING USE: Vacant

PREVIOUS RELATED APPROVALS: Riverlink Preliminary Approval 682/03 and Reconfiguring a Lot Approval 5026/08 which created this lot.

DATE RECEIVED: 27 April 2010

DECISION STAGE START DATE: 1 October 2010

EXPECTED DETERMINATION DATE: 29 October 2010

PROPOSAL:

This application seeks development approval for a material change of use for the development of eighteen, two (2) and three (3) bedroom units on the above referenced site

and the reconfiguration of the subject site into three allotments. The proposal is generally consistent with the Riverlink sub-areas in accordance with the Riverlink Preliminary Approval Plan (Application 682/03, approved on 1 July 2004 by the Minister for State Development and Innovation).

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 Railyards, to the north by Ipswich Railway Museum and to the east by North Street. The site is affected by the 1 in 20 year and the 1 in 100 year flood events as identified by the development constraint overlays, however the part of the site proposed for residential dwellings is outside of the 1 in 100 flood event.

OTHER RELEVANT INFORMATION:

Owing to the effect of the above referenced Preliminary Approval, the proposal is assessable against the Preliminary Approval Conditions, the Preliminary Approval Code and the requirements of the Ipswich Planning Scheme pertaining to Residential Uses. As a consequence, the proposal is not assessable against the current Ipswich Planning Scheme. Notwithstanding, the proposal does generally satisfy the Urban Areas Code and in particular the requirements for the Special Opportunity SA2 – Ipswich Railyards Sub Area, the Residential Code and the Development Constraint Overlay Code. The proposal is also generally consistent with the Riverlink Preliminary Approval Being Located within the Mixed Use Urban Village Precinct and Parkland Precinct of this Preliminary Approval.

The proposal is impact assessable development in accordance with the Riverlink Preliminary Approval Masterplan as the proposed units are located in the Parkland Precinct of the Masterplan.

The Department of Environment and Resource Management (DERM) is a concurrence and advice agency for the application in respect to heritage related matters and contaminated land matters. DERM provided a coordinated response dated 28 September 2010 which identified no objection to the proposal and required that no conditions be imposed. Further, Energex is an advice agency for the application in respect to the presence of electricity easements on the land. Energex provided a response dated 4 June 2010 identifying no objection with respect to the proposal.

PUBLIC NOTIFICATION:

Public notification of this application was undertaken pursuant to the *Sustainable Planning Act 2009*. Council received two (2) properly made submissions during the public notification period. Matters raised in the submissions include:

- Maintenance of the land and security fencing
- Increased stormwater runoff into the Bremer River
- Erosion of land adjacent to the Bremer River and associated subsidence
- Impacts of development on existing box culvert and microbats which reside in the culvert
- Security prior to development of land (anti social behaviour)
- Increase in traffic associated with access to Colvin Street Units and use of Lennon Lane

It is considered that the proposed development can be conditioned to resolve the matters raised in the above mentioned submissions. Specifically:

- Development of the land will improve maintenance of this site. Conditions are also recommended to be included in any approval regarding fencing of the development.
- The Applicant has provided a stormwater assessment in accordance with Councils requirements. It is recommended that conditions be included in the approval requiring the reconstruction of the existing concrete lined stormwater drain through the subject property. This stormwater assessment demonstrates no worsening of the existing stormwater situation in the Bremer River.
- There is no evidence to suggest that further development of an already developed environment will impact the bats which reside on part of the adjoining development site. It should be noted that the bats are not identified as an endangered species nor are the bats subject to any legislative controls regarding their location and habitat.
- Council has no control over anti-social behaviour associated with the land in its current state, however development of the land for residential purposes should improve this situation.
- Conditions are recommended to be included in this approval requiring the upgrade of the street network to provide for the development.

NOTEWORTHY CONDITIONS OF APPROVAL INCLUDE

- As part of the development of units on the Colvin Street side of the property, the developer has been conditioned to upgrade Colvin Street, the intersection of Colvin Street and Lennon Lane and provide a cul de sac on Colvin Street. Street signage improvements are required for Lennon Lane.
- As part of the development of the North Street side of the property, the developer has been conditioned to upgrade North Street, the Intersection of North Street and Fitzgibbon Street. A cul de sac is also required at the termination of North Street.
- The developer has been conditioned to provide footpaths and cycleways connecting the development into the existing footpath and cycleway network. Specifically between the development site and Downs Street are to be consistent with the future planning for the Brassall bikeway extension and a concrete footpath is to be extended via Canning Street and Colvin Street to Downs Street.
- The developer is required to contribute \$ 252,347.00 towards infrastructure for Water, Sewer, Roads, Parks and Community Infrastructure.
- The developer is required to contribute \$ 25,000.00 towards the provision of a bus shelter nearby to the development, in the future.
- The developer is required to reconstruct the existing concrete lined drain through the subject property to a natural drainage channel design to be dedicated to Council as drainage reserve.
- It is recommended that conditions be imposed requiring the staging of the units. Stage 1 being the six (6) units adjacent to Colvin Street, Stage 2 consisting of the remaining 12 units off North Street. It is anticipated that Stage 2 will be completed at the time the adjacent development is constructed (Application 6293/09) which is concurrently being considered by Council.
- Specific conditions are recommended to be included in the approval in respect to fencing of the development to ensure that fencing along all road reserves provides

for surveillance opportunities. The construction of an acoustic barrier along part of the common boundary between the development site and the QR workshops is also recommended in accordance with the recommendations of the Acoustic Assessment submitted in support of this application. This acoustic fence does not adjoin a road frontage.

- The reconfiguration of the proposed site is recommended to be limited such that no drainage reserve is created at this time. Upon completion of the works associated with the drainage area to a satisfactory standard to be approved by Council (by way of an operational works application) the land may be dedicated to Council as drainage reserve.

In summary, it is considered that the proposal to permit the development of a combined application for Multiple Residential (18 Units) and Reconfiguring a Lot (one (1) Lot into three (3) Lots) is suitable for the subject site and should be approved, subject to the conditions detailed below.

RECOMMENDATION

- A. That the developer be advised that development application no. 2727/10 is determined as outlined below and is subject to the conditions specified in Attachment A below.

1. Decision Details:

Development	Approval Type	Decision	Relevant Period
Material Change of Use of Premises: Multiple Residential (18 units)	Development Permit	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment C - Referral Agency Responses including conditions	4 years
Reconfiguration of a Lot	Development Permit	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment C - Referral Agency Responses including conditions	2 years

2. Preliminary Approval Affecting the Planning Scheme:

Not applicable to this decision.

3. Approved Plans

The approved plans for this development approval are:

- (a) the plans referred to in the table of approved plans (including the amendments that are required to be made to those plans); and
- (b) where the amended version of the plans referred to in the table of approved plans have been approved by the assessment manager, the amended version of those plans; and
- (c) the approved plans are attached to this decision notice.

Table of Approved Plans:

Plan/ Document No	Description	Prepared By	Date	Amendments Required
2009.12 DA01C	Development Details	Bristow Architects	April 2010	Staging in accordance with Condition 3.
2009.12 DA02E	Site Plan	Bristow Architects	April 2010	N/A
2009.12 DA03E	Site Layout	Bristow Architects	April 2010	N/A
2009.12 DA04C	Unit Floor Plans 'B' and 'F'	Bristow Architects	April 2010	N/A
2009.12 DA05B	Unit Floor Plans 'C', 'D' and 'E'	Bristow Architects	April 2010	N/A
2009.12 DA08B	Block 2 Plans & Typical 6 Unit	Bristow Architects	April 2010	N/A
2009.12 DA09B	Block 13 Elevs & Typical 6 Unit	Bristow Architects	April 2010	N/A
2009.12 DA12	Elevations / Colour Palette	Bristow Architects	7 August 2009	N/A
2009.12 DA13	Colvin St Units	Bristow Architects	27 August 2009	N/A
8742-233 B	Plan of Proposed Subdivision	Michel Group Services	15 April 2010	Proposed lot 551 is not approved as drainage reserve for the Purposes of

	Proposed Lots 550-552			the Reconfiguring a Lot Development Application.
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4. **Codes for Self Assessable Development**

Not applicable to this decision

5. **Other Necessary Development Permits and/or Compliance Permits**

Further *development permits/compliance permits*, as required by the *Sustainable Planning Act 2009*, shall be obtained in respect of any operational works, building works and plumbing works in relation to this approval prior to the *commencement of works/use and/or signing of the plan of subdivision* pursuant to the *Sustainable Planning Act 2009*.

6. **Details of any Compliance Assessment Required for Documents or Work in Relation to the Development**

Not applicable to this decision.

7. **Submissions**

There were two (2) properly made submissions about the application. The names and addresses of the principal submitter for each properly made submission are as follows:

Name of Principal Submitter	Address of Principal Submitter
[REDACTED]	Lawrence Street NORTH IPSWICH QLD 4305
Mr N J White and Ms E N Tilbrook	Hume Street WOODEND QLD 4305

8. **Conflict with a Relevant Instrument and Reasons for the Decision Despite the Conflict**

Not applicable to this decision.

9. **Referral Agencies**

The referral agencies for this application are:

Referral Agency	Referral Role	Aspect of Development Requiring Referral	Address
Department of Environment and Resource Management	Concurrence Agency and Advice Agency	- Reconfiguring a Lot - Material Change of Use of Premises Contaminated Land and	Department Application Lodgement Department of Resource

		development adjacent to a Heritage Place	Management GPO Box 15155 City East QLD 4002
Energex	Advice Agency	- Material Change of Use (Electricity Easement)	Energex GPO Box 1461 BRISBANE QLD 4001

Note: Referral agency responses are attached to this decision notice and form part of this decision notice.

10. When Development Approval Lapses

The relevant period for this approval is as outlined in part 1 – 'decision details' of this decision notice, starting the day the approval takes effect. This development approval lapses in accordance with section 341 of the *Sustainable Planning Act 2009*.

Should the assessment manager determine a new relevant period in writing, prior to the lapsing of this approval, then the use may continue for a further period of time, as specified in writing by the assessment manager.

12. Conditions of Assessment Manager (Ipswich City Council)

Refer to Attachment A for Assessment Manager conditions.

13. Appeal Rights

Attachment C is an extract from the *Sustainable Planning Act 2009* which details the applicant's appeal rights and the appeal rights of any submitters regarding this decision.

- B. A copy of this decision be forwarded to the referral agencies as outlined in part 9 – 'referral agencies' of this decision notice.
- C. A copy of this decision be forwarded to the submitters as outlined in part 7 – 'submissions' of this decision notice.



Brett Davey
SENIOR DEVELOPMENT PLANNER

I have this day adopted the recommendation specified in this report.

Such action was taken pursuant to the delegation entitled *Sustainable Planning Act 2009* and *Sustainable Planning Regulation* and the delegation entitled "*Sustainable Planning Act 2009* -

Assessment Manager" and granted to me by the Chief Executive Officer authorising the exercise of the powers of 'assessment manager' set out in Schedule 2 in relation to the *Sustainable Planning Act 2009* granted to me by the Chief Executive Officer authorising the exercise of the powers.



Jo Pocock

TEAM COORDINATOR

Date: 11/11/10 .

Attachment A
File No: 2727/10
Location: 21a North Street, North Ipswich

Assessment Manager (Ipswich City Council) Conditions – Material Change of Use

Conditions applicable to this approval under Sustainable Planning Act:

1. Basis of Approval

This approval is subject to these conditions, the facts and circumstances set out in the application and adherence to all relevant Council Local Laws and/or Planning Scheme Policies.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications accepted in writing by the assessment manager will suffice.

3. Site Development

- (a) The development of the site must be undertaken generally in accordance with the approved plans outlined in part 3 of the decision notice.
- (b) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first proposed Lot 551 must be dedicated as drainage reserve in favour of Council and not included within parkland dedication once the last stage of the unit development is complete.

4. Proposed Stages

The proposal must be staged as identified in red ink on the approved plans and as follows:

- (a) Stage 1: 6 Units located adjacent to Colvin Street.
- (b) Stage 2: 12 Units located adjacent to North Street.

Prior to approval of any operational works, the developer must demonstrate to Council the staging of the proposed stormwater works pursuant to Conditions 19: Stormwater Quantity and 20: Stormwater Quality.

5. Colour Scheme

The external features of the buildings shall be painted/finished in a colour or colours that are sympathetic to the character of the existing buildings in the surrounding area and to the satisfaction of the assessment manager. The colour

scheme requirements shall also apply to the fencing mentioned in Conditions 7 and 23 of this approval.

6. Visual Privacy

The private open spaces and living rooms of adjacent dwelling units are to be protected from direct overlooking by dwelling unit layout, screening devices, distance or landscaping. At minimum, windows of one dwelling are not to be located opposite the windows of another dwelling unless direct views are controlled by blinds or other screening devices, or by sufficient distance or height to discourage overlooking, to the satisfaction of the assessment manager.

7. Fencing

Unless otherwise approved in writing by the assessment manager, front fences and walls must have a maximum height of:

- (a) Where the boundary is a common boundary to a road or drainage reserve, the fence shall comprise solid fencing to a maximum height of 1200 mm with a panel of minimum 50% transparency between the top of the solid fencing and maximum height of 1800 mm.
- (b) Where the boundary is between a common area and a road or a drainage reserve, the fence must be powder coated aluminium pool style fencing.

Details of the proposed fencing must be submitted in conjunction with the landscaping plan required by Condition 23.

Note: Where a boundary fence shares a common boundary with private land, the consent of the relevant land owner must be sought pursuant to the *Dividing Fences Act 1991*.

- (c) Fences to roads and drainage reserves must not exceed 10m in length without some form of articulation or detailing to provide visual interest.

8. Letter Boxes, Laundering, Storage and Refuse Facilities

- (a) Unless otherwise approved by the assessment manager, one letter box must be provided per unit plus one letter box for use by the body corporate or management where appropriate. Such letter boxes must form an integral part of the design of the development and must be located on the road frontage boundary to which the site has been allocated its street address, unless otherwise approved by the assessment manager.
- (b) Each dwelling unit within the development shall be provided with individual laundry and clothes drying facilities. Alternatively, communal facilities shall be provided and located to the satisfaction of the assessment manager not more than 100 metres from any dwelling unit.

9. Streetscape Works

- (a) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the developer shall plant street trees for the length of the Colvin Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
- (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;
 - (ii) Identify the location/ proximity of services within the road reserve; and
 - (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (b) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the developer shall plant street trees for the length of the North Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
- (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;
 - (ii) Identify the location/ proximity of services within the road reserve; and
 - (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (c) Such streetscaping must be completed in accordance with the approved streetscape plan to the satisfaction of the Chief Operating Officer (Health Parks and Recreation) and must be completed prior to the signing of any plan of subdivision.
- (d) The developer must maintain street trees for a period of eighteen (18) months after an 'On Maintenance' inspection by the Chief Operating Officer (Health Parks and Recreation).

Note:

Species must be in accordance with the Ipswich City Council Street Tree Strategy. Root intrusive trees must not be planted in the road reserve. The developer or agent must liaise with Council's Health, Parks and Recreation Department prior to any planting for determination of species selection.

10. Carparking - Use and Maintenance

- (a) Car parking spaces shall be provided on site for the proposed development generally in accordance with the approved plans outlined in part 3 of the decision notice. To this end, parking must be provided at the following rates:
 - (i) A minimum of one (1) covered carparking space per dwelling for exclusive resident use
 - (ii) A minimum of 0.5 spaces per dwelling for visitor parking
 - (iii) A minimum of 0.5 spaces per dwelling for use by both residents and visitors.
- (b) Unless otherwise indicated on the approved plan of development or approved by the assessment manager, parking areas shall not be:
 - (i) Exclusively used for visitor parking at the expense of resident parking; or
 - (ii) Exclusively used for resident parking at the expense of visitor parking, or
- (c) All parking areas shall be:
 - (i) kept exclusively for parking;
 - (ii) used exclusively for parking;
 - (iii) accessible to both staff and the general public/customer during any approved hours of operation;
 - (iv) appropriately signposted at the entry/entries to the carpark, to the satisfaction of the assessment manager (eg. "Staff and Customer Parking"), in accordance with AS1742; and
 - (v) maintained to the satisfaction of the assessment manager.

11. Carparking - Landscaping

Unless approved by the assessment manager, the equivalent of one (1) car parking bay for every eight contiguous (8) bays should be fully landscaped to provide shading to the carparks unless otherwise approved by the assessment manager. Such landscaped areas are required in addition to the number of car parking bays required under this approval and/or indicated on the approved plan of development. These areas should be landscaped with at least one shade tree centrally located and groundcovers as a minimum requirement. Details shall be included in the Landscaping Plan required by this Development Permit.

12. Hours of Construction

Unless otherwise determined in writing by the assessment manager, hours of construction must not exceed:

Monday to Saturday 6:30am to 6:30pm

Construction work must not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

13. Particular Use

This approval is for the particular use stated, and does not imply approval for other similar uses. The use of any of the structures associated with the Multiple Residential Use inclusive of car parking and any associated outdoor areas on the site, are not permitted to be used for any other purpose, unless, in the written opinion of the assessment manager, such use is ancillary and incidental to the predominant use of the site for a Multiple Residential Use.

14. Contributions

In accordance with the relevant Council Policies, the developer shall pay, prior to the issue of Form 21 – 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for each stage, whichever comes first, the following monies to Council:-

Stage 1

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP TOTAL: 9.48 EP No Credits Applicable	9.48 EP x \$338.62 x 1.1724 = \$ 3,763.5418 = \$ 3,764.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP TOTAL: 9.48 EP No Credits Applicable	9.48 EP x \$2,506.99 x 1.1724 = \$ 27,863.56932 = \$27,864.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP No Credits Applicable TOTAL= 9 EP	9 EP x \$ 1,120.00 x 1.1724 = \$ 11,817.792 = \$ 11,818.00
Sewerage	SW25 – SP49	\$ 923.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP No Credits Applicable TOTAL= 9 EP	9 EP x \$ 923.00 x 1.1724 = \$ 9,739.1268 = \$ 9,739.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	6 x 2 bedroom units @ 3.8 VT = 22.8 VT	22.8 VT x \$ 725.00 x 1.1281 = \$ 18,647.493 = \$ 18,647.00

			TOTAL: 22.8 VT	
			No Credits Applicable	
Total				\$ 71,832.00

Stage 2

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	4 x 2 bedroom units @ 1.58 EP = 6.32 EP 8 x 3 bedroom units @ 2.34 EP = 18.72 EP TOTAL: 25.04 EP No Credits Applicable	25.04 EP x \$338.62 x 1.1724 = \$ 9,940.832124 = \$ 9,941.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	4 x 2 bedroom units @ 1.58 EP = 6.32 EP 8 x 3 bedroom units @ 2.34 EP = 18.72 EP TOTAL: 25.04 EP No Credits Applicable	25.04 EP x \$ 2,506.99 x 1.1724 = \$ 73,597.4447 = \$ 73,597.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	4 x 2 bedroom units @ 1.5 EP = 6 EP 8 x 3 bedroom units @ 1.75 EP = 14 EP No Credits Applicable TOTAL= 20 EP	20 EP x \$ 1,120.00 x 1.1724 = \$ 26,261.76 = \$ 26,262.00
Sewerage	SW25 – SP49	\$ 923.00 Index: 1.1724	4 x 2 bedroom units @ 1.5 EP = 6 EP 8 x 3 bedroom units @ 1.75 EP = 14 EP No Credits Applicable TOTAL= 20 EP	20 EP x \$ 923.00 x 1.1724 = \$ 21,642.504 = \$ 21,643.00
Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	4 x 2 bedroom units @ 3.8 VT = 15.2 VT 8 x 3 bedroom units @ 5.6 VT	60 VT x \$ 725.00 x 1.1281 = \$ 49,072.35 = \$ 49,072.00

			= 44.8 VT	
			TOTAL: 60 VT	
			No Credits Applicable	
Total				\$ 180,515.00

The contributions above shall be applicable for a period of **twelve (12) months from the date of the development approval**, and thereafter shall be based on the infrastructure contribution policies and rates applicable at the date when payment is made.

The developer is advised that direct debit, personal and/or company cheques cannot be accepted as payment for the above contributions. The only acceptable forms of payments are cash (EFT payments included), bank cheques.

15. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) shall make reference to the relevant, approved place name under the *Place Names Act 1994* in a contrasting colour and in lettering no less than 50% of the Estate name.
- (b) Any reference to the regional location of the site or the development shall not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

16. Engineering Requirements

The following engineering requirements, detailed in Conditions 17 – 32, shall be completed to the satisfaction of the assessment manager.

Terms

- (a) RPEQ - A Registered Professional Engineer of Queensland, suitably qualified and experienced in the particular area of expertise required. Furthermore, the RPEQ required for the analysis and reporting for mining shall be experienced in the analysis of underground and surface mining within the Ipswich area.
- (b) QUDM – The *Queensland Urban Drainage Manual (2007 Edition)*, produced by the Queensland Department of Environment and Natural Resources.
- (c) MUTCD - *The Manual of Uniform Traffic Control Devices*, published by DTMR.
- (d) QUU – Queensland Urban Utilities – trading name of the Central SEQ Distributor-Retailer Authority, providing water and wastewater services to Ipswich City under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.

- (e) DTMR - Department of Transport and Main Roads.
- (f) DERM - Department of Environment and Resource Management.
- (g) DIP – Department of Infrastructure and Planning.
- (h) ARI – Average Return Interval - used to define flood frequency and severity.

17. Roadworks

- (a) All roadworks must be designed and constructed in accordance with Council's Policies and Standards, the *DMR Road Planning & Design Manual*, Austroads Publications and any other documentation accepted as best practice by Council. The design and construction of each road or street must ensure that the speed environment, geometry, sight distances, carriageway widths, lighting, facilities for bus stops, refuse collection vehicle movements, pedestrians and cyclists, and on-street parking and other physical attributes are consistent with the function and role of the road or street in the transportation network.
- (b) Road pavements must be designed and constructed in accordance with the Ipswich City Council's Planning Scheme Policy 3 - General Works, Chapter 5 - Roadworks. All roads must have two way cross-falls in accordance with Council's adopted standards.
- (c) Kerb ramps must be constructed in accordance with Council's Standard Drawing SR.18 at all intersections and at additional locations where they are required to connect concrete pathways and cycleways. Generally at "T" intersections, four (4) kerb ramps are required.
- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, Colvin Street must be reconstructed as an Access Street with asphaltic concrete surfacing to enable a carriageway width of 7.5 m, from Canning Street to Lennon Lane together with concrete kerbing and channelling both sides, associated works and stormwater drainage.
- (e) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a vehicle turning area must be provided at the northern end of Colvin Street adjacent to Lennon Lane. A circular cul-de-sac turning head, based on a minimum turning circle of 9.0 m radius, must be constructed.
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, revised signage and linemarking must be provided as part of the Colvin Street upgrade to delineate the one-way traffic flow requirements on Lennon Lane.
- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the developer must, as part of the Colvin Street reconstruction, integrate satisfactorily

with existing infrastructure at the Canning Street / Colvin Street intersection and the Colvin Street / Lennon Lane intersection (including finished levels, removal/reinstatement of linemarking and installation of appropriate signs). The construction interface with Lennon Lane may include a concrete crossover generally in accordance with Council's Standard Drawing SR.13.

- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the developer must upgrade / reconfigure North Street across the frontage of the development site between Ferguson Street and the site's access point in accordance with Council's Standards for a collector street (refer Standard Drawing SR.02). Additionally, the developer must upgrade / reconfigure North Street across the frontage of the development site between the site's access point and the Telegraph Street road reserve in accordance with Council's Standards for an access street (refer Standard Drawing SR.02). Works must include the following:-
 - (i) Kerb and channel and associated stormwater drainage. Works must occur on both sides of North Street and extend to the tangent point into Fitzgibbon Street;
 - (ii) Reconstructed pavement;
 - (iii) Concrete footpaths as per conditions below;
 - (iv) Timber bollards and railings along the drainage corridor;
- (i) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the intersection of North Street / Fitzgibbon Street/ Site Access Point must be reconfigured as recommended in the Traffic Impact Assessment Report prepared by Bitzios Consulting dated September 2009. The site access point leg of the intersection must be designed as if for a public roadway including 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 site access point must be configured with kerb and channelling that is clearly recognised by road users and pedestrians and with a finished level that matches with the existing road surface in North Street. The existing culverts at this crossing must be extended to a minimum width of 20.0m to allow for all proposed road and verge works to be accommodated. Approved pedestrian safety railings located at the headwalls must be provided.
- (j) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete path for shared use by pedestrians and cyclists (minimum 2.5m wide) must be constructed between the site, the existing community facilities on Downs Street (at the intersection of Downs and Lawrence Street) and the future extension of the "Brassall Bikeway Phase 1". The shared path must be constructed:
 - (i) in accordance with Council standards;

- (ii) with lighting in open space areas in accordance with the AS1158 series;
 - (iii) generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) with an alignment generally in accordance with that outlined on either Attachment A or Attachment B;
 - (v) to integrate with Council's planning for the Brassall Bikeway;
 - (vi) with route markers/direction signs;
- (k) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site and Downs Street (via Colvin Street and Canning Street). The footpath must be constructed:
- (i) in accordance with Council standards;
 - (ii) with lighting in open space areas in accordance with the AS1158 series;
 - (iii) be constructed generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) with an alignment generally in accordance with that outlined on Attachment B;
 - (v) with route markers/direction signs;
 - (vi) in accordance with Council's Standard Drawing SR.19
- (l) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site entry roadway and extend north to join to the existing concrete footpath located along the western side of North Street.
- (m) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a monetary contribution of AUD\$25,000 must be paid to Council for future bus stop infrastructure. This amount must be fixed for 12 months from the date of the Decision Notice and then must be adjusted in accordance with Road & Bridge Construction Cost Index applicable to Queensland at the time of payment.

This contribution is applicable once only for the entire development (comprising of Development Application 6293/09 and 2727/10). The payment of this contribution is required once to satisfy the relevant conditions of each development approval.

- (n) The road pavement widths and geometric layouts, internal and external to the development must make adequate provision for Council's refuse collection vehicles and public transport movements where appropriate.
- (o) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a vehicle turning area must be provided at the southern end of the works in North Street. Circular cul-de-sac turning heads, based on a minimum turning circle of 9.0 m radius, must be provided.
- (p) Access to existing driveways for properties affected by all extended works associated with this development must be maintained between 6:30pm and 6:30 am Monday to Saturday.
- (q) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, an emergency driveway and access at the secondary culvert crossing adjacent to Unit Block 17 must be provided. This access way must consist of min. 3.0m wide concrete driveway extending from a layback in the kerb and channel in North Street, through to connect to the proposed internal road. Lockable removable bollards and approved pedestrian safety railings located at the headwalls must be provided at this location.
- (r) "No Through Road" signs must be erected at the entries to all culs-de-sac and terminating roads.

18. Access and Parking

- (a) All access and parking must be designed and constructed in accordance with the provisions of the Planning Scheme Parking Code and Australian Standards (2890 Series).
- (b) Parking and manoeuvring areas must accommodate the largest anticipated vehicle to use the site.
- (c) Adequate facilities for servicing the development must be provided on site to ensure loading and/or unloading activities do not occur on-street.
- (d) Provision must be made for all vehicles to enter and exit the site in forward gear.
- (e) All parking, access and manoeuvring areas must be constructed of concrete, bitumen or equivalent materials approved by the assessment manager, and must be line-marked in accordance with the relevant Australian Standard. Associated signage in accordance with MUTCD internal to the site must also be provided as required.
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in Colvin Street to the property boundary for access to the proposed unit

development (Block 21 and 22) in accordance with Council's Standard Drawing SR.13.

- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in North Street to the property boundary for access to the proposed unit development in accordance with Council's Standard Drawing SR.13.
- (h) The developer must provide concrete footpaths of minimum width 1.5 m on one side of all internal roads within the development. Footpaths must be external to the road widths nominated on the approved drawings.
- (i) Any internal roads within the unit development that may be extended as a part of a later stage must be provided with a minimum 18m diameter gravel turn around area with a two-coat bitumen seal. Hazard markers and delineator posts must be erected to define the turnarounds.
- (j) Garage doors to all units must be a minimum 2.7m wide to facilitate effective manoeuvring of vehicles.

19. Stormwater Quantity

- (a) The developer must provide all necessary internal and external stormwater drainage to service the development. Such drainage works (except for building gutters and downpipes) must be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years.

In the case where the piped system is carrying part of the flow, the overland flow paths must be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system.

- (b) Registered drainage easements, if related to piped drainage (generally 375mm diameter or greater), must be centrally located over such underground pipe system and must be not less than 4.0m wide. In addition, the easements must be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location.
- (c) No ponding, concentration or redirection of stormwater may occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land.
- (d) All stormwater headwall structures must be constructed in accordance with the relevant DMR standard drawings for reinforced concrete headwalls and aprons.
- (e) Stormwater drainage plans and calculations must be submitted for approval by the assessment manager, as part of the operational works application.

- (f) Appropriate works must be carried out to ensure that stormwater drainage from the new kerb and channel discharges suitably into the existing drainage system.
- (g) 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 within Table 3.3, the minimum pad level for any of the units on this site must be 19.2m AHD.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the finished surface profile approved under the bulk earthworks approval for operational works application no. 3262/2010 west of the existing railway line must be achieved.
- (i) The developer must provide a coarse sediment forebay, suitable sized for the upstream contributing catchment designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event at the existing stormwater outlet adjacent to the North and Telegraph Street intersection. The sediment forebay must be designed to allow cleaning by a skid steer bobcat or equivalent. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The sediment forebay must include provision for all weather maintenance access.
- (j) The existing concrete lined stormwater drain through proposed Lot 551 must be reconstructed as a Rock and Vegetation Low-Flow Channel, generally in accordance with Fig. 9.13 of QUDM 2007. The channel must be designed and constructed in accordance with the following criteria:-
 - (i) Rock channel must be sized to cater for a Q10 ARI storm event from the upstream contributing catchment;
 - (ii) A 3.0m wide minimum access driveway culvert must be provided midway to allow maintenance access to either side of the overland flowpath;
 - (iii) The rock lined channel must extend from the existing outlet headwall adjacent to the western end of Telegraph Street through to the existing culvert underneath the railway embankment at the western side of proposed Lot 551;
 - (iv) Landscaping must be provided along the entire length of this channel firstly to provided a "mowing edge" (lomandras or equivalent can be used in this instance), secondly, to provide appropriate planting in accordance with WSUD TDG within the rock channel itself, and thirdly, appropriate planting provided to ensure partial shading of the rock lined portion of the overland flowpath to limit weed growth. Plans detailing required landscaping must be submitted to Council for approval.
- (k) For stormwater management purposes the development must be designed and constructed in accordance with the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010), subject to the following amendments and/or clarifications:

- (i) All flows between Q3 month and Q10 must be piped directly to the invert of the overland flow path in proposed lot 51 and must bypass the bioretention basins.
- (ii) As part of the operational works application the developer must demonstrate satisfactory management of overland flows in terms of erosion and scour protection for storm events that are between Q10 and Q100 ARI from the building pad and internal road level within the unit development down the batters through proposed Lot 551 and into the invert of the existing stormwater overland flowpath.
- (iii) Construction of the bio retention basins in close proximity to the top of the proposed batters must incorporate the recommendations made by Morrison Geotechnic Pty Ltd in correspondence to Leda Developments Pty Ltd dated 5 March 2010.

20. Stormwater Quality

- (a) Stormwater quality for the development must achieve a reduction in the average annual pollutant load as follows prior to discharge from the site:
 - 80% for total suspended solids;
 - 60% for total phosphorus;
 - 45% for total nitrogen; and
 - 90% for gross pollutants.
- (b) The water quality objectives listed at (a) must be achieved through the implementation of the treatment train outlined in the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010) subject to the amendments outlined in this Condition and Condition 4 above relating to Stormwater Quantity.
- (c) In conjunction with an application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, amended Stormwater Quality Management drawings prepared by a RPEQ in accordance with the Water Sensitive Urban Design Technical Design Guidelines (WSUD TDG) for South East Queensland, the Approved Site Based Stormwater Management Plan and the requirements of this Condition. The Operational Works drawings must detail, amongst other necessary items, the following:
 - (i) Plans and cross sections showing the final locations for rainwater tanks, bioretention basins and stormwater infrastructure required by this Condition, consistent with Council's Standard Drawings and the WSUD TDG (version current at the time of detailed design). The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) The bioretention basin(s) parameters represented in Table 1;

Table 1

	Catchment A	Catchment C
Surface Area (m ²)	240	25
Filter Media Area (m ²)	75	25
Filter Media Median Particle Size (mm)	0.45	0.45
Filter Media material	Sandy loam	Sandy loam
Filter Media Depth (m)	0.6	0.5
Hydraulic conductivity (mm/hr)	180	180
Transition layer depth (mm)	0.1	0.1
Minimum drainage layer depth (mm) [#]	0.2	0.2
Extended detention depth (m)	0.3	0.3
Pre-treatment method	Sediment forebay ^{##}	Sediment forebay ^{##}
Maximum batter slope	1:4	1:4

[#] The length of the bioretention basin will dictate the depth of the drainage layer, in order to maintain a minimum fall of 0.5% within the drainage pipes.

^{##} The area required for sediment forebay must be confirmed during detailed design, in accordance with Condition (iii).

- (iii) A suitable fore-bay or pre-treatment area designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event . Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The pre-treatment area is to be located external to the area required for the bioretention basin filter media and is to include provision for all weather maintenance access.
- (iv) The area required for scour protection, in accordance with the design principles outlined in the WSUD TDG. The area required for scour protection must be in addition to that required for the bioretention basin filter area.
- (v) The plans must detail the overflow weir/outlet that has been positioned at the height of the extended detention specified at item (ii). Calculations must be provided to demonstrate that the velocities across the bioretention basin comply with those listed in Section 5.2.2 of the WSUD TDG and that any temporary flood storage can drain rapidly following storm events;
- (vi) Drainage and transitional layers that have been designed in accordance with Section 5.3.4 of the WSUD TDG and an underdrain design in accordance with Section 5.3.5 of the WSUD TDG;
- (vii) The slotted 100mm uPVC pipes placed within the drainage layer of the bioretention basin. The drawings must specify that these are not to be substituted with aggi pipes nor wrapped in geofabric;
- (viii) Detail the grade at which drainage pipes must be laid, the relevant density and size of slots in the drainage pipes . A minimum fall of 0.5% is required for the drainage

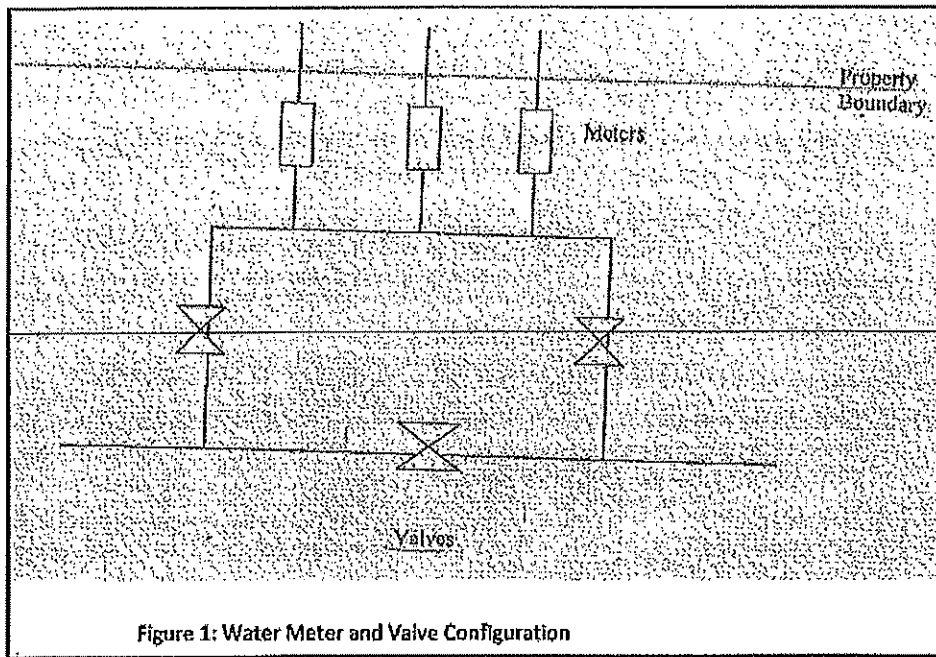
pipes and depending on the length of the bioretention this may impact significantly on the depth of the drainage layer specified at (ii). The length of all 100mm slotted drainage pipes must not exceed 25m. For longer lengths the pipe diameter must be increased or duplicated to increase conveyance;

- (ix) A uPVC inspection riser with screw cap lid at the head of each slotted pipe, for maintenance flushing. The risers are to be generally in accordance with BCC drawing UMS153, however, must extend a minimum of 150mm above the surface of the filter media. The drawings must contain a note that states that risers are not to be slotted;
- (x) A level (flat) surface of the bioretention basin filter media in order to allow even absorption through the filter media;
- (xi) Soil specifications for the various bioretention basin filter media layers, which are provided in accordance with the current version of the Guidelines For Soil Filter Media In Bioretention Systems, Facility for Advancing Water Biofiltration (FAWB);
- (xii) Provide geofabric around the base of the drainage layer, walls and batters of the basins. Geofabric must not be laid between any of the filter layers or used to wrap the slotted uPVC drainage pipes;
- (xiii) Landscaping to the bioretention basin, including filter media and batters, in accordance with plant species and densities outlined in Appendix A of the WSUD TDG. Detailed planting schedules (plant species, number and planting densities) for each of the bioretention basin filter area, bioretention basin batter areas and other landscaped and embankment areas as shown on the Stormwater Management Plan (YC0175-SW01 Revision B dated 5 March 2010) must be shown on the operational works drawings. A minimum species variety of 3 different species must be utilised within the bioretention basin filter area; and.
- (xiv) Include a note which refers to the Healthy Waterways Bioretention Basin Construction and Establishment Sign Off Forms (including Forms A-G) for use throughout construction. The Operational Works drawings must include notes referring to the staging and timing of the commissioning of the bioretention basins and measures to protect the filter media during development within the contributing catchment.
- (d) An amended catchment plan that demonstrates how all flows up to the 3 month ARI event from the site will enter and be treated through the bioretention basins. The plan must include surface levels and invert levels for all piped stormwater infrastructure.
- (e) A copy of the calculations used to size the drainage, as required by Condition (c), must be provided at the time of lodging the Operational Works application. Similarly, calculations must be provided to demonstrate that the pipes connected downstream of the drainage pipes are suitably sized to avoid becoming the hydraulic control and the filter media is free draining.

- (f) A staged implementation approach must be employed for the bioretention areas ensuring that filter media is either laid after, or the filter is protected until, 90% of the construction and building works have been completed for the area contributing to the bioretention basin. The staging and timing of the commissioning of the bioretention basin must be outlined as part of the Operational Works application and notes must be included on the plans accordingly.
- (g) Prior to lodgement of detailed Operational Works drawings the Developer must receive certification from a RPEQ that the detailed drawings are in accordance with the approved Stormwater Management Plan, these Conditions of Approval and the WSUD TDG. A copy of the certification must be lodged in conjunction with an Operational Works application along with completed copies of the WSUD TDG Design Assessment Checklists and Calculation Summary Checklists.

21. Water Supply

- (a) The developer must provide a reticulated water supply system within the development which connects into Council's existing reticulation system, together with valves and fire hydrants, in accordance with the *Guidelines for Planning and Design of Urban Water Supply Systems*.
- (b) All works on live water mains must be carried out by QUU in accordance with *Planning Scheme Policy 3 Section 11.1.2*, and at the developer's expense.
- (c) The developer must lodge a private works request for QUU to:
 - (i) Supply and install suitable metered water connections to each segment of the proposed development, generally in accordance with Figure 1 below;
 - (ii) Amend the existing connection if necessary; and
 - (iii) Seal off any existing water connections if necessary.



- (d) Wherever possible, the water main must be constructed on the opposite side of the road to the concrete footpaths.
 - (e) Where the developer is required to supply a water connection to the development, the connections must be installed in accordance with Standard Drawings SW.14 and SW.15.
 - (f) Where the water main is under a concrete footpath, the developer must provide a water connection to each allotment, excluding the provision of meters, but including the provision of approved pre-cast concrete or cast iron path boxes over the stop cock, in accordance with *Standard Drawing SW.08*. The boxes must be placed flush with the finished turf surface level.
 - (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the existing 100mm dia watermain in Lennon Lane must be extended to the west and into Colvin Street to join into the existing 150mm dia. main at the intersection of Canning and Colvin Street.
 - (h) The QUU water supply system has been designed to achieve the target levels of service as outlined in Planning Scheme Policy 3 Section 4.1.2 *Standard of Service*. It is the responsibility of the developer to provide any fire fighting requirements over and above QUU's target levels of service, at their expense, internally and without adverse impact to the water supply system.
22. Sewerage
- (a) Structures constructed on the Colvin Street side of the development site (Stage 1) must be positioned to comply with one of the following in order of preference:

- (i) No part of a structure, including footings, must be located within 1.5m of the outer edge of the sewer main, or within 2.0m of the access chamber respectively;
 - (ii) If any structure cannot be positioned outside these limits, the sewer must be located, removed and re-laid around the proposed structure(s);
 - (iii) Should (i) and (ii) above be deemed impractical by the assessment manager, then the developer must submit to the assessment manager for approval, an application to build over infrastructure.
- (b) The developer must pay the full cost for QUU to provide suitable connections into the existing sewerage reticulation system. All works on live sewers must be carried out by QUU at the developer's expense in accordance with *Planning Scheme Policy 3 Section 10.1.2*, unless arranged otherwise with QUU.
 - (c) The connection for the unit development fronting North Street (Stage 2) must be into the existing sewerage reticulation system at the connection point, which is at the existing sewer manhole adjacent to the North / Telegraph Street intersection (Gasset 706,066).
 - (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, any existing sewerage or sanitary drainage that crosses proposed lot boundaries (other than the 300mm dia. private main from the existing Railways Museum and Workshops) must be located, disconnected and removed to the satisfaction of the assessment manager.
 - (e) The existing private sewer underneath Unit Blocks 13 and 14 (Stage 2) must be sufficiently protected against damage due to construction activities associated with this development. Any damage sustained during this construction period must be repaired by the developer.
 - (f) No work on the sewerage reticulation system may commence prior to the approval of the operational works application.

23. Landscaping

- (a) Landscape Master Plan must utilise non-invasive natives to replace:
 - Poinciana (Delonix regia)
 - Leopardwood (Caesalpinnea ferra)
 - European Olive (Olea Europaea)
- (b) In conjunction with the Operational Works application a Landscape Plan, which conforms to the approved Development Plan and the Residential Medium Density and Commercial and Industrial Zone Codes, must be submitted to Council for Approval by the Engineering and Environment Manager. Such plan must include, amongst other necessary items:

- (i) Clear delineation of areas required for stormwater management, landscaping and public and private open space areas. The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
- (ii) Planting to bioretention basin filter areas and batter slopes, required by Conditions 19 and 20 of this approval, in accordance with the Water Sensitive Urban Design Technical Design Guidelines for South East Queensland;
- (iii) Planting within landscaped areas must exclude the use of exotics and environmental weeds. Consideration shall be given to utilising Council's Vegetation Communities Rehabilitation Guide 4 Open Forests and Woodlands.
- (c) The Developer must complete landscaping and fencing works in accordance with the approved landscape plans to the satisfaction of the Engineering and Environment Manager prior to the commencement of the use of the land unless Council determines otherwise. Such landscaping and fencing shall be maintained in perpetuity to Council's satisfaction by the existing or future owners and occupiers of the property.

24. Waste Storage and Collection

- (a) An adequate domestic waste service must be provided that includes waste and recyclable storage equivalent to the following:
 - (i) A minimum of one (1) 240L general waste wheelie bin for every two (2) dwellings;
 - (ii) A minimum of one (1) 240L recyclables wheelie bin for every two (3) dwellings
- (b) Where dedicated communal waste storage areas are provided these areas must be level, concreted and constructed in conjunction with the driveway surface with no intervening step, ledge, kerb or other obstruction and must be enclosed with a suitable screen fence;
- (c) The waste storage and collection areas must allow for forward motion entry to the waste containers and forward motion entry and exit to and from the site. Further, any proposed bin service area must be of sufficient proportions that it does not require the vehicle to reverse any further than two vehicle lengths or breach any Workplace Health and Safety requirements.
- (d) Vehicle manoeuvring templates must be provided to Council demonstrating compliance with this condition as part of the operational works submission.
- (e) In conjunction with the application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, detailed plans and certification from a Civil Engineer (RPEQ) which demonstrate that the requirements of this condition have been incorporated into the development.

25. Lighting

- (a) All lighting, including security, advertising and flood lighting, must be designed, constructed, located and maintained so as not to cause nuisance to the occupants of nearby properties (existing or proposed) or passing traffic. \
- (b) Carparks and pedestrian walkways shall be illuminated where night use parking is anticipated. Illumination levels shall be 15 lux for open surface carparks.
- (c) All car park lighting shall comply with the requirements outlined in Australian Standard for Off-Street Carparking (AS 2890.1:2004) or any Australian Standard in substitution for this standard.
- (d) Consideration shall be given to light spillage onto adjoining land and roadways. Illumination levels outside the boundaries of the site shall not exceed 8 lux when measured 1.5 metres outside the boundary of the site at any level upwards from the ground. Footpath crossings shall be illuminated to 50 lux.

26. Earthworks and Retaining Walls

- (a) In conjunction with any application for operational works the developer must provide details of the proposed earthworks for the development including cut/fill depths, batter slopes, retaining wall heights, typical cross-sections etc. Earthworks and any retaining structures must comply with the requirements of Ipswich Planning Scheme Part 12, Division 15 – Earthworks Code. Notably, cut/fill should not exceed a maximum height of 2.0 metres. Retaining walls should not exceed a maximum height of 1.2 metres with 1 in 4 batters from the top and toe of the wall.
- (b) Where earthworks are proposed within three metres of the property boundary or are likely to affect adjoining property owners, the developer must notify the affected property owners in writing, and obtain written comments from them, as detailed in Part 12, Div 15 - Specific Outcome 19 and Note 12.15.4K. Written comments from the affected owners (or at least the supporting documentation of notification and consultation with the adjoining property owners to the Council's satisfaction) must be submitted to Council for consideration, in conjunction with any operational works application.
- (c) Retaining walls, including footings and drainage systems, must be constructed entirely within the boundaries of the lot and in accordance with the requirements of Planning Scheme Policy 3 – General Works. All retaining walls greater than 1.0m in height must be RPEQ certified to be structurally sound. Retaining walls greater than 1.0 m in public places must be provided with railings or other barriers to provide pedestrian safety
- (d) Any fill within a Building Location Envelope must be compacted in accordance with Section 5 (Compaction Criteria) of AS 3798 – 1996 *"Guidelines on Earthworks for Commercial and Residential Developments"*.
- (e) 3.0m minimum clearance must be maintained from the toe of the 1 in 2 batters internal to both unit development sites to the common boundary with proposed Lot 551.

- (f) Once all bulk earthworks and associated rehabilitation are completed on Lot 55 on SP222487, the maximum batter slope contained within any disturbed area of proposed Lot 551 must not exceed 1 in 6.

27. Erosion & Silt Management

- (a) As part of the application for operational works, the developer must submit with the operational works application, an Erosion and Silt Management Plan designed in accordance with "*Best Practice Erosion and Sediment Control*" published by the International Erosion Control Association (Australasia) November 2008, or equivalent. Plans must be certified by a suitable qualified professional.
- (b) The developer must install silt management facilities at commencement of construction and maintain these facilities until the development has been released off maintenance by Council.
- (c) Silt traps must be sited upstream from any park or reserve area discharge point such that no silt impinges on the park or reserve areas. The silt trap areas may be phased out after the development work is complete and adequate grass cover is obtained.
- (d) Diversion drains and ponds, as necessary, must be installed on the site before any other work is undertaken on site to ensure that water containing silt, clay, solids or contaminants is contained and/or isolated.
- (e) Prior to the Pre-Start meeting for operational works, the developer must lodge a \$10,000.00 Siltation and Erosion Performance Bond with Council. This bond shall only be released by Council at the termination of the maintenance period.
- (f) If the assessment manager determines that silt damage has occurred as a result of this development, the developer shall be responsible for restoration of any damage. Such restoration must be completed within a time to be advised by the assessment manager. Should the developer fail to complete the works determined by the assessment manager within the specified time, Council may elect to complete the works and recover all costs associated with that work from the developer.
- (g) Where Council determines that a draw-down of the bond is required, the developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.

28. Public Utilities

- (a) Adequate provision must be made in all proposed dedicated roads, access strips and access easements, to cater for the public utility services that would normally serve the development.
- (b) The developer must provide appropriate road crossing conduits in accordance with Council's Standard Drawings SR.22 and SR.23. Where concrete footpaths are to be constructed, the conduits must be extended to the property boundaries.

- (c) The developer must provide an RPEQ certified electrical reticulation layout plan with the operational works application.
- (d) The developer must provide underground electricity and telecommunications externally where necessary and within the development, constructed in the approved allocation as detailed in Council's Standard Drawings SR.22 and SR.23. Electricity and telecommunication drawings must be co-ordinated with the civil engineering design documents, to ensure that service conflicts are avoided. Where allotments front an existing overhead electricity or telecommunication service, these allotments may connect to such service subject to the approval and requirements of the service provider.
- (e) The developer must provide Council with a copy of a Certificate for Electricity Supply to the development from a registered energy service provider, prior to the signing of the Plan of Survey.
- (f) Street lighting must be installed by the developer within the upgraded sections of North and Colvin Streets in accordance with the Australian Standard 1158.3.1 Series for Pedestrians and Vehicles and installed in accordance with Energex Rate 2. All street lighting associated with the development must be certified by an RPEQ. Street lighting must be installed on the same side as concrete footpaths (where applicable).
- (g) The developer must make suitable arrangements for the provision of electricity, telephone and (where applicable) cable services to all proposed units within the development. Documentary evidence that electricity, telephone and/or cable services will be provided, must be submitted to Council prior to the signing of the plan of survey.
- (h) Telephone and cable services may be laid in a combined trench with electricity cables, subject to the approval of the relevant energy service provider and the authorised telephone or cable service provider.

29. Operational Works – Municipal Works
(ie Works being handed over to Council)

External Municipal Works relates to those works external to the subject site and located in dedicated public areas, for example existing road or drainage reserve, or private property not subject to developer ownership.

- (a) Municipal works must be completed in accordance with a detailed design certified by an RPEQ and approved by Council Engineers with appropriate fees payable, a works pre-start meeting on-site and various detailed construction and audit inspections by Council Officers. In accordance with Planning Scheme Policy 3, a maintenance period applies for the works and a maintenance security deposit is required.
- (b) The requirements of Council's Planning Scheme Policy 3 - General Works and Council's Standard Drawings shall apply to the municipal works. Where

inconsistencies between any documents occur, Planning Scheme Policy 3 has precedence and must prevail to the extent of the inconsistency.

- (c) All engineering drawings must be submitted in accordance with *Planning Scheme Policy 2 – Information Local Government May Request* and include as a minimum the following:
 - (i) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ;
 - (ii) The drawings must be submitted as four (4) hardcopy, A3 size sets. Reports and supporting information must be submitted as two (2) hardcopy sets.

The submission must also include a compact disk containing electronic data as follows:

- (a) One (1) full set of all engineering drawings contained in one file;
- (b) Separate individual files containing layout plans for sewerage, water supply and drainage;
- (c) Any reports submitted in support of the application. Each report must be included as a separate file; and
- (d) An index of all files on the compact disk including descriptions of contents of each file.

All files must be submitted in PDF format.

- (d) The developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) All works must be supervised by an RPEQ competent in civil works and must be undertaken by a nominated principal contractor experienced in the construction of municipal works. Council reserves the right to request evidence of the principal contractor's competency. Should the contractor not be able to demonstrate the necessary competency to the satisfaction of the assessment manager or if the contractor has constructed substandard works for Council in the past, Council reserves the right to reject the nominated contractor.
- (f) Prior to the Pre-Start meeting, the developer must submit to Council a Development Performance Bond of not less than 10% of the value of external municipal works (minimum \$5,000.00), as security for the performance of the various construction and certification obligations (including provision of "As Constructed" information).

- (g) Municipal works must be accepted "On Maintenance" prior to commencement of use. On completion of the works an "On Maintenance" acceptance inspection may be arranged by submission of a certificate signed by an RPEQ certifying that the works have been constructed in accordance with the approved plans and specifications and in compliance with Council's construction standards. It is expected that the RPEQ will undertake the necessary inspections to make this certification.
 - (h) Upon formal acceptance of the works "On Maintenance", the Development Performance Bond shall be reduced to an amount not less than 5% of the value of the works or \$5,000.00 whichever is greater, and shall be retained by Council during the maintenance period as a Maintenance Security Bond for the performance of the maintenance obligations. Alternatively the developer may submit a separate Maintenance Security Bond of equivalent value. This Bond shall be retained by Council in accordance with *Planning Scheme Policy 3*, until the works are accepted "Off Maintenance" by Council.
 - (i) "As Constructed" information and final construction issue engineering design drawings, compiled in accordance with *Planning Scheme Policy 2 for Municipal Works*, with a Contributed Assets Financial Apportionment Form, must be submitted to Council and approved prior to the formal acceptance of the works "On Maintenance". This data must be submitted electronically on a compact disk labelled appropriately to indicate the contents.
 - (j) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent in regard to the works relevant to the operational works approval.
30. Operational Works – Internal Works
(ie Works not being handed over to Council)
- Internal Works refers to engineering works performed within private property and includes but is not limited to, earthworks, retaining walls, driveways and stormwater management systems.
- (a) Engineering plans must be submitted to Council prior to the commencement of construction on site and must show full construction details, layout dimensions, and finished surface levels.
 - (b) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ.
 - (c) The drawings must be submitted as four (4) hardcopy A3 size sets and one (1) full size set with two (2) hardcopy sets of any reports and supporting information. One set of drawings will be returned to the applicant with the Decision Notice. The submission must also include a compact disk containing electronic data as follows:
 - (i) A full set of all engineering drawings contained in one file;

- (ii) Separate individual files containing layouts for sewerage, water supply and drainage;
- (iii) Any reports submitted in support of the application. Each report must be included as a separate file; and
- (iv) An index of all files on the Compact Disc including descriptions of contents of each file.

