8546921 - 12/12/2017

SITE PLAN NOTES:

1. Earthworks to comply with AS3798 and AS2870.1.
2. Figured dimensions shall be taken in preference to those scaled from the drawing. Builder to verify all dimensions on site prior to construction.
3. Finished surface lines shown on elevations and platform layout shall be confirmed on site prior to commencement of building work.
4. Structure designed for Wind Gust Speed : C1 (W41C)
5. All construction shall be in accordance with the requirements of the Building Code of Australia, the Building Act 1975 and the Local Authorities' requirements.
6. Timber members to be sized and fixed in accordance with C1 of the Qld. Timber Framing Manual.
7. Builder to provide a fall around the house of :
   1 in 20 for the first 1.0m around house
   1 in 80 for the next 1.0m around house
8. Connect all new downpipes as shown and fall pipes to kerb and channel or intra allotment drainage system. Stormwater drainage design is indicative only. Plumber to verify on site the suitability of the design and adjust accordingly to suit conditions. All plumbing work to comply with relevant plumbing codes and standards.
9. Install a sleeve joint where wall downpipes meet ground stormwater lines to allow for movement.
10. Confirm location of any underground services prior to commencement of building work.
11. Check position of current mains water connection and provide connecting link to dwelling to the requirements of the Local Authority and current Water & Sewerage Supply Act. Good pressure to be achieved in supply line to building.
12. Extent of principal Builder and relevant Subcontractors to be within the confines of the property boundaries and portion of the footpath immediately adjoining front property alignment. Seek neighbours consent if access or additional construction is required outside the confines of the subject property.

LANDSCAPING NOTES:

1. All carparking and landscaping areas are to be separated with a 150mm high dwarf wall.
2. All garden areas to be well mulched.
3. Planting density should be carried out at the following:

   Ground Covers, Clumping Varieties at 0.5m to 1.0m centres
   Shrubs at 2.0m centres
   Trees at 5.0m centres
4. A timed reticulated irrigation system to be provided to all common landscape and recreation areas as well as any podium planters.
5. All dividing fences within property boundary to be 1800 high timber paling fences and gates where applicable.

SITE PLAN LEGEND:

- Turning Circles
- Sewer Line
- p/p — Electricity Power Pole
- tmh — Telstra Man Hole
- wat. — Water Meter
- e. — Existing
- 100.00 — Existing Ground Level

CALCULATION SCHEDULE:

DWELLING UNIT 1
Floor Area: 117.02 sq. m.
Private Outdoor Space: 103.36 sq. m.

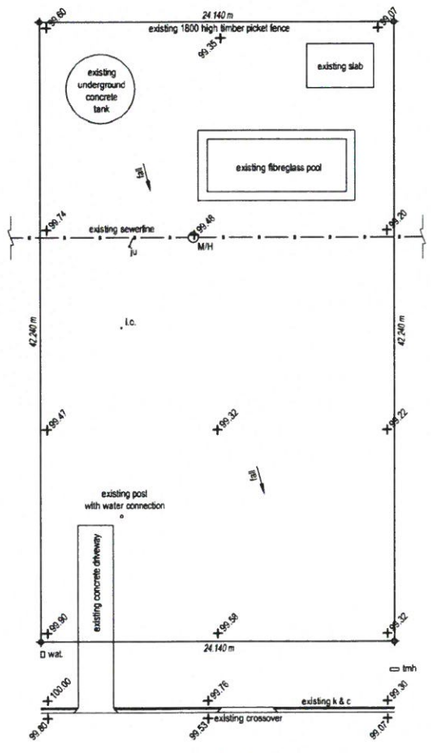
DWELLING UNIT 2
Floor Area: 117.02 sq. m.
Private Outdoor Space: 62.83 sq. m.

DWELLING UNIT 3
Floor Area: 158.35 sq. m.
Private Outdoor Space: 126.70 sq. m.

