LAMBERT & REHBEIN
ENGINEERS • MANAGERS • SCIENTISTS

DATE	1 FEBRUARY 2016
CONTACT	TERENCE CHAN
REFERENCE	B15553CR001

Civil Engineering Services Report

Proposed Multi Unit Development

303-309 Logan Reserve Road, Logan Reserve

For Vic Land Holding Pty Ltd

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Document Control Page

Revision	Date	Description	Author	Signature	Verifier	Signature	Approver	Signature
A	22/01/2016	DRAFT	BN		KH		TC	
B	01/02/2016	FINAL	BN		KH		TC	

1.0 INTRODUCTION

Lambert & Rehbein (SEQ) Pty Ltd has been commissioned by Vic Land Holding Pty Ltd to prepare a Civil Engineering Services Report for a proposed 31 unit residential townhouse development at 303-309 Logan Reserve Road, Logan Reserve. The site is located within the Logan City Council Local Government Area.

The proposed development is illustrated on the Site Layout plan job number 15-132 dated 11 January 2016 prepared by Suarez Drafting and Design enclosed in Appendix A of this report.

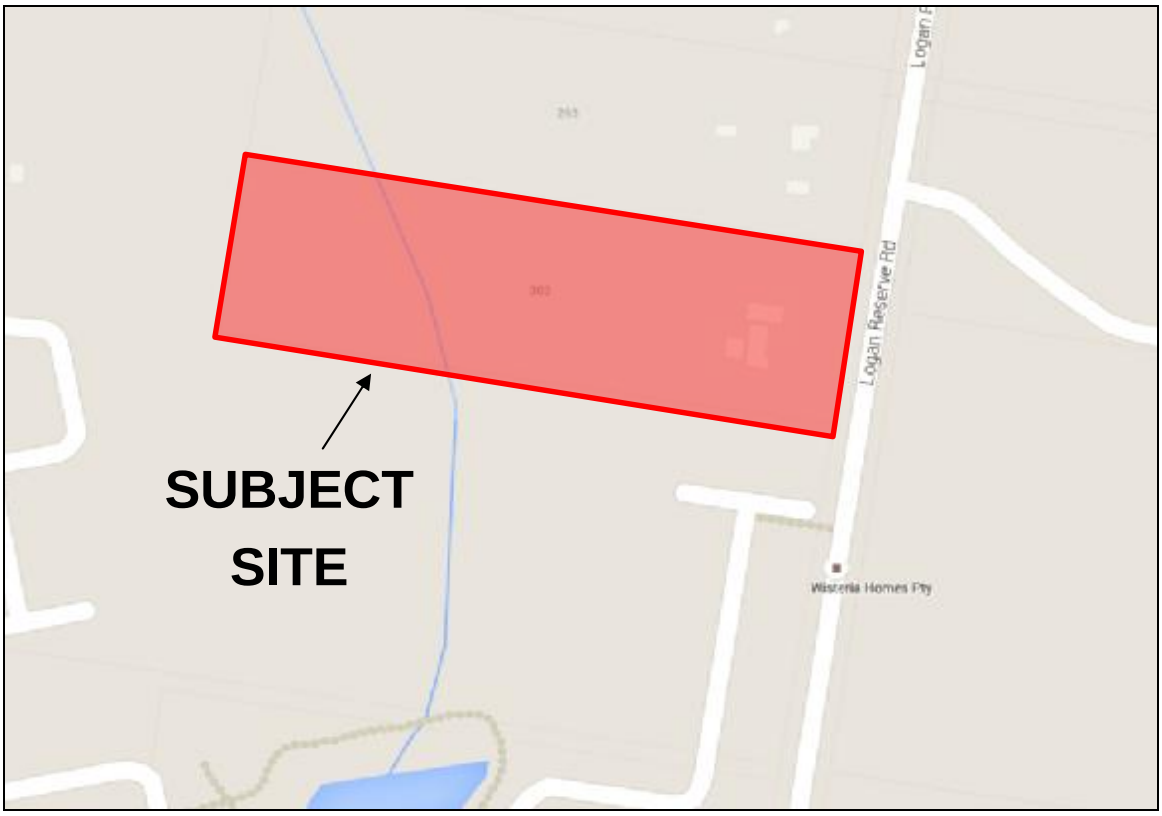
This report has been prepared to review existing services within the vicinity of the subject site and identify possible arrangements to service the proposed development.

The Stormwater Management section (Section 5.2) of this report proposes to upgrade the existing culverts fronting the site crossing Logan Reserve Road. The proposed culvert upgrades and associated works will benefit road users, neighbouring properties and the larger community by reducing the existing flooding impacts to Logan Reserve Road and the properties to the east. Please see the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology. As the culvert upgrade will benefit the larger community, it is requested that Logan City Council contribute towards the upgrade costs.

Concept civil servicing layout plans have been prepared and are enclosed in Appendix B to illustrate the proposed servicing arrangements for the development. Enclosed in Appendix C are responses to the relevant Logan City Council development codes.

2.0 SITE DESCRIPTION

The subject site is situated at 303-309 Logan Reserve Road, Logan Reserve on land described as Lot 2 on RP165534. The site is bound by Logan Reserve Road to the east, parkland to portions of the south and west, and urban residential properties to the remainder. The site is approximately 2.023 hectares in area.



Source: Google Maps 2016

The site is currently occupied by a residential dwelling with several ancillary structures. The majority of the site is comprised of grassed areas with a number of trees located within and around the subject site. The site ranges in elevation from approximately RL15.0m AHD at the southeast corner to RL9.3m AHD in the northwest corner of the site. Please find the Topographic Survey Drawing No. 15128-1B prepared by Andrew & Hansen Consulting Surveyors Pty Ltd enclosed in Appendix A of this report.

An existing watercourse traverses the western portion of the site and the site generally grades towards this watercourse. The western portion of the site is considered to be undevelopable land as it is affected by flooding and functions as floodplain storage. A Logan City Council application for property information identified a Defined Flood Level (1% Annual Exceedance Probability (AEP) (100yr ARI)) of RL 13.17m AHD for the subject site.

3.0 EARTHWORKS

A Logan City Council application for property information identified a Defined Flood Level of RL 13.17m AHD for the subject site. Filling will be required to elevate the new development above the Defined Flood Level in accordance with Logan City Council requirements.

The proposed development footprint has been limited to the more elevated eastern portion of the site to minimise filling below the Defined Flood Level. It is also proposed to source fill from within the western portion of the lot to offset loss of floodplain storage caused by filling below the Defined Flood Level. Impacts of the development on surrounding flood levels have been assessed separately by Water Technology in their report "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve".