All files must be submitted in PDF format.

Where municipal works are also being undertaken, it is usually appropriate to make a combined submission.

- (d) The developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) On completion of the works a certificate signed by an RPEQ must be submitted to Council, certifying that the works have been constructed in compliance with the approved plans and specifications and in accordance with Council's construction standards. The RPEQ must personally undertake the necessary inspections to make this certification.
- (f) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent.

31. Easements

- (a) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (b) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (c) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (d) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.

- (e) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (f) Adequate number of permanent survey marks must be installed to ensure clear definition of the development.

32. General

- (a) All works required for this development must take due regard of any and all existing services and, if considered necessary by the relevant authority or the assessment manager, such works must be altered at the cost of the developer.
- (b) Any fill intended to be placed over Council's underground services must be approved in advance by the assessment manager.
- (c) Should any works be proposed on land under other private ownership, written permission for the works must be obtained and forwarded to Council as part of the operational works application. Similarly, written clearances must be obtained after the works are completed, unless otherwise accepted by the assessment manager.
- (d) Any allotment or other filling creating a soil depth greater than 500mm must be conducted in accordance with *Australian Standard 3798* at Responsibility Level 1. Test results as required by *Australian Standard 3798*, and a certificate of quality and uniformity of fill, must be provided by an RPEQ.
- (e) Batters and slopes greater than 1:4 resulting from cutting and filling of the site must be certified by an RPEQ as stable and properly drained.
- (f) All imported and exported materials may be transported only on routes approved by the assessment manager.
- (g) All disturbed verge, park, allotment and other grassed areas must be rehabilitated and revegetated (including provision of topsoil to a minimum depth of 50mm) and turfed or seeded to the satisfaction of the assessment manager and in accordance with Planning Scheme Policy 3 - General Works (specifically part 6.1.6). Grass cover must be achieved as early as possible during the development and a minimum grass coverage of 80% must be achieved before the development can be accepted "Off Maintenance".
- (h) If, after the preparation of detailed design plans for the various roads, it is found necessary to provide any additional dedicated road area, or modify the proposed dedicated roads to enable the full requirements of Council's standards and Austroads documents to be incorporated in any way (but particularly in the production of the required speed environment or because of longitudinal and cross sectional constraints) then the development layout plan must be altered accordingly and approved in writing by the assessment manager.

33. Compliance with Conditions

- (a) All Condition must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

34. When Approval Takes Effect

This approval has effect in accordance with the provisions of Section 339 of the *Sustainable Planning Act 2009*.

Assessment Manager (Ipswich City Council) Conditions – Reconfiguring a Lot
Conditions applicable to this approval under Sustainable Planning Act:

1. Basis of Approval

Subject to these conditions, the facts and circumstances set out in the application and all relevant Council Local Laws and/or Planning Scheme Policies shall be adhered to.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications acceptable to the Development Manager will suffice.

3. Plan of Survey

- (a) The developer must submit to Council a plan of subdivision generally in accordance with the approved plan of development as outlined in the decision notice noting the following clarification:
 - (i) Proposed Lot 551 must not be dedicated to Council as part of the Reconfiguration component of this approval.
- (b) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (c) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (d) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (e) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.
- (f) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (g) An adequate number of permanent survey marks must be installed to ensure clear definition of the development. Prior to signing of the Plan of Survey, the developer must submit a certificate signed by a licensed surveyor, stating that after the completion of all works associated with the development, permanent survey marks are in their correct position in accordance with the plan of survey.

4. Rates in Arrears

In accordance with the provisions of the *Sustainable Planning Regulation 2009*, all rates and other expenses as a charge against the land must not be outstanding at the date of signing of the plan of subdivision.

5. Contaminated Land

Prior to Council signing the survey plan for this development the developer must submit RPEQ certification to comply with Condition 6(b) of the operational works approval for application 3262/2010/OW dated 13 July 2010. This certification must state that the completed bulk earthworks and rehabilitation of Lot 55 on SP222487 has been completed in accordance with these documents.

6. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) must make reference to the relevant, approved place name under the Place Names Act 1994 in a contrasting colour to the background, in lettering no less than 50% of the estate name and in the same orientation as the estate name.
- (b) Any reference to the regional location of the site or the development must not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

7. Compliance with Conditions

- (a) All Condition must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

8. When Approval Takes Effect

This approval has effect in accordance with the provisions of Section 339 of the *Sustainable Planning Act 2009*.

Conditions of Concurrence Agencies

- 1. The Department of Environment and Resource Management is a concurrence agency with regard to this development approval. The attached concurrence agency response, dated 28 September 2010, forms part of this Decision Notice.
- 2. Energex is a advice agency with regard to this development approval. The attached concurrence agency response, dated 4 June 2010, forms part of this Decision Notice.

B. The developer be further advised of the following:-

1. Further Subdivision

Where the land and/or buildings are to be subdivided in accordance with the *Body Corporate and Community Management Act 1997* all buildings must be substantially completed prior to the release of survey plans.

2. Signage

Signage should generally provide for identification rather than advertisement and should contribute to an attractive streetscape and integrate with the overall design and layout of a development. Emphasis should be placed upon:

- (a) Visual attractiveness
- (b) Fewer and more easily interpreted signs
- (c) Scales and proportions for signage which reflect and reinforce the architectural design of individual buildings or the streetscape in terms of location and dimension
- (d) The removal of undesirable signs
- (e) Compatibility with the scale of development and the amenity of surrounding land uses - sky/tower signs, revolving signs, signs projecting from building facades and bunting are discouraged

- (f) Maintaining views to key building features such as pediments and fenestration to ensure that they are not obscured, and
- (g) Grouping multiple tenancy signage into one structure.

3. Fire Ants

In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species *Solenopsis invicta*) and to eradicate it from the State.

It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

Director General
Department of Primary Industries
GPO Box 46, Brisbane QLD 4001

It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of a Department of Primary Industries Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

The development approved herein, by its very nature, includes activities considered to be "high risk" in respect of controlling the spread of Fire Ants. The following lists show high risk activities and some precautions should be considered for implementation.

- (a) High risk activities can include:
 - (i) Earthworks of a minor or major scale;
 - (ii) Revegetation or rehabilitation;
 - (iii) Import of fill onto a site;
 - (iv) Export of fill or other materials such as soils, gravel, mulch and plants; and
 - (v) Export off or import on to a site of construction and demolition waste and materials or green waste.
- (b) Precautions for implementation
 - (i) Checking for ants regularly;

- (ii) Checking all soil, fill and waste materials (construction and green waste) for ants;
- (iii) Asking questions about the quality and source of soil, fill and waste materials (construction and green waste);
- (iv) Keeping records of all movements of soil, fill and waste materials (construction and green waste);
- (v) Cleaning of all earthmoving or other soiled vehicles prior to exit from the site; and
- (vi) Informing staff and contractors about these precautions.

4. Portable Long Service Leave

From 1 January 2001, the Building and Construction Industry (Portable Long Service Leave) Levy must be paid prior to the issue of a development permit where one is required for the 'Building and Construction Industry'. This applies to Building Works, operational works and Plumbing and Drainage Works applications, as defined under the *Sustainable Planning Act 2009*, where the works are \$80 000 or more and matching the definition of 'Building and Construction Industry' under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*.

Council will not be able to issue a decision notice without receipt of details that the levy has been paid. Should you require clarification in regard to the amendments to the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, you should contact QLeave on 1800 803 481 (free call) or (07) 3212 6855.

5. Vehicle and Bin Washdown Facilities

The use of vehicle and bin washdown facilities are subject to any water restrictions that are current at the time of the requirement for the use of potable water.

6. Water Meter

All new commercial, industrial or large multi-residential property connections with a projected annual consumption greater than or equal to 20,000kL must have installed, at the customer's expense, an electronic water meter with a data logger and an approved back-to-base communication system as specified by QUU.

Properties with electronic water meters are subject to billing on a monthly basis in accordance with the metered monthly consumption.

If the proposed development is likely to have an annual water consumption equal to or greater than 20,000kL, the developer will be required to contact QUU on telephone 13 26 57 to arrange installation of an electronic flow meter.

7. Bonding of Incomplete Works Associated with Reconfiguring a Lot

Council may approve the signing of the Plan of Survey prior to the acceptance of works "On Maintenance", subject to compliance with the conditions listed in Planning Scheme Policy 3 Clause 14.1.4.

8. Submission of Drawings

Any engineering drawings submitted for Council review and approval in conjunction with an operational works application should be arranged to leave a blank space with minimum dimensions 6 cm wide and 14 cm high near the right border for a Council Stamp of Approval, so that any existing notes are not over-written by the stamp.

9. Water Reticulation Plans

The developer must submit hydraulic plans that comply with the requirements of the *Water Supply (Safety and Reliability) Act* for scrutiny by Council.

10. Plumbing and Drainage Approval

Scrutiny fees in accordance with the Council's Schedule of Fees and Charges must be paid at the time of lodgement of plans. No work on the plumbing and drainage may commence prior to the approval of the plan and the issuing of a permit, by this Council, to a Licensed Plumber/Drainer.

Tests and inspections must be arranged with the Plumbing Section upon payment of the appropriate current fee.

11. Drainage Reserve

The land nominated on the proposal plans as drainage reserve may not be dedicated as drainage reserve until the development works associated with this drainage reserve are completed in accordance with the Material Change of Use Approval and to the satisfaction of the assessment manager.

12. Further Development Infrastructure Contributions

The Applicant is advised that infrastructure contributions, footpath, and kerb and channelling contributions were not required as part of the Reconfiguring a Lot approval. Additionally, it is advised that there are no existing credits available for sewer, water, roadworks, parks and social infrastructure pursuant to Planning Scheme Policy 5 'Infrastructure', or for footpath, and kerb and channel for the site, therefore infrastructure contributions or requirements for construction may be applied accordingly as a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

13. Connection to Services

The Applicant is advised that connection to sewer, water and stormwater infrastructure are not required as part of the Reconfiguring a Lot development

approval, therefore connection to sewer, water and stormwater infrastructure may be a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

14. Protected Fauna Species

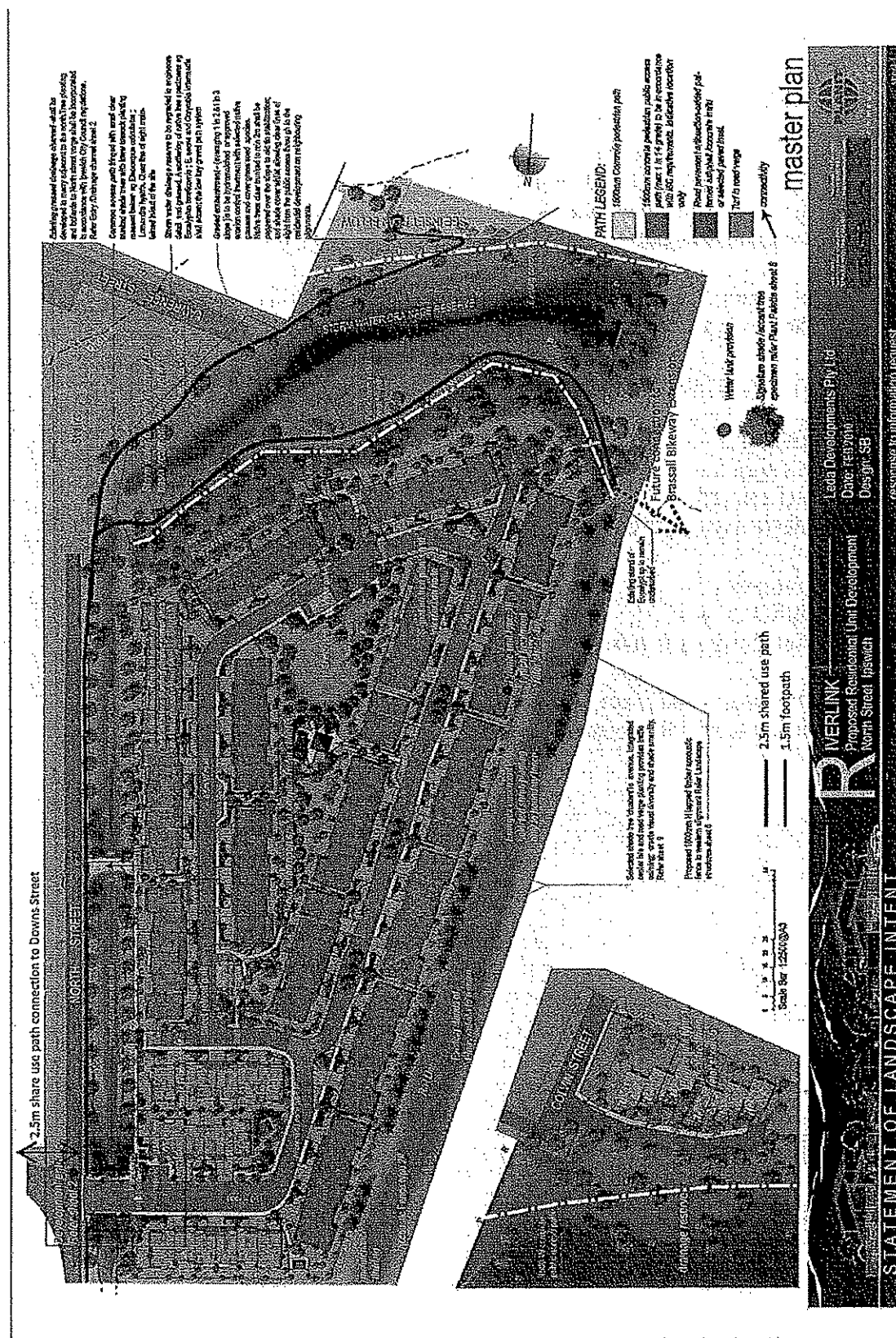
It is strongly suggested that the developer confirm that there are no fauna species which are protected under the *Environmental Protection and Biodiversity 1999*. Specifically, the developer should confirm the presence of protection status of bats which may be nesting in the culvert of the proposed drainage reserve.

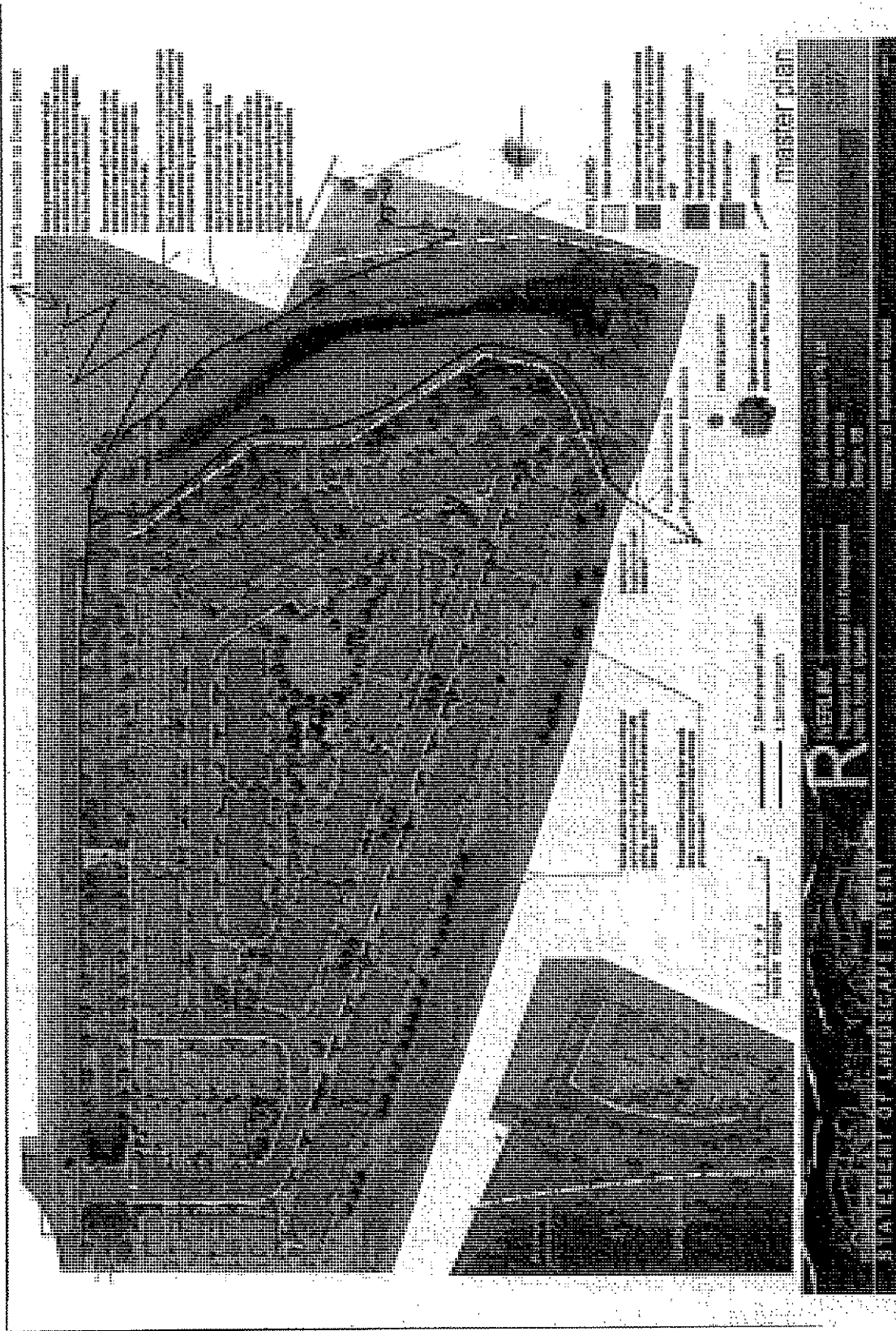
Pursuant to the provisions of the *Sustainable Planning Act 2009*, I also enclose herewith a copy of the relevant sections concerning:

C. A copy of this decision be forwarded to the following referral agencies:

1. DERM
SE Region
PO Box 1164
BEENLIEGH QLD 4207
2. Energex
GPO Box 1461
BRISBANE QLD 4001

D. That the Decision Notice advise the developer that there were two (2) properly made submissions received with respect to this application.





master plan

STATE OF CALIFORNIA
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF LAND MANAGEMENT
 1500 CALIFORNIA STREET, SUITE 100
 SACRAMENTO, CALIFORNIA 95833
 (916) 227-1234



Assessment Checklist

Impact Assessable Development

A. Application Details

Appln No.: 2727/10

Division: 6

B. Preamble Assessment

1. Are the real property description and location details provided on the Application Form correct? ☒ Yes ☐ No
2. Has the 'consent of owner' been correctly obtained? ☒ Yes ☐ No
3. Has the correct fee been paid? ☒ Yes ☐ No

C. Supporting Information

1. (a) Was any supporting material lodged with the application? ☒ Yes ☐ No

Comment: Planning Report, Extract from previous approval, Proposal Plans, Services Report, Stormwater Report, Contaminated Land Remediation Plan, Traffic Report, flood Report, Advice from Queensland Rail, Noise report

- (b) Are there any planning issues associated with this material? ☒ Yes ☐ No

Comment: A number of issues were identified in respect to fencing, pedestrian access, drainage, water supply, the provision of car washing bays, land stability, traffic, stormwater, noise and contaminated land.

2. (a) Is there a need for an Information Request? ☒ Yes ☐ No

Comment: Further Information was sought on 18 November 2009 regarding the above matters.

C. Supporting Information

(b) Are there any outstanding issues associated with the Information Response?

☐ Yes ☒ No ☐ N/A

D. Referral / Advice Agencies

1. Are there any referral or advice agencies applicable to this development?

☒ Yes ☐ No

Comment: DERM Contaminated Land Unit (Concurrence); DERM Heritage Unit (Advice); and Energex (Advice)

2. Are there any issues associated with advice received from a Referral / Advice Agency?

☐ Yes ☒ No ☐ N/A

Comment: The Department of Environment and Resource Management (DERM) is a Concurrence and Advice agency with respect to the application provided a coordinate response dated 28 September 2010. This response identified no objection to the proposal and required that no conditions be imposed.

Energex as an advice agency with respect to the application provide a response dated 4 June 2010. This response identified no objection with respect to the proposal.

E. State Planning Policies (SPP's)

1. Are there any SPP's applicable to this development?

☐ Yes ☒ No

2. Does the development comply with any relevant SPP's?

☐ Yes ☐ No ☒ N/A

F. Zone Code

1. What is the relevant zone code(s) for this development?

Riverlink Preliminary Approval Plan (Application 682/03) and the conditions of approval for this development application.

2. (a) Does the development require Code assessment under the relevant assessment table for the zone?

☐ Yes ☒ No

Comment: Impact Assessment is required pursuant to the Preliminary Approval.

The assessable codes are nominated as the relevant use codes within the Ipswich Planning Scheme and the relevant planning scheme policies in accordance with the Ipswich Planning Scheme. On this basis, assessment is required against the Preliminary Approval 682/03, the Residential Code of the Ipswich Planning Scheme, the Parking Code of the Ipswich Planning Scheme, Planning Scheme Policy 3: General Works, and Planning Scheme Policy 5: Infrastructure.

3. (a) Are there any overall or specific outcomes for the locality which apply to the development?

☐ Yes ☐ No ☒ N/A

(b) Does the development comply with any relevant overall or specific outcomes for the locality?

☐ Yes ☐ No ☒ N/A

4. Does the development comply with the overall outcomes for the zone?

☐ Yes ☐ No ☒ N/A

5. Does the development comply with the "Effects of Development – General" (including the specific outcomes and any applicable probable solutions or acceptable solutions) for the zone?

☐ Yes ☐ No ☒ N/A

6. (a) Are there any Sub Area or Precinct provisions within the zone which apply to this development?

☐ Yes ☒ No

(b) Does the development comply with these provisions?

☐ Yes ☐ No ☒ N/A

**G. Codes for a Stated Purpose or of a Stated Type
(refer Part 12 of the Planning Scheme)**

1. Are there any codes under Part 12 of the Planning Scheme applicable to the development?

☒ Yes ☐ No

Comment: The Residential Code of the Ipswich Planning Scheme, the Parking Code of the Ipswich Planning Scheme

2. Does the development comply with these codes?

☒ Yes ☐ No ☐ N/A

**H. Overlays (refer Part 11 of the
Planning Scheme)**

1. (a) Is the site affected by a Character Places Overlay?

☐ Yes ☒ No

- (b) Is the assessment category changed (refer Table 11.3.2)?

☐ Yes ☒ No ☐ N/A

- (c) Does the development comply with the Character Places Overlay Code and the Character Code?

☐ Yes ☐ No ☒ N/A

2. (a) Is the site affected by a Development Constraints Overlay?

☒ Yes ☐ No

Comment: The site is affected by Development Constraints Overlays, however these are not an applicable code pursuant to the Preliminary Approval.

Nonetheless, the proposal has been assessed against this code. Specifically, the subject site is affected by flooding and a stormwater flow path. The proposal is located on land free of flooding and the effects of the overland flow path and flooding are proposed to be contained within a future drainage reserve. As a consequence, the proposal is generally compliant with the requirements of the Overlays Code.

- (b) Is the assessment category changed (refer Table 11.4.3 and 11.4.4)?

☐ Yes ☐ No ☒ N/A

- (c) Does the development comply with the relevant provisions of the Development Constraints Overlay Code?

☐ Yes ☐ No ☒ N/A

I. Other Relevant Matters

1. (a) Are there any Planning Scheme Policy provisions which specifically apply to this development? ☐ Yes ☐ No ☒ N/A

(b) Does the development comply with these provisions? ☐ Yes ☐ No ☒ N/A

2. (a) Are there any Implementation Guidelines which specifically apply to this development? ☐ Yes ☒ No

(b) Does the development comply with these Guidelines? ☐ Yes ☐ No ☒ N/A

3. Are there any other relevant matters which pertain to this development? ☐ Yes ☒ No ☐ N/A

4. Infrastructure Contributions – Calculation Sheet attached to this checklist? ☒ Yes ☐ No ☐ N/A

The contribution calculations are outlined in the condition. It should be further noted that no credits are applicable to this proposal as the Reconfiguring a Lot Development Approval (5026/08) dated 12 February 2009 did not require the payment of infrastructure contributions, nor the connection of services.

J. Public Notification

1. Was the public notification carried out in accordance with the *Sustainable Planning Act* requirements?

☒ Yes

☐ No

2. Were any submissions received?
Comment:

☒ Yes

☐ No

Public notification of this application was undertaken pursuant to the *Sustainable Planning Act 2009*. Council received two (2) properly made submissions during the public notification period. Matters raised in the submissions include:

- Maintenance of the land and fencing
- Stormwater Runoff
- Erosion of land adjacent to the Bremer River and associated subsidence
- Impacts of development on existing box culvert and microbats which reside in the culvert
- Security Prior to development of land
- Traffic associated with access to Colvin Street Units and use of Lennon Lane

It is considered that the proposed development can be conditioned to resolve the matters raised in the above mentioned submissions. Specifically:

- Development of the land will improve maintenance of this site. Conditions are also recommended to be included in any approval regarding fencing of the development.
- The Applicant has provided a stormwater assessment in accordance with Councils requirements. It is recommended that conditions be included in the approval requiring the reconstruction of the existing concrete lined stormwater drain through the subject property. This stormwater assessment demonstrates no worsening of the existing stormwater situation in the Bremer River.
- There is no evidence to suggest that further development of an already developed environment will impact the bats which reside on part of the adjoining development site. The bats in any event are not subject to any form of conservation protection.
- Council has no control over anti-social behaviour associated with the land in its current state, however development of the land for residential purposes should improve this situation.
- Conditions are recommended to be included in any approval requiring the upgrade of Colvin Street and its intersection with Lennon Lane and to provide a cul de sac at the existing end of Colvin Street. It is anticipated that primary access to the development will be from Colvin Street, via Canning Street.

K. Summary

1. Recommended for:

- ☒ Approval - Subject to Conditions
☐ Refusal
☐ Part Refusal / Part Approval -Subject to conditions

2. Assessment Against Previous Approvals

The Riverlink Preliminary Approval (Application 682/03) is applicable to the proposal. Overall, the proposed development is consistent with the Preliminary Approval Conditions and the Riverlink Preliminary Approval Code document.


3. Other Relevant Matters

A separate development application is presently being assessed by Council for the development of an additional 100 units on the North Street side of the property (application 6293/09).


Brett Davey

SENIOR DEVELOPMENT PLANNER

Date: 1/11/10


Jo Pocock

TEAM COORDINATOR

Date: 1/11/10

Attachment BD-21



Your reference
Our reference 2727/10 BD:RM
Contact Officer Brett Davey
Telephone 3810 6258



Ipswich City Council

45 Roderick St
PO Box 191
Ipswich QLD 4305
Australia

Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Lipoma Pty Ltd
C/- Michel Group Services
PO Box 2695
NERANG BC QLD 4211

1 November 2010

SUSTAINABLE PLANNING ACT 2009

DEVELOPMENT APPLICATION DECISION NOTICE

Application Details

Application No: 2727/2010

Real Property Description: Lot 55 on SP222487

Property Location: 21A North Street, North Ipswich

Decision Date: 1 November 2010

Decision Authority: Team Coordinator – Central/West

1. Decision Details:

Development	Approval Type	Decision	Relevant Period
Material Change of Use of Premises: Multiple Residential (18 units)	Development Permit	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment C - Referral Agency Responses including conditions	4 years
Reconfiguration of a Lot One (1) Lot into Three (3) Lots	Development Permit	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment C - Referral Agency Responses including conditions	2 years

2. Preliminary Approval Affecting the Planning Scheme:

Not applicable to this decision.