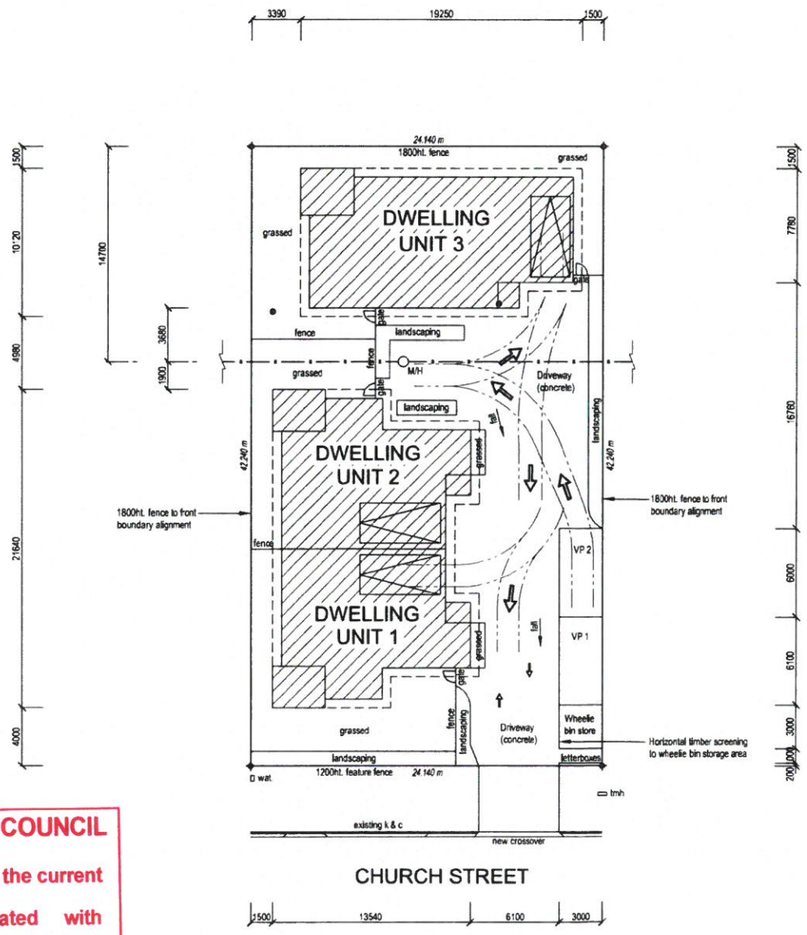
Site Area: 1019.67 sq. m
Floor Area (incl. garages): 382.39 sq.m (38.48%)
Lawn & Gardens: 301.15 sq.m (29.53%)
No. of Covered Carparks: 3
No. of Visitor Carparks: 2

PROPERTY DETAILS

LOT 34 ON RP 603218
PARISH OF ROCKHAMPTON
COUNTY OF LIVINGSTONE
AREA: 1019.67 sq.m



EXISTING SITE PLAN (1:200)



PROPOSED SITE PLAN (1:200)

ROCKHAMPTON REGIONAL COUNCIL
These plans are approved subject to the current conditions of approval associated with Development Permit No. D/133-2017
Dated: 16 January 2018

No.	Date	Amendment
2	30.11.17	Existing Site Levels Added
1	07.11.17	For Town Planning Assessment
P2	30.10.17	Preliminary Issue
P1	13.10.17	Preliminary Issue

EXISTING & PROPOSED SITE PLAN

SK Drafting building designs
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www.skdrafting.com.au
Shop 2/149 Canning Street, Rockhampton QLD 4700
BSA LIC No: 649429

Building Designers Association of Queensland Inc.

PROPOSED MULTIPLE DWELLING DEVELOPMENT AT 36 CHURCH STREET, ALLENSTOWN.
FOR HANSEN GRAZING PTY. LTD.

Scale	Date	Issue
AS SHOWN ON A1	OCT '17	2
Drawn: TEM	Sheet: 1/3	Drawing No.: 17 - 044
Checked		
Approved		

FLOOR PLAN NOTES:

1. Figured dimensions shall taken in preference to those scaled from the drawing.
2. Builder to verify all dimensions on site prior to commencement of building work.
3. Finished surface lines shown on elevations and platform layout shall be confirmed on site prior to commencement of building work.
4. Structure designed for Wind Gust Speed : C1 (W41C)
5. Construction to be in accordance with the Building Code of Australia, Qld Home Building Manual and all other relevant SAA Codes and Standards.
6. Builder to ensure adequate surface drainage and that no low spots capable of ponding are created during construction.
7. Where applicable, WC doors that swing inwards to be fitted with demountable hinges. Gaps to be provide at the top to allow door to be lifted off when in the closed postion.
8. Required number of new stair count is indicative only. Verify number of treads on site as per finished ground level.
9. Termite protection to be installed in accordance with AS3660.1-2000. A certificate is to be supplied to the Building Approval Authority as evidence of treatment where necessary.

LEGEND:

- s.a — Indicates hard-wired self contained smoke alarm complying with AS 3786
- s.l — Indicates sky light into ceiling to Owners' specifications. Location to be confirmed by Owners.

col	column
cup'd	cupboard
dp	down pipe
dr	dryer
dw	dishwasher
fr	fridge
hb	hand basin
mi	microwave
obs	obscure glass
o/h	overhang
pan	pantry
robe	wardrobe
rh	rangehood
sgd	sliding glass door
shr	shower
sk	sink
st	stove
store	storage cupboard
tub	washing tubs
wc	water closet
wm	washing machine
wo	wall oven

FRAMING SCHEDULE 70mm WALL

BTM PLATE	70 x 45 MGP12
TOP PLATE	70 x 45 MGP12
NOGGING	70 x 35 MGP12 : 1 No. ROW
STUDS	70 x 35 MGP12 @ 450 CRS.
JAMB STUDS	REFER TO TABLE BELOW
ROOF TRUSSES	PREFAB. ROOF TRUSSES @ 900 MAX. CRS. FIXED TO MANUFACTURER'S SPECIFICATIONS
ROOF BATTENS	TOPSPAN 40 ROOF BATTENS @ 900 MAX. CRS. FIXED AS PER MANUFACTURER'S SPECIFICATIONS

STUD SCHEDULE:

Common stud spacing (mm)	Number of common studs at sides of openings for width openings (mm)									
	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
450	1	2	2	2	2	3	3	3	4	4