Construction of the proposed development will require cutting and filling to create building pads for the proposed units and roadworks. Retaining walls will be required along the external boundaries of the site. These retaining walls are anticipated to have a maximum height of 1.5 m. The proposed earthworks levels are primarily governed by the need to achieve minimum cover requirements for sewer services and to elevate the new development above the Defined Flood Level.

All earthworks for the development will be carried out in accordance with Logan City Council requirements and the AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments.

Earthworks associated with the development are illustrated on the Concept Bulk Earthworks Layout Plan B15553-CSK02 enclosed in Appendix B of this report. It should be noted that this plan is preliminary only and will be subject to confirmation during detailed design.

4.0 ROADWORKS, ACCESS & PARKING

The site has a frontage to Logan Reserve Road with an existing gravel driveway crossover. It is proposed to remove the existing gravel driveway crossover and provide a new concrete vehicular crossover in accordance with Logan City Council requirements.

In accordance with the pre-lodgement meeting with Logan City Council in October 2015, a 1.5m wide land dedication is proposed along the Logan Reserve Road frontage of the site and upgrades are proposed to the Logan Reserve Road access intersection to the site. A detailed traffic assessment associated with the development can be found in the separate Traffic Engineering Assessment B15553TR001 prepared by Lambert & Rehbein (SEQ) Pty Ltd.

The internal roadways within the site will have an inverted crown construction. This is an approach we have used successfully in the past and believe this should be acceptable to Council. Indicative internal longitudinal road grades range from approximately 0.5% to 2.9%.

A Concept Civil Engineering Services Layout Plan B15553-CSK01, Concept Bulk Earthworks Layout Plan B15553-CSK02 and External Roadworks Concept Plan B15553-CSK04 have been prepared for the development and are enclosed in Appendix B of this report to illustrate anticipated servicing arrangements. It should be noted these plans are preliminary only and will be subject to confirmation during detailed design.

5.0 STORMWATER DRAINAGE

5.1 FLOODING

A Logan City Council application for property information identified a Defined Flood Level of RL 13.17m AHD for the subject site. Filling will be required to elevate the new development above the Defined Flood Level in accordance with Logan City Council requirements.

The proposed development footprint has been limited to the more elevated eastern portion of the site to minimise filling below the Defined Flood Level. It is also proposed to source fill from within the western portion of the lot to offset loss of floodplain storage caused by filling below the Defined Flood Level.

Existing flood levels and impacts of the development on surrounding flood levels have been assessed separately by Water Technology in their report "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve".

5.2 STORMWATER MANAGEMENT

Currently an upstream catchment from the east discharges via culverts beneath Logan Reserve Road into the subject site which then overland flows to the onsite watercourse. It is proposed to upgrade the existing culverts crossing Logan Reserve Road and to direct stormwater flows discharging from the culverts via an underground pipeline beneath the proposed developable area. The stormwater will discharge through a piped outlet before running overland to the existing watercourse as per the pre-existing discharge arrangement.

The upgrade to the existing culverts crossing Logan Reserve Road will require construction of an inlet structure and regrading/reshaping of the table drain on the eastern side of Logan Reserve Road. The proposed culvert upgrades will benefit road users, neighbouring properties and the larger community by reducing the existing flooding impacts to Logan Reserve Road and the properties to the east. Please see the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology. As the culvert upgrade will benefit the larger community, it is requested that Logan City Council contribute towards the upgrade costs.

It is proposed to collect the stormwater runoff from the developable area via an underground pipe network which will discharge into a bio-retention basin located to the west of the developable area. Treated stormwater from the bioretention basin will then be discharged through a piped outlet before running overland to the existing watercourse.

For detailed assessment of stormwater quantity and flooding at the site refer to the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve"

prepared by Water Technology. The report demonstrates that there is no requirement to provide on-site detention as part of the proposed development as there is no discernible flood impacts on the adjoining properties.

A Concept Civil Engineering Services Layout Plan B15553-CSK01 and Concept Bulk Earthworks Layout Plan B15553-CSK02 have been prepared and enclosed in Appendix B of this report to illustrate anticipated servicing arrangements for the proposed development. It should be noted these plans are preliminary only and will be subject to confirmation during detailed design.

Further details for the proposed stormwater drainage system and stormwater management are included in the Stormwater Management Plan B15553CR002 prepared by Lambert & Rehbein (SEQ) Pty Ltd.

6.0 SEWERAGE RETICULATION

As-constructed records identify that sewerage reticulation infrastructure is located in Slate Court south of the subject site. It is proposed to construct a new sewer main connecting to the existing sewer manhole located in Slate Court adjacent to 41 Slate Court, Logan Reserve (Lot 600 on SP266190). The new sewer main will traverse the site within a proposed 3.0m easement and will provide an upstream future sewer connection for the property to the north (Lot 1 on SP160429). It is proposed to provide three sewer property connections from the proposed sewer main to service the subject site.

An internal sanitary drainage system will be provided within the site to drain sewage from the proposed buildings to the sewer connection points. Plumbing details will be submitted for Council approval during the detailed design phase of the project.

A Concept Civil Engineering Services Layout Plan B15553-CSK01 and Concept Bulk Earthworks Layout Plan B15553-CSK02 have been prepared and enclosed in Appendix B of this report to illustrate anticipated servicing arrangements for the proposed development. It should be noted these plans are preliminary only and will be subject to confirmation during detailed design.

7.0 WATER RETICULATION

As-constructed records identify the nearest water main to be located in Slate Court located to the southeast of the subject site. It is proposed to extend the existing water main in Slate Court to Logan Reserve Road and to continue the main north along Logan Reserve Road. The proposed water main will be extended to the full road frontage of the subject site. It is proposed to provide a new water service connection and meter from the proposed main extension.

An internal plumbing system will be provided within the site to connect buildings to the reticulated water system. Plumbing details will be submitted for Council approval during the detailed design phase of the project.

A Concept Civil Engineering Services Layout Plan B15553-CSK01 and Concept Bulk Earthworks Layout Plan B15553-CSK02 have been prepared and enclosed in Appendix B of this report to illustrate anticipated servicing arrangements for the proposed development. It should be noted these plans are preliminary only and will be subject to confirmation during detailed design.