3. Approved Plans

The approved plans for this development approval are:

- (a) The plans referred to in the table of approved plans (including the amendments that are required to be made to those plans); and
- (b) Where the amended version of the plans referred to in the table of approved plans have been approved by the assessment manager, the amended version of those plans; and
- (c) The approved plans are attached to this decision notice.

Table of Approved Plans:

Plan/ Document No	Description	Prepared By	Date	Amendments Required
2009.12 DA01C	Development Details	Bristow Architects	April 2010	Staging in accordance with Condition 3.
2009.12 DA02E	Site Plan	Bristow Architects	April 2010	N/A
2009.12 DA03E	Site Layout	Bristow Architects	April 2010	N/A
2009.12 DA04C	Unit Floor Plans 'B' and 'F'	Bristow Architects	April 2010	N/A
2009.12 DA05B	Unit Floor Plans 'C', 'D' and 'E'	Bristow Architects	April 2010	N/A
2009.12 DA08B	Block 2 Plans & Typical 6 Unit	Bristow Architects	April 2010	N/A
2009.12 DA09B	Block 13 Elevs & Typical 6 Unit	Bristow Architects	April 2010	N/A
2009.12 DA12	Elevations / Colour Palette	Bristow Architects	7 August 2009	N/A
2009.12 DA13	Colvin St Units	Bristow Architects	27 August 2009	N/A
8742-233 B	Plan of Proposed Subdivision Proposed Lots 550-552	Michel Group Services	15 April 2010	Proposed lot 551 is not approved as drainage reserve for the Purposes of the Reconfiguring a Lot Development Application.

4. Codes for Self Assessable Development

Not applicable to this decision

5. Other Necessary Development Permits and/or Compliance Permits

Further *development permits/compliance permits*, as required by the *Sustainable Planning Act 2009*, shall be obtained in respect of any operational works, building works and plumbing works in relation to this approval prior to the *commencement of works/use and/or signing of the plan of subdivision* pursuant to the *Sustainable Planning Act 2009*.

6. Details of any Compliance Assessment Required for Documents or Work in Relation to the Development

Not applicable to this decision.

7. Submissions

There were two (2) properly made submissions about the application. The names and addresses of the principal submitter for each properly made submission are as follows:

Name of Principal Submitter	Address of Principal Submitter
[REDACTED]	[REDACTED] Lawrence Street NORTH IPSWICH QLD 4305
Mr N J White and Ms E N Tilbrook	[REDACTED] Hume Street WOODEND QLD 4305

8. Conflict with a Relevant Instrument and Reasons for the Decision Despite the Conflict

Not applicable to this decision.

9. Referral Agencies

The referral agencies for this application are:

Referral Agency	Referral Role	Aspect of Development Requiring Referral	Address
Department of Environment and Resource Management	Concurrence Agency and Advice Agency	- Reconfiguring a Lot - Material Change of Use of Premises Contaminated Land and development adjacent to a Heritage Place	Department Application Lodgement Department of Resource Management GPO Box 15155 City East QLD 4002
Energex	Advice Agency	- Material Change of Use (Electricity Easement)	Energex GPO Box 1461 BRISBANE QLD 4001

Note: Referral agency responses are attached to this decision notice and form part of this decision notice.

10. When Development Approval Lapses

The relevant period for this approval is as outlined in part 1 – 'decision details' of this decision notice, starting the day the approval takes effect. This development approval lapses in accordance with section 341 of the *Sustainable Planning Act 2009*.

Should the assessment manager determine a new relevant period in writing, prior to the lapsing of this approval, then the use may continue for a further period of time, as specified in writing by the assessment manager.

12. Conditions of Assessment Manager (Ipswich City Council)

Refer to Attachment A for Assessment Manager conditions.

13. Appeal Rights

Attachment C is an extract from the *Sustainable Planning Act 2009* which details the applicant's appeal rights and the appeal rights of any submitters regarding this decision.

Yours faithfully



Jo Pocock

TEAM CO-ORDINATOR (CENTRAL/WEST)

cc: Department Application Lodgement
Department of Resource Management
GPO Box 15155
City East QLD 4002

Energex
GPO Box 1461
BRISBANE QLD 4001

Enc.

- Assessment Manager Conditions (Attachment A)
- *Sustainable Planning Act 2009* extract on appeal rights (Attachment C)
- Approved Plans
- Referral Agency Responses

Attachment A**Assessment Manager (Ipswich City Council) Conditions*****Conditions applicable to this approval under Sustainable Planning Act:*****1. Basis of Approval**

This approval is subject to these conditions, the facts and circumstances set out in the application and adherence to all relevant Council Local Laws and/or Planning Scheme Policies.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications accepted in writing by the assessment manager will suffice.

3. Site Development

- (a) The development of the site must be undertaken generally in accordance with the approved plans outlined in part 3 of the decision notice.
- (b) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, proposed Lot 551 must be dedicated as drainage reserve in favour of Council and not included within parkland dedication once the last stage of the unit development is complete.

4. Proposed Stages

The proposal must be staged as identified in red ink on the approved plans and as follows:

- (a) Stage 1: 6 Units located adjacent to Colvin Street.
- (b) Stage 2: 12 Units located adjacent to North Street.

Prior to approval of any operational works, the developer must demonstrate to Council the staging of the proposed stormwater works pursuant to Conditions 19: Stormwater Quantity and 20: Stormwater Quality.

5. Colour Scheme

The external features of the buildings shall be painted/finished in a colour or colours that are sympathetic to the character of the existing buildings in the surrounding area and to the satisfaction of the assessment manager. The colour scheme requirements shall also apply to the fencing mentioned in Conditions 7 and 23 of this approval.

6. Visual Privacy

The private open spaces and living rooms of adjacent dwelling units are to be protected from direct overlooking by dwelling unit layout, screening devices, distance or landscaping. At minimum, windows of one dwelling are not to be located opposite the windows of another dwelling unless direct views are controlled by blinds or other screening devices, or by sufficient distance or height to discourage overlooking, to the satisfaction of the assessment manager.

7. Fencing

Unless otherwise approved in writing by the assessment manager, front fences and walls must have a maximum height of:

- (a) Where the boundary is a common boundary to a road or drainage reserve, the fence shall comprise solid fencing to a maximum height of 1200 mm with a panel of minimum 50% transparency between the top of the solid fencing and maximum height of 1800 mm.
- (b) Where the boundary is between a common area and a road or a drainage reserve, the fence must be powder coated aluminium pool style fencing.

Details of the proposed fencing must be submitted in conjunction with the landscaping plan required by Condition 23.

Note: Where a boundary fence shares a common boundary with private land, the consent of the relevant land owner must be sought pursuant to the *Dividing Fences Act 1991*.

- (c) Fences to roads and drainage reserves must not exceed 10m in length without some form of articulation or detailing to provide visual interest.

8. Letter Boxes, Laundering, Storage and Refuse Facilities

- (a) Unless otherwise approved by the assessment manager, one letter box must be provided per unit plus one letter box for use by the body corporate or management where appropriate. Such letter boxes must form an integral part of the design of the development and must be located on the road frontage boundary to which the site has been allocated its street address, unless otherwise approved by the assessment manager.
- (b) Each dwelling unit within the development shall be provided with individual laundry and clothes drying facilities. Alternatively, communal facilities shall be provided and located to the satisfaction of the assessment manager not more than 100 metres from any dwelling unit.

9. Streetscape Works

- (a) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the developer shall plant street trees for the length of the Colvin Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
- (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;
 - (ii) Identify the location/ proximity of services within the road reserve; and
 - (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (b) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the developer shall plant street trees for the length of the North Street frontage of the development. A streetscape plan must be submitted for the written approval of Council, in conjunction with the lodgement of an operational works application. The plan must be in accordance with Council's Street Tree Strategy and Council's Standard Drawings and must achieve the following:
- (i) Identify all new and existing trees within the dedicated road, including those to be retained and those to be removed;
 - (ii) Identify the location/ proximity of services within the road reserve; and
 - (iii) Provide details of proposed planting including common and botanical names and height and spread at maturity.
- (c) Such streetscaping must be completed in accordance with the approved streetscape plan to the satisfaction of the Chief Operating Officer (Health Parks and Recreation) and must be completed prior to the signing of any plan of subdivision.
- (d) The developer must maintain street trees for a period of eighteen (18) months after an 'On Maintenance' inspection by the Chief Operating Officer (Health Parks and Recreation).

Note:

Species must be in accordance with the Ipswich City Council Street Tree Strategy. Root intrusive trees must not be planted in the road reserve. The developer or agent must liaise with Council's Health, Parks and Recreation Department prior to any planting for determination of species selection.

10. Carparking - Use and Maintenance

- (a) Car parking spaces shall be provided on site for the proposed development generally in accordance with the approved plans outlined in part 3 of the decision notice. To this end, parking must be provided at the following rates:
 - (i) A minimum of one (1) covered carparking space per dwelling for exclusive resident use
 - (ii) A minimum of 0.5 spaces per dwelling for visitor parking
 - (iii) A minimum of 0.5 spaces per dwelling for use by both residents and visitors.
- (b) Unless otherwise indicated on the approved plan of development or approved by the assessment manager, parking areas shall not be:
 - (i) Exclusively used for visitor parking at the expense of resident parking; or
 - (ii) Exclusively used for resident parking at the expense of visitor parking, or
- (c) All parking areas shall be:
 - (i) Kept exclusively for parking;
 - (ii) Used exclusively for parking;
 - (iii) Accessible to both staff and the general public/customer during any approved hours of operation;
 - (iv) Appropriately signposted at the entry/entries to the carpark, to the satisfaction of the assessment manager (eg. "Staff and Customer Parking"), in accordance with AS1742; and
 - (v) Maintained to the satisfaction of the assessment manager.

11. Carparking - Landscaping

Unless approved by the assessment manager, the equivalent of one (1) car parking bay for every eight contiguous (8) bays should be fully landscaped to provide shading to the carparks unless otherwise approved by the assessment manager. Such landscaped areas are required in addition to the number of car parking bays required under this approval and/or indicated on the approved plan of development. These areas should be landscaped with at least one shade tree centrally located and groundcovers as a minimum requirement. Details shall be included in the Landscaping Plan required by this Development Permit.

12. Hours of Construction

Unless otherwise determined in writing by the assessment manager, hours of construction must not exceed:

Monday to Saturday 6:30am to 6:30pm

Construction work must not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

13. Particular Use

This approval is for the particular use stated, and does not imply approval for other similar uses. The use of any of the structures associated with the Multiple Residential Use inclusive of car parking and any associated outdoor areas on the site, are not permitted to be used for any other purpose, unless, in the written opinion of the assessment manager, such use is ancillary and incidental to the predominant use of the site for a Multiple Residential Use.

14. Contributions

In accordance with the relevant Council Policies, the developer shall pay, prior to the issue of Form 21 – 'Final Inspection Certificate for Building Works' or prior to the commencement of the use for each stage, whichever comes first, the following monies to Council:-

Stage 1

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP TOTAL: 9.48 EP No Credits Applicable	9.48 EP x \$338.62 x 1.1724 = \$ 3,763.5418 = \$ 3,764.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	6 x 2 bedroom units @ 1.58 EP = 9.48 EP TOTAL: 9.48 EP No Credits Applicable	9.48 EP x \$2,506.99 x 1.1724 = \$ 27,863.56932 = \$27,864.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP No Credits Applicable TOTAL= 9 EP	9 EP x \$ 1,120.00 x 1.1724 = \$ 11,817.792 = \$ 11,818.00
Sewerage	5W25 – SP49	\$ 923.00 Index: 1.1724	6 x 2 bedroom units @ 1.5 EP = 9 EP No Credits Applicable TOTAL= 9 EP	9 EP x \$ 923.00 x 1.1724 = \$ 9,739.1268 = \$ 9,739.00

Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	6 x 2 bedroom units @ 3.8 VT = 22.8 VT TOTAL: 22.8 VT No Credits Applicable	22.8 VT x \$ 725.00 x 1.1281 = \$ 18,647.493 = \$ 18,647.00
Total				\$ 71,832.00

Stage 2

Contribution	Sector	Rate	Proposal	Calculation
Community Facilities Infrastructure	SIC 7 – North Ipswich	\$ 338.62 Index: 1.1724	4 x 2 bedroom units @ 1.58 EP = 6.32 EP 8 x 3 bedroom units @ 2.34 EP = 18.72 EP TOTAL: 25.04 EP No Credits Applicable	25.04 EP x \$ 338.62 x 1.1724 = \$ 9,940.832124 = \$ 9,941.00
Parks Infrastructure	PKC7 – North Ipswich	\$ 2,506.99 Index: 1.1724	4 x 2 bedroom units @ 1.58 EP = 6.32 EP 8 x 3 bedroom units @ 2.34 EP = 18.72 EP TOTAL: 25.04 EP No Credits Applicable	25.04 EP x \$ 2,506.99 x 1.1724 = \$ 73,597.4447 = \$ 73,597.00
Water Supply	WT4 – Brassall Low Level	\$ 1,120.00 Index: 1.1724	4 x 2 bedroom units @ 1.5 EP = 6 EP 8 x 3 bedroom units @ 1.75 EP = 14 EP No Credits Applicable TOTAL= 20 EP	20 EP x \$ 1,120.00 x 1.1724 = \$ 26,261.76 = \$ 26,262.00
Sewerage	SW25 – SP49	\$ 923.00 Index: 1.1724	4 x 2 bedroom units @ 1.5 EP = 6 EP 8 x 3 bedroom units @ 1.75 EP = 14 EP No Credits Applicable TOTAL= 20 EP	20 EP x \$ 923.00 x 1.1724 = \$ 21,642.504 = \$ 21,643.00

Road Contributions	RD39 – North Ipswich (South)	\$ 725.00 Index: 1.1281	4 x 2 bedroom units @ 3.8 VT = 15.2 VT 8 x 3 bedroom units @ 5.6 VT = 44.8 VT TOTAL: 60 VT No Credits Applicable	60 VT x \$ 725.00 x 1.1281 = \$ 49,072.35 = \$ 49,072.00
Total				\$ 180,515.00

The contributions above shall be applicable for a period of **twelve (12) months** from the date of the development approval, and thereafter shall be based on the infrastructure contribution policies and rates applicable at the date when payment is made.

The developer is advised that direct debit, personal and/or company cheques cannot be accepted as payment for the above contributions. The only acceptable forms of payments are cash (EFT payments included), bank cheques.

15. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) shall make reference to the relevant, approved place name under the *Place Names Act 1994* in a contrasting colour and in lettering no less than 50% of the Estate name.
- (b) Any reference to the regional location of the site or the development shall not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

16. Engineering Requirements

The following engineering requirements, detailed in Conditions 17 – 32, shall be completed to the satisfaction of the assessment manager.

Terms

- (a) RPEQ - A Registered Professional Engineer of Queensland, suitably qualified and experienced in the particular area of expertise required. Furthermore, the RPEQ required for the analysis and reporting for mining shall be experienced in the analysis of underground and surface mining within the Ipswich area.
- (b) QUDM – The *Queensland Urban Drainage Manual (2007 Edition)*, produced by the Queensland Department of Environment and Natural Resources.
- (c) MUTCD - *The Manual of Uniform Traffic Control Devices*, published by DTMR.

- (d) QUU – Queensland Urban Utilities – trading name of the Central SEQ Distributor-Retailer Authority, providing water and wastewater services to Ipswich City under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.
- (e) DTMR - Department of Transport and Main Roads.
- (f) DERM - Department of Environment and Resource Management.
- (g) DIP – Department of Infrastructure and Planning.
- (h) ARI – Average Return Interval - used to define flood frequency and severity.

17. Roadworks

- (a) All roadworks must be designed and constructed in accordance with Council's Policies and Standards, the DMR *Road Planning & Design Manual*, Austroads Publications and any other documentation accepted as best practice by Council. The design and construction of each road or street must ensure that the speed environment, geometry, sight distances, carriageway widths, lighting, facilities for bus stops, refuse collection vehicle movements, pedestrians and cyclists, and on-street parking and other physical attributes are consistent with the function and role of the road or street in the transportation network.
- (b) Road pavements must be designed and constructed in accordance with the Ipswich City Council's Planning Scheme Policy 3 - General Works, Chapter 5 - Roadworks. All roads must have two way cross-falls in accordance with Council's adopted standards.
- (c) Kerb ramps must be constructed in accordance with Council's Standard Drawing SR.18 at all intersections and at additional locations where they are required to connect concrete pathways and cycleways. Generally at "T" intersections, four (4) kerb ramps are required.
- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, Colvin Street must be reconstructed as an Access Street with asphaltic concrete surfacing to enable a carriageway width of 7.5 m, from Canning Street to Lennon Lane together with concrete kerbing and channelling both sides, associated works and stormwater drainage.
- (e) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a vehicle turning area must be provided at the northern end of Colvin Street adjacent to Lennon Lane. A circular cul-de-sac turning head, based on a minimum turning circle of 9.0 m radius, must be constructed.
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, revised signage and linemarking must be provided as part of the Colvin Street upgrade to delineate the one-way traffic flow requirements on Lennon Lane.

- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the developer must, as part of the Colvin Street reconstruction, integrate satisfactorily with existing infrastructure at the Canning Street / Colvin Street intersection and the Colvin Street / Lennon Lane intersection (including finished levels, removal/reinstatement of linemarking and installation of appropriate signs). The construction interface with Lennon Lane may include a concrete crossover generally in accordance with Council's Standard Drawing SR.13.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the developer must upgrade / reconfigure North Street across the frontage of the development site between Ferguson Street and the site's access point in accordance with Council's Standards for a collector street (refer Standard Drawing SR.02). Additionally, the developer must upgrade / reconfigure North Street across the frontage of the development site between the site's access point and the Telegraph Street road reserve in accordance with Council's Standards for an access street (refer Standard Drawing SR.02). Works must include the following:-
- (i) Kerb and channel and associated stormwater drainage. Works must occur on both sides of North Street and extend to the tangent point into Fitzgibbon Street;
 - (ii) Reconstructed pavement;
 - (iii) Concrete footpaths as per conditions below;
 - (iv) Timber bollards and railings along the drainage corridor;
- (i) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, the intersection of North Street / Fitzgibbon Street/ Site Access Point must be reconfigured as recommended in the Traffic Impact Assessment Report prepared by Birzios Consulting dated September 2009. The site access point leg of the intersection must be designed as if for a public roadway including 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 site access point must be configured with kerb and channelling that is clearly recognised by road users and pedestrians and with a finished level that matches with the existing road surface in North Street. The existing culverts at this crossing must be extended to a minimum width of 20.0m to allow for all proposed road and verge works to be accommodated. Approved pedestrian safety railings located at the headwalls must be provided.
- (j) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete path for shared use by pedestrians and cyclists (minimum 2.5m wide) must be constructed between the site, the existing community facilities on Downs Street (at the intersection of Downs and Lawrence Street) and the future extension of the "Brassall Bikeway Phase 1". The shared path must be constructed:

- (i) In accordance with Council standards;
 - (ii) With lighting in open space areas in accordance with the AS1158 series;
 - (iii) Generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) With an alignment generally in accordance with that outlined on either Attachment A or Attachment B;
 - (v) To integrate with Council's planning for the Brassall Bikeway;
 - (vi) With route markers/direction signs;
- (k) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site and Downs Street (via Colvin Street and Canning Street). The footpath must be constructed:
- (i) In accordance with Council standards;
 - (ii) With lighting in open space areas in accordance with the AS1158 series;
 - (iii) Be constructed generally in accordance with the relevant Disability Standards (including ramps, stairs, railings and tactile indicators where necessary);
 - (iv) With an alignment generally in accordance with that outlined on Attachment B;
 - (v) With route markers/direction signs;
 - (vi) In accordance with Council's Standard Drawing SR.19
- (l) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete footpath (minimum 1.5m wide) must be constructed between the site entry roadway and extend north to join to the existing concrete footpath located along the western side of North Street.
- (m) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a monetary contribution of AUD\$25,000 must be paid to Council for future bus stop infrastructure. This amount must be fixed for 12 months from the date of the Decision Notice and then must be adjusted in accordance with Road & Bridge Construction Cost Index applicable to Queensland at the time of payment.

This contribution is applicable once only for the entire development (comprising of Development Application 6293/09 and 2727/10). The payment of this contribution is required once to satisfy the relevant conditions of each development approval.

- (n) The road pavement widths and geometric layouts, internal and external to the development must make adequate provision for Council's refuse collection vehicles and public transport movements where appropriate.
- (o) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a vehicle turning area must be provided at the southern end of the works in North Street. Circular cul-de-sac turning heads, based on a minimum turning circle of 9.0 m radius, must be provided.
- (p) Access to existing driveways for properties affected by all extended works associated with this development must be maintained between 6:30pm and 6:30 am Monday to Saturday.
- (q) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, an emergency driveway and access at the secondary culvert crossing adjacent to Unit Block 17 must be provided. This access way must consist of min. 3.0m wide concrete driveway extending from a layback in the kerb and channel in North Street, through to connect to the proposed internal road. Lockable removable bollards and approved pedestrian safety railings located at the headwalls must be provided at this location.
- (r) "No Through Road" signs must be erected at the entries to all culs-de-sac and terminating roads.

1.8. Access and Parking

- (a) All access and parking must be designed and constructed in accordance with the provisions of the Planning Scheme Parking Code and Australian Standards (2890 Series).
- (b) Parking and manoeuvring areas must accommodate the largest anticipated vehicle to use the site.
- (c) Adequate facilities for servicing the development must be provided on site to ensure loading and/or unloading activities do not occur on-street.
- (d) Provision must be made for all vehicles to enter and exit the site in forward gear.
- (e) All parking, access and manoeuvring areas must be constructed of concrete, bitumen or equivalent materials approved by the assessment manager, and must be line-marked in accordance with the relevant Australian Standard. Associated signage in accordance with MUTCD internal to the site must also be provided as required.
- (f) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in Colvin Street to the property boundary for access to the proposed unit development (Block 21 and 22) in accordance with Council's Standard Drawing SR.13.

- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 2, whichever comes first, a concrete layback and driveway slab 7.5 m wide, must be constructed from the layback in North Street to the property boundary for access to the proposed unit development in accordance with Council's Standard Drawing SR.13.
- (h) The developer must provide concrete footpaths of minimum width 1.5 m on one side of all internal roads within the development. Footpaths must be external to the road widths nominated on the approved drawings.
- (i) Any internal roads within the unit development that may be extended as a part of a later stage must be provided with a minimum 18m diameter gravel turn around area with a two-coat bitumen seal. Hazard markers and delineator posts must be erected to define the turnarounds.
- (j) Garage doors to all units must be a minimum 2.7m wide to facilitate effective manoeuvring of vehicles.

19. Stormwater Quantity

- (a) The developer must provide all necessary internal and external stormwater drainage to service the development. Such drainage works (except for building gutters and downpipes) must be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years.

in the case where the piped system is carrying part of the flow, the overland flow paths must be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system.

- (b) Registered drainage easements, if related to piped drainage (generally 375mm diameter or greater), must be centrally located over such underground pipe system and must be not less than 4.0m wide. In addition, the easements must be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location.
- (c) No ponding, concentration or redirection of stormwater may occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land.
- (d) All stormwater headwall structures must be constructed in accordance with the relevant DMR standard drawings for reinforced concrete headwalls and aprons.
- (e) Stormwater drainage plans and calculations must be submitted for approval by the assessment manager, as part of the operational works application.
- (f) Appropriate works must be carried out to ensure that stormwater drainage from the new kerb and channel discharges suitably into the existing drainage system.

- (g) 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 within Table 3.3, the minimum pad level for any of the units on this site must be 19.2m AHD.
- (h) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, whichever comes first, the finished surface profile approved under the bulk earthworks approval for operational works application no. 3262/2010 west of the existing railway line must be achieved.
- (i) The developer must provide a coarse sediment forebay, suitable sized for the upstream contributing catchment designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event at the existing stormwater outlet adjacent to the North and Telegraph Street intersection. The sediment forebay must be designed to allow cleaning by a skid steer bobcat or equivalent. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The sediment forebay must include provision for all weather maintenance access.
- (j) The existing concrete lined stormwater drain through proposed Lot 551 must be reconstructed as a Rock and Vegetation Low-Flow Channel, generally in accordance with Fig. 9.13 of QUDM 2007. The channel must be designed and constructed in accordance with the following criteria:-
 - (i) Rock channel must be sized to cater for a Q10 ARI storm event from the upstream contributing catchment;
 - (ii) A 3.0m wide minimum access driveway culvert must be provided midway to allow maintenance access to either side of the overland flowpath;
 - (iii) The rock lined channel must extend from the existing outlet headwall adjacent to the western end of Telegraph Street through to the existing culvert underneath the railway embankment at the western side of proposed Lot 551;
 - (iv) Landscaping must be provided along the entire length of this channel firstly to provide a "mowing edge" (Iomandras or equivalent can be used in this instance), secondly, to provide appropriate planting in accordance with WSUD TDG within the rock channel itself, and thirdly, appropriate planting provided to ensure partial shading of the rock lined portion of the overland flowpath to limit weed growth. Plans detailing required landscaping must be submitted to Council for approval.
- (k) For stormwater management purposes the development must be designed and constructed in accordance with the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010), subject to the following amendments and/or clarifications:
 - (i) All flows between Q3 month and Q10 must be piped directly to the invert of the overland flow path in proposed lot 51 and must bypass the bioretention basins.

- (ii) As part of the operational works application the developer must demonstrate satisfactory management of overland flows in terms of erosion and scour protection for storm events that are between Q10 and Q100 ARI from the building pad and internal road level within the unit development down the batters through proposed Lot 551 and into the invert of the existing stormwater overland flowpath.
- (iii) Construction of the bio retention basins in close proximity to the top of the proposed batters must incorporate the recommendations made by Morrison Geotechnic Pty Ltd in correspondence to Leda Developments Pty Ltd dated 5 March 2010.