FRAMING SCHEDULE 90mm WALL

BTM PLATE	90 x 45 MGP12
TOP PLATE	90 x 45 MGP12
NOGGING	90 x 35 MGP12 : 1 No. ROW
STUDS	90 x 35 MGP12 @ 450 CRS.
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ROOF BATTENS	TOPSPAN 40 ROOF BATTENS @ 900 MAX. CRS. FIXED AS PER MANUFACTURER'S SPECIFICATIONS

MEMBER SCHEDULE:

C1	100 x 100 HW POSTS

LINTEL SCHEDULE:

OPENING	SIZE
600	70 x 70 SEAS. HW (F17) KD
900	70 x 70 SEAS. HW (F17) KD
1200	90 x 70 SEAS. HW (F17) KD
1500	120 x 70 SEAS. HW (F17) KD
2100	140 x 70 SEAS. HW (F17) KD
2700	170 x 70 SEAS. HW (F17) KD

No.	Date	Amendment
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P2	30.10.17	Preliminary Issue
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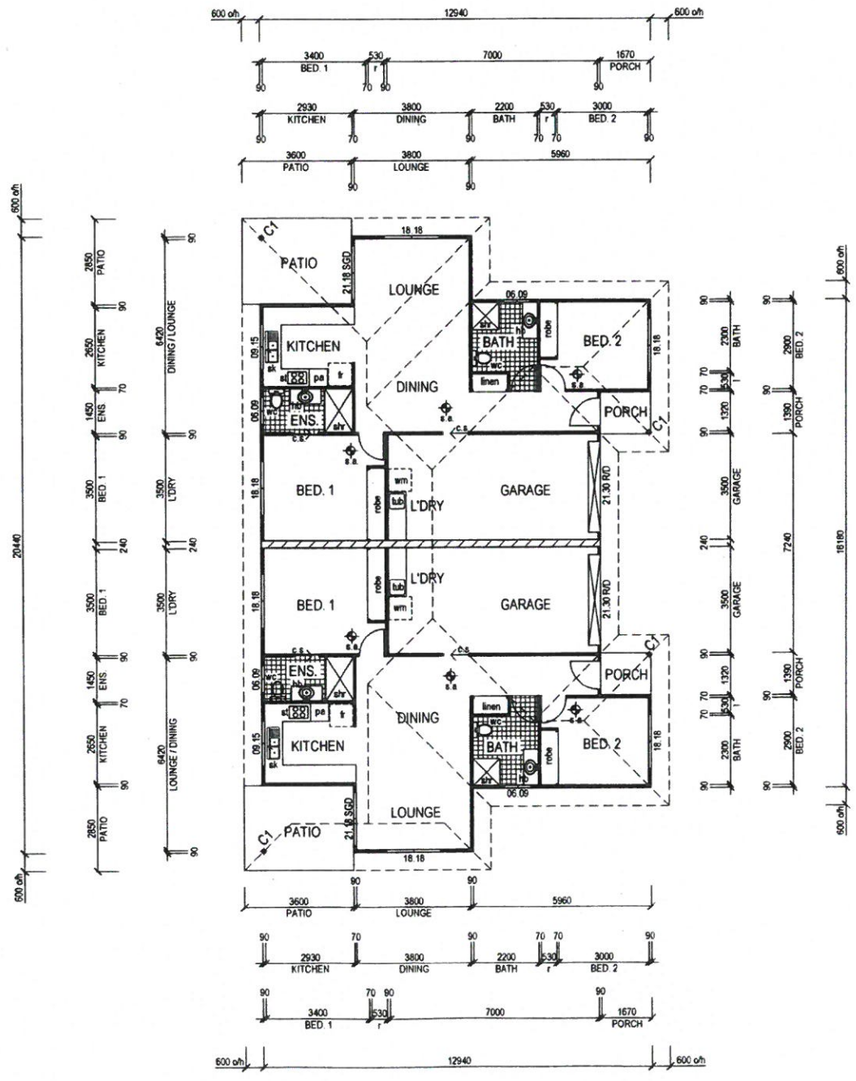
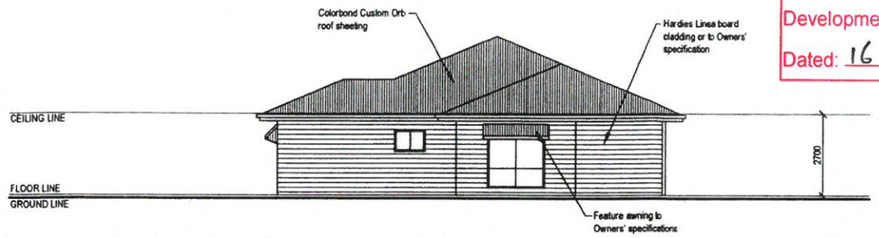