8.0 ELECTRICITY, GAS AND TELECOMMUNICATION SERVICES

Dial Before You Dig (DBYD) information obtained for the subject site indicates that electrical, gas and telecommunication services are available at or near the subject site. It is anticipated that connections will be available to these services for the development without substantial external works. Specialist advice will be obtained for these services to confirm adequate capacity or to identify any external works that may be required.

9.0 CONCLUSION

Lambert & Rehbein (SEQ) Pty Ltd has been commissioned by Vic Land Holding Pty Ltd to prepare a Civil Engineering Services Report for a proposed 31 unit residential townhouse development at 303-309 Logan Reserve Road, Logan Reserve. The intent of this report is to identify possible arrangements to service the proposed development in accordance with Logan City Council requirements.

The proposed development is illustrated on the Site Layout plan job number 15-132 prepared by Suarez Drafting and Design enclosed in Appendix A of this report.

The Stormwater Management section (Section 5.2) of this report proposes to upgrade the existing culverts fronting the site crossing Logan Reserve Road. The proposed culvert upgrades and associated works will benefit road users, neighbouring properties and the larger community by reducing the existing flooding impacts to Logan Reserve Road and the properties to the east. Please see the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology. As the culvert upgrade will benefit the larger community, it is requested that Logan City Council contribute towards the upgrade costs.

Concept civil servicing layout plans have been prepared and are enclosed in Appendix B to illustrate the proposed servicing arrangements for the development. Responses to the relevant Logan City Council development codes are enclosed in Appendix C.

Based on preliminary investigations, existing civil engineering services are either provided or can be extended / altered to service the proposed development. Furthermore, no engineering constraints have been identified as part of this assessment that, in our opinion, should preclude approval of the proposed development by Logan City Council.

LAMBERT & REHBEIN

ENGINEERS . MANAGERS . SCIENTISTS

APPENDIX A

SITE LAYOUT PLAN JOB NUMBER 15-132 PREPARED BY SUAREZ DRAFTING AND DESIGN

TOPOGRAPHIC SURVEY DWG NO 15128-1B PREPARED BY ANDREW & HANSEN CONSULTING SURVEYORS PTY LTD

SITE AREA: 20,200$_M^2$

AMOUNT OF NEW UNITS PROPOSED: 31
PRIVATE ALLOCATED UNIT PARKING: 49
PRIVATE ALLOCATED VISITOR PARKING: 14
MAXIMUM HEIGHT OF BUILDINGS : 9.5$_M$

COMMUNAL OPEN SPACE
12164.74$_m^2$

PRIVATE OPEN SPACE
MIN. 25 SQM / UNIT

FLOOD LINE

2 BED UNIT QTY: 13

3 BED UNIT QTY: 15

4 BED UNIT QTY: 3

Nominated Bioretention basin

Landscape- garden

Timber lapped
and capped fencing
1800mm high

Driveway to garage

Bin location

0 5 10 15 20

SITE LAYOUT

Clients _____

Builders _____

Suarez drafting & design
T:043 989 0884
E:ron@suarezdesign.com.au

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NOTES

WET AREAS TO COMPLY WITH PART 3.8.1 OF BCA
W/C DOORS TO COMPLY WITH PART 3.8.3.3 OF BCA
SETDOWN GARAGE SLABS 86mm, AND ALL EXTERNAL CONCRETE SLABS OR PAVING 75mm BELOW WEEPHOLES
DOWNPIPES, HWS & SIMILAR 25mm CLEAR OF PART 'B'
DIMENSIONS TO TAKE PRECEDENCE OVER SCALE IF UNSURE ASK.

JOB ADDRESS	LOT 2 303-309 LOGAN RESERVE RD LOGAN RESERVE
DRAWING DESCRIPTION	MULTI-UNIT DEVELOPMENT PROPOSAL
CLIENT PARTICULARS	

revision					
DRAWN	RSU	JOB No.	15-132	DESIGN	SUAREZ
DATE	11/01/2016	SCALE	1:500 ON A3	SHEET	1
wind					

NOTE :
- THIS IS A CONTOUR SURVEY ONLY SHOWN LOCATION OF BOUNDARY PEGS, FENCES, RETAINING WALLS ETC. ARE DIAGRAMMATIC ONLY AND SUBJECT TO FULL BOUNDARY SURVEY.
- SERVICES SHOWN HEREON HAVE BEEN LOCATED WHERE POSSIBLE, HOWEVER RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR DETAILED LOCATION OF ALL SERVICES PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION ON SITE.
- TITLE BOUNDARIES AS SHOWN HEREON WERE NOT MARKED AT THE TIME OF SURVEY AND ARE INDICATIVE ONLY.

ANDREWS & HANSEN PTY LTD
Consulting Surveyors
Head Office: 21/39 LAWRENCE DRIVE, NERANG QLD 4211
Correspondence: PO BOX 2130, NERANG DC QLD 4211
Phone: (07) 55962150 Fax: (07) 55960657
Email: admin@ahsurvey.com.au

TOPOGRAPHIC SURVEY
PART LOT 2 ON RP165534
LOGAN RESERVE ROAD
LOGAN RESERVE

Vertical datum	AHDD DERIVED FROM PM130385 RL 15.546 AHDD		Scale 1 : 250 @ A1
Parish MACKENZIE	County STANLEY	Drawn by WM	Date 5/11/2015
Local Government	LOGAN CITY	Surveyed by MK	Drawing No. 15128 - 1 B