20. Stormwater Quality

- (a) Stormwater quality for the development must achieve a reduction in the average annual pollutant load as follows prior to discharge from the site:
 - 80% for total suspended solids;
 - 60% for total phosphorus;
 - 45% for total nitrogen; and
 - 90% for gross pollutants.
- (b) The water quality objectives listed at (a) must be achieved through the implementation of the treatment train outlined in the Site Based Stormwater Management Plan prepared by Yeats Consulting Engineers (Revision 2 dated 1 March 2010) subject to the amendments outlined in this Condition and Condition 4 above relating to Stormwater Quantity.
- (c) In conjunction with an application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, amended Stormwater Quality Management drawings prepared by a RPEQ in accordance with the Water Sensitive Urban Design Technical Design Guidelines (WSUD TDG) for South East Queensland, the Approved Site Based Stormwater Management Plan and the requirements of this Condition. The Operational Works drawings must detail, amongst other necessary items, the following:
 - (i) Plans and cross sections showing the final locations for rainwater tanks, bioretention basins and stormwater infrastructure required by this Condition, consistent with Council's Standard Drawings and the WSUD TDG (version current at the time of detailed design). The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) The bioretention basin(s) parameters represented in Table 1;

Table 1

(a)	(b) Catchmen t A	(c) Catchmen t C
(d) Surface Area (m ²)	(e) 240	(f) 25
(g) Filter Media Area (m ²)	(h) 75	(i) 25
(j) Filter Media Median Particle Size	(k) 0.45	(l) 0.45

(mm)		
(m) Filter Media material	(n) Sandy loam	(o) Sandy loam
(p) Filter Media Depth (m)	(q) 0.6	(r) 0.5
(s) Hydraulic conductivity (mm/hr)	(t) 180	(u) 180
(v) Transition layer depth (mm)	(w) 0.1	(x) 0.1
(y) Minimum drainage layer depth (mm) [#]	(z) 0.2	(aa) 0.2
(bb) Extended detention depth (m)	(cc) 0.3	(dd) 0.3
(ee) Pre-treatment method	(ff) Sediment forebay ^{##}	(gg) Sediment forebay ^{##}
(hh) Maximum batter slope	(ii) 1:4	(jj) 1:4

[#] The length of the bioretention basin will dictate the depth of the drainage layer, in order to maintain a minimum fall of 0.5% within the drainage pipes.

^{##} The area required for sediment forebay must be confirmed during detailed design, in accordance with Condition (iii).

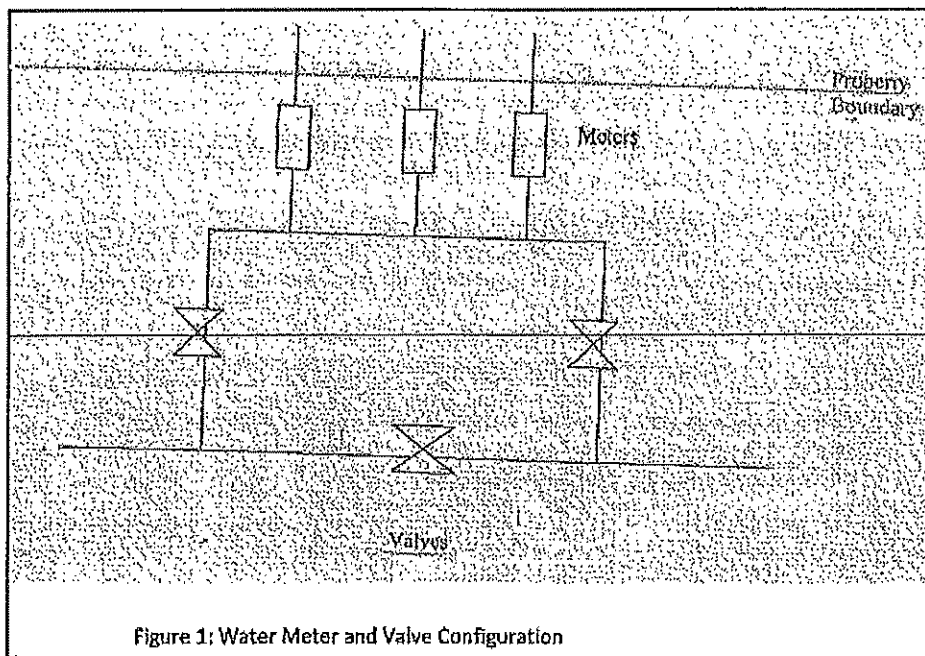
- (iii) A suitable fore-bay or pre-treatment area designed generally in accordance with WSUD TDG to ensure particles equal to or greater than 1mm in diameter are removed for flows up to the 3 month ARI storm event. Calculations must be provided to demonstrate appropriate sizing of any pre-treatment measure, including sediment forebay, and that flows comply with the velocity requirements of the WSUDTDG. The pre-treatment area is to be located external to the area required for the bioretention basin filter media and is to include provision for all weather maintenance access.
- (iv) The area required for scour protection, in accordance with the design principles outlined in the WSUD TDG. The area required for scour protection must be in addition to that required for the bioretention basin filter area.
- (v) The plans must detail the overflow weir/outlet that has been positioned at the height of the extended detention specified at item (ii). Calculations must be provided to demonstrate that the velocities across the bioretention basin comply with those listed in Section 5.2.2 of the WSUD TDG and that any temporary flood storage can drain rapidly following storm events;
- (vi) Drainage and transitional layers that have been designed in accordance with Section 5.3.4 of the WSUD TDG and an underdrain design in accordance with Section 5.3.5 of the WSUD TDG;
- (vii) The slotted 100mm uPVC pipes placed within the drainage layer of the bioretention basin. The drawings must specify that these are not to be substituted with aggr pipes nor wrapped in geofabric;
- (viii) Detail the grade at which drainage pipes must be laid, the relevant density and size of slots in the drainage pipes. A minimum fall of 0.5% is required for the drainage pipes and depending on the length of the bioretention this may impact significantly on the depth of the drainage layer specified at (ii). The length of all 100mm slotted drainage pipes must not exceed 25m. For longer lengths the pipe diameter must be increased or duplicated to increase conveyance;

- (ix) A uPVC inspection riser with screw cap lid at the head of each slotted pipe, for maintenance flushing. The risers are to be generally in accordance with BCC drawing UMS153, however, must extend a minimum of 150mm above the surface of the filter media. The drawings must contain a note that states that risers are not to be slotted;
- (x) A level (flat) surface of the bioretention basin filter media in order to allow even absorption through the filter media;
- (xi) Soil specifications for the various bioretention basin filter media layers, which are provided in accordance with the current version of the Guidelines For Soil Filter Media In Bioretention Systems, Facility for Advancing Water Biofiltration (FAWB);
- (xii) Provide geofabric around the base of the drainage layer, walls and batters of the basins. Geofabric must not be laid between any of the filter layers or used to wrap the slotted uPVC drainage pipes;
- (xiii) Landscaping to the bioretention basin, including filter media and batters, in accordance with plant species and densities outlined in Appendix A of the WSUD TDG. Detailed planting schedules (plant species, number and planting densities) for each of the bioretention basin filter area, bioretention basin batter areas and other landscaped and embankment areas as shown on the Stormwater Management Plan (YC0175-SW01 Revision B dated 5 March 2010) must be shown on the operational works drawings. A minimum species variety of 3 different species must be utilised within the bioretention basin filter area; and.
- (xiv) Include a note which refers to the Healthy Waterways Bioretention Basin Construction and Establishment Sign Off Forms (including Forms A-G) for use throughout construction. The Operational Works drawings must include notes referring to the staging and timing of the commissioning of the bioretention basins and measures to protect the filter media during development within the contributing catchment.
- (d) An amended catchment plan that demonstrates how all flows up to the 3 month ARI event from the site will enter and be treated through the bioretention basins. The plan must include surface levels and invert levels for all piped stormwater infrastructure.
- (e) A copy of the calculations used to size the drainage, as required by Condition (c), must be provided at the time of lodging the Operational Works application. Similarly, calculations must be provided to demonstrate that the pipes connected downstream of the drainage pipes are suitably sized to avoid becoming the hydraulic control and the filter media is free draining.
- (f) A staged implementation approach must be employed for the bioretention areas ensuring that filter media is either laid after, or the filter is protected until, 90% of the construction and building works have been completed for the area contributing to the bioretention basin. The staging and timing of the commissioning of the bioretention basin must be outlined as part of the Operational Works application and notes must be included on the plans accordingly.

- (g) Prior to lodgement of detailed Operational Works drawings the Developer must receive certification from a RPEQ that the detailed drawings are in accordance with the approved Stormwater Management Plan, these Conditions of Approval and the WSUD TDG. A copy of the certification must be lodged in conjunction with an Operational Works application along with completed copies of the WSUD TDG Design Assessment Checklists and Calculation Summary Checklists.

21. Water Supply

- (a) The developer must provide a reticulated water supply system within the development which connects into Council's existing reticulation system, together with valves and fire hydrants, in accordance with the *Guidelines for Planning and Design of Urban Water Supply Systems*.
- (b) All works on live water mains must be carried out by QUU in accordance with *Planning Scheme Policy 3 Section 11.1.2*, and at the developer's expense.
- (c) The developer must lodge a private works request for QUU to:
 - (i) Supply and install suitable metered water connections to each segment of the proposed development, generally in accordance with Figure 1 below;
 - (ii) Amend the existing connection if necessary; and
 - (iii) Seal off any existing water connections if necessary.



- (d) Wherever possible, the water main must be constructed on the opposite side of the road to the concrete footpaths.
- (e) Where the developer is required to supply a water connection to the development, the connections must be installed in accordance with Standard Drawings SW.14 and SW.15.

- (f) Where the water main is under a concrete footpath, the developer must provide a water connection to each allotment, excluding the provision of meters, but including the provision of approved pre-cast concrete or cast iron path boxes over the stop cock, in accordance with *Standard Drawing SW.08*. The boxes must be placed flush with the finished turf surface level.
- (g) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, the existing 100mm dia watermain in Lennon Lane must be extended to the west and into Colvin Street to join into the existing 150mm dia. main at the intersection of Canning and Colvin Street.
- (h) The QUU water supply system has been designed to achieve the target levels of service as outlined in Planning Scheme Policy 3 Section 4.1.2 *Standard of Service*. It is the responsibility of the developer to provide any fire fighting requirements over and above QUU's target levels of service, at their expense, internally and without adverse impact to the water supply system.

22. Sewerage

- (a) Structures constructed on the Colvin Street side of the development site (Stage 1) must be positioned to comply with one of the following in order of preference:
 - (i) No part of a structure, including footings, must be located within 1.5m of the outer edge of the sewer main, or within 2.0m of the access chamber respectively;
 - (ii) If any structure cannot be positioned outside these limits, the sewer must be located, removed and re-laid around the proposed structure(s);
 - (iii) Should (i) and (ii) above be deemed impractical by the assessment manager, then the developer must submit to the assessment manager for approval, an application to build over infrastructure.
- (b) The developer must pay the full cost for QUU to provide suitable connections into the existing sewerage reticulation system. All works on live sewers must be carried out by QUU at the developer's expense in accordance with *Planning Scheme Policy 3 Section 10.1.2*, unless arranged otherwise with QUU.
- (c) The connection for the unit development fronting North Street (Stage 2) must be into the existing sewerage reticulation system at the connection point, which is at the existing sewer manhole adjacent to the North / Telegraph Street intersection (Gasset 706,066).
- (d) Prior to the issue of Form 21 - 'Final Inspection Certificate for Building Works' or prior to the commencement of the use, for Stage 1, whichever comes first, any existing sewerage or sanitary drainage that crosses proposed lot boundaries (other than the 300mm dia. private main from the existing Railways Museum and Workshops) must be located, disconnected and removed to the satisfaction of the assessment manager.

- (e) The existing private sewer underneath Unit Blocks 13 and 14 (Stage 2) must be sufficiently protected against damage due to construction activities associated with this development. Any damage sustained during this construction period must be repaired by the developer.
- (f) No work on the sewerage reticulation system may commence prior to the approval of the operational works application.

23. Landscaping

- (a) Landscape Master Plan must utilise non-invasive natives to replace:
 - Poinciana (Delonix regia)
 - Leopardwood (Caesalpinnea ferra)
 - European Olive (Olea Europaea)
- (b) In conjunction with the Operational Works application a Landscape Plan, which conforms to the approved Development Plan and the Residential Medium Density and Commercial and Industrial Zone Codes, must be submitted to Council for Approval by the Engineering and Environment Manager. Such plan must include, amongst other necessary items:
 - (i) Clear delineation of areas required for stormwater management, landscaping and public and private open space areas. The areas required for stormwater management are to be denoted on the plans as drainage and not communal open space;
 - (ii) Planting to bioretention basin filter areas and batter slopes, required by Conditions 19 and 20 of this approval, in accordance with the Water Sensitive Urban Design Technical Design Guidelines for South East Queensland;
 - (iii) Planting within landscaped areas must exclude the use of exotics and environmental weeds. Consideration shall be given to utilising Council's Vegetation Communities Rehabilitation Guide 4 Open Forests and Woodlands.
- (c) The Developer must complete landscaping and fencing works in accordance with the approved landscape plans to the satisfaction of the Engineering and Environment Manager prior to the commencement of the use of the land unless Council determines otherwise. Such landscaping and fencing shall be maintained in perpetuity to Council's satisfaction by the existing or future owners and occupiers of the property.

24. Waste Storage and Collection

- (a) An adequate domestic waste service must be provided that includes waste and recyclable storage equivalent to the following:
 - (i) A minimum of one (1) 240L general waste wheelie bin for every two (2) dwellings;
 - (ii) A minimum of one (1) 240L recyclables wheelie bin for every two (3) dwellings
- (b) Where dedicated communal waste storage areas are provided these areas must be level, concreted and constructed in conjunction with the driveway surface with no intervening step, ledge, kerb or other obstruction and must be enclosed with a suitable screen fence;

- (c) The waste storage and collection areas must allow for forward motion entry to the waste containers and forward motion entry and exit to and from the site. Further, any proposed bin service area must be of sufficient proportions that it does not require the vehicle to reverse any further than two vehicle lengths or breach any Workplace Health and Safety requirements.
- (d) Vehicle manoeuvring templates must be provided to Council demonstrating compliance with this condition as part of the operational works submission.
- (e) In conjunction with the application for Operational Works, the Developer must provide to Council, for approval by the Engineering and Environment Manager, detailed plans and certification from a Civil Engineer (RPEQ) which demonstrate that the requirements of this condition have been incorporated into the development.

25. Lighting

- (a) All lighting, including security, advertising and flood lighting, must be designed, constructed, located and maintained so as not to cause nuisance to the occupants of nearby properties (existing or proposed) or passing traffic.
- (b) Carparks and pedestrian walkways shall be illuminated where night use parking is anticipated. Illumination levels shall be 15 lux for open surface carparks.
- (c) All car park lighting shall comply with the requirements outlined in Australian Standard for Off-Street Carparking (AS 2890.1:2004) or any Australian Standard in substitution for this standard.
- (d) Consideration shall be given to light spillage onto adjoining land and roadways. Illumination levels outside the boundaries of the site shall not exceed 8 lux when measured 1.5 metres outside the boundary of the site at any level upwards from the ground. Footpath crossings shall be illuminated to 50 lux.

26. Earthworks and Retaining Walls

- (a) In conjunction with any application for operational works the developer must provide details of the proposed earthworks for the development including cut/fill depths, batter slopes, retaining wall heights, typical cross-sections etc. Earthworks and any retaining structures must comply with the requirements of Ipswich Planning Scheme Part 12, Division 15 – Earthworks Code. Notably, cut/fill should not exceed a maximum height of 2.0 metres. Retaining walls should not exceed a maximum height of 1.2 metres with 1 in 4 batters from the top and toe of the wall.
- (b) Where earthworks are proposed within three metres of the property boundary or are likely to affect adjoining property owners, the developer must notify the affected property owners in writing, and obtain written comments from them, as detailed in Part 12, Div 15 - Specific Outcome 19 and Note 12.15.4K. Written comments from the affected owners (or at least the supporting documentation of notification and consultation with the adjoining property owners to the Council's satisfaction) must be submitted to Council for consideration, in conjunction with any operational works application.

- (c) Retaining walls, including footings and drainage systems, must be constructed entirely within the boundaries of the lot and in accordance with the requirements of Planning Scheme Policy 3 – General Works. All retaining walls greater than 1.0m in height must be RPEQ certified to be structurally sound. Retaining walls greater than 1.0 m in public places must be provided with railings or other barriers to provide pedestrian safety
- (d) Any fill within a Building Location Envelope must be compacted in accordance with Section 5 (Compaction Criteria) of AS 3798 – 1996 *"Guidelines on Earthworks for Commercial and Residential Developments"*.
- (e) 3.0m minimum clearance must be maintained from the toe of the 1 in 2 batters internal to both unit development sites to the common boundary with proposed Lot 551.
- (f) Once all bulk earthworks and associated rehabilitation are completed on Lot 55 on SP222487, the maximum batter slope contained within any disturbed area of proposed Lot 551 must not exceed 1 in 6.

27. Erosion & Silt Management

- (a) As part of the application for operational works, the developer must submit with the operational works application, an Erosion and Silt Management Plan designed in accordance with *"Best Practice Erosion and Sediment Control"* published by the International Erosion Control Association (Australasia) November 2008, or equivalent. Plans must be certified by a suitable qualified professional.
- (b) The developer must install silt management facilities at commencement of construction and maintain these facilities until the development has been released off maintenance by Council.
- (c) Silt traps must be sited upstream from any park or reserve area discharge point such that no silt impinges on the park or reserve areas. The silt trap areas may be phased out after the development work is complete and adequate grass cover is obtained.
- (d) Diversion drains and ponds, as necessary, must be installed on the site before any other work is undertaken on site to ensure that water containing silt, clay, solids or contaminants is contained and/or isolated.
- (e) Prior to the Pre-Start meeting for operational works, the developer must lodge a \$10,000.00 Siltation and Erosion Performance Bond with Council. This bond shall only be released by Council at the termination of the maintenance period.
- (f) If the assessment manager determines that silt damage has occurred as a result of this development, the developer shall be responsible for restoration of any damage. Such restoration must be completed within a time to be advised by the assessment manager. Should the developer fail to complete the works determined by the assessment manager within the specified time, Council may elect to complete the works and recover all costs associated with that work from the developer.

- (g) Where Council determines that a draw-down of the bond is required, the developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.

28. Public Utilities

- (a) Adequate provision must be made in all proposed dedicated roads, access strips and access easements, to cater for the public utility services that would normally serve the development.
- (b) The developer must provide appropriate road crossing conduits in accordance with Council's Standard Drawings SR.22 and SR.23. Where concrete footpaths are to be constructed, the conduits must be extended to the property boundaries.
- (c) The developer must provide an RPEQ certified electrical reticulation layout plan with the operational works application.
- (d) The developer must provide underground electricity and telecommunications externally where necessary and within the development, constructed in the approved allocation as detailed in Council's Standard Drawings SR.22 and SR.23. Electricity and telecommunication drawings must be co-ordinated with the civil engineering design documents, to ensure that service conflicts are avoided. Where allotments front an existing overhead electricity or telecommunication service, these allotments may connect to such service subject to the approval and requirements of the service provider.
- (e) The developer must provide Council with a copy of a Certificate for Electricity Supply to the development from a registered energy service provider, prior to the signing of the Plan of Survey.
- (f) Street lighting must be installed by the developer within the upgraded sections of North and Colvin Streets in accordance with the Australian Standard 1158.3.1 Series for Pedestrians and Vehicles and installed in accordance with Energex Rate 2. All street lighting associated with the development must be certified by an RPEQ. Street lighting must be installed on the same side as concrete footpaths (where applicable).
- (g) The developer must make suitable arrangements for the provision of electricity, telephone and (where applicable) cable services to all proposed units within the development. Documentary evidence that electricity, telephone and/or cable services will be provided, must be submitted to Council prior to the signing of the plan of survey.
- (h) Telephone and cable services may be laid in a combined trench with electricity cables, subject to the approval of the relevant energy service provider and the authorised telephone or cable service provider.

29. Operational Works – Municipal Works
(ie Works being handed over to Council)

External Municipal Works relates to those works external to the subject site and located in dedicated public areas, for example existing road or drainage reserve, or private property not subject to developer ownership.

- (a) Municipal works must be completed in accordance with a detailed design certified by an RPEQ and approved by Council Engineers with appropriate fees payable, a works pre-start meeting on-site and various detailed construction and audit inspections by Council Officers. In accordance with Planning Scheme Policy 3, a maintenance period applies for the works and a maintenance security deposit is required.
- (b) The requirements of Council's Planning Scheme Policy 3 - General Works and Council's Standard Drawings shall apply to the municipal works. Where inconsistencies between any documents occur, Planning Scheme Policy 3 has precedence and must prevail to the extent of the inconsistency.
- (c) All engineering drawings must be submitted in accordance with *Planning Scheme Policy 2 – Information Local Government May Request* and include as a minimum the following:
 - (i) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ;
 - (ii) The drawings must be submitted as four (4) hardcopy, A3 size sets. Reports and supporting information must be submitted as two (2) hardcopy sets.

The submission must also include a compact disk containing electronic data as follows:

- (a) One (1) full set of all engineering drawings contained in one file;
- (b) Separate individual files containing layout plans for sewerage, water supply and drainage;
- (c) Any reports submitted in support of the application. Each report must be included as a separate file; and
- (d) An index of all files on the compact disk including descriptions of contents of each file.

All files must be submitted in PDF format.

- (d) The developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) All works must be supervised by an RPEQ competent in civil works and must be undertaken by a nominated principal contractor experienced in the construction of municipal works. Council reserves the right to request evidence of the principal contractor's competency. Should the contractor not be able to demonstrate the necessary competency to the satisfaction of the assessment manager or if the contractor has constructed substandard works for Council in the past, Council reserves the right to reject the nominated contractor.

- (f) Prior to the Pre-Start meeting, the developer must submit to Council a Development Performance Bond of not less than 10% of the value of external municipal works (minimum \$5,000.00), as security for the performance of the various construction and certification obligations (including provision of "As Constructed" information).
- (g) Municipal works must be accepted "On Maintenance" prior to commencement of use. On completion of the works an "On Maintenance" acceptance inspection may be arranged by submission of a certificate signed by an RPEQ certifying that the works have been constructed in accordance with the approved plans and specifications and in compliance with Council's construction standards. It is expected that the RPEQ will undertake the necessary inspections to make this certification.
- (h) Upon formal acceptance of the works "On Maintenance", the Development Performance Bond shall be reduced to an amount not less than 5% of the value of the works or \$5,000.00 whichever is greater, and shall be retained by Council during the maintenance period as a Maintenance Security Bond for the performance of the maintenance obligations. Alternatively the developer may submit a separate Maintenance Security Bond of equivalent value. This Bond shall be retained by Council in accordance with *Planning Scheme Policy 3*, until the works are accepted "Off Maintenance" by Council.
- (i) "As Constructed" information and final construction issue engineering design drawings, compiled in accordance with *Planning Scheme Policy 2 for Municipal Works*, with a Contributed Assets Financial Apportionment Form, must be submitted to Council and approved prior to the formal acceptance of the works "On Maintenance". The data must be submitted electronically on a compact disk labelled appropriately to indicate the contents.
- (j) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent in regard to the works relevant to the operational works approval.

30. Operational Works – Internal Works
(ie Works not being handed over to Council)

Internal Works refers to engineering works performed within private property and includes but is not limited to, earthworks, retaining walls, driveways and stormwater management systems.

- (a) Engineering plans must be submitted to Council prior to the commencement of construction on site and must show full construction details, layout dimensions, and finished surface levels.
- (b) Engineering drawings must be marked as confirmation that they have been checked and approved by an RPEQ.
- (c) The drawings must be submitted as four (4) hardcopy A3 size sets and one (1) full size set with two (2) hardcopy sets of any reports and supporting information. One set of drawings will be returned to the applicant with the Decision Notice. The submission must also include a compact disk containing electronic data as follows:

- (i) A full set of all engineering drawings contained in one file;
- (ii) Separate individual files containing layouts for sewerage, water supply and drainage;
- (iii) Any reports submitted in support of the application. Each report must be included as a separate file; and
- (iv) An index of all files on the Compact Disc including descriptions of contents of each file.

All files must be submitted in PDF format.

Where municipal works are also being undertaken, it is usually appropriate to make a combined submission.

- (d) The developer must submit a Certificate of Design signed by an RPEQ, certifying that the design is in accordance with all conditions of the development approval, relevant engineering standards, Council's requirements and standards, and sound engineering practice.
- (e) On completion of the works a certificate signed by an RPEQ must be submitted to Council, certifying that the works have been constructed in compliance with the approved plans and specifications and in accordance with Council's construction standards. The RPEQ must personally undertake the necessary inspections to make this certification.
- (f) Council reserves the right to require further amendments and/or additions at a later date, should design errors or omissions become apparent.

31. Easements

- (a) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (b) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (c) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (d) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.

- (e) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (f) Adequate number of permanent survey marks must be installed to ensure clear definition of the development.

32. General

- (a) All works required for this development must take due regard of any and all existing services and, if considered necessary by the relevant authority or the assessment manager, such works must be altered at the cost of the developer.
- (b) Any fill intended to be placed over Council's underground services must be approved in advance by the assessment manager.
- (c) Should any works be proposed on land under other private ownership, written permission for the works must be obtained and forwarded to Council as part of the operational works application. Similarly, written clearances must be obtained after the works are completed, unless otherwise accepted by the assessment manager.
- (d) Any allotment or other filling creating a soil depth greater than 500mm must be conducted in accordance with *Australian Standard 3798* at Responsibility Level 1. Test results as required by *Australian Standard 3798*, and a certificate of quality and uniformity of fill, must be provided by an RPEQ.
- (e) Batters and slopes greater than 1:4 resulting from cutting and filling of the site must be certified by an RPEQ as stable and properly drained.
- (f) All imported and exported materials may be transported only on routes approved by the assessment manager.
- (g) All disturbed verge, park, allotment and other grassed areas must be rehabilitated and revegetated (including provision of topsoil to a minimum depth of 50mm) and turfed or seeded to the satisfaction of the assessment manager and in accordance with Planning Scheme Policy 3 - General Works (specifically part 6.1.6). Grass cover must be achieved as early as possible during the development and a minimum grass coverage of 80% must be achieved before the development can be accepted "Off Maintenance".
- (h) If, after the preparation of detailed design plans for the various roads, it is found necessary to provide any additional dedicated road area, or modify the proposed dedicated roads to enable the full requirements of Council's standards and Austroads documents to be incorporated in any way (but particularly in the production of the required speed environment or because of longitudinal and cross sectional constraints) then the development layout plan must be altered accordingly and approved in writing by the assessment manager.

33. Compliance with Conditions

- (a) All Condition must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

34. When Approval Takes Effect.

This approval has effect in accordance with the provisions of Section 339 of the *Sustainable Planning Act 2009*.

Assessment Manager (Ipswich City Council) Conditions – Reconfiguring a Lot
Conditions applicable to this approval under Sustainable Planning Act:

1. Basis of Approval

Subject to these conditions, the facts and circumstances set out in the application and all relevant Council Local Laws and/or Planning Scheme Policies shall be adhered to.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications acceptable to the Development Manager will suffice.

3. Plan of Survey

- (a) The developer must submit to Council a plan of subdivision generally in accordance with the approved plan of development as outlined in the decision notice noting the following clarification:
 - (i) Proposed Lot 551 must not be dedicated to Council as part of the Reconfiguration component of this approval.
- (b) The developer must grant, free of cost to or compensation payable by Council, minimum 4.0 m wide easements located centrally over proposed stormwater drains (375mm diameter or greater), where they are located within private property and cross into adjoining properties.

The documentation associated with these easements may be prepared by the developer in a form satisfactory to Council's City Solicitor, or the developer may submit easement plans, only where Council is party to the easements, to Council for the preparation of easement documents at the developer's expense.