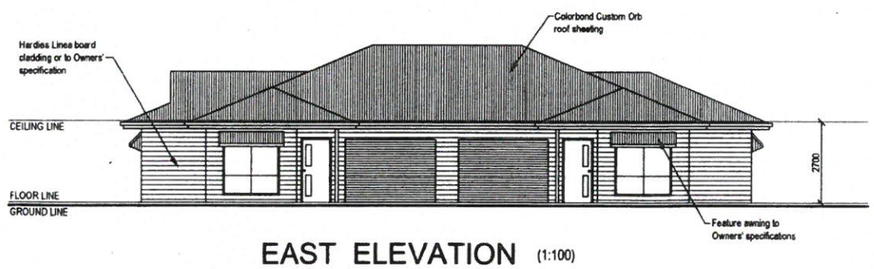
PROPOSED FLOOR PLAN (1:100)

DWELLING UNITS 1 & 2 - 117.02 sq.m each unit



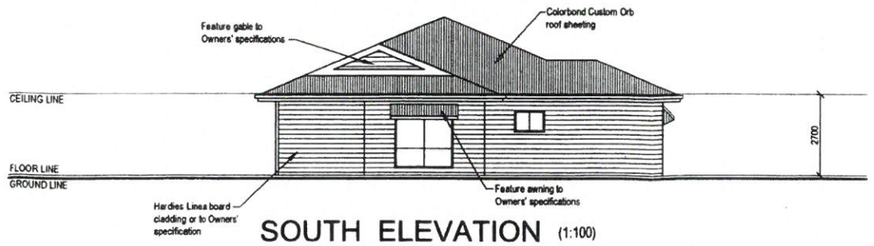
NORTH ELEVATION (1:100)

DWELLING UNITS 1 & 2



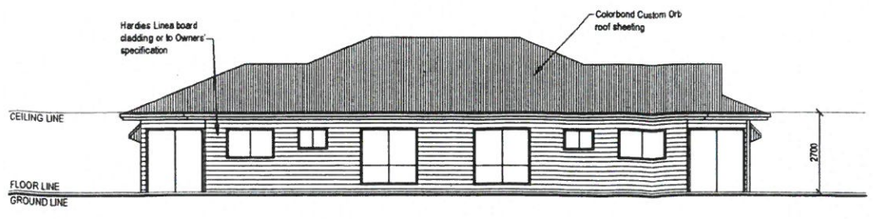
EAST ELEVATION (1:100)

DWELLING UNITS 1 & 2



SOUTH ELEVATION (1:100)

DWELLING UNITS 1 & 2



WEST ELEVATION (1:100)

DWELLING UNITS 1 & 2

ROCKHAMPTON REGIONAL COUNCIL

These plans are approved subject to the current conditions of approval associated with Development Permit No. D/133-2017

Dated: 16 January 2018

DWELLING UNITS 1 & 2 PROPOSED FLOOR PLANS & ELEVATIONS

SK Drafting building designs
P 07 4927 7464 M 0419 788 031
E scottm@skdrafting.com.au
www.skdrafting.com.au
Shop 2/149 Canning Street, Rockhampton Qld 4700
BSA LIC No 619429

Building Designers Association of Queensland Inc.

PROPOSED MULTIPLE DWELLING DEVELOPMENT AT 36 CHURCH STREET, ALLENSTOWN.
FOR HANSEN GRAZING PTY. LTD.

Scale	AS SHOWN ON A1	Date	OCT '17
Issue	1		
Drawn	TEM	Sheet	2/3
Drawing No.	17 - 044		
Checked			
Approved			

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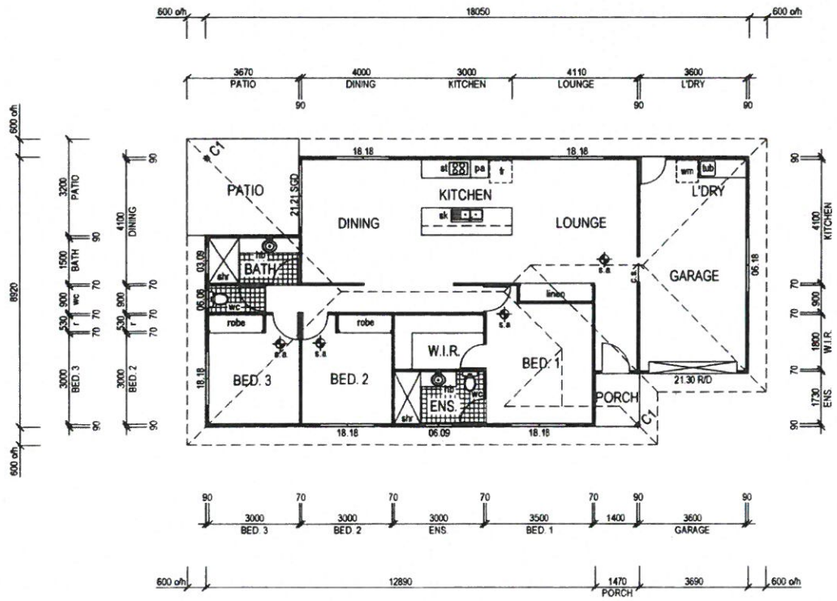
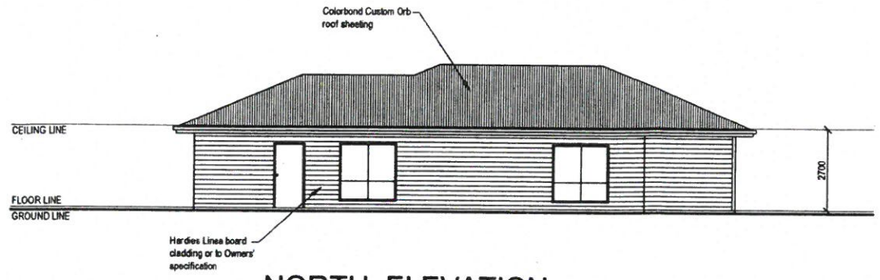