LAMBERT & REHBEIN

ENGINEERS . MANAGERS . SCIENTISTS

APPENDIX B

CONCEPT CIVIL ENGINEERING SERVICES LAYOUT PLAN B15553-CSK01

CONCEPT BULK EARTHWORKS LAYOUT PLAN B15553-CSK02

EXTERNAL ROADWORKS CONCEPT PLAN B15553-CSK04

PROPOSED COUNCIL SEWER WITHIN 3.0m EASEMENT (WITH FUTURE CONNECTION)
PROPOSED STORMWATER STRUCTURE TO PIPE EXTERNAL STORMWATER FLOWS
REPROFILE EXISTING OPEN DRAIN
RELOCATE & RECONSTRUCT EXISTING STORMWATER FIELD INLET PIT
PROPOSED ROAD WIDENING & ENTRY TREATMENT. (REFER Dwg. B15553-CSK04)
REMOVE EXISTING 2/1200x300 RCBC & REPLACE WITH 2 x 1050 RCP
REPROFILE EXISTING OPEN DRAIN ALONG ROAD & PROVIDE NEW FIELD INLET
PROPOSED WATER SERVICE & METER
REPROFILE EXISTING OPEN DRAIN
RELOCATE & RECONSTRUCT EXISTING STORMWATER FIELD INLET PIT
REPROFILE EXISTING OPEN DRAIN
PROPOSED ROAD WIDENING & ENTRY TREATMENT. (REFER Dwg. B15553-CSK04)
EXTEND COUNCIL WATERMAIN ACROSS SITE FRONTAGE
PROPOSED COUNCIL WATER MAIN CONNECTION POINT
LOGAN RESERVE ROAD
EXIST. EDGE OF BITUMEN
EXIST. SEWER RISING MAIN
EXIST. 2/1200x300 RCBC
Lot 1
SP160429
EXTERNAL STORMWATER DRAIN OUTLET
100 ARI LOCAL FLOODLINE EXTENT (Approx.)
OUTLET DRAIN 1
RAMP
MAINTENANCE ACCESS RAMP (1:4 Max.)
BIO-RETENTION OUTLET DRAIN 2
PROPOSED SEWER PROPERTY CONNECTION #3
PROPOSED SEWER PROPERTY CONNECTION #2
PROPOSED SEWER PROPERTY CONNECTION #1
PROPOSED BIO-RETENTION BASIN. 90m2 BIO-RETENTION FILTER MEDIA AREA FILTER MEDIA DEPTH 0.4m EXTENDED DETENTION DEPTH 0.2m
COARSE SEDIMENT FOREBAY
(STORMWATER) OUTLET IL 10.500
(STORMWATER) OUTLET IL 10.925
PROPOSED COUNCIL SEWER MAIN CONNECTION POINT
LOT 902
600 SP266190
601 SP266190
602 SP266190
603 SP266190
604 SP266190
SLATE COURT
EXIST. WATER
EXIST. SEWER
Top of Bank Detention Dam
EXISTING SERVICES
NOTWITHSTANDING THAT EXISTING SERVICES MAY OR MAY NOT BE SHOWN ON THESE DRAWINGS, NO RESPONSIBILITY IS TAKEN BY THE ENGINEER OR THE PRINCIPAL FOR THIS INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS. THE DETAILS ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE POSITION OF ALL UNDERGROUND SERVICES PRIOR TO EXCAVATION AND SHALL BE RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGES CAUSED AS A RESULT OF THE WORKS.
LEGEND:
PROPOSED RETAINING WALL
PROPOSED EDGE OF PAVEMENT
PROPOSED PRIVATE ROAD / ROAD WIDENING
PROPOSED INTERNAL SEWER
PROPOSED STORMWATER DRAINLINE
PROPOSED ROOFWATER DRAINAGE
STORMWATER FIELD INLET
ROOFWATER SURFACE PIT
PROPOSED COUNCIL SEWER MAIN
PROPOSED COUNCIL WATER MAIN
DIRECTION OF SURFACE FLOW
LEGEND - LINEWORK (existing)
EXISTING SEWER RETICULATION
EXISTING STORMWATER DRAINLINE
EXISTING WATER MAIN
EXISTING ROADWAY KERB / K&C
EXISTING SURFACE CONTOUR
EXISTING ELECTRICAL MAINS
EXISTING OVERHEAD ELECTRICAL
EXISTING TELSTRA/COMMUNICATIONS MAINS
PLANTS (LOMANDRA) OR APPROVED OTHER
FILTER MEDIA
TRANSITION LAYER (COURSE SAND). (1.4-2.0mm)
DRAINAGE LAYER 5mm NO FINES COURSE GRAVEL SCREENINGS
200 Min. EXTENDED DETENTION
100Ø SLOTTED PIPES CONNECTED INTO GULLY PIT.
TYPICAL BIO-RETENTION GARDEN DETAIL
N.T.S
NOTE:-
1. LEVELS BASED OFF SURVEY INFORMATION PROVIDED BY ANDREWS & HANSEN PTY LTD (SURVEYORS)
PRELIMINARY "CONCEPT" DRAWING ONLY NOT FOR CONSTRUCTION
SCALE 1 : 250
Ref. DA

CONCEPT CIVIL ENGINEERING SERVICES LAYOUT PLAN

Associated Consultants:
ANDREWS & HANSEN PTY LTD
Surveyors
21/39 Lawrence Dr, Nerang, Qld 4211
Phone: (07) 5596 2150
EMAIL: admin@ahsurveys.com.au

R.P.D.
Lot 2 on RP165534
PARISH MACKENZIE
COUNTY: STANLEY

LEVEL DATUM
AHD
PSM 130385
RL 15.546

No.	Date	By	Amendment	Checked
C	01-02-16	R.T.	STORMWATER AMENDED	
B	22-01-16	R.T.	FOR DA LODGEMENT	
A	10-12-15	R.T.	ORIGINAL ISSUE	

LAMBERT & REHBEIN
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A.C.N. 010 451 902
TELEPHONE (07) 3250 9000
FACSIMILE (07) 3250 9001
EMAIL mail@lar.net.au

Project: PROPOSED MULTI UNIT DEVELOPMENT
303-309 LOGAN RESERVE ROAD
LOGAN RESERVE

Title: CONCEPT CIVIL ENGINEERING SERVICES LAYOUT PLAN

Client: VIC LAND HOLDING PTY LTD

Draftsperson: R.T.
Checked: D.L.
Designer: R.T.
Approved: T.CHAN RPEQ No: 4048
Scale: AS SHOWN
Date: DEC 2015
Sheet Size: A1
Drawing No. B15553-CSK01
A B C

FLOOD COMPENSATORY EARTHWORKS

AS A RESULT OF THE PROPOSED DEVELOPMENT EARTHWORKS QUANTITIES BELOW THE DEFINED FLOOD LEVEL (D.F.L.) OF RL 13.17 (AHD) ARE AS FOLLOWS:-

TOTAL CUT = 1644 m3
TOTAL FILL = 1577 m3

BALANCE = 87 m3

ACCORDINGLY, THE PROPOSED EARTHWORKS WILL RESULT IN A NET GAIN OF 87m3 OF FLOOD PLAIN STORAGE (BELOW D.F.L.)

