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Ŕ	No.	DESCRIPTION	DATE

ROCKHAMPTON REGIONAL COUNCIL APPROVED PLANS These plans are approved subject to the current conditions of approval associated with Development Permit No.: D/39-2021 Dated: 23 June 2021

> PRELIM DATE: 08/03/21



NOT FOR CONSTRUCTION

PROPOSED WAREHOUSE

FOR BETTA ELECTRICAL AT 23 McLAUGHLIN STREET NORTH ROCKHAMPTON

Rufus Design Cro Style · QUALITY · INNOVATIN	UP ON	BUILDING ASSOC.	MEMBER DESIGNERS OF QLD INC. Felephone nailbox@ruft	Licen the Lic No 61 7 49	ced under QBCC Act 1180286 9288011 group.com		
^{this drawing} Site Plan & Vehicle Swept Path Plan							
PROJECT MANAGER : T.J.R.	WIND SPEED	C2	PROJEC	CT NUN	MBER - 02		
CHKD :	PLAN SIZE:	A1	SHEET 02	OF 06	HEETS		

PRINT DATE: 8/03/2021 11:22:16 AM

REVISION



06

ONS				PROPOSED WAREHOUSE	^{this drawing} Floor Plan	-
VISI				AT 23 McLAUGHLIN STREET		R
RE	No.	DESCRIPTION	DATE	NORTH ROCKHAMPTON		STY



Plan Legend					
ACU	Air Conditioner Unit				
BO	Bollard				
DHB	Disabled compliant Hand Basin				
DP	Down Pipe				
DWC	Disabled compliant Toilet				
EF	Mechanical exhaust fan discharging to outside air in accord. with AS 1668.2 (40L/sec per. min.)				
HS	Non-Disabled Hobless Shower (shr curtain only)				
KS	Kitchen Sink				
RF	Refrigerator				

Floor Areas						
Mezzanine	52.6 m²					
Office & Amenities	53.4 m²					
Covered Unloading Area	225.9 m²					
Warehouse	1196.6 m²					
Grand total	1528.5 m²					





PROJECT T.J.R. BUILDING DESIGNERS ASSOC. OF QLD INC. PROJECT NUMBER WIND SPEED C2 210202 - 03 DRAWN : Detwebb Pesion Group PLAN SIZE: A1 SHEET 03 OF 06 SHEETS Telephone 61 7 49288011 E-mail mailbox@rufusdesigngroup.com CHKD YLE • QUALITY • INNOVATION REVISION

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SNC				PROPOSED WAREHOUSE	^{this drawing} Mezzanine Floor Plan	
/ISIC				AT 23 McLAUGHLIN STREET		R
RE	No.	DESCRIPTION	DATE	NORTH ROCKHAMPTON		STYLE



PLAN SIZE: A1 SHEET 04 OF 06 SHEETS CHKD REVISION PRINT DATE :

DRAWN : Dowebb

Telephone 61 7 49288011 E-mail mailbox@rufusdesigngroup.com

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9	REVISIONS 	DESCRIPTION	DATE
	Eave height	8.000 m	
Hardies Easy Lap cladding			
N	lezzanine Floor Level	3.040 m	
Gr Spray coat finish to conc tilt	round Floor Top Plate t panels Ground Floor Level	2.740 m 0.000 m	







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S				PROPOSED WAREHOUSE	this drawing	• -
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Ш				NORTH ROCKHAMPTON		
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ROCKHAMPTON REGIONAL COUNCIL APPROVED PLANS These plans are approved subject to the current conditions of approval associated with Development Permit No.: D/39-2021 Dated: 23 June 2021





NOT FOR CONSTRUCTION

ifus	BUILDING DESIGNERS	Licenced under the QBCC Act Lic No. 1180286	PROJECT MANAGER	T.J.R.	WIND SPEED	C2	^{ркој} 2102	ест N 2 02	UME	^{BER} - 06
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k time o Turning Radius	6.00s 12.500m		
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KHAMPTON REGIONAL C	OUNCI	L	
APPROVED PLANS			
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oment Permit No.: D/39-202	21		
23 June 2021			
I BUILDERS PTY LTD			
MWATER MANAGEMENT PLAN ASSO	C WITH AI	л мси	D21.199-SK01
CLAUGHLIN STREET, KAWANA			
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2021



ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/39-2021

Dated: 23 June 2021

STORMWATER MANAGEMENT REPORT PROPOSED WAREHOUSE LOTS 6, 7 & 8 ON SP603516 23 MCLAUGHLIN STREET, KAWANA

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3.	Post	t Developed Site Flows and Management	4		
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3	.2	Discharge Flow Management	5		
3	.3	Stormwater Quality Management	5		
4.	Con	clusion	6		
Арр	Appendix A – Stormwater Management Strategy Drawings				

Docu	Document Status								
Rev	Author	Boyiowor	Approved For Issue						
No.		Reviewer	Name	Signature	Date				
01	A Lucas	G Brown	Glenn Brown RPEQ 7682	a-x	23.04.2021				

1. Introduction

3

This report was prepared for ASM Builders in support of a proposed development to the subject site at 23 McLaughlin Street, Kawana. This report should be read in conjunction with the overall application relating to this project. The proponent is seeking approval to develop the lot with a proposed warehouse with associated access and parking.

The land subject to this application is described as Lots 6, 7 and 8 on SP603516 which has a total area of $6080m^2$. The portion of the site subject to development (Lots 7 and 8) has an area of $4053m^2$.

2. Existing Stormwater Conditions

Lots 6, 7 and 8 consist of compacted hardstand and an existing boundary fence. Overland flows are generally discharged from site as sheet flow across the northern and western site boundaries. A fraction impervious of 0.9 has been adopted for the existing site.

Based on the average 0.3% slope of the main flow path and well-compacted surface, an overall time of concentration (Tc) of 8 minutes has been adopted in accordance with QUDM Figure 4.4 with a C_{10} value of 0.880 in accordance with QUDM Table 4.5.3.

Friends Equation (Eq 4.5) - Shallow overland sheet flow						
L	Surface	n	S	Тс		
m	Surface	Mannings	%	minutes		
60	Paved	0.015	0.3	8		

Utilising a Tc of 8 minutes and the relevant rainfall intensities, the following discharges for a range of events were calculated using the C_{10} value of 0.880 where $Qy=F^*Cy^*ly^*A$ for the existing site.

PRE-DEVELO	OPMENT			
Dev	elopment Area	0.4053	ha	
Event AEP	С	I.	Α	Q
%	coefficient	mm/hr	ha	m³/s
63.2	0.704	108	0.4053	0.0856
50	0.748	121	0.4053	0.1019
20	0.836	163	0.4053	0.1534
10	0.880	191	0.4053	0.1892
5	0.924	220	0.4053	0.2289
2	1.000	258	0.4053	0.2905
1	1.000	287	0.4053	0.3231

3. Post Developed Site Flows and Management

3.1 Post Developed Flows

4

The proposed development of the site decreases the fraction impervious to a value of 0.811 as per the table below. Based on this value, a C10 value of 0.853 (From QUDM Table 4.5.3) was adopted.

Total site area	0.4053 ha
Proposed concrete access	0.1810 ha
Proposed roof area	0.1475 ha
Total Impervious Area	0.3286 ha
Fraction Impervious (Total / Site Area)	0.811

Assuming post-development finished surface levels will generally follow existing, a postdevelopment time of concentration (Tc) of 8 minutes has been adopted in accordance with QUDM Figure 4.4 with a C_{10} value of 0.853 in accordance with QUDM Table 4.5.3.

Based on these revised figures, the following discharges from site were calculated:

POST-DEVEL	OPMENT					
Dev	elopment Area	0.4053	ha		Fi	0.811
Event AEP	С	I	Α	Q	¹ I ₁₀ (mm/hr)	65.1
%	coefficient	mm/hr	ha	m³/s	TC (minutes)	8
63.2	0.682	108	0.4053	0.0830	C ₁₀	0.853
50	0.725	121	0.4053	0.0988	From QUDM T	able 4.5.3
20	0.810	163	0.4053	0.1487		
10	0.853	191	0.4053	0.1834		
5	0.896	220	0.4053	0.2218		
2	0.981	258	0.4053	0.2849		
1	1.000	287	0.4053	0.3231		

When compared with the pre-developed total site flows, we note a decrease in flow for all recurrence intervals. Refer table below:

COMPARISON OF UNTREATED FLOWS						
Event AEP	Pre-Development (Total)	Post-Development	Change			
%	m³/s	m³/s	%			
63.2	0.0856	0.0830	-3.07%			
50	0.1019	0.0988	-3.07%			
20	0.1534	0.1487	-3.07%			
10	0.1892	0.1834	-3.07%			
5	0.2289	0.2218	-3.07%			
2	0.2905	0.2849	-1.91%			
1	0.3231	0.3231	0.00%			

3.2 Discharge Flow Management

Based on the introduction of pervious areas and reduction of total site runoff, stormwater detention is not considered necessary at this time.