- (c) Where easements are required for discharge of stormwater over adjacent land, the developer must submit signed agreements to this effect from the affected land owners as part of the operational works application.
- (d) Easements must be centrally located over the alignment of stormwater paths and be of sufficient width to encompass the overland flow from a storm event with an ARI of 100 years where necessary.
- (e) Easements must be of sufficient width to contain any fitting, access chamber etc located on stormwater drains.
- (f) All pre-existing easements crossing the site must be pegged where they cross each property boundary and at every change of direction.
- (g) An adequate number of permanent survey marks must be installed to ensure clear definition of the development. Prior to signing of the Plan of Survey, the developer must submit a certificate signed by a licensed surveyor, stating that after the completion of all works associated with the development, permanent survey marks are in their correct position in accordance with the plan of survey.

4. Rates in Arrears

In accordance with the provisions of the *Sustainable Planning Regulation 2009*, all rates and other expenses as a charge against the land must not be outstanding at the date of signing of the plan of subdivision.

5. Contaminated Land

Prior to Council signing the survey plan for this development the developer must submit RPEQ certification to comply with Condition 6(b) of the operational works approval for application 3262/2010/OW dated 13 July 2010. This certification must state that the completed bulk earthworks and rehabilitation of Lot 55 on SP222487 has been completed in accordance with these documents.

6. Locality References

- (a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) must make reference to the relevant, approved place name under the Place Names Act 1994 in a contrasting colour to the background, in lettering no less than 50% of the estate name and in the same orientation as the estate name.
- (b) Any reference to the regional location of the site or the development must not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

7. Compliance with Conditions

- (a) All Condition must be completed prior to the issue of Form-21 'Final Inspection Certificate for Building Works', or prior to the commencement of the approved use, whichever happens first, unless otherwise approved in writing by the assessment manager.
- (b) Unless otherwise stated, all other conditions must be completed prior to the commencement of the change of use of the site or as determined in writing by the assessment manager.

8. When Approval Takes Effect

This approval has effect in accordance with the provisions of Section 339 of the *Sustainable Planning Act 2009*.

Conditions of Concurrence Agencies

- 1. The Department of Environment and Resource Management is a concurrence and advice agency with regard to this development approval. The attached concurrence and advice agency response, dated 28 September 2010, forms part of this Decision Notice.
 - 2. Energex is a advice agency with regard to this development approval. The attached concurrence agency response, dated 4 June 2010, forms part of this Decision Notice.
- B. The developer be further advised of the following:-

1. Further Subdivision

Where the land and/or buildings are to be subdivided in accordance with the *Body Corporate and Community Management Act 1997* all buildings must be substantially completed prior to the release of survey plans.

2. Signage

Signage should generally provide for identification rather than advertisement and should contribute to an attractive streetscape and integrate with the overall design and layout of a development. Emphasis should be placed upon:

- (a) Visual attractiveness
- (b) Fewer and more easily interpreted signs
- (c) Scales and proportions for signage which reflect and reinforce the architectural design of individual buildings or the streetscape in terms of location and dimension
- (d) The removal of undesirable signs

- (e) Compatibility with the scale of development and the amenity of surrounding land uses - sky/tower signs, revolving signs, signs projecting from building facades and bunting are discouraged
- (f) Maintaining views to key building features such as pediments and fenestration to ensure that they are not obscured, and
- (g) Grouping multiple tenancy signage into one structure.

3. Fire Ants

In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species *Solenopsis invicta*) and to eradicate it from the State.

It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

Director General
Department of Primary Industries
GPO Box 46, Brisbane QLD 4001

It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of a Department of Primary Industries Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

The development approved herein, by its very nature, includes activities considered to be "high risk" in respect of controlling the spread of Fire Ants. The following lists show high risk activities and some precautions should be considered for implementation.

- (a) High risk activities can include:
 - (i) Earthworks of a minor or major scale;
 - (ii) Revegetation or rehabilitation;
 - (iii) Import of fill onto a site;
 - (iv) Export of fill or other materials such as soils, gravel, mulch and plants; and
 - (v) Export off or import on to a site of construction and demolition waste and materials or green waste.
- (b) Precautions for implementation

- (i) Checking for ants regularly;
- (ii) Checking all soil, fill and waste materials (construction and green waste) for ants;
- (iii) Asking questions about the quality and source of soil, fill and waste materials (construction and green waste);
- (iv) Keeping records of all movements of soil, fill and waste materials (construction and green waste);
- (v) Cleaning of all earthmoving or other soiled vehicles prior to exit from the site; and
- (vi) Informing staff and contractors about these precautions.

4. Portable Long Service Leave

From 1 January 2001, the Building and Construction Industry (Portable Long Service Leave) Levy must be paid prior to the issue of a development permit where one is required for the 'Building and Construction Industry'. This applies to Building Works, operational works and Plumbing and Drainage Works applications, as defined under the *Sustainable Planning Act 2009*, where the works are \$80 000 or more and matching the definition of 'Building and Construction Industry' under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*.

Council will not be able to issue a decision notice without receipt of details that the levy has been paid. Should you require clarification in regard to the amendments to the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, you should contact QLeave on 1800 803 481 (free call) or (07) 3212 6855.

5. Vehicle and Bin Washdown Facilities

The use of vehicle and bin washdown facilities are subject to any water restrictions that are current at the time of the requirement for the use of potable water.

6. Water Meter

All new commercial, industrial or large multi-residential property connections with a projected annual consumption greater than or equal to 20,000kL must have installed, at the customer's expense, an electronic water meter with a data logger and an approved back-to-base communication system as specified by QUU.

Properties with electronic water meters are subject to billing on a monthly basis in accordance with the metered monthly consumption.

If the proposed development is likely to have an annual water consumption equal to or greater than 20,000kL, the developer will be required to contact QUU on telephone 13 26 57 to arrange installation of an electronic flow meter.

7. Bonding of Incomplete Works Associated with Reconfiguring a Lot

Council may approve the signing of the Plan of Survey prior to the acceptance of works "On Maintenance", subject to compliance with the conditions listed in Planning Scheme Policy 3 Clause 14.1.4.

8. Submission of Drawings

Any engineering drawings submitted for Council review and approval in conjunction with an operational works application should be arranged to leave a blank space with minimum dimensions 6 cm wide and 14 cm high near the right border for a Council Stamp of Approval, so that any existing notes are not over-written by the stamp.

9. Water Reticulation Plans

The developer must submit hydraulic plans that comply with the requirements of the *Water Supply (Safety and Reliability) Act* for scrutiny by Council.

10. Plumbing and Drainage Approval

Scrutiny fees in accordance with the Council's Schedule of Fees and Charges must be paid at the time of lodgement of plans. No work on the plumbing and drainage may commence prior to the approval of the plan and the issuing of a permit, by this Council, to a Licensed Plumber/Drainer.

Tests and inspections must be arranged with the Plumbing Section upon payment of the appropriate current fee.

11. Drainage Reserve

The land nominated on the proposal plans as drainage reserve may not be dedicated as drainage reserve until the development works associated with this drainage reserve are completed in accordance with the Material Change of Use Approval and to the satisfaction of the assessment manager.

12. Further Development Infrastructure Contributions

The Applicant is advised that infrastructure contributions, footpath, and kerb and channelling contributions were not required as part of the Reconfiguring a Lot approval. Additionally, it is advised that there are no existing credits available for sewer, water, roadworks, parks and social infrastructure pursuant to Planning Scheme Policy 5 'Infrastructure', or for footpath, and kerb and channel for the site, therefore infrastructure contributions or requirements for construction may be applied accordingly as a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

13. Connection to Services

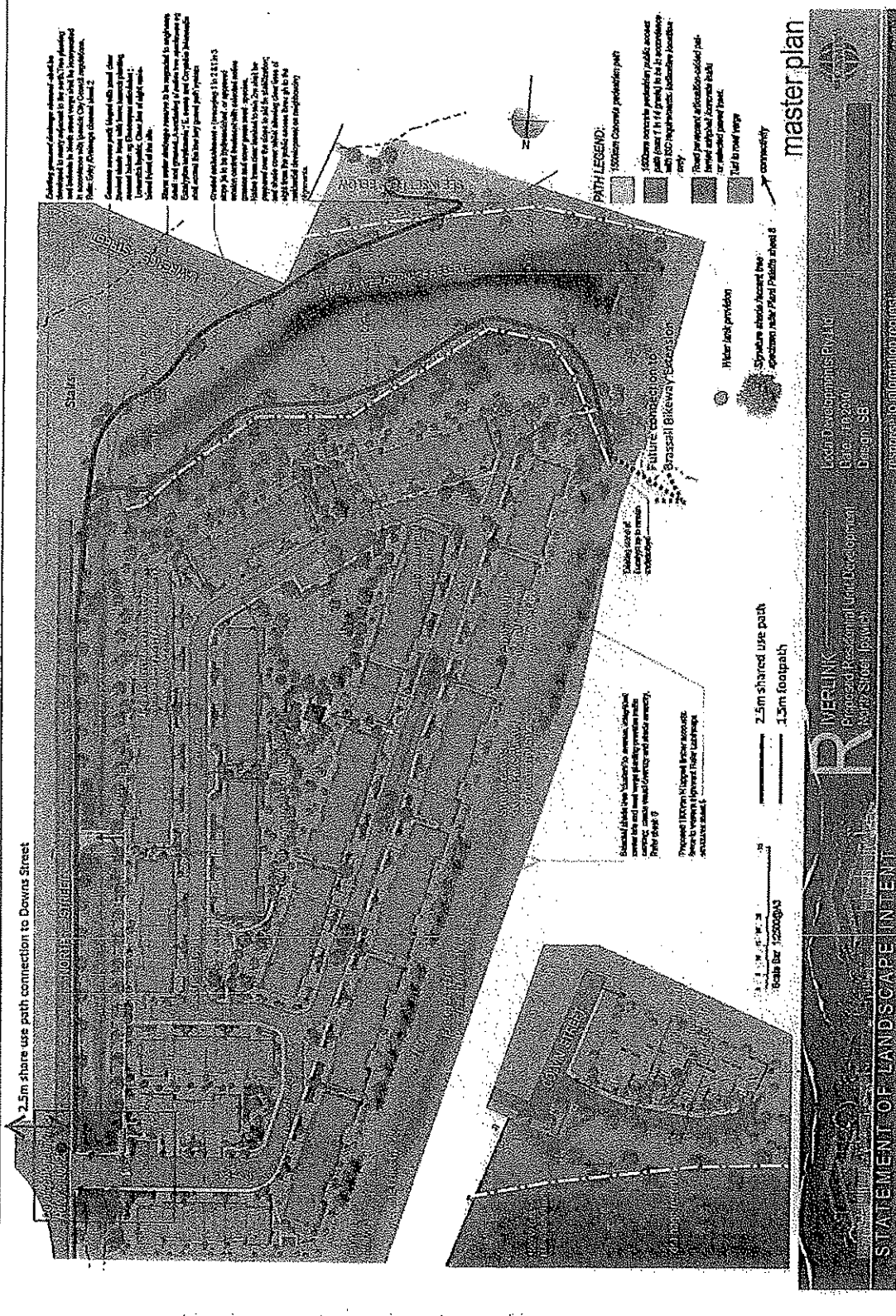
The Applicant is advised that connection to sewer, water and stormwater infrastructure are not required as part of the Reconfiguring a Lot development approval, therefore connection to sewer, water and stormwater infrastructure may be a condition of any future development approval over the sites, pursuant to the Ipswich Planning Scheme applicable at the time of determination of any relevant development application.

14. Protected Fauna Species

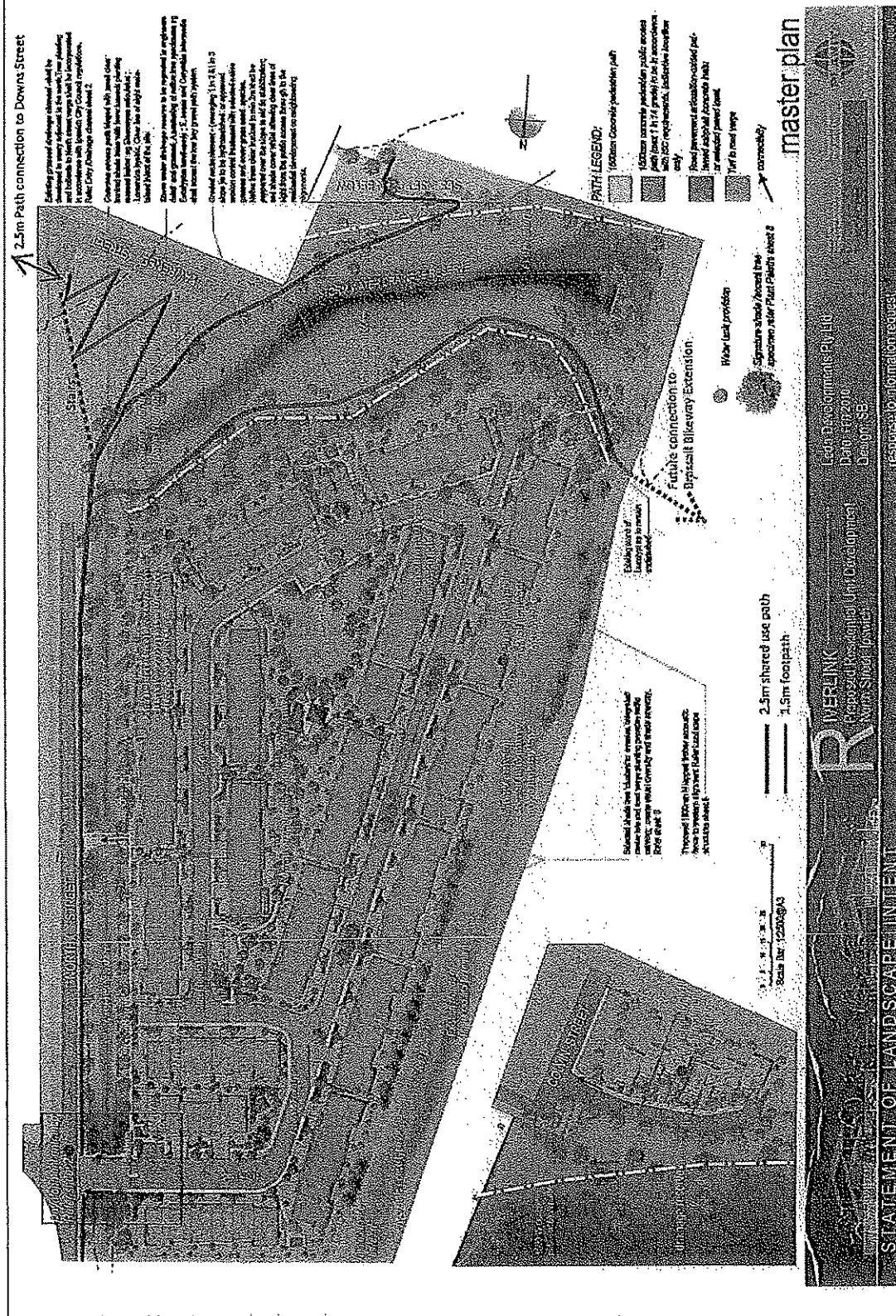
It is strongly suggested that the developer confirm that there are no fauna species which are protected under the *Environmental Protection and Biodiversity 1999*. Specifically, the developer should confirm the presence of protection status of bats which may be nesting in the culvert of the proposed drainage reserve.

Pursuant to the provisions of the *Sustainable Planning Act 2009*, I also enclose herewith a copy of the relevant sections concerning:

Attachment A



Attachment B



Concurrence Agency and Advice Agency Response

This notice is issued by the Department of Environment and Resource Management pursuant to section 287 (concurrence agency response) and section 292 (advice agency response) of the *Sustainable Planning Act 2009* ("the Act").

Lipoma Pty Ltd
c/- Michel Group Services Pty Ltd
PO Box 2695
NERANG BC QLD 4211
Attention: Tim Riches

CC
Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305
Attention: Brett Davey

Our reference: IC0510BEE0015_IPS7657_
342590

1. Application Details

Assessment Manager reference: 2727/2010/CA

Date application made or referred to DERM: 17 May 2010

Development approval applied for: MCU Multiple Residential (18 Units) & RaL 1 into 3 lots

Aspect(s) of development:

Material change of use - Contaminated land	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 23
Reconfiguring a lot - Contaminated land	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 22
Various aspects of development - Queensland heritage place	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 19

Property/Location description: Lot 55 SP222487 (21A North Street, North Ipswich QLD) – Ipswich City Council

The Chief Executive, Department of Environment and Resource Management (DERM concurrence and advice agency) for each referral jurisdictions for the aspect of the subject development is to recommend to the assessment manager as attached.

2. General advice to assessment manager

Pursuant to sections 334 and 363 of the Act, a copy of a decision notice or negotiated decision notice issued by the assessment manager must be forwarded to DERM as a referral agency for the relevant application at PO Box 1164, Beenleigh Qld 4207

The State's Native Title Work Procedures provide that responsibility for assessment of native title issues for an IDAS application rests with the assessment manager. Therefore, DERM as a referral agency for the relevant application has not provided notification to native title parties.



Attachment C

Appeal Rights

The following is an extract from the *Sustainable Planning Act 2009*

Chapter 6, Part 8 Division 1

Division 1 Changing decision notices and approvals during applicant's appeal period

360 Application of div 1

This division applies only during the applicant's appeal period.

361 Applicant may make representations about decision

- (1) The applicant may make written representations to the assessment manager about—
 - (a) a matter stated in the decision notice, other than a refusal or a matter about which a concurrence agency told the assessment manager under section 287(1) or (5); or
 - (b) the standard conditions applying to a deemed approval.
- (2) However, the applicant can not make representations under subsection (1)(a) about a condition attached to an approval under the direction of the Minister.

362 Assessment manager to consider representations

The assessment manager must consider any representations made to the assessment manager under section 361.

363 Decision about representations

- (1) If the assessment manager agrees with any of the representations about a decision notice or a deemed approval, the assessment manager must give a new decision notice (the *negotiated decision notice*) to—
 - (a) the applicant; and
 - (b) each principal submitter; and
 - (c) each referral agency; and
 - (d) if the assessment manager is not the local government and the development is in a local government area—the local government.
- (2) Before the assessment manager agrees to a change under this section, the assessment manager must consider the matters the assessment manager was required to consider in assessing the application, to the extent the matters are relevant.
- (3) Only 1 negotiated decision notice may be given.
- (4) The negotiated decision notice—
 - (a) must be given within 5 business days after the day the assessment manager agrees with the representations; and
 - (b) must comply with section 335; and
 - (c) must state the nature of the changes; and
 - (d) replaces—
 - (i) the decision notice previously given; or
 - (ii) if a decision notice was not previously given and the negotiated decision notice relates to a deemed approval—the standard conditions applying to the deemed approval.
- (5) If the assessment manager does not agree with any of the representations, the assessment manager must, within 5 business days after the day the assessment manager decides not to agree with any of the representations, give written notice to the applicant stating the decision about the representations.

366 Applicant may suspend applicant's appeal period

- (1) If the applicant needs more time to make the representations, the applicant may, by written notice given to the assessment manager, suspend the applicant's appeal period.
- (2) The applicant may act under subsection (1) only once.
- (3) If the representations are not made within 20 business days after the day written notice was given to the assessment manager, the balance of the applicant's appeal period restarts.
- (4) If the representations are made within 20 business days after the day written notice was given to the assessment manager—

- (a) if the applicant gives the assessment manager a notice withdrawing the notice under subsection (1)—the balance of the applicant's appeal period restarts the day after the assessment manager receives the notice of withdrawal; or
- (b) if the assessment manager gives the applicant a notice under section 363(5)—the balance of the applicant's appeal period restarts the day after the applicant receives the notice; or
- (c) if the assessment manager gives the applicant a negotiated decision notice—the applicant's appeal period starts again the day after the applicant receives the negotiated decision notice.

Chapter 7, Part 1, Division 8

Division 8 Appeals to court relating to development applications and approvals

461 Appeals by applicants

- (1) An applicant for a development application may appeal to the court against any of the following—
 - (a) the refusal, or the refusal in part, of the development application;
 - (b) any condition of a development approval, another matter stated in a development approval and the identification or inclusion of a code under section 242;
 - (c) the decision to give a preliminary approval when a development permit was applied for;
 - (d) the length of a period mentioned in section 341;
 - (e) a deemed refusal of the development application.
- (2) An appeal under subsection (1)(a), (b), (c) or (d) must be started within 20 business days (the *applicant's appeal period*) after—
 - (a) if a decision notice or negotiated decision notice is given—the day the decision notice or negotiated decision notice is given to the applicant; or
 - (b) otherwise—the day a decision notice was required to be given to the applicant.
- (3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

462 Appeals by submitters—general

- (1) A submitter for a development application may appeal to the court only against—
 - (a) the part of the approval relating to the assessment manager's decision about any part of the application requiring impact assessment under section 314; or
 - (b) the part of the approval relating to the assessment manager's decision under section 327.
- (2) To the extent an appeal may be made under subsection (1), the appeal may be against 1 or more of the following—
 - (a) the giving of a development approval;
 - (b) any provision of the approval including—
 - (i) a condition of, or lack of condition for, the approval; or
 - (ii) the length of a period mentioned in section 341 for the approval.
- (3) However, a submitter may not appeal if the submitter—
 - (a) withdraws the submission before the application is decided; or
 - (b) has given the assessment manager a notice under section 339(1)(b)(ii).
- (4) The appeal must be started within 20 business days (the *submitter's appeal period*) after the decision notice or negotiated decision notice is given to the submitter.

463 Additional and extended appeal rights for submitters for particular development applications

- (1) This section applies to a development application to which chapter 9, part 7 applies.
- (2) A submitter of a properly made submission for the application may appeal to the court about a referral agency's response made by a prescribed concurrence agency for the application.
- (3) However, the submitter may only appeal against a referral agency's response to the extent it relates to—
 - (a) if the prescribed concurrence agency is the chief executive (environment)—development for an aquacultural ERA; or
 - (b) if the prescribed concurrence agency is the chief executive (fisheries)—development that is—
 - (i) a material change of use of premises for aquaculture; or
 - (ii) operational work that is the removal, damage or destruction of a marine plant.
- (4) Despite section 462(1), the submitter may appeal against the following matters for the application even if the matters relate to code assessment—
 - (a) a decision about a matter mentioned in section 462(2) if it is a decision of the chief executive (fisheries);
 - (b) a referral agency's response mentioned in subsection (2).

464 Appeals by advice agency submitters

- (1) Subsection (2) applies if an advice agency, in its response for an application, told the assessment manager to treat the response as a properly made submission.
- (2) The advice agency may, within the limits of its jurisdiction, appeal to the court about—
 - (a) any part of the approval relating to the assessment manager's decision about any part of the application requiring impact assessment under section 314; or
 - (b) any part of the approval relating to the assessment manager's decision under section 327.
- (3) The appeal must be started within 20 business days after the day the decision notice or negotiated decision notice is given to the advice agency as a submitter.
- (4) However, if the advice agency has given the assessment manager a notice under section 339(1)(b)(ii), the advice agency may not appeal the decision.

465 Appeals about decisions relating to extensions for approvals

- (1) For a development approval given for a development application, a person to whom a notice is given under section 389, other than a notice for a decision under section 386(2), may appeal to the court against the decision in the notice.
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.
- (3) Also, a person who has made a request under section 383 may appeal to the court against a deemed refusal of the request.
- (4) An appeal under subsection (3) may be started at any time after the last day the decision on the matter should have been made.

466 Appeals about decisions relating to permissible changes

- (1) For a development approval given for a development application, the following persons may appeal to the court against a decision on a request to make a permissible change to the approval—
 - (a) if the responsible entity for making the change is the assessment manager for the application—
 - (i) the person who made the request; or
 - (ii) an entity that gave a notice under section 373 or a pre-request response notice about the request;
 - (b) if the responsible entity for making the change is a concurrence agency for the application—the person who made the request.
- (2) The appeal must be started within 20 business days after the day the person is given notice of the decision on the request under section 376.
- (3) Also, a person who has made a request under section 369 may appeal to the court against a deemed refusal of the request.
- (4) An appeal under subsection (3) may be started at any time after the last day the decision on the matter should have been made.

467 Appeals about changing or cancelling conditions imposed by assessment manager or concurrence agency

- (1) A person to whom a notice under section 378(9)(b) giving a decision to change or cancel a condition of a development approval has been given may appeal to the court against the decision in the notice.
- (2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.

Concurrence Agency and Advice Agency Response

Aboriginal Cultural Heritage Act 2003

DERM also takes this opportunity to advise the Assessment Manager of the responsibilities of applicants under the *Aboriginal Cultural Heritage Act 2003*. The Assessment Manager may wish to include this information as an Advisory Note on the Decision Notice issued for the application.

Under section 23 of the *Aboriginal Cultural Heritage Act 2003* a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the "cultural heritage duty of care"). Maximum penalties for breaching the duty of care are \$750,000 for a corporation and \$75,000 for an individual.

Applicants will comply with the duty of care in relation to Aboriginal cultural heritage if they are acting in accordance with cultural heritage duty of care guidelines gazetted under the *Aboriginal Cultural Heritage Act 2003*, available on the DERM website, or in accordance with an agreement with the Aboriginal party for the area or a cultural heritage management plan approved under part 7 of the *Aboriginal Cultural Heritage Act 2003*.

Applicants are also encouraged to undertake a search of the Aboriginal Cultural Heritage Database and the Aboriginal Cultural Heritage Register, administered by the Cultural Heritage Coordination Unit, DERM. Application forms to undertake a free search of the Cultural Heritage Register and the Database may be obtained by contacting the Cultural Heritage Coordination Unit on (07) 3238 3838 or on the DERM website www.DERM.qld.gov.au/cultural_heritage

Delegate

[REDACTED]
Principal Biodiversity Planning Officer
(Planning and Assessment)
Woolloongabba – South East Region
Date: 28 September 2010

Enquiries:

[REDACTED]
Department of Environment and Resource Management
32 Tansey Street, Beenleigh, Qld 4207
PO Box 1164, Beenleigh, Qld 4207

Telephone + [REDACTED]
Facsimile + [REDACTED]
Website www.derm.qld.gov.au

Attachments

The parts of this Notice referred to above for each of the DERM referral jurisdictions involved with the application include:

DERM European Heritage Advice Agency Response Permit no. 34590 QHR601526 SPAR00452410 and

DERM Contaminated Land Concurrence Agency Response Permit Numbers: SPCL00452510 (MCU) and SPCL00452610 (ROL)

DERM Permit¹ number(s): SPCL00452510 (MCU) and SPCL00452610 (ROL)

Assessment manager reference:	2727/2010/CA
Date application received:	17 May 2010
Permit type:	Development permit(s) MCU & ROL
Date of decision:	23 Sept 2010
Decision:	For a concurrence agency response conditions that must attach to any development approval
Relevant laws and policies:	<i>Environmental Protection Act 1994</i>
Jurisdiction(s):	1. Material change of use - Contaminated land - <i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 23 2. Reconfiguring a lot - Contaminated land - <i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 22

Development Description(s)

Property/Location		Development
21A North Street, NORTH IPSWICH	Lot 55 on SP222487	The proposal seeks development approvals for material change of use (MCU) (Multiple Residential – 18 units) and reconfiguration a lot (ROL)(1 into 3 Lots)

Reason(s) for inclusion of conditions

In accordance with section 289 of the *Sustainable Planning Act 2009*, the reason(s) for inclusion of conditions stated in this permit required by the concurrence agency response for the application are as follows.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

DERM Permit number(s): SPCL00452510 (MCU) and SPCL00452610 (ROL)

CONDITIONS

Material Change of Use

n/a

Additional comments or advice about the application

At all times while the use continues and the subject land is on the Environmental Management Register (EMR) the applicant must comply with the approved Site Management Plan (SMP) for Lot 55 on SP222487 issued under the *Environmental Protection Act 1994* by the Department of Environment and Resource Management (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.