LEGEND:

- PROPOSED RETAINING WALL
- PROPOSED EARTHWORKS CUT
- PROPOSED EARTHWORKS FILL
- RL 44.20 + PROPOSED EARTHWORKS LEVELS
- 2.0% PROPOSED NOMINAL ROAD SLOPE
- DIRECTION OF FALL OVER LOT

LEGEND - LIFEWORK (existing)

- S — EXISTING SEWER RETICULATION
- SWD — EXISTING STORMWATER DRAINING
- W — EXISTING WATER MAIN
- EXISTING ROADWAY KERBS / K&C
- 11.00 — EXISTING SURFACE CONTOUR
- E — EXISTING ELECTRICAL MAINS
- HVOH — EXISTING OVERHEAD ELECTRICAL
- T — EXISTING TELSTRA/COMMUNICATIONS MAINS

CONCEPT BULK EARTHWORKS LAYOUT PLAN

0 5 10m
SCALE 1 : 250

PRELIMINARY "CONCEPT" DRAWING ONLY NOT FOR CONSTRUCTION

EXISTING SERVICES
NOTWITHSTANDING THAT EXISTING SERVICES MAY OR MAY NOT BE SHOWN ON THESE DRAWINGS, NO RESPONSIBILITY IS TAKEN BY THE ENGINEER OR THE PRINCIPAL FOR THIS INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS. THE DETAILS ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE POSITION OF ALL UNDERGROUND SERVICES PRIOR TO EXCAVATION AND SHALL BE RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGES CAUSED AS A RESULT OF THE WORKS.

Ref. DA

Associated Consultants:
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Surveyors
21/39 Lawrence Dr, Nerang, Qld 4211
Phone: (07) 5596 2150
EMAIL: admin@ahsurveys.com.au

R.P.D.
Lot 2 on RP165534
PARISH :MACKENZIE
COUNTY: STANLEY

LEVEL DATUM
AHD
PSM 130385
RL 15.546

No.	Date	By	Amendment	Checked
C	01-02-16	R.T.	STORMWATER AMENDED	
B	22-01-16	R.T.	FOR DA LODGEMENT	
P	15-12-15	R.T.	ORIGINAL ISSUE	

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EMAIL mail@lar.net.au

Project: PROPOSED MULTI UNIT DEVELOPMENT
303-309 LOGAN RESERVE ROAD
LOGAN RESERVE

Title: CONCEPT BULK EARTHWORKS LAYOUT PLAN

Client: *VIC LAND HOLDING PTY LTD*

Draftsperson: R.T.	Checked: K.H.	Sheet Size: A1	Drawing No.: B15553-CSK02
Designer: R.T.	Approved: T.CHAN RPEQ No: 4048		
Scale: AS SHOWN	Date: DEC 2015	A / B / C	

PLOT DATE=> 02 Feb 2016 - 11:54am CAD FILE=F:\Jobs\B15500\B15553\Drawings\Civil\Concept\B15553-CSK02.dwg

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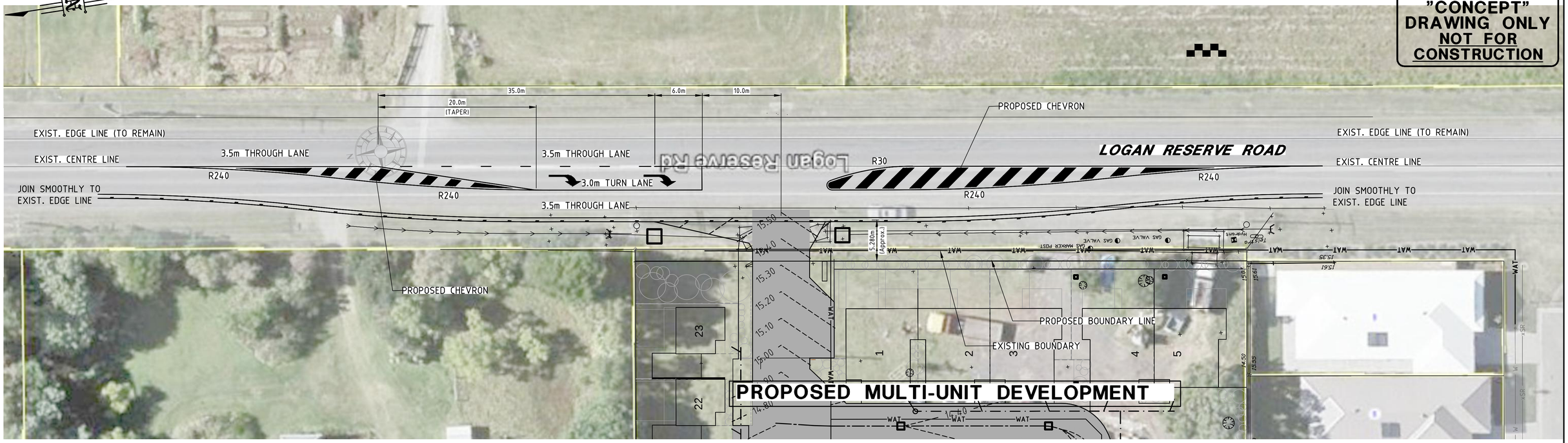

EXTERNAL ROADWORKS CONCEPT PLAN

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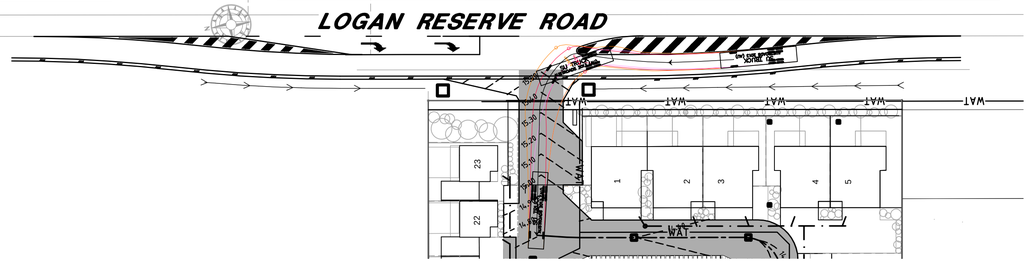

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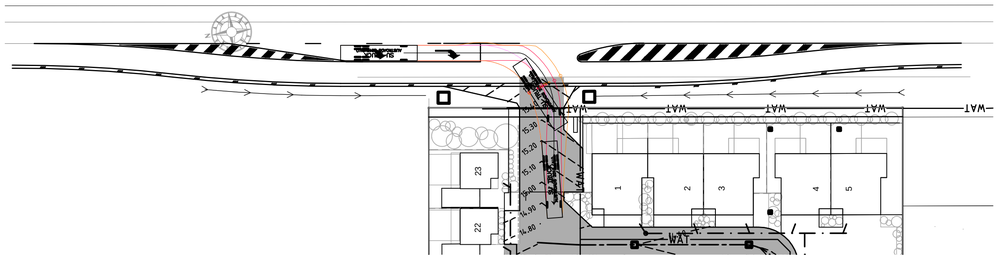