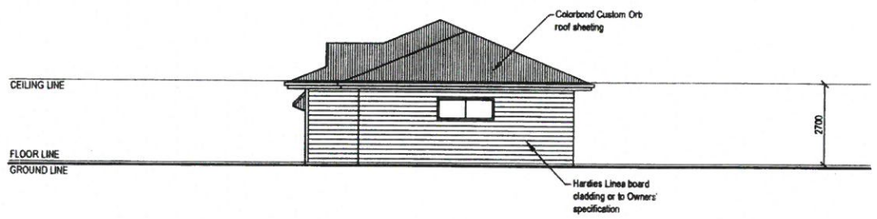
PROPOSED FLOOR PLAN (1:100)

DWELLING UNIT 3 - 158.35 sq.m



NORTH ELEVATION (1:100)

DWELLING UNIT 3

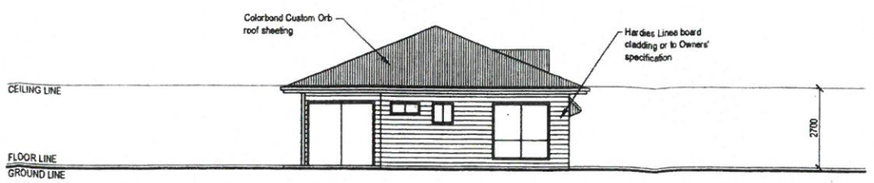


EAST ELEVATION (1:100)

DWELLING UNIT 3

SOUTH ELEVATION (1:100)

DWELLING UNIT 3



WEST ELEVATION (1:100)

DWELLING UNIT 3

DWELLING UNIT 3 PROPOSED FLOOR PLANS & ELEVATIONS

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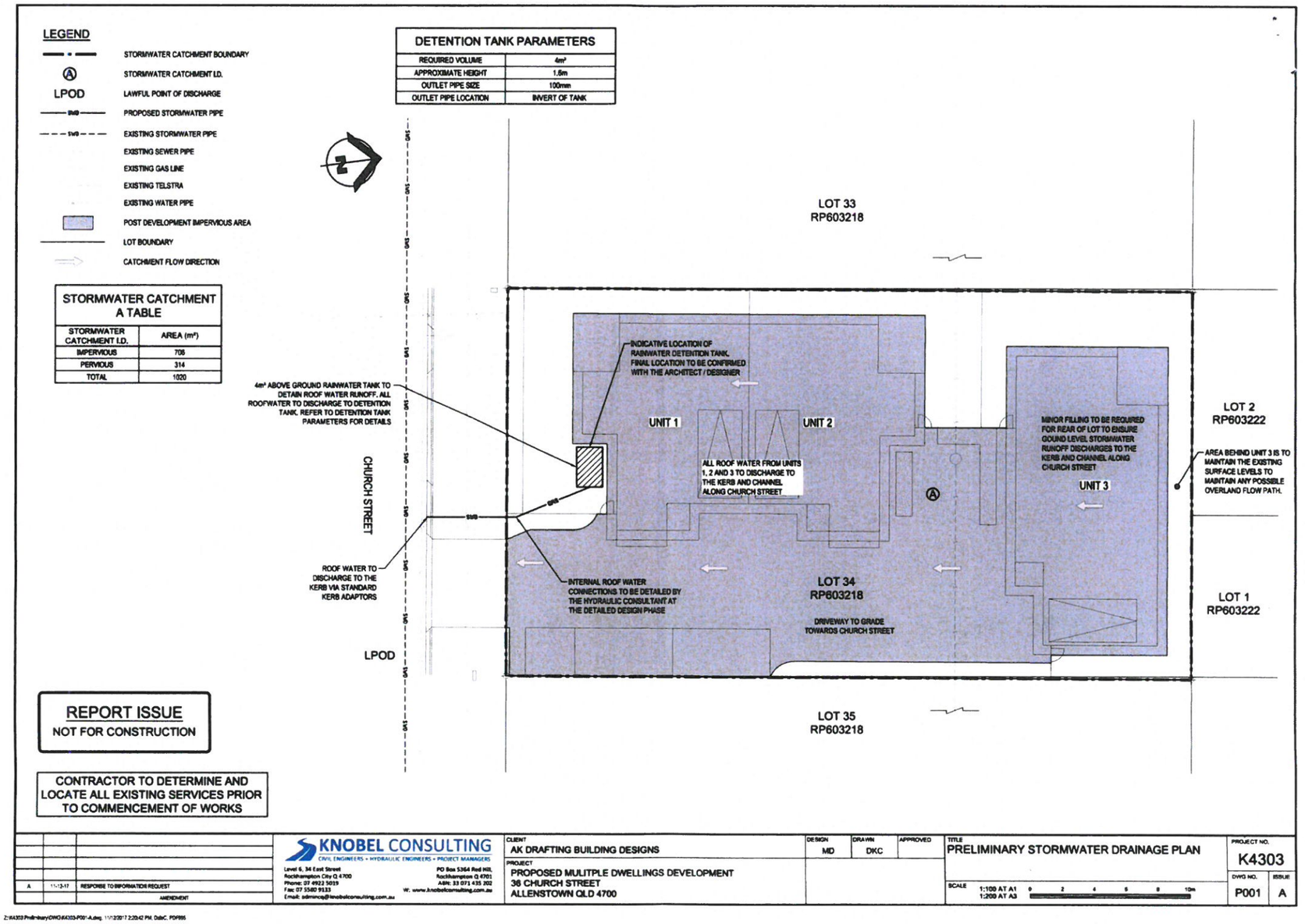
Dated: 16 January 2018