Reconfiguration a Lot

The reconfiguration of Lot 55 on SP222487 must be in accordance with the survey plan number 8742-233, dated 31/8/2009 prepared by Michel Group Services.

It is a requirement that the applicant notify the Department of Environment and Resource Management (Contaminated Land Unit) in writing within 5 working days of the survey plan being endorsed and provide a copy of the registered plan to the EPA (Contaminated Land Unit) to enable the registration in the Environmental Management Register (EMR) of all new parcels.

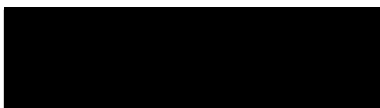
End of Conditions

DERM Permit ¹ number: 342590, QHR601526, SPAR00452410

Assessment manager reference:	2727/2010/CA
Date application received:	17 May 2010
Permit type:	Advice Agency Response
Date of decision:	23 June 2010
Decision:	The proposal, as stated in the application, will have no impact on the cultural heritage values of the North Ipswich Railway Workshops Complex and consequently no advice agency recommendations or conditions are provided.
Relevant laws and policies:	<i>Queensland Heritage Act 1992</i>
Jurisdiction(s):	Material change of use and Reconfiguring a Lot – Land adjacent to or including a Queensland heritage place <i>Sustainable Planning Regulation 2009</i> – Schedule 7, table 3, item 23

Development Description(s)

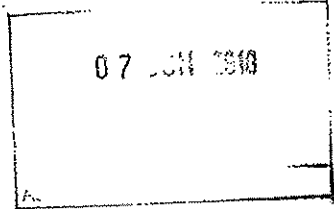
Property/Location		Development
21A North Street, North Ipswich, QLD 4305	Lot 55 on SP222487	Material Change of Use – Development Permit – Multiple Residential



Delegate
Maureen Lillie
Delegate, Chief Executive administering the *Queensland Heritage Act 1992*
Department of Environment and Resource Management
23 June 2010

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.


4 June 2010



Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Attention: Brett Davey

cc Michel Group Services Pty Ltd
PO Box 2695
NERANG QLD 4211
Attention: Tim Riches

 Ipswich RECEIVED	
07 JUN 2010	
Doc. No.	
Applic. No.	2727/10
Action Off.	B. Davey

Dear Brett,

Development Application – Material Change of Use (Multiple Residential – 18 units) and Reconfiguration of Lot (1 into 3 Lot Subdivision), located at 21A North Street, North Ipswich, described as Lot 55 on SP222487.

Applicant Ref: 874206

Council Ref: 2727/2010/CA

Our Ref: HBD 1456202 236537

We refer to your correspondence regarding the above application. ENERGEX Limited acting as an Advice Agency has **no objection** to the proposed Material Change of Use and Reconfiguration of lot, subject to the following conditions:

1. All easement conditions must be maintained
2. All previous conditions must be adhered to and ENERGEX may, at its discretion, audit the finished development to check that it conforms to the conditions of the development.
3. Detailed civil design drawings showing any proposed cut and fill levels on the easement and the location of the ENERGEX assets in relation to the proposed development must be approved by ENERGEX before any works can commence on site.
4. Any proposal for landscaping on the easement must have prior approval from ENERGEX. Please submit the relevant landscaping design to Principal Mains Design Engineer for approval. When considering landscape designs the planting of trees must be kept to the edges of the easement and not under any overhead conductors. When mature,

Reference: HBD 1456202 236537



Enquiries
Kirsten Sellers
Telephone
(07) 3407 4815
Facsimile
(07) 3407 4144
Email
kirstensellers
@energex.com.au

Corporate Office
150 Charlotte Street
Brisbane Qld 4000
GPO Box 1461
Brisbane Qld 4001
Telephone (07) 3407 4000
Facsimile (07) 3407 4609
www.energex.com.au

ENERGEX Limited
ABN 40 078 849 055

plants or trees must not grow in excess of 3.5 metres in height. If pertinent the ENERGEX Guide to "Powerline Friendly Plants" will be enclosed, please refer to this Guide for recommended species.

5. Satisfactory clearance from your proposed structure to the existing (and/or future) electricity wires must be maintained in accordance with the Electrical Safety Regulations 2002.

When considering the construction of a subdivision, either on ENERGEX easements or in the vicinity of ENERGEX assets, please be aware of the following general conditions:

- No civil works are to occur within 5 metres of any part of an ENERGEX Structure (e.g. tower base, pole or stay) without ENERGEX approval.
- If the minimum 5m horizontal separation to the ENERGEX structure cannot be achieved, the Developer must consult ENERGEX with regards to allowable construction methods. This may include full depth shoring of the excavation sides for a minimum of 5 metres either side of the structure.
- Any excavations deeper than 5m must have a minimum horizontal separation from the excavation to any tower, base or pole at least equal to the excavation depth. The excavation is not to be left open overnight and backfill is to be compacted in 150mm layers in the immediate vicinity of the structure.
- 10 metres clear access must be provided around all towers and pole structures after the completion of any works on the easement.
- Natural ground level on the easement should not be disturbed without ENERGEX approval.
- Final ground levels should slope gently to the edge of the easement, surrounding area or kerb such that pooling of water on the easement is avoided and conductor ground clearances are not decreased.
- Stockpiling of spoil on the easement is prohibited.
- Lighting structures are not permitted in the easement without prior written consent of ENERGEX. Lighting designs for proposed developments (e.g. road, carparks etc) on the easement are likely to require reduced height structures. Please submit detailed design to ENERGEX for approval. These drawings must clearly show the following:
 - Proposed height of the lighting structures and the ground level at the structure base,
 - Relative (to lighting structures) ground levels at ENERGEX structures (towers, pole etc) either side of the lighting structures, and
 - The location of the ENERGEX structures in relation to the proposed lighting
- Proposed underground services such as stormwater, sewerage, water and the like are to be kept to the outer edge of the easement. Services crossing the easement should be as near as practicable to right angles to the overhead conductor direction and not within 10 metres of any tower, pole or stay. **Pipelines and crossings are to be clearly marked.** Please submit the relevant design drawings to the Principal Mains Design Engineer for review.

The identification, assessment and mitigation of any possible hazards in the service due to electromagnetically induced voltages, is the responsibility of the Developer.

- Any cut in the vicinity of a structure or between a structure and the road kerb will need to be stabilised by a retaining wall. The retaining wall design and location is to be submitted to ENERGEX for approval.
- Any costs incurred by ENERGEX as a result of the works on the easement are to be met by the property Developer / owner.
- Access to the easement and access along the easement must be available to ENERGEX personnel and heavy equipment at all times. ENERGEX will require the Developer / owner to supply and install gates where fencing prohibits access to and along the easement area. To enable travel along the easement at anytime the gates must be series locked with an ENERGEX padlock. Both the padlock and a design drawing of an acceptable gate will be provided by ENERGEX.
- At all times the following clearance must be maintained from the top of any machinery moving in the vicinity of energised conductors:
 - 132kV and 110kV conductors – 4.5m minimum clearance
 - 33kV and 11kV conductors – 3m minimum clearance
 - Should it be necessary to transport equipment or extend any equipment, such that these clearances cannot be confidently maintained, you are required to contact our office to ascertain whether a Safety Officer is required on-site. All operators of machinery are to be made aware of the presence of high voltage conductors.

Should you require any further information on the above matter, please contact [REDACTED]

Yours faithfully,
[REDACTED]

Town Planner
Network Development and Property Department
ENERGEX Limited

[illegible][illegible]

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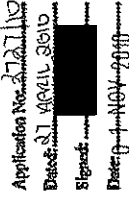
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THE
12 MONTHS FROM 2014


17406 Wang, D., et al.
[see 17405, 17407, 17408]

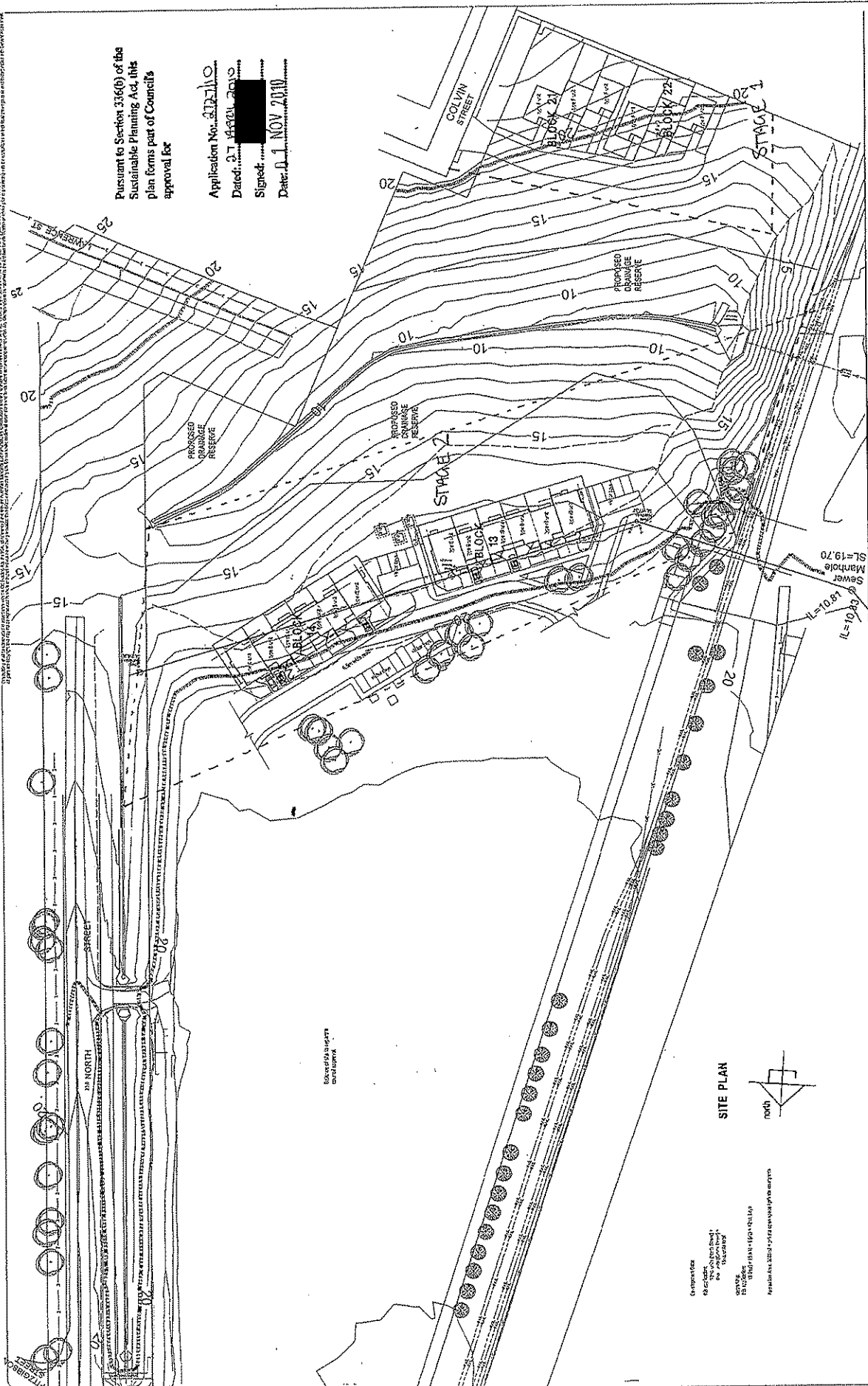
ROSLIN ARCADES PVT LTD
100/101/102
BANGALORE 560042
Phone 5531537
Fax 5531534
E-mail roslin@roslinarcades.com

[illegible]

Application No.: 272-7110
Dated: 27 APRIL 2010
Signed: [REDACTED]
Date: 01 NOV 2019

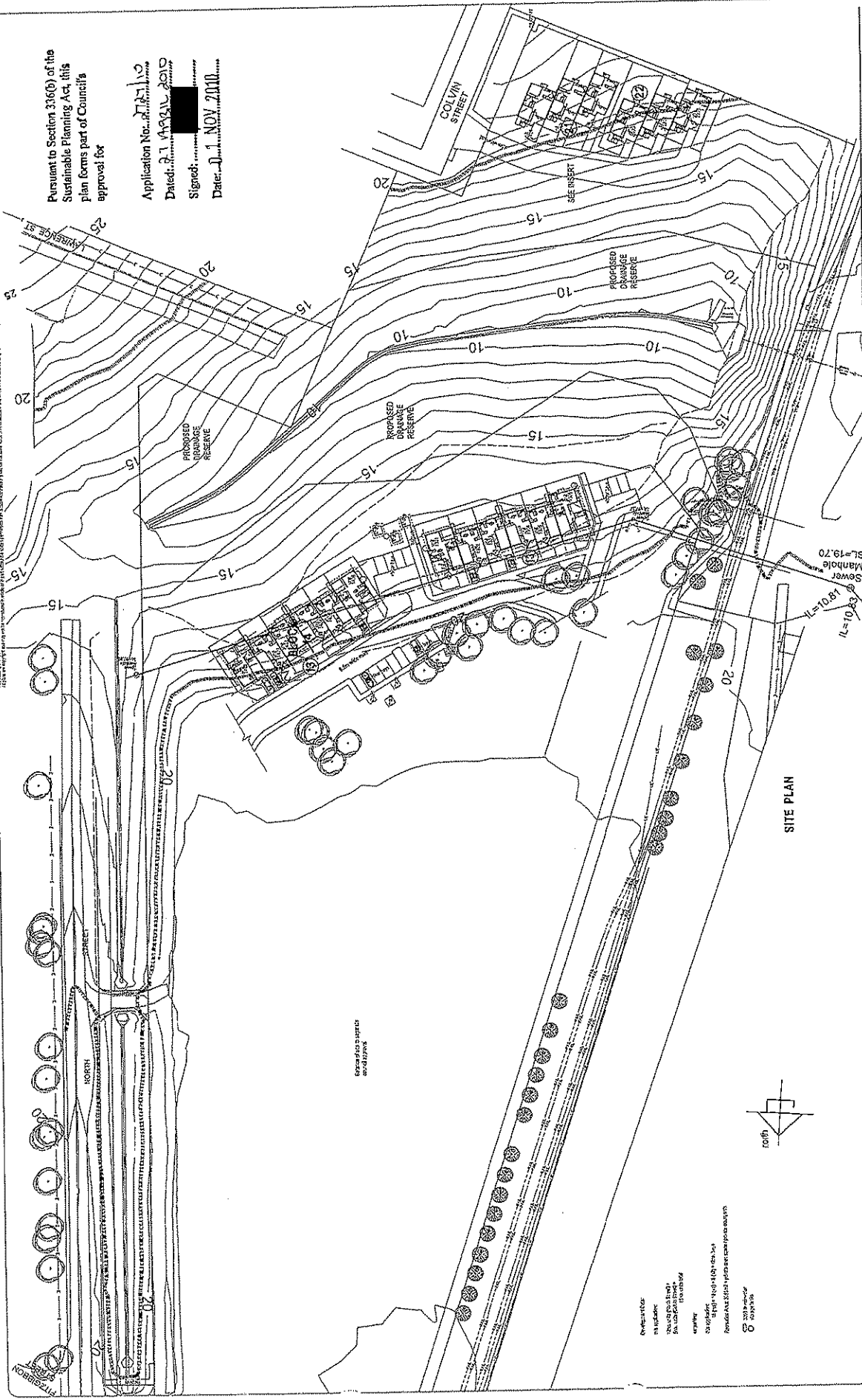
LEDA DEVELOPMENTS PTY LTD
Proposed Residential Unit
**Development @ North &
Colwyn Streets, North Ipswich**


ARISTON ARCHITECTS
 10000 14th St. S.E.
 Suite 100
 Bellevue, WA 98004
 Tel: 206.453.5544
 Fax: 206.453.5545
 E-mail: ariston@aristonarch.com



Pursuant to Section 336(3) of the Sustainable Planning Act, this plan forms part of Council's approval for

Application No. 21/1499
 Dated: 21 APRIL 2019
 Signed: [Signature]
 Date: 1 NOV 2019

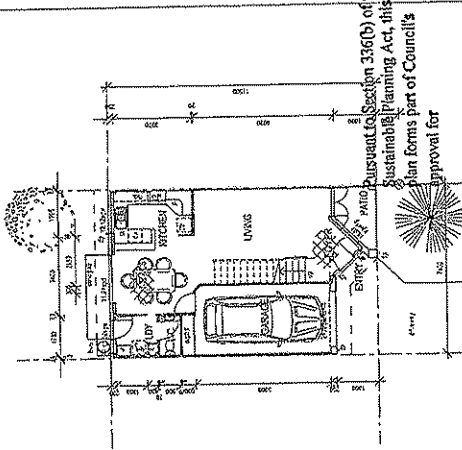


Client: **LEDA DEVELOPMENTS PTY LTD**
 Project: **Proposed Residential Unit Development @ North Street, North Ipswich**
 Date: **2018 12 DAB E**

Project: **Proposed Residential Unit Development @ North Street, North Ipswich**
 Date: **2018 12 DAB E**

BRISTON ARCHITECTS
 BRISTON ARCHITECTS PTY LTD
 1/111 North Street, North Ipswich QLD 4701
 Phone: 07 5511 1111
 Email: info@bristonarchitects.com.au

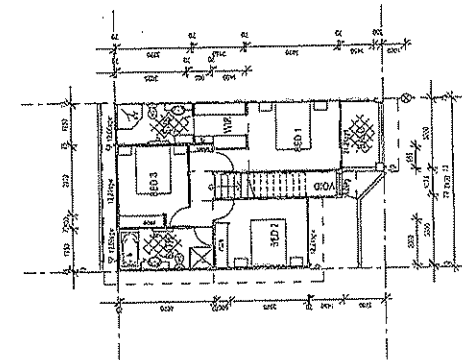
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 Date: 2019 01 01
 Drawn: [Name]
 Checked: [Name]
 Approved: [Name]



UNIT 'B' PLAN: GF
Scale 1:500

Pursuant to Section 336(b) of the Sustainable Planning Act, this plan forms part of Council's approval for

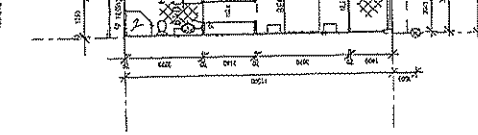
Application No: 2781/10
Dated: 27 APRIL 2010
Signed: [Redacted]
Date: 1 NOV 2010



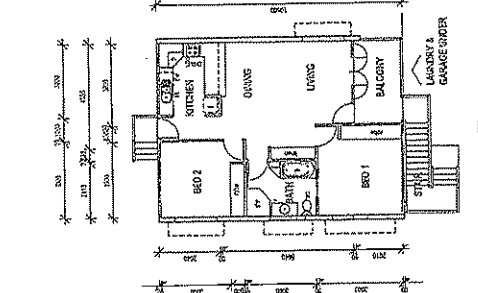
UNIT 'B' PLAN: FF
Scale 1:500

Pursuant to Section 336(b) of the Sustainable Planning Act, this plan forms part of Council's approval for

Application No: 2781/10
Dated: 27 APRIL 2010
Signed: [Redacted]
Date: 1 NOV 2010



UNIT 'B' PLAN: FF
Scale 1:500



UNIT 'F' PLAN
Scale 1:500

LEDA DEVELOPMENTS PTY LTD
Proposed Residential Unit
Development @ North Street,
North Ipswich
2009.12.04.04.c

DATE: 27 APRIL 2010
SIGNED: [Redacted]
DATE: 1 NOV 2010

UNIT 'B' PLAN: GF
Scale 1:500

UNIT 'B' PLAN: FF
Scale 1:500

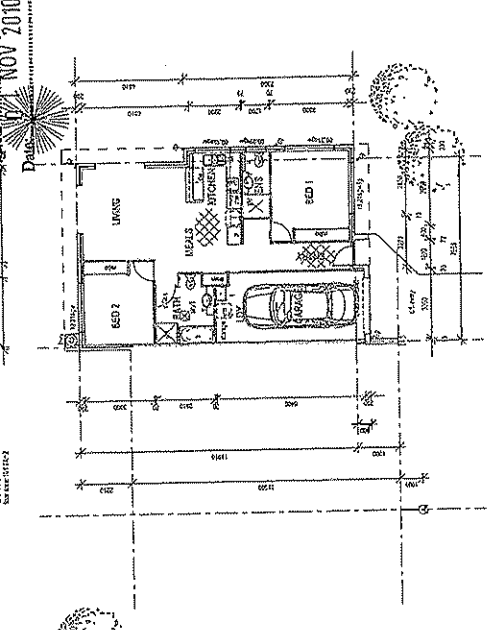
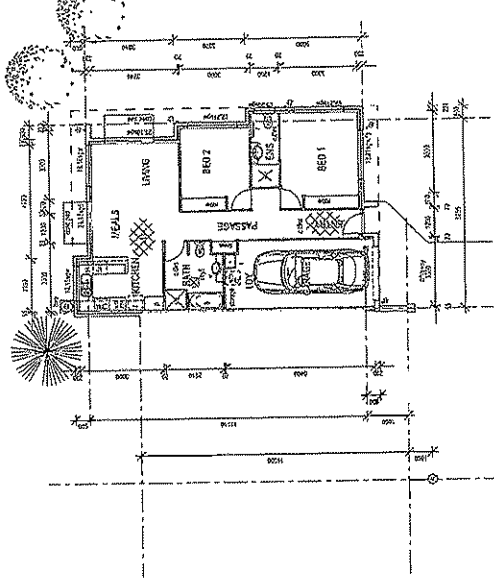
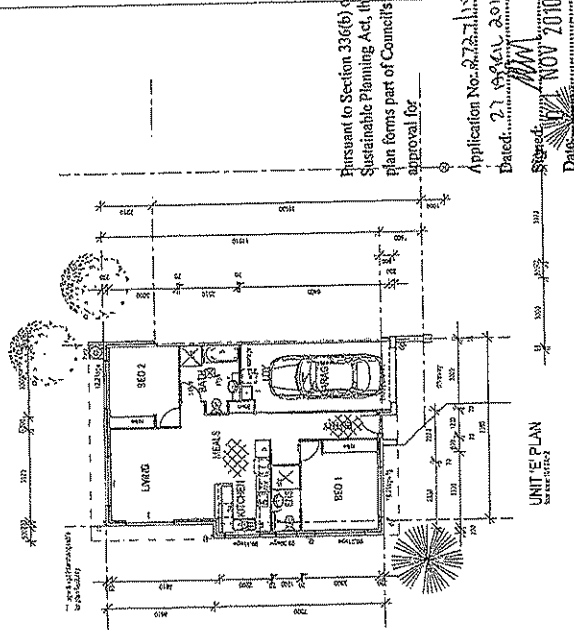
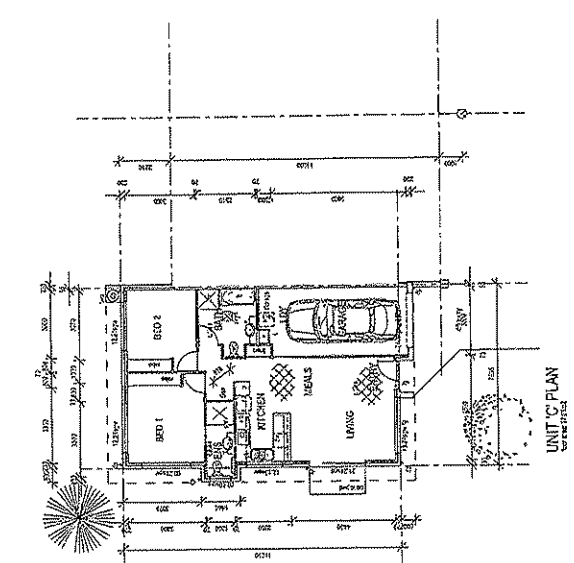
UNIT 'F' PLAN
Scale 1:500

UNIT 'B' PLAN: FF
Scale 1:500

UNIT 'B' PLAN: FF
Scale 1:500

UNIT 'B' PLAN: FF
Scale 1:500

UNIT 'B' PLAN: FF
Scale 1:500



Pursuant to Section 336(6) of the Sustainable Planning Act, this plan forms part of Council's approval for

Application No. 2722/13
Dated: 27 APRIL 2013
Signed: [Signature]
Date: 11 NOV 2010

LEDG DEVELOPMENTS PTY LTD
Project & Name:
Proposed Residential Unit
Development @ North Street,
North Ipswich
2008.12 DA058

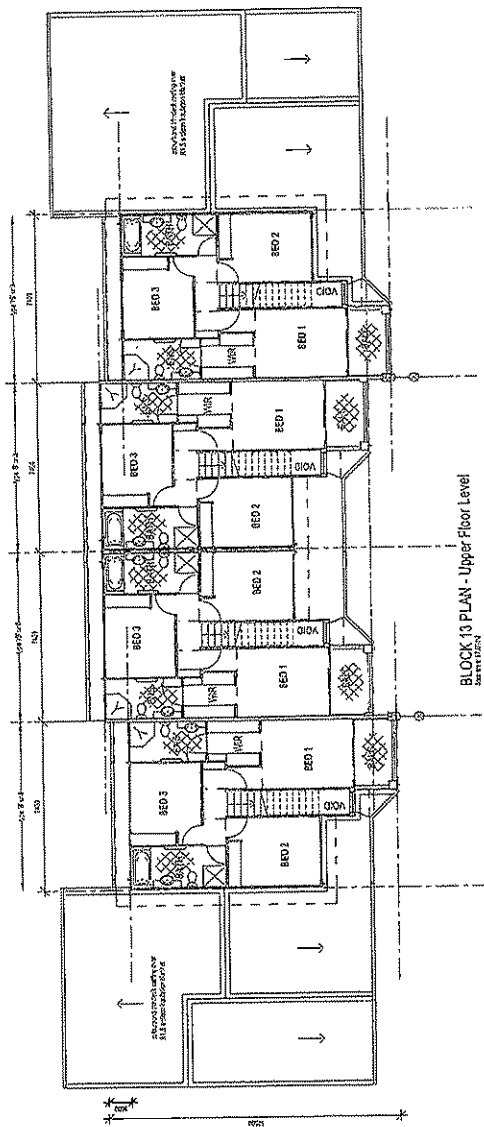
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Buckley Pines C. D. & E
Project & Name:
Proposed Residential Unit
Development @ North Street,
North Ipswich
2008.12 DA058

STEWART ARCHITECTS
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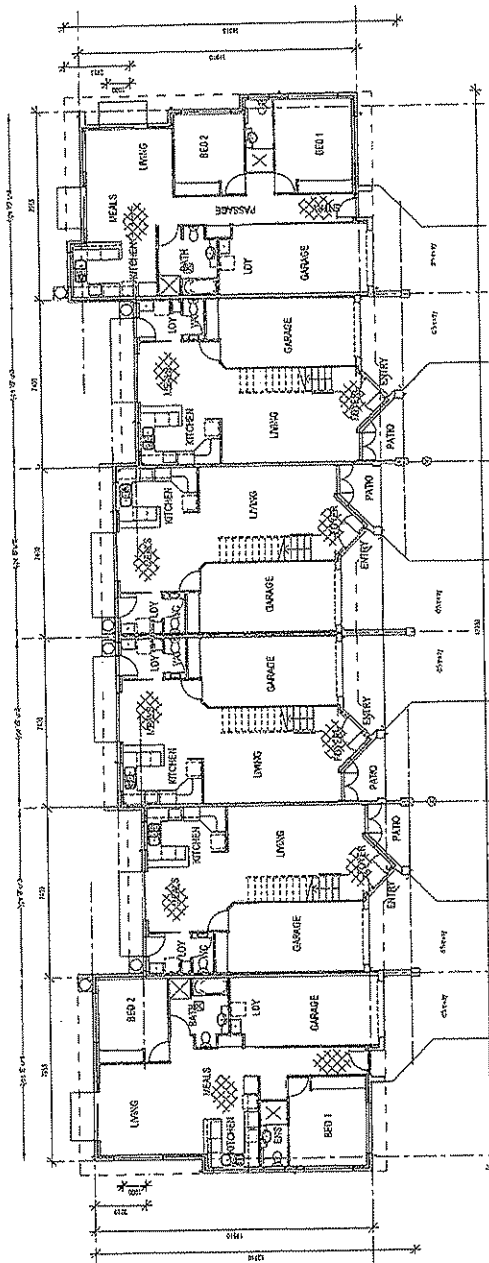
Pursuant to Section 336(b) of the Sustainable Planning Act, this plan forms part of Council's approval for

Application No. 27871.0
 Date: 27.10.2010
 Signed: [Signature]
 Date: 01 NOV 2010

These plans are to be used in accordance with the conditions of the development approval.