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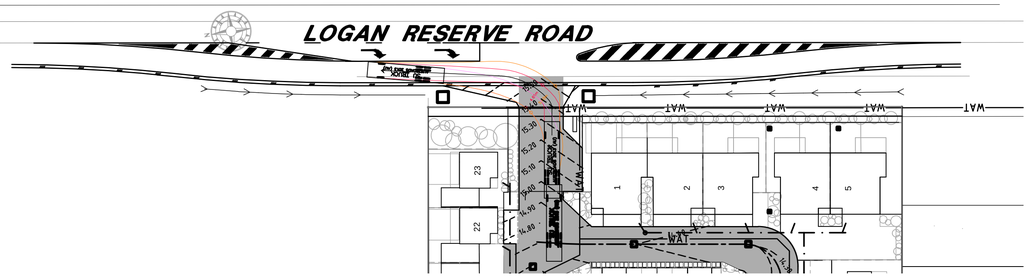

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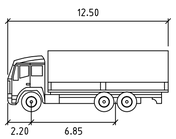
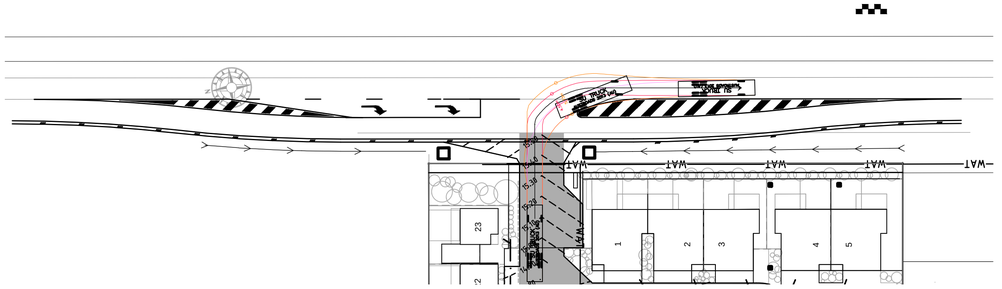


SU TRUCK meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6



EXIT RIGHT

0 5 10 15m
SCALE 1 : 500

Ref. DA

Associated Consultants:
ANDREWS & HANSEN PTY LTD
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Project: PROPOSED MULTI UNIT DEVELOPMENT
303-309 LOGAN RESERVE ROAD
LOGAN RESERVE

Title: EXTERNAL ROADWORKS
CONCEPT PLAN

Client: *VIC LAND HOLDING PTY LTD*

Draftsperson: R.T.	Checked: A.H.	Sheet Size: A1	Drawing No.: B15553-CSK04
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APPENDIX C

LOGAN CITY COUNCIL DEVELOPMENT CODE RESPONSES

- 9.4.2 FILLING AND EXCAVATION CODE
- 9.4.3 INFRASTRUCTURE CODE

Part 9 Development codes

9.4 Other development codes

9.4.2 Filling and excavation code

9.4.2.1 Application

(1) This code applies to self-assessable and code assessable operational work—filling or excavation for which the Filling and excavation code is identified in the assessment criteria column in Table 5.8.1—Operational work.

(2) When using this code, reference should be made to section 5.3.2–Determining the level of assessment and, where applicable, section 5.3.3–Determining the assessment criteria located in Part 5–Tables of assessment.

9.4.2.2 Purpose

(1) The purpose of the code is to protect premises, people and natural processes from adverse impacts associated with filling or excavation.

(2) The purpose of the code will be achieved through the following overall outcomes:

- (a) development protects:
  - (i) natural physical processes and ecosystems;
  - (ii) existing and planned infrastructure;
  - (iii) personal health and safety and premises;
  - (iv) visual amenity.

9.4.2.3 Criteria for assessment

Part A–Criteria for self-assessable and assessable development

Table 9.4.2.3.1–Filling and excavation code: self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Outcome	Comments
For self-assessable and assessable development			
Protection of natural processes and ecosystems			
PO1 The discharge of sediments and pollutants from filling or excavation does not adversely affect a waterway or the stormwater network.	**AO1** The discharge of sediments and pollutants to a waterway or stormwater network complies with part 3.3—Filling and excavation standards in planning scheme policy 5—Infrastructure.	**ü**	Erosion and sediment control plans will be prepared and implemented for the project in accordance with Logan City Council requirements.
PO2 Topsoil and spoil stockpiled on the premises do not adversely affect natural processes and ecosystems.	**AO2** Topsoil and spoil is stockpiled to comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure).
PO3 Filling is carried out using stable, solid and clean earth, free of organic and putrescible waste, rubbish and refuse material.	**AO3** Filling complies with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**ü**	All earthworks will be constructed in accordance with AS3798 and Logan City Council requirements.
Protection of existing and planned infrastructure			
PO4 Filling or excavation works do not adversely affect infrastructure, including any services.	**AO4** Filling or excavation works comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure).

Performance outcomes	Acceptable outcomes	Outcome	Comments
For self-assessable and assessable development			
Protection and enhancement of personal health and safety and premises			
PO5 Filling or excavation works do not adversely affect personal health and safety.	**AO5** Filling or excavation works comply with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure).
Surface water flow			
PO6 Surface water drainage does not cause any of the following: (a) ponding on any premises; or (b) a hazard or adversely affect personal health and safety and premises; or (c) diversion or concentration of flow from or onto adjoining premises or infrastructure.	**AO6** Surface water drainage complies with part 3.3–Filling or excavation standards in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure). For detailed assessment of stormwater quantity and flooding at the site refer to the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology Pty Ltd.
Batters			
PO7 A batter: (a) does not adversely affect the natural physical processes and ecosystems; (b) protects existing and planned infrastructure; (c) is safe, stable and easily maintained; (d) is landscaped to enhance visual amenity.	**AO7** A batter is designed and constructed to comply with the standards specified in section 3.3.6–Batters and retaining walls in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure).