8546921 - 12/12/2017



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KNOBELCONSULTING
CIVIL ENGINEERS + HYDRAULIC ENGINEERS + PROJECT MANAGERS

11 December 2017

Our Ref: K4303-0001
Council Ref: D/133-2017

Jonathon Trevett-Lyall
Planning Officer
Planning and Regulatory Services
Rockhampton Regional Council
PO Box 1860
ROCKHAMPTON QLD 4700

Attention: Jonathon Trevett-Lyall

ROCKHAMPTON REGIONAL COUNCIL
These plans are approved subject to the current conditions of approval associated with Development Permit No. D/133-2017
Dated: 16 January 2018

Dear Jonathon,

RE: COUNCIL INFORMATION REQUEST – DEVELOPMENT APPLICATION D/133-2017 FOR A MATERIAL CHANGE OF USE FOR A MULTIPLE DWELLING (3 UNITS) – SITUATED AT 36 CHURCH STREET ALLENSTOWN – DESCRIBED AS LOT 34 ON RP603218, PARISH OF ROCKHAMPTON

In response to the recent Council Information Request dated 21 November 2017, please refer to the following responses provided herein;

Development Engineering:

1.0 Council's topographical map (contour level) shows that the site falls west-to-east and does not fall towards Church Street. Furthermore, the proposal will have an impervious area of approximately 724m². Please submit a stormwater drainage strategy for the subject development, prepared by a suitably qualified registered engineer that clearly demonstrates how the post-development runoff for the site will be limited to the predevelopment scenario and conveyed to a lawful point of discharge in accordance with the requirements of the Queensland Urban Drainage Manual.

Response:

Site Review and Description

The subject site is described as Lot 34 on RP603218 and has a total area of 1,020 m².

The subject site currently has a mild fall towards the rear of the lot. Spot heights range from 99.90 m in the south west corner to 99.07 m in the north east corner (note these levels are not to AHD).

The subject site is currently vacant as the previous dwelling on the site has been demolished. This stormwater analysis will consider the site layout with the previous dwelling as the pre development scenario as this was the previous lawful land use. The pre development site layout as of June 2016 consists of a single dwelling, concrete driveway, pool area, and vegetated landscaping. An aerial image of the existing site layout as of June 2016 is shown in figure 1.

Figure 1: Existing site layout (Modified From nearmap.com.au)

The proposed development consists of three units, an access driveway connecting to church street and landscaped areas.

Lawful Point of Discharge

A point of discharge which is "lawful" will be determined according to whether all applicable regulatory and other legal requirements have been met and any necessary statutory approvals have been obtained. Typically a Lawful Point of Discharge (LPOD) will include park, drainage or road reserve, or stormwater drainage easement.

The lawful point of discharge for the proposed development is the kerb and channel and the stormwater infrastructure along Church Street. The roof water from the proposed development will be piped to discharge to the kerb and channel via standard kerb adaptors. Minor filling of the site will be required to ensure the ground finished surface levels grade towards Church Street. The post development catchment will ensure that stormwater from the site discharges to the kerb and channel along Church Street, which represents the sites Lawful point of discharge.

Stormwater Analysis

In order to estimate the peak discharge for a range of ARI events the rational method has been applied to define flow rates at and through the subject site for both the pre development and post development scenarios.

Rainfall intensity data has been obtained from the Australian Bureau of Meteorology's Design IFD Rainfall System. The data has been extracted for Latitude 23.400 S and Longitude 150.500 E. The IFD data and average rainfall intensities used in this report are in accordance with the procedures outlined in IEAust, Australian Rainfall and Runoff.

The pre development scenario and the post development scenario have both been analysed as a single catchment with a total area of 1,020 m². The pre development scenario currently discharges to the rear of lot. The post development scenario will have the same catchment area of 1,020 m². The post development scenario will discharge stormwater to Church Street which represents the Lawful Point of Discharge for the site. The stormwater catchment extents and the lawful point of discharge (LPOD) is shown in the attachment, Knobel Consulting Pty Ltd, *Preliminary Stormwater Drainage Plan* (Ref: K4292/P001/A).

The pre and post development times of concentrations will both incorporate five minutes of roof to ground time plus one minute of pipe/overland flow. This equates to a total travel time of six minutes to LPOD.

The coefficient of runoff (C year) was determined based on the fraction impervious (f_i) method as specified in QUDM. From review of previous aerial images the pre development scenario has total impervious area of 430 m^2 which equates to a fraction impervious value of 0.42. Using a one hour, ten year rainfall intensity ($^1I_{10}$) of 62.6 mm/hr, a C_{10} value of 0.73 has been adopted for the pre development scenario. The proposed development has a total impervious area of 706 m^2 which equates to a fraction impervious value of 0.69. Using a one hour, ten year rainfall intensity ($^1I_{10}$) of 62.6 mm/hr, a C_{10} value of 0.81 has been adopted for the post development scenario.

Design storm flow rates have been calculated for standard storms with an ARI of 2, 10, 20 and 100 years using design rainfall intensities from the Bureau of Meteorology. The Rational Method ($Q = 2.78 \times 10^{-3}$ CIA) has been used to calculate the required design flow rates for the subject site.

The pre and post development peak flows for this subject site are presented in Table 1 and Table 2 respectively.

Table 1: Catchment A - Pre Development Flow Rate

Average Recurrence Interval	ARI	2	10	20	100
Coefficient of Runoff	C	0.62	0.73	0.77	0.88
Area of Catchment (ha)	A	0.102	0.102	0.102	0.102
Average Rainfall Intensity (mm/h)	I	126	187	218	296
Peak Flow Rate (m^3/s)	Q	0.022	0.039	0.047	0.074

Table 2: Catchment A - Post Development Flow Rate

Average Recurrence Interval	ARI	2	10	20	100
Coefficient of Runoff	C	0.69	0.81	0.85	0.97
Area of Catchment (ha)	A	0.102	0.102	0.102	0.102
Average Rainfall Intensity (mm/h)	I	126	187	218	296
Peak Flow Rate (m^3/s)	Q	0.025	0.043	0.053	0.082

The proposed development will increase the peak discharge rates from the proposed development by; 3 L/s for the Q_2 event; 4 L/s for the Q_{10} event; 6 L/s for the Q_{20} event; and 8 L/s for the Q_{100} event.

Overland Flow

To ensure the proposed development will maintain any existing overland flows, the area to the north of unit 3 will be required to maintain the existing finished surface levels. This will allow for overland flow conveyance.

Stormwater Detention

In accordance with the council RFI item the post development scenario is to limit the peak flow rates to the pre development scenario levels.

This objective shall be achieved by detaining site runoff within an above ground rainwater tank located within the development. This detention tank has been sized to ensure the total peak flow rates discharge from the post development scenario will be maintained to the total peak flow rates discharge from the pre development scenario.

The peak discharge for the Q100 storm event will not be altered by the proposed development. The total Q100 peak discharge for the pre development site is 74 L/s and the total Q100 peak discharge the post development site is 82 L/s. The proposed development will cause an increase of 8 L/s in the Q100 event.
The post development roof catchment (Part of the Roof) will be mitigated by 8 L/s to ensure the proposed development does not cause an increase in peak stormwater discharge. The post development roof catchment has a combined area of 460 m^2. The post development roof catchment is fully impervious and has a time of concentration of 6 minutes. The rational method provides the post development roof catchment with a Q100 peak flow of 38 L/s ($Q = 2.78 \times 10^{-3}$ 1.00 x 296 x 0.046).

The required volume of detention has been estimated in accordance with the methods outlined in QUDM Section 5.00. With reference to Table 3, the following detention volumes have been adopted.

Table 3: Preliminary Detention Sizing – Peak Discharge Rate – Q100

ARI	20	yr	
Qo	0.030	m^3/s	
Qi	0.038	m^3/s	
tc (post)	6	Min	
r	0.211	-	
Vi	18.24	m^3	
Vs/Vi	0.10	-	(QUDM Eq: 5.01, Culp)
Vs/Vi	0.21	-	(QUDM Eq: 5.02, Boyd)
Vs/Vi	0.11	-	(QUDM Eq: 5.03, Carroll)
Vs/Vi	0.16	-	(QUDM Eq: 5.04, Basha)
Vs	3.84	m^3	(QUDM Eq: 5.02, Boyd)

Boyd's equation has been adopted as it produces the most conservative estimate.

Post Development roof catchment will require a total detention volume of 3.84 m^3 (Boyd) to mitigate the Q100 event.

Outlet size

The orifice equation has been adopted to determine the required outlet size for the proposed detention. The equation is specified below:

$D = (0.46.Q/(H^{1/2}))^{1/2}$

The detention arrangement has adopted a hydraulic head of 1.6 m (detention depth to outlet invert) to represent a typical rainwater tank.

$D = (0.46 \times 0.030/ 1.6^{1/2})^{1/2}$
$= 0.104$ m.

The detention outlet will require an orifice of 104 mm to effectively mitigate the post development flow rate. A 100 mm outlet pipe has been adopted for this design to provide the required mitigation.

Detention Design

The preliminary design provided a minimum detention volume of 3.84 m^3 for the post development roof catchment. This detention volume was calculated to mitigate the post development peak flow rates to pre development levels.

It is proposed to provide 4.00 m^3 of stormwater detention in the form of an above ground rainwater tank capturing roof runoff. This rainwater tank will be fitted with a 100 mm outlet pipe.
The onsite location of the roof water detention tank will be confirmed at the detailed design phase. The outlet configuration of the tank will need to be reviewed depending on the height of the rainwater tank selected.

We believe the above responses and information included in this Information Request Response adequately address item 1 of the RFI and allow for processing of the Applications' approval. If you have any further queries please do not hesitate to the undersigned.

AARON PIANTA | DIRECTOR
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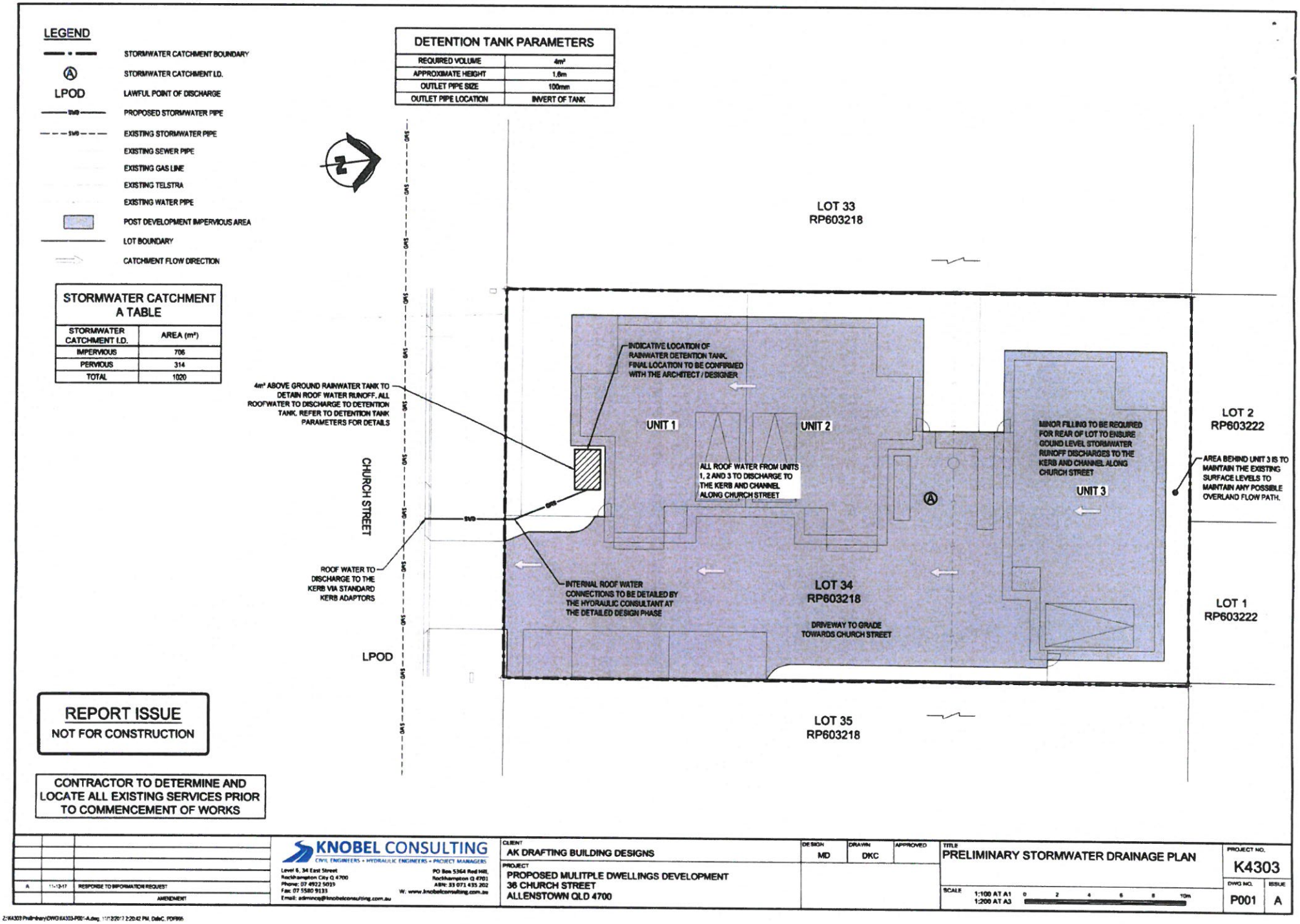
Attachment 1

Knobel Consulting Pty Ltd

Preliminary Stormwater Drainage Plan

(Ref: K4303/P001/A)



A	11-12-17	RESPONSE TO INFORMATION REQUEST
		AMENDMENT

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CLIENT: AK DRAFTING BUILDING DESIGNS
DESIGN: MD | DRAWN: DKC | APPROVED:
PROJECT: PROPOSED MULITPLE DWELLINGS DEVELOPMENT
36 CHURCH STREET
ALLENSTOWN QLD 4700
TITLE: PRELIMINARY STORMWATER DRAINAGE PLAN
SCALE: 1:100 AT A1, 1:200 AT A3 (0 2 4 6 8 10m)
PROJECT NO. K4303
DWG NO. P001
ISSUE A

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