BLOCK 13 PLAN - Upper Floor Level



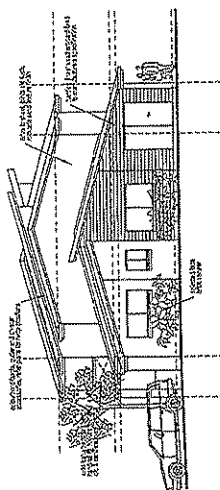
BLOCK 13 PLAN - Ground Floor Level

MERISTOW ARCHITECTS
 1/100 ROYAL AVENUE
 NORTH BRISBANE, QLD 4059
 PH: 07 554 1111
 FAX: 07 554 1112
 EMAIL: info@meristow.com.au

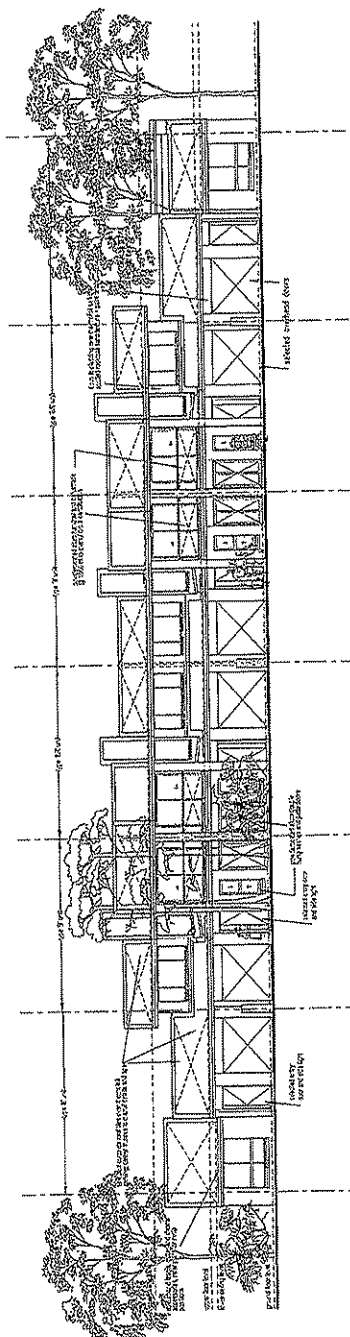
Project No. 27871.0
 Date: 27.10.2010
 Drawn: [Name]
 Checked: [Name]
 Approved: [Name]

LEDA DEVELOPMENTS PTY LTD
 Project & Address
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich
 Date: 27.10.2010
 Drawn: [Name]
 Checked: [Name]
 Approved: [Name]

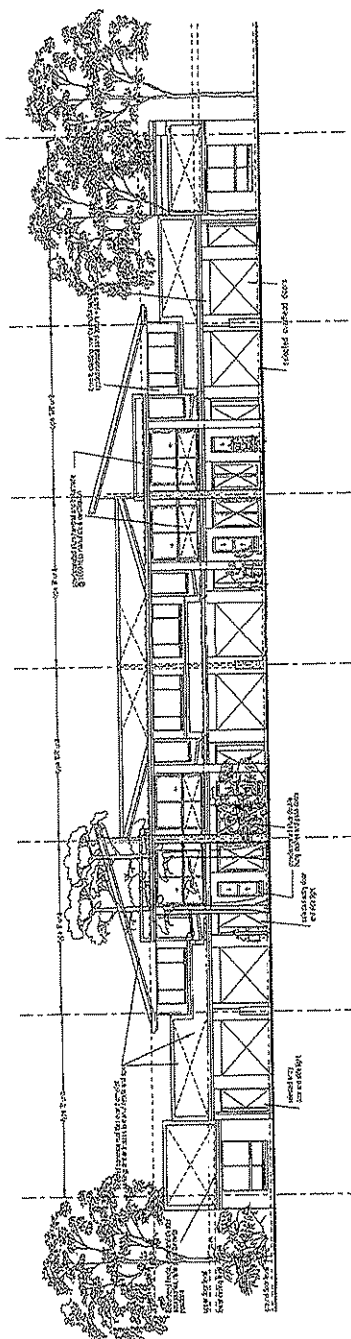
Application No.: 272710
 Dated: 27 APRIL 2010
 Signed: [Redacted]
 Date: 01 NOV. 2010



SOUTH ELEVATION



EAST ELEVATION - Block 13



ALTERNATIVE TYPICAL ELEVATION

உருவகம் அல்லாதவர்களுக்கு உரிமை இல்லாதது

**BRISTOW
ARCHITECTS**
BRISTOW ARCHITECTS PLY LTD
3 ROAD FIVE
TRAFALGAR CLO.
PONTASNEY
FIVE SAN SAN
CARE THE ARCHITECTS

[illegible]

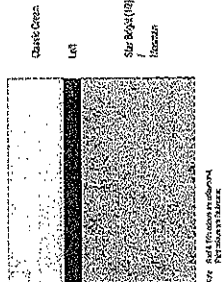
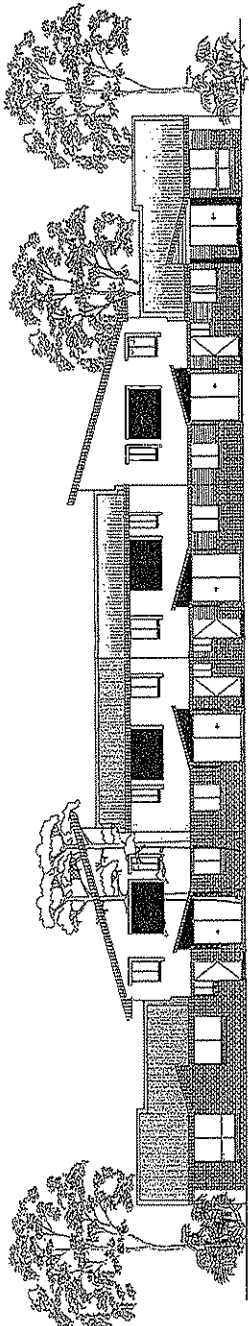
LEDA DEVELOPMENTS PTY LTD
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich

DATE: 04/08/2008
 SCALE: 1:500
 DRAWN: JPB/MS
 CHECKED: MS/MS
 DATE: 2008/12/04/09/8

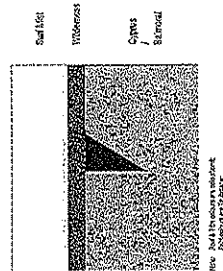
DATE: 04/08/2008
 SCALE: 1:500
 DRAWN: JPB/MS
 CHECKED: MS/MS
 DATE: 2008/12/04/09/8

Pursuant to Section 336(b) of the Sustainable Planning Act, this plan forms part of Council's approval for

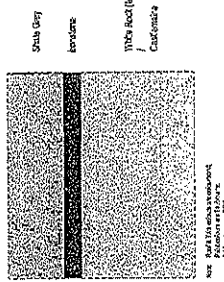
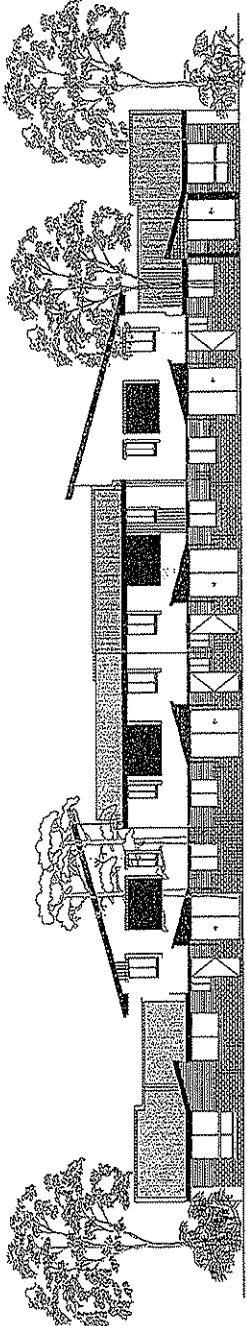
Application No. 2012/110
 Dated: 27 May, 2012
 Signed: [Signature]
 Date: 9 Nov 2010



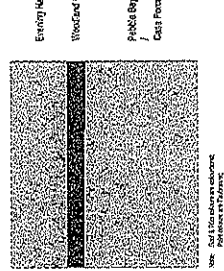
#2 COLOUR SELECTION



#1 COLOUR SELECTION



#4 COLOUR SELECTION



#3 COLOUR SELECTION

LEDA DEVELOPMENTS PTY LTD
 project & address
 Proposed Residential Unit
 Development @ North Street,
 North Ipswich
 2009/12 DM12

ARCHITECTS
 ARCHITECTS
 10/11 North Street
 North Ipswich
 QLD 4750

As shown on the drawings, the proposed development is subject to the following conditions of approval:

Attachment BD-22

Nick J White & E Tilbrook

■ Hume St
Woodend Qld 4305
Ph: ■
Email: ■

Your ref: OW 6291/2009 & MCU -6293/2009

20 January 2010

Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich Qld 4305

Dear Sir,

Re: Objection to Planning Application OW 6291/2009 & MCU -6293/2009

Address: North & WM Hughes St, North Ipswich

Description:

Applicant: Leda Design and Construction (Qld) Pty Ltd

RPD: Part of Lot 36 on SP175172

Formal notification of objection to the application is hereby given. We have reviewed the material available online concerning an application for Material Change of Use made by Lipoma Pty Ltd and wish to make the following submission in relation to the application.

Whilst it is appreciated that higher density inner city developments are essential for managed growth, the Council should resist the clamor to absolutely maximise the housing density when there could be ramifications for future liability for ratepayers and taxpayers. Collingwood Park residents faced with issues of major subsidence and structural damage are suing the Council and the State Government, and the nature of this site could well lead to the same outcome.

In a letter dated 20 July 2007 Geoff Doyle stated that "Council has undertaken the appropriate enforcement action to:

(a) cease any additional waste depositing at the site, and

(b) have the material appropriately removed and managed in a manner that will involve all reasonable measures to minimise the health and environmental risks identified with this activity and the site."

Since this time the only activities on the site have been to add to the stockpiles.

The reasons for objection are:

1. Exposure for future liability for ratepayers and tax payers when subsidence/toxic contamination/flooding issues are raised
2. Erosion to properties on opposite bank
3. No/insufficient dust/contaminant control strategy
4. Vegetation management plan is flawed

Details of each objection are explained below.

1. (a) Future liability - subsidence issues

From my reading of the proposal, the DA proposes to shift contaminated soil (Levels 1-3) from the stockpiles and build up steeper riverbanks. This plan does not adequately address the fact that a lot of this site is underlaid by fill of an unknown nature.

(b) Future liability - contamination issues

An assessment by GHD in 1998 found the site failed to meet criteria for an educational institution. Extensive further stockpiles of material have been dumped on the site in the interim, and with rain events toxic substances will have leached from these later deposits into lower layers. The development proposal refers only to shifting the recent stockpiles. There is no remediation proposed for the contaminated material deposited by QR on this unit development site, other than covering it with a couple of meters of 'mildly' contaminated soil. There is no planned closed cell containment of the QR contaminated material. However, one of the original criteria for development of the site was that the contamination issues of the bare site were to be addressed. *It is unacceptable that this be forgotten in this DA.* There is a wealth of anecdotal evidence that suggests there is contaminated areas that would need to be isolated both above and below the fill that Leda/Limpoma have deposited. There is a lot of documentation of contamination that has been ignored.

The current Remediation Plan acknowledges "old QR fill" in one place in their proposal. The volume of this fill is not quantified, there has been no sampling carried out, and it has been classified as "class 3" (Attachment 1, Appendix 7 Remediation Plan). This should be verified. The GHD study identifies areas of severe contamination We dispute that the QR fill is Class 3 : as shown by the QGH report. This site was only previously approved for industrial and commercial development (refer pdonline map 0024D681.001.pdf).

This current Lipoma proposal is unsatisfactory as it ignores the QR contaminated material and could lead to future health risk to residents, and future liability to ICC ratepayers and Queensland taxpayers.

(c) Future liability - flood issues

The DA proposes to shift material from the stockpiles to the riverbank areas (wide gully and extended river platform). This will have the effect of artificially steepening the river bank profiles. In the event of a flood this will increase the local flood level, locally raising the RL100 and adversely impacting on properties. This would affect our property as well as many more in the Woodend/North Ipswich area and could lead to future liability for ICC and Qld government tax payers.

2. Erosion

Currently the storm water drain from the Leda site directs storm water across the river, causing erosion and slumping to the riverbank opposite. On page 6 of the Cardno Riverlinks Central Flood Study, it is stated "the peak discharge will increase as a result of the development" - and this will scour the opposite side of the river with increased velocity - and cause more loss of land on this property at 28 Hume St Woodend. We have already lost land with the current arrangement. We do not want to lose more.

Also, the Cardo study assumes normal porosity on the site. This is an error as the site currently has higher than normal porosity owing to much of the site being composed of ash and unconsolidated fill (see Figure 1). The construction plan would have the effect of increasing the runoff from hard surfaces and decreasing the porosity of the site, resulting in substantially more peak flow discharge.

3. Dust control/contaminated soil management issues

There appears to have been no dust control nor contaminant monitoring during continued, recent dumping on site and during the construction of the medical centre. Note that this was occurring on a stockpile that was supposed to have been removed (as per correspondence from Geoff Doyle, SEHO ICC, letter dated 20/07/07) and is rated Level 3.

4. Vegetation Management Plan

(a) Council is developing a Waterways Health Strategy that requires various buffer zones for streambank management. There is no mention of these parameters in the DA.

(b) There are several notifiable weed species on site (Groundsel and Annual rag weed). These should be removed.

(c) DA proposes to remove all trees from the building site for ease of construction. This requires the removal of several mature eucalypts. This would be removing remnant native vegetation and wildlife habitat. This is not in accordance with the Council's Waterways Health strategy.

Leda should not be allowed any more Planning Application Approvals on this North Ipswich site before they have completed the site remediation and decontamination.

There should be stringent monitoring of the river water.

Yours faithfully,



NJ White and EN Tilbrook

Figure 1



Attachment BD-23

RECEIVED
P&D COUNTER
Date: 08/02/2010

Officer: [REDACTED]
6293/2009/MCU
6291/2009/OW
A. Katt
B. Davey.

E Tilbrook
[REDACTED] Hume St
Woodend Qld 4305
Ph: [REDACTED]
Email: [REDACTED]

Your ref: OW 6291/2009 & MCU -6293/2009

05 February 2010

Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich Qld 4305

Dear Sir,

RECEIVED
- 8 FEB 2010
Doc. No.
Applic. No. 6293/09 + 6291/09
Action Off. A. Katt

cc B Davey
cc Bromage

Re: Objection to Planning Application OW 6291/2009 & MCU -6293/2009

Address: North & WM Hughes St, North Ipswich

Description:

Applicant: Leda Design and Construction (Qld) Pty Ltd

RPD: Part of Lot 36 on SP175172

Formal notification of objection to the application is hereby given to the DA as it currently stands.

The site has a history of subterranean fires. The current DA does not address this issue. The current DA does not propose to remove the material that was dumped and filled by QR on the riverbanks. Any ground fire on the site can ignite a seam of this material as there are many places where the seams are near or just below the surface - particularly on the steep riverbanks. The resultant subterranean fires are notoriously difficult to extinguish and give off toxic fumes. As a precautionary principle, the Council should require the developer to remove all of the QR fill material from the riverbanks on the site, restore the riverbanks to pre-1985 contours.

Also, the Council should require the developer to plant and maintain approved riverbank vegetation between the high tide and RL100 contours or require the developer to engage a contractor with knowledge of local plant species and provenance for streambank management for bank protection and wildlife corridor.

Yours sincerely,

Elizabeth Tilbrook

Attachment BD-24

Your reference
Our reference 6293/09 & 2727/10 BID:B
Contact Officer Brett Davey
Telephone [REDACTED]



Ipswich City Council

45 Roderick St
PO Box 191
Ipswich QLD 4305
Australia

Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Mr N J White and Ms E Tilbrook
[REDACTED] Hume Street, Woodend
WOODEND QLD 4305

8 June 2010

Dear Sir/Madam

Re: **Application Number: 6293/09**
 Address: 21a North Street, Noth Ipswich
 Application Type: Material Change of Use - Multiple Residential: 100 Units

I refer to your letter dated 29 January 2010 and 5 February 2010 relating to various issues associated with the above referenced development application.

In reply, it is advised that the development applications currently before Council are being assessed and will be determined in accordance with the requirements of the *Integrated Planning Act 1997*, *Sustainable Planning Act 2009* and the Ipswich Planning Scheme. The items raised by the above referenced submissions are addressed below, and will be considered as part of the assessment of the relevant Development Applications. Please be advised that for the purposes of the *Integrated Planning Act 1997*, the submissions are not properly made submissions and therefore are not afforded submitter appeal rights pursuant to Section 3.4.9 of the *Integrated Planning Act 1997*.

Subterranean Fires, Contaminated Land and Unapproved Fill Material

The issue of contamination on the site is subject to assessment by the Department of Environment and Resource Management (DERM) pursuant to the *Environmental Protection Act 1994* and the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland*. It should be noted that the Material Change of Use Development Application (6293/09) has been referred to DERM as a Concurrence Agency. As a result, DERM have the opportunity to assess the proposal, request further information as necessary, and direct if the

proposal is approved (including conditions of approval) or refused. Concerns regarding the contaminated land issues should be directed to DERM.

Rehabilitation of Riparian Areas

As a consequence of development along the Bremer River, Council requires that the area along the riverbank be established as linear open space in accordance with Council's Planning Scheme. However, the area of the riverbank is not the subject of the current Material Change of Use Development Applications (referred to above) and as a consequence, this is not relevant to the assessment of the current applications.

Site Soil Stability

The stability of the site is a matter which requires assessment prior to the issue of building works approvals. This is not of relevance to the assessment of Material Change of Use Development Applications at this time.

Flooding

The land the subject of the Material Change of Use Development Application is subject to flooding. Part 11 of the Ipswich Planning Scheme includes requirements for development in the context of development constraints, including flooding. As part of the assessment of the application, the effects of flooding on the proposal and conversely the effects of the proposal on flooding are considered. In this instance, a Stormwater Impact Assessment Report was submitted in support of the application identifying the scope of impact and attenuation measures (if appropriate) and addressing the requirements of Part 11 of the Planning Scheme. This information will be considered in the assessment of the application.

Erosion and Dust Control

Erosion Control is not directly related to the current Material Change of Use Application. However, as part of any Operational Works to be undertaken on the site, it is a requirement of Planning Scheme Policy 3: General Works that erosion and sediment control be undertaken in accordance with the *'Best Practice Sediment and Erosion Control, International Erosion Control Association, November 2008*. Measures are required to be implemented prior to the commencement of construction, and during construction to prevent erosion and siltation. This is assessed as part of any Operational Works applications to be lodged with Council, and is ongoing throughout the construction of the development.

Similarly, dust control is usually associated with the undertaking of works on the premises. This is not relevant to the assessment of the current Material Change of Use Development Application. However, dust nuisance is controlled under the *Environmental Protection Act 1994* and the subordinate Environmental Protection Policies.

Vegetation Management

The development application proposed will result in clearing of vegetation from the subject site. However, It should be noted that the current Material Change of Use Development Application

does not include works adjacent to the Bremer River with the exception of a stormwater pipe outlet. As a result, as part of the current Material Change of Use Application, Council will be considering stabilisation and rehabilitation requirements for the area proposed to be disturbed by the outlet works. Where a future development application includes the lots adjacent to the Bremer River, or where the a future proposal includes works in the riparian area, Council will consider the requirements for rehabilitation, and dedication of the riparian corridor to Council as linear open space pursuant to the requirements of the Ipswich Planning Scheme.

Should you require any further information or assistance with respect to this matter, please contact Brett Davey on the above telephone number.

Yours faithfully



Jo Pocock

TEAM COORDINATOR (CENTRAL/WEST)

Attachment BD-25

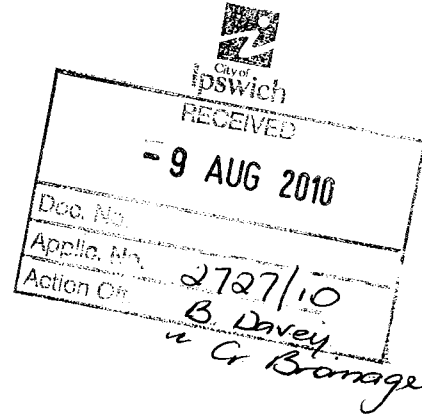
Nick J White & E Tilbrook

■ Hume St
Woodend Qld 4305
Ph: ■
Email: ■

Your ref: 2727/2010

06 August 2010

Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich Qld 4305



Dear Sir/Madam,

Re: Submission to Development Application 2727/2010
Address: 21a North St, North Ipswich & Lot 55SP 222487
Applicant: Lipoma P/L

Submission is hereby lodged concerning the above development application for the reasons detailed below.

1. Additional peak flows from box culvert drain

We are concerned that in supporting documentation provided by the applicant indicates increased peak flow into the site's box culvert drain. On the one hand it is claimed in Appendix 9 Yeats Site Based Stormwater Management Plan, 2010, p13 that it is a hydrological objective of the development to have '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'. On the other hand, Table 3.2 of the same Yeats report has calculated a 50% post development increase in peak flow through the storm water drain.

There is already riverbank subsidence on this property and nearby riverbanks caused by past outflows from this drain. (In January 2006, an ICC engineer inspected one such landslip on this property). The proposed 50% increase in peak flow output will adversely impact on our property on the opposite river bank at 28 Hume St, Woodend, causing additional erosion and subsidence issues.

Also, the Cardno report (Appendix 8) underestimates the current level of site permeability. The estimates for existing site fraction impervious percentages were based on 'aerial photos and site visits ... which identified generally grass with some scattered shrubs'. They did not take into account that the study area is principally unconsolidated fill to great depths with a much lower percentage fraction impervious than normal grassy fields. So it is envisaged that 50% increase in post development peak flow is a **very** conservative estimation. Therefore, it is likely that higher than 50% increase in culvert drain peak flows would result from the development plan and cause even greater adverse effect to our property.

Given the nature of the development site at the end of a catchment area for which all runoff is channeled through the one storm water drain, it is unacceptable that this DA includes an increase in runoff. It certainly is not 'best practice'. The proposed development should be required to be amended and allowed to proceed only when it has been demonstrated that there will be **no** increase in storm runoff from the site.

2. Flooding

There is insufficient consideration of major rain events in the Cardno report. It is of concern to us that the expert reports supplied by Lipoma in support of their application put residents and Council at risk either by glossing over adverse findings or by blandly dismissing possible events as unlikely and therefore not worth considering.

For example, in Section 4.4 (Hydraulic Sensitivity Assessment) of the Cardno report, ramifications of culvert blockage were glossed over because 'given the ... level of development within the catchment, the potential for the culvert to be blocked (for instance by branches) was assessed as relatively low... [and] a scenario involving the complete blockage...was considered to be overly conservative'. (page 7).

This is evidence that the report has a reckless disregard of reality given that even in the time that Lipoma has had control of the site the drain has had to be cleared of blockages several times. Further, there was a complete blockage of the drain when fill above the inlet slipped during a recent moderate rain event. Fortunately, the blockage cleared itself but this resulted in many cubic metres of fill washing into the Bremer River. Therefore probable flooding scenarios for the site have been ignored. This should be remedied.

Also, oversimplified models have been the basis of calculating flood levels, ie using short duration storm events. This scenario allows site catchment runoff to be drained before any rise in the Bremer River. However, the scenario of a rain event in the site catchment whilst the Bremer River is in flood is by no means improbable, has not been modeled and should be.

3. Adverse effects on natural environment

The subject site is included within the Special Opportunity Zone (Michel Group Services Proposal, Section 4.4.2 Zoning) where works are designed to 'avoid significant adverse effects on the natural environment'. Increased population density will certainly affect

colonies of roosting microbats (*Miniopterus australis*) that live in the tunnel. Also, the effect of scouring on the opposite bank will destroy established habitat. Steepening of batters on the site that has already occurred and is proposed will lead to increased water velocity and hence increased erosion and sediment into Bremer River. The treatment of runoff from Lennon Lane and Colvin St to a plain tailstock is asking for scouring and erosion.

We hope that you will take these serious concerns into consideration when assessing this application, and require amended application that demonstrates:

1. no increased runoff
2. no adverse effect on natural environment including loss of habitat

Yours faithfully,

A large black rectangular redaction box covering the signature and name of the sender.

NJ White and EN Tilbrook

Attachment BD-26

Lawrence St
North Ipswich

Attention Assessment Manager.

I am writing to let you know of my concerns as far as traffic problems in Lennon Lane and security issues.

I am sure that the people that live in the proposed units in Colvin St will be accessing those units by entering Colvin St the wrong way as it is a one way street and that residents of Lennon Lane will be put in danger of having an accident.



I am also concerned with security issues around our property. Before the proposed development

the grass in the paddock was rarely mowed and was usually around six foot high and this kept people out. Now with the proposed development we will have an increased number of people outside our property. We have paddock on both sides of our place and if we are not home no one can see if someone jumps our fence and steals our property. I would feel safer if Lipoma put up a security fence between our property and theirs.

yours faithfully



RECEIVED
P&D COUNTER

Date: 06/08/2010

Officer: Mel.....

2727/10

B. Davey

RECEIVED

- 6 AUG 2010

Doc. No.

Applic. No. 2727/10

Action Off. B. DAVEY