Performance outcomes	Acceptable outcomes	Outcome	Comments
For self-assessable and assessable development			
Retaining walls			
PO8 A retaining wall: (a) is not constructed of timber and are not located on existing or proposed lot boundaries, or movement networks; (b) does not adversely affect the natural physical processes and ecosystems; (c) is located to avoid conflict with adjoining premises; (d) is located such that existing and planned infrastructure is not adversely affected; (e) protects the visual amenity of adjoining premises or a public open space; (f) is located within the premises that is being filled; (g) is located within the premises that is cut and is designed to take any surcharge loading allowable on the uphill lot; (h) is safe and stable; (i) enables easy access for maintenance.	**AO8** A retaining wall is designed and constructed to comply with the standards specified in section 3.3.6.2–Retaining walls in planning scheme policy 5–Infrastructure.	**ü**	All operational works are to be carried out in accordance with the Logan City Council's Planning Scheme Policy 5 (Infrastructure). Retaining walls will be required for the subject site's boundaries. This retaining wall is anticipated to have a maximum height of 1.5m and will be fully located within site boundaries.

Performance outcomes	Acceptable outcomes	Outcome	Comments
For self-assessable and assessable development			
Filling of a dam			
PO9 The filling of a dam: (a) does not adversely affect the natural physical processes and ecosystems; (b) creates a safe and stable surface; (c) is integrated into the landscape.	**AO9** The filling of a dam complies with part 3.3–Filling and excavation standards in planning scheme policy 5–Infrastructure.	N/A	

Part 9 Development codes

9.4 Other development codes

9.4.3 Infrastructure code

9.4.3.1 Application

(1) This code applies to:

(a) material change of use:

(i) that is self-assessable or code assessable and for which the Infrastructure code is identified in the assessment criteria column in a table of assessment in section 5.5–Levels of assessment-Material change of use in Part 5–Tables of assessment;

(ii) that is made impact assessable in a table of assessment in section 5.5–Levels of assessment-Material change of use or Section 5.9–Levels of assessment–Local plans in Part 5–Tables of assessment;

(b) reconfiguring a lot:

(i) that is code assessable and for which the Infrastructure code is identified in the assessment criteria column in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;

(ii) made impact assessable in Table 5.6.1–Reconfiguring a lot in Part 5–Tables of assessment;

(c) operational work that is infrastructure work:

(i) that is self-assessable or code assessable and for which the Infrastructure code is identified in the assessment criteria column Table 5.8.1–Operational work in Part 5–Tables of assessment.

(2) When using this code, reference should be made to section 5.3.2–Determining the level of assessment and, where applicable, section 5.3.3–Determining the assessment criteria located in Part 5–Tables of assessment.

9.4.3.2 Purpose

(1) The purpose of the code is to ensure that infrastructure is provided to service development.

(2) The purpose of the code will be achieved through the following overall outcomes:

(a) development protects the existing infrastructure and planned infrastructure networks being the:

(i) movement network;

(ii) park network;

(iii) water network;

(iv) sewerage network;
(v) stormwater network;
(vi) other networks including electricity, gas and telecommunications;
(vii) land for community facilities network;

(b) development other than operational work provides infrastructure that is necessary to service the development, including elements of:
(i) a safe, efficient and legible road network;
(ii) a safe, efficient and legible public transport network;
(iii) a safe, efficient and legible cycle network;
(iv) a safe, efficient and legible pedestrian network;
(v) a safe, efficient and legible parks network;
(vi) a safe and efficient water network;
(vii) a safe and efficient sewerage network;
(viii) a safe and efficient stormwater network;
(ix) safe and efficient other networks including electricity, gas and telecommunications;
(x) a safe and efficient road lighting network;
(xi) land for a community facilities network;

(c) development integrates with existing and planned infrastructure networks;

(d) infrastructure is designed and constructed to deliver a standard of service that is efficient and equitable;

(e) the cost to the community for the life of the infrastructure is minimised by providing for a suitable design life, ease of maintenance and ease of replacement;

(f) infrastructure protects personal health and safety and premises;

(g) infrastructure protects environmental values.

9.4.3.3 Criteria for assessment

Part A–Criteria for self-assessable and assessable development

Table 9.4.3.3.1–Infrastructure code: self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Outcome	Comments
For self-assessable and assessable development			
Provision, design, construction and location of infrastructure			
PO1 Development is demonstrated to be capable of being serviced by necessary infrastructure.	**AO1** Reports, plans and drawings are provided in accordance with part 2 of planning scheme policy 5–Infrastructure.	**ü**	Refer to the Engineering Services Report B15553CR001 prepared by Lambert & Rehbein. Detailed design and further details to be provided at the operational works phase of the project. All operational works are to be in accordance with the Infrastructure design planning scheme policy unless otherwise approved by Council.
PO2 Development: (a) provides necessary infrastructure to service the development; (b) provides that the design, construction and location of necessary infrastructure: (i) protects existing and planned infrastructure networks; (ii) services proposed development; (iii) integrates with existing and planned infrastructure networks;	**AO2** Development: (a) in a water supply service area connects to the water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; (b) not in a water supply service area provides a tank with a minimum storage capacity of 45,000 litres; (c) in a sewerage supply service area connects to the waste water network in accordance with the SEQ Water Supply and Sewerage Design	**ü**	Refer to the Engineering Services Report B15553CR001 prepared by Lambert & Rehbein. Detailed design and further details to be provided at the operational works phase of the project. All operational works are to be in accordance with the Infrastructure design planning scheme policy unless otherwise approved by

Performance outcomes	Acceptable outcomes	Outcome	Comments
(iv) delivers a standard of service that is efficient and equitable; (v) minimises the cost to the community for the life of the infrastructure by providing a suitable design life, ease of maintenance and ease of replacement; (vi) protects personal health, safety and premises; (vii) protects environmental values.	and Construction Code; (d) not in a sewerage supply service area complies with part 1 of the Queensland Plumbing and Wastewater Code; (e) provides stormwater infrastructure in accordance with part 3.6 of planning scheme policy 5–Infrastructure; (f) provides a movement network infrastructure in accordance with part 3.4 of planning scheme policy 5–Infrastructure; (g) provides parks in accordance with part 3.12 of planning scheme policy 5–Infrastructure; (h) provides road lighting in accordance with part 3.5 of planning scheme policy 5–Infrastructure; (i) provides electricity reticulation in accordance with part 3.8 of planning scheme policy 5–Infrastructure; (j) provides gas and telecommunications reticulation in accordance with part 3.9 of planning scheme policy 5–Infrastructure. Editor's note—The delivery of any part of a network identified in the plans for trunk infrastructure is governed by Part 4—Priority infrastructure plan.		Council.
Location of development			
PO3 Development is located to protect existing and planned infrastructure networks.	**AO3** Development is located outside: (a) planned widening of a road or a new road identified in Table 7.3.1.1–Road encroachment maps of planning scheme	**ü**	