It is proposed to minimise runoff to Lot 6 by capturing overland flows from Catchment A with three field inlet pits at the north-east corner of the site and a grated drain across the northern crossover. A 100mm high concrete nib kerb from pit 6/1 to the frontage landscaping will prevent runoff from bypassing pits 6/1 and 5/1. The proposed stormwater line is to break into the existing 600sq field inlet located within the easement in Lot 100 on SP260359, which drains to an existing road gully unit in McLaughlin Street.

Overland flows from Catchment B will continue to drain as sheet flow to the existing point of discharge at the rear of the site.

3.3 Stormwater Quality Management

Due to the size of the development (>2500m²), State Planning Policy Healthy Water has been triggered.

The proposed development reduces the impervious area of the site and therefore will produce less mean annual pollutant loading compared to the existing hardstand site.

It is proposed to further improve the quality of site runoff from Catchment A with the installation of SPEL Stormsacks (or equivalent) to all field inlet pits. Runoff from Catchment B will sheet across the turfed buffer at the rear of the site prior to draining to the existing point of discharge. MUSIC modelling was undertaken to determine the effectiveness of the proposed treatment strategy.



MUSIC Model treatment train

The MUSIC modelling indicates that the proposed treatment train will reduce the mean pollutant loadings that could currently be discharged from the site, although not all SPP reduction targets have been achieved. As stated, the existing site development is non-compliant with SPP water quality guidelines, however we ask for council's consideration in noting every effort has been made to provide additional treatment to the site resulting in an improvement in the quality of discharge to that of the current site.

Refer the following table for achieved reductions in relation to the SPP.

	MUSIC Model - Mean Annual Loads					
	Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)	Gross Pollutants (GP)		
Pre-Development Source (kg/year)	482	0.777	5.78	67		
Post-Development Source (kg/year)	428	0.686	5.04	56.8		
Post-Development Residual (kg/year)	80.3	0.345	2.9	21.5		
% Reduction (Pre- Development to Post-Development)	83%	56%	50%	68%		
SPP Target	85%	60%	45%	90%		

4. Conclusion

The proposed development will decrease the impervious area of the site and does not require quantity management of the stormwater discharge. It is proposed to minimise runoff to Lot 6 by capturing overland flows from Catchment A with grated field inlet pits. Introduction of turf and landscaping will reduce the mean pollutant loadings generated by the site. Quality of site runoff is proposed to be further improved by installing SPEL Stormsacks to all field inlets.

Ashleigh Lucas

For and On Behalf of

Dileigh Consulting Engineers Pty Ltd

Appendix A – Stormwater Management Strategy Drawings



STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU 23 MCLAUGHLIN STREET, KAWANA

ASM BUILDERS PTY LTD

LOTS 6,7 & 8 ON SP603516

D21.199

EXISTING LEVELS AND SERVICES

- 1. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND LEVELS OF ALL EXISTING SERVICES WITH THE RELEVANT AUTHORITIES INCLUDING "DIAL BEFORE YOU DIG" PRIOR TO COMMENCING CONSTRUCTION.
- 2. ANY COSTS ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
- 3. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING LEVELS ARE AS PER THIS DESIGN WHERE CONNECTIONS TO EXISTING INFRASTRUCTURE ARE REQUIRED. ANY DIFFERENCES TO BE NOTIFIED TO THE ENGINEER PRIOR TO ORDERING MATERIALS OR COMMENCING ANY WORKS.
- 4. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO CLASHES BETWEEN ANY CROSSING SERVICE OR PIPELINE. ANY CLASHES TO BE NOTIFIED TO THE ENGINEER PRIOR TO WORKS COMMENCING.
- 5. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHALL VERIFY LOCATION AND DETAILS OF ALL EXISTING SERVICE CONNECTIONS TO NEW ALLOTMENTS PREVIOUSLY INSTALLED



CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

Phone:

Fax:

Email:

ACN 121 309 171 47 Normanby Street Yeppoon, Queensland 4703 07 49112553 07 49383660

admin@dileigh.com.au



LOCALITY PLAN (Not To Scale)

CIVIL WORKS DRAWING INDEX

SH.	DWG. No.	DRAWING TITLE
-	D21.199-00	TITLE SHEET
1	D21.199-01	EXISTING FEATURES PLAN
2	D21.199-02	PROPOSED LAYOUT PLAN
3	D21.199-03	DRAINAGE LONGITUDINAL S

SECTION



		Fi	0.9		
4	Q	¹ I ₁₀ (mm/hr)	65.1		
а	m3/s	TC (minutes)	8		
053	0.0856	C ₁₀	0.880		
053	0.1019	From QUDM Table	e 4.5.3		
053	0.1534				
053	0.1892				
053	0.2289				
053	0.2905				
053	0.3231				
PMENT SITE HYDROLOGY					

1 BUILDERS PTY LTD	D21 199-01					
MWATER MANAGEMENT PLAN ASSOC WITH AN MCU						
CLAUGHLIN STREET, KAWANA						
STING FEATURES PLAN	SHEET 01 OF 03)		
	A					



COMPARISON OF UNTREATED FLOWS						
Event AEP	Pre-Development	Post-Development	Change			
%	m3/s	m3/s	%			
63.2	0.0856	0.0830	-3.07%			
50	0.1019	0.0988	-3.07%			
20	0.1534	0.1487	-3.07%			
10	0.1892	0.1834	-3.07%			
5	0.2289	0.2218	-3.07%			
2	0.2905	0.2849	-1.91%			
1	0.3231	0.3231	0.00%			

	Q
1	m3/s
53	0.0830
53	0.0988
53	0.1487
53	0.1834
53	0.2218
53	0.2849
53	0.3231

Fi	0.811				
¹ l ₁₀ (mm/hr)	65.1				
TC (minutes)	8				
C ₁₀	0.853				
From QUDM Table 4.5.3					

MUSIC Model - Mean Annual Loads					
lopment Post-Development g/year) Residual (kg/year)		% Reduction (Pre-Development to Post-Development)	SPP Target		
8	80.3	83%	85%		
36	0.345	56%	60%		
4	2.9	50%	45%		
8	21.5	68%	90%		

I BUILDERS PTY LTD MWATER MANAGEMENT PLAN ASSOC WITH AN MCU CLAUGHLIN STREET, KAWANA OPOSED LAYOUT PLAN		D21.199-02				
		SHEET 02 OF 03				
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CARPARK / ACCESS		-				
5/1 OSQ GRATED INLET 6005	5Q (67 GRA	′1 .TEC) IN	LET	
-INDICATIVE FINISHED SURFACE						
46						
5.800						
2250 DVC						
0.5%						
		879				
		/36 19.				
		70 0.7				
		19.1				
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A BUILDERS PTY LTD	D2	21.19	99-03	3		
CLAUGHLIN STREET, KAWANA	S	HE	ET 0	3 O	F 03	3
	A					

From:	"Bevan Koelmeyer" <bevan.koelmeyer@rrc.qld.gov.au></bevan.koelmeyer@rrc.qld.gov.au>
Sent:	Mon, 21 Jun 2021 09:05:46 +1000
То:	"T1Connect" <t1email@rrc.qld.gov.au></t1email@rrc.qld.gov.au>
Subject:	RE: D/39-2021 - Request for Further Information (RE: Stormwater Management
Plan)	

#ECMBODY #QAP Default #SILENT

From: Ashleigh <<u>Ashleigh@dileigh.com.au</u>>
Sent: Tuesday, 18 May 2021 4:08 PM
To: Bevan Koelmeyer <<u>Bevan.Koelmeyer@rrc.qld.gov.au</u>>
Cc: Richard Ford - CSG (CQ) <<u>richard@csgcq.com.au</u>>; Sam Milfull <<u>sam@asmbuilders.com.au</u>>; Glenn
<<u>glenn@dileigh.com.au</u>>
Subject: RE: 8035 FW: D/39-2021 - Request for Further Information (RE: Stormwater Management Plan)

[External Email] This email was sent from outside the organisation – be cautious, especially with links and attachments.

Good afternoon Bevan,

Please see responses to your queries below.

Notes:

• The existing aerial image of the development site does not constitute as a fully impervious surface (100%), assessment may need to be based on 50% impervious in association please note there is no Council record of any approval given for existing hardstand over the site. As the impervious fraction used for the pre-development condition is inaccurate, detention will be required. Furthermore, the time of concentration will also need to be increased due to the decrease in Manning's coefficient.

As per our report, we have allowed for a 90% fraction impervious. Soil classification of the site indicates a 20-30mm layer of sealed pavement with well compacted fill, which we have confirmed from visits to site. Historic aerial imagery shows the site previously being used by the lot behind the site for heavy vehicles to drive through to/from McLaughlin Street. Please see below a recent photo showing a general view of the site.

ROCKHAMPTON REGIONAL COUNCIL

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Dated: 23 June 2021



- Image 1 Proposed construction site
- There is no kerb and channel along western side of McLaughlin Street, towards the north. Noted. We can install temporary rock pitching at the downstream (northern) end of the new kerb and channel to the site frontage to slow down kerb and channel flows. It should be noted that there is no existing downstream treatment for where the kerb and channel currently ends on McLaughlin Street.

Water quantity and drainage discharge.

- How will catchment B be discharged to a lawful point?;
 - While it is acknowledged there is no existing council drainage infrastructure at the rear of the site, Catchment B will drain to the existing point of discharge. As per our report, the development will not result in an increase in site runoff and will therefore not result in an actionable nuisance to receiving allotments.
- Are downpipes from catchment B to be discharged to catchment A? Please provide further details. Furthermore, allotment runoff from catchment B, if discharging to the rear boundary, will post development discharge characteristics be similar to pre-development? if so please demonstrate.

Downpipes from catchment B are to discharge to ground and return to sheet flow. As per above, total discharge will be less than existing conditions and will be an improvement.

- Please provide calculations about the capacity of existing 375mm RPC across McLaughlin Street. Is the capacity of 375mm RCP adequate to accommodate flows from the proposed development and existing development on the adjacent Lot? The capacity of the existing 375dia RCP is noted on drawing D21.199. Taking into account the site runoff generated by the neighbouring lot also outleting to this pipe (based on site flows noted in the report approved for that development) and the flows from the subject site, it is acknowledged that we slightly exceed the calculated capacity. Pipe flow to the 375dia RCP is 209.3L/s, capacity is 205L/s. However, there is adequate head through the proposed drainage line to allow for the small deficiency in the existing pipe.
- If the proposed development is to connect all the down pipes and post development allotment runoff from hardstand areas within catchment A to the proposed drainage system within the development site (stormwater pipe network)
 - \circ Q20 from roof drainage is 0.092m³/sec;
 - \circ Q5 from hardstand area is 0.042m³/sec (only catchment area A);
 - Can existing drainage infrastructure across McLaughlin can handle this additional flow from the development?
 - Further, where will the gap flow discharge to as there is no Kerb and Channel, and no road side channel. Is the gap flow discharge characteristic similar to pre development?

As noted above, overall runoff generated by the site will be less than existing conditions. We can provide temporary rock pitching downstream of the new kerb and channel to reduce the speed of flows prior to them flowing down McLaughlin Street as they do currently.

Water quality

• Please provide MUSIC model digital copy for review. Please see attached.

Kind regards,

ASHLEIGH LUCAS Cadet Engineer

P 07 4911 2553

47 Normanby Street Yeppoon, Q 4703 www.dileigh.com.au







9 Hardies East	y Lap cladding	DESCRIPTION 28.120 m	DATE
	Mezzanine Floor Level	23.130 m 🥁	
	Ground Floor Top Plate	22.860 m 🤝	
Spray coat fi	nish to conc tilt panelsGround Floor Level	20.120 m 🧹	



Eave height 28.120 m	PROPOSED WAREHOUSE
	FOR BETTA ELECTRICAL AT 23 McLAUGHLIN STREET NORTH ROCKHAMPTON
ne Floor Level 23.130 m 🤝	EXAMPLE 1 Image: Construction of the con
nd Floor Level 20.120 m —	this drawing Elevations
	PROJECT DAWEDD WIND SPEED C2 PROJECT NUMBER DRAWN : DAWEDD PLAN A1 SHEET 050F SHEETS

PRINT DATE : 23/04/2021 10:24:20 AM