Performance outcomes	Acceptable outcomes	Outcome	Comments
	policy 5—Infrastructure; (b) planned public transport network identified on Figure 3.4.1.3.1—Public transport network in planning scheme policy 5—Infrastructure; (c) a planned cycle network identified on Figure 3.4.1.2.1–Cycle network in planning scheme policy 5–Infrastructure; (d) a planned park network identified in PIP map 09.00 Plan for trunk park infrastructure in Schedule 3–Priority infrastructure plans and mapping.		
Fire fighting			
PO4 Development in a water service area accessed by common private title provides: (a) fire hydrant infrastructure; (b) unimpeded access for emergency services vehicles. Editor's note—'The term common private title refers to areas such as access roads in community title developments or strata title unit access, which are private and under group or body corporate control.	**AO4** Development in a water service area accessed by common private title complies with the Acceptable outcomes of the SPP code: Fire services in developments accessed by common private title in Appendix 1 of the state planning policy.	**ü**	Detailed design and further details to be provided at the operational works phase of the project.
PO5 Development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for fire fighting purposes.	**AO5** Development: (a) is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or **has an on-site water storage in accordance**	N/A	

Performance outcomes	Acceptable outcomes	Outcome	Comments
	with (b) Table 9.4.3.3.2—Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: (i) a separate tank; or (ii) a reserve section in the bottom part of the main water supply tankwater tank . Editor's note—The requirement in AO5 is; – in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.2–Infrastructure code: self-assessable and assessable development; – reflected in AO5 in Table 8.2.3.3.1–Bushfire hazard overlay code: self-assessable and assessable development.		
Disposal of trade waste			
PO6 The disposal of trade waste in a sewerage supply service area does not adversely affect the sewerage network.	**AO6** The disposal of trade waste in a sewerage supply service area complies with the sewer admission standards in section 3.2.6–Sewer admission standards in planning scheme policy 3–Environmental management.	N/A	
Roof water drainage and surface water drainage			
PO7 Development provides stormwater infrastructure for the drainage of the premises so as not to cause any of the following: (a) ponding of stormwater on the premises; (b) a hazard to personal health and safety; (c) damage to premises;	**AO7** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**ü**	Refer to Stormwater Management Plan B15553CR002 prepared by Lambert & Rehbein for proposed stormwater management systems for the proposed development. For detailed assessment of

Performance outcomes	Acceptable outcomes	Outcome	Comments
(d) an increased risk of flooding to premises within the catchment.			stormwater quantity and flooding at the site refer to the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology Pty Ltd.
Natural flow of surface water			
PO8 Development provides that the natural flow of surface water is: (a) not altered so as to cause a risk to personal health and safety or damage to property; (b) not increased in intensity, velocity or frequency; (c) not concentrated onto adjoining premises.	**AO8** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**ü**	Refer to Stormwater Management Plan B15553CR002 prepared by Lambert & Rehbein for proposed stormwater management systems for the proposed development. For detailed assessment of stormwater quantity and flooding at the site refer to the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology Pty Ltd.

Performance outcomes	Acceptable outcomes	Outcome	Comments
Water sensitive urban design			
PO9 Development which provides stormwater infrastructure incorporates water sensitive urban design principles having regard to: (a) protecting existing natural features and ecological processes; (b) protecting the natural hydrologic behaviour of catchments; (c) protecting the existing natural flow and water quality regimes of waterways; (d) protecting water quality of surface and ground waters; (e) minimising demand on the water network; (f) minimising sewage discharges to the natural environment; (g) integrating water into the landscape to enhance visual and ecological values.	**AO9** Development complies with the standards for stormwater infrastructure specified in part 3.6 of planning scheme policy 5–Infrastructure.	**ü**	Refer to Stormwater Management Plan B15553CR002 prepared by Lambert & Rehbein for proposed stormwater management systems for the proposed development. For detailed assessment of stormwater quantity and flooding at the site refer to the "Hydraulic Assessment – Proposed Multi Unit Development at 303-309 Logan Reserve Road, Logan Reserve" prepared by Water Technology Pty Ltd.
Movement network			
PO10 The projected traffic levels for a use do not adversely affect the planned standards of service for a road or intersection.	**AO10** Development does not cause or contribute to projected traffic levels: (a) exceeding the maximum vehicle trips per day in Table 3.4.1.4.2 in planning scheme policy 5–Infrastructure; or (b) exceeding the maximum control delays through intersections in peak periods in Table 3.4.1.4.3 in planning scheme policy 5—Infrastructure.		Refer to the Traffic Engineering Assessment B15553TR001 prepared by Lambert & Rehbein (SEQ) Pty Ltd.

Performance outcomes	Acceptable outcomes	Outcome	Comments
Integrated movement concept report			
PO11 Development which generates more than 3,000 vehicle trips per average weekday is designed to integrate the movement network to minimise the transportation costs required to service the use.	**AO11** Development which generates more than 3,000 vehicle trips per average weekday provides an integrated movement concept report which integrates the planning of the movement network in accordance with part 2 and 3 of planning scheme policy 5–Infrastructure.		Refer to the Traffic Engineering Assessment B15553TR001 prepared by Lambert & Rehbein (SEQ) Pty Ltd.
For assessable development only			
Land use and transport integration			
PO12 Development within 400 metres of existing or future public passenger transport facilities where the total site are is 5000m^2 or more: (a) supports a road hierarchy which facilitates efficient, safe and accessible bus services connecting to existing and future public passenger transport facilities; (b) enhances connectivity between existing and future public passenger transport facilities and other transport modes; (c) optimises the walkable catchment to existing and future public passenger transport facilities; (d) provides for direct and safe access to and use of existing or future public passenger transport facilities. Note—SPP code: Land use and transport integration in Appendix 4 of the state planning policy provides guidance to achieve this outcome.	**AO12** No acceptable outcome provided.		Refer to the Traffic Engineering Assessment B15553TR001 prepared by Lambert & Rehbein (SEQ) Pty Ltd.

Table 9.4.3.3.2—Water storage for fire fighting

Column 1 Lot size / use type	Column 2 Water requirement	Comments
For each residential lot:		N/A
(a) less than 1000m^2	5,000 litres	
(b) between 1000m^2 and less than 1 hectare	10,000 litres	
(c) greater than 1 hectare	20,000 litres	
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres	
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard	