PROPOSED INDOOR SPORT &

RECREATION & WAREHOUSE FOR

ASM BUILDERS AT 10 CHAPPELL STREET, KAWANA

2 3D View 1

1 : 1

3 3D View 2

1 : 1

Sheet List	
Sheet Number	Sheet Name
00	Cover Sheet
01	Site Existing & Site Plan
02	Ground Floor Plan & Mezzanine Floor Plan
03	Elevations
04	Slab Plan & Roof Plan
05	Sections and Details
06	Disabled Toilet Plan, Internal Elevations and Landscape Plan
07	Electrical Plans

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

19 November 2021

DATE

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

Development Permit No.: D/7-2021

Dated: 22 April 2021

General Notes

CONST. TO BE IN ACCORD. WITH THE QLD. BUILDING ACT 1975-1998 & THE STANDARD BUILDING REGULATION 1993 AND SHALL COMPLY WITH ALL LOCAL AUTHORITY REGULATIONS AND REQUIREMENTS.

DO NOT SCALE

ALL WALL DIMENSIONS ARE TO STRUCTURAL COMPONENTS - NOT TO THE FACE OF LININGS/FINISHES

VERIFY ALL DIMENSIONS AND LEVELS ON SITE BEFORE STARTING WORK. WHERE CAVITY SLIDER DOORS ARE FITTED IT IS RECOMMENDED TO USE STEEL FRAMED CAVITY SLIDERS OR 90mm WALL FRAMES FOR TIMBER FRAMED CAVITY SLIDERS.

TOILET DOORS MUST OPEN OUTWARDS, SLIDE OR BE FITTED WITH DEMOUNTABLE HINGES IF THE DISTANCE BETWEEN THE PAN AND NEAREST PART OF THE DOORWAY IS LESS THAN 1200mm.

Site Details

REFER TO SITE DEVELOPMENT PLAN BY CIVIL ENGINEER.

SITE LEVELS AND FINISHED FLOOR LEVELS ARE TO BE VERIFIED BY THE BUILDER BEFORE STARTING WORK.

ALL CUT & FILLED EARTH EMBANKMENTS ARE TO BE MAX. SLOPE OF 1 IN 3 UNO ON CIVIL ENGINEER'S PLAN. BANKS TO BE GRASSED UNO.

Stormwater Drainage

ALL STORM WATER DRAINAGE WORK TO BE IN ACCORDANCE WITH AS 3500.

REFER TO HYDRAULIC ENGINEERS PLANS FOR DOWN PIPES AND ROOF GUTTER DETAILS.

Sewer Drainage

ALL PLUMBING & DRAINAGE WORK TO BE IN ACCORDANCE WITH WATER & SEWERAGE SUPPLY ACT AND AS 3500.

REFER TO HYDRAULIC ENGINEER'S PLANS FOR ALL SEWER DRAINAGE DETAILS.

THE LOCATION OF THE SEWER MAIN HAS BEEN SCALED FROM COUNCIL PLANS. WHERE THE SEWER LINE IS 2m OR LESS FROM THE BUILDING STRUCTURE IT IS THE RESPONSIBILITY OF THE BUILDER TO PHYSICALLY LOCATE THE SEWER MAIN BEFORE STARTING WORK

Working At Heights

FOR CONSTRUCTION, CLEANING AND MAINTENANCE PROCEDURES WHERE THERE IS A RISK OF FALLING, COMPLY WITH THE FOLLOWING CLAUSE FROM DIV. 4 OF PART 18 OF THE "WORKPLACE HEALTH AND SAFETY REGULATION".
(CLASS 188 - FALL ARREST HARNESS SYSTEM)

Stair Treads, Landings & Ramps

TREADS MUST HAVE A SLIP-RESISTANT FINISH OR A SUITABLE NON-SKID STRIP NEAR THE EDGE OF THE NOSINGS AND EDGE OF LANDINGS IN ACCORD. WITH NCC VOL. 2 PART 3.9.1.4 SLIP-RESISTANCE.

APPLICATION	SURFACE CONDITIONS	
	DRY	WET
RAMP NOT STEEPER THAN 1:8	P4 or R10	P5 or R12
TREAD SURFACE	P3 or R10	P4 or R11
NOSING OR LANDING EDGE STRIP	P3	P4

Timber Framing

ALL TIMBER SIZES AND CONNECTIONS NOT SHOWN TO BE IN ACCORDANCE WITH AS 1684.2 OR AS 1684.3 (DEPENDING ON WIND SPEED)

EXTERNAL TIMBER MEMBERS TO BE DURABILITY CLASS 1 OR 2 WITH SAPWOOD REMOVED OR PRESERVATIVE TREATED TO H3 UNLESS STATED OTHERWISE. ALL PINE TO BE LOSP TREATED TO H3 LEVEL.

ALL STRUCTURAL PLY IS TO BE IN ACCORDANCE WITH AS/NZ 2269 AND FIXED TO MANUFACTURERS SPECIFICATIONS.

ALL EXTERNAL NAILED AND SCREWED FIXING IN COASTAL AREAS FOR (BUT NOT LIMITED TO) CLADDING, FLOORING, SHEET LININGS, WINDOWS, DOOR FRAMES AND HINGES TO BE STAINLESS STEEL OR SILICON BRONZE.

TIMBER ROOF BATTENS TO BE FIXED IN ACCORDANCE WITH AS 1684.2 OR AS 1684.3 (DEPENDING ON WIND SPEED) AND WPHS REQUIREMENTS.

METAL ROOF BATTENS TO BE FIXED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS AND WPHS REQUIREMENTS.

ROOF TRUSSES - TIE DOWN, CONNECTIONS AND BRACING TO TRUSS MANUFACTURERS DETAILS

WALL FRAMES - TO BE DESIGNED, CERTIFIED & SUPPLIED BY WALL FRAME MANUFACTURER UNLESS DETAILED ON PLAN.

FLOOR FRAMING - FOR LVL MEMBERS IT IS RECOMMENDED THAT THE TOP EDGE BE PROTECTED FROM WATER PENETRATION DURING CONSTRUCTION. THIS CAN BE ACHIEVED BY THE APPLICATION OF A WATERPROOF TAPE OR PAINTING THE TOP EDGE OF THE MEMBER WITH DURAM "DURABIT" ACRYLIC. (PAINTING IS RECOMMENDED WHILE MEMBERS ARE STACKED).
ALL OTHER MEMBERS EXCLUDING HARDWOOD SHOULD BE PROTECTED AS PER MANUFACTURERS SPECIFICATIONS.

INTERNAL STRIP FLOORING IS TO BE WEATHER PROTECTED AT ALL TIMES AND TO HAVE A MOISTURE CONTENT NOT GREATER THAN 15%.

Termite Protection

PROVIDE PROTECTION FOR NEW BUILDINGS IN ACCORD. WITH THE B.C.A. - QUEENSLAND AMENDMENTS AND AS 3660.1 - 2000.
"TERMITE MANAGEMENT - NEW BUILDING WORK".

PROVIDE PROTECTION FOR EXISTING BUILDINGS IN ACCORD. WITH THE B.C.A. - QUEENSLAND AMENDMENTS AND AS 3660.2 - 2000.
"TERMITE MANAGEMENT - IN AND AROUND EXISTING BUILDINGS AND STRUCTURES".

OPTION SELECTED:-

- ☐ GRADED STONE BARRIERS
- ☐ CHEMICAL IMPREGNATED PLASTIC SHEET
- ☐ STAINLESS STEEL MESH SHIELDING
- ☐ MONOLITHIC CONCRETE SLAB
- ☐ METAL TERMITE CAP/STRIP SHIELDING
- ☐ MINIMUM 75mm SLAB EDGE EXPOSURE
- ☐ CHEMICAL RETICULATION SYSTEMS
- ☐ CHEMICAL PERIMETER & PENETRATIONS SYSTEM
- ☐ ALL PRIMARY BUILDING ELEMENTS OF TERMITE RESISTANT MATERIALS

OTHER: _____

SUBSEQUENT INSPECTIONS ARE TO BE CARRIED OUT TO INSTALLERS REQUIREMENTS

Masonry

ALL MASONRY WORK TO COMPLY WITH AS 3700.

CONSTRUCT MASONRY CONTROL JOINTS AT LOCATIONS SHOWN ON ENGINEERS FOOTING PLAN

Slab & Footings

CONCRETE WORK TO BE IN ACCORDANCE WITH AS 3600.

Roofing

METAL ROOFING TO BE IN ACCORDANCE WITH AS 1562.1 AND FIXED TO MANUFACTURERS SPECIFICATIONS.

TILE ROOFING TO BE IN ACCORDANCE WITH AS 2049 AND FIXED TO MANUFACTURERS SPECIFICATIONS.

Wall Cladding

WALL CLADDING TO BE FIXED TO MANUFACTURERS SPECIFICATIONS.

Aluminium Windows & Doors

ALUMINIUM WINDOWS AND DOORS TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH AS 2047/48.

Structural Steel

RHS & SHS STEEL SECTIONS TO BE FIRST GRADE STEEL COMPLYING WITH AS 1163 AND HOT ROLLED SECTIONS TO COMPLY WITH AS 3679.

ALL STRUCTURAL STEEL MATERIALS, WORKMANSHIP, FABRICATION & ERECTION SHALL COMPLY WITH THE REQUIREMENTS OF AS 4100, AS 1538, AS 1554 AND ANY OTHER RELEVANT SPECIFICATIONS.

ALL BOLTS, NUTS, WASHERS, BRACKETS ETC. IN COASTAL AREAS TO BE HOT DIPPED GALVANIZED.

Wet Areas

WATER PROOFING OF WET AREAS IS TO BE CARRIED OUT IN ACCORDANCE WITH THE BCA AND AS 3740.

FLOORS TO WET AREAS - CERAMIC TILES OR OTHER APPROVED MATERIALS.

SPLASH BACKS-

MIN. HEIGHT	FIXTURE	MATERIAL
150mm	BATHS, BASINS & SINKS	CERAMIC TILES*
1800mm	SHOWERS	CERAMIC TILES*

* OR OTHER APPROVED MATERIAL

Insulation

- REFER TO THE ATTACHED ENERGY EFFICIENCY REPORT FOR DETAIL

Other Consultants

REFER TO DETAILS BY OTHER CONSULTANTS FOR:

- SLAB & FOOTING DESIGN
- SOIL TEST
- SITE CONTOURS
- CONCRETE DRIVEWAY INCLUDING FALLS
- ALL STRUCTURAL DETAILS
- RETAINING WALL DETAILS
- ROOF & SITE DRAINAGE DESIGN
- WATER RETICULATION & SEWER DRAINAGE DESIGN
- ENERGY EFFICIENCY REPORT

Rufus Design Group
STYLE • QUALITY • INNOVATION

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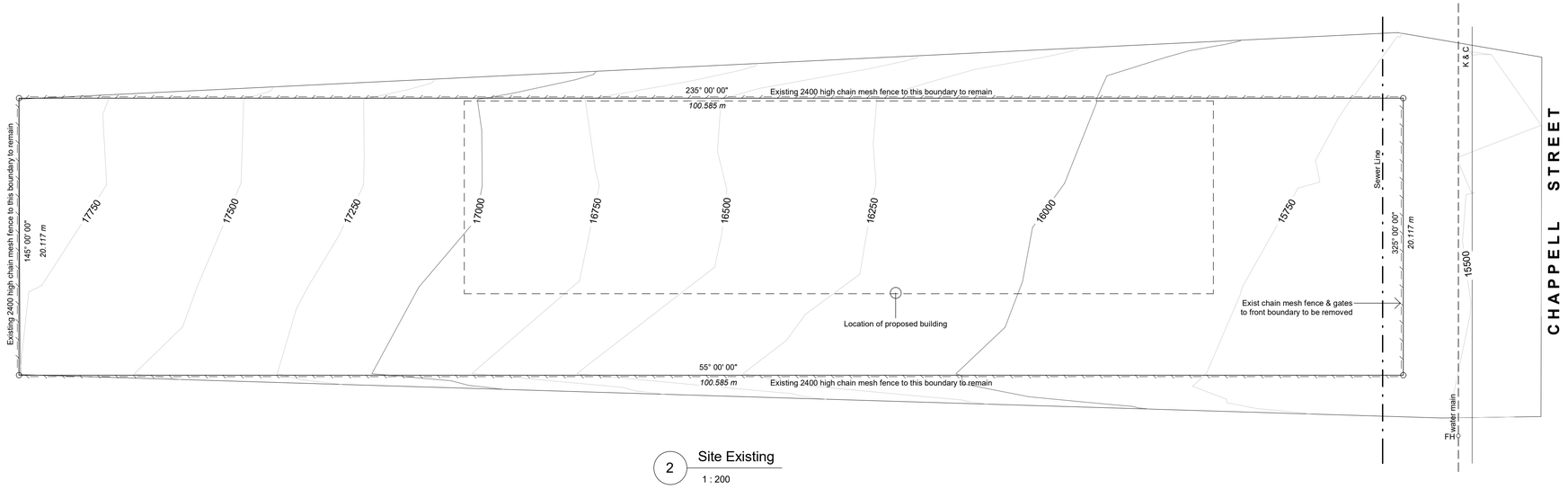
Project No:210808

Plan Set Revision :



2 Site Existing
1 : 200

Site Analysis

Proposed Floor Area	=	904.2 sqm
Total Building Footprint Area	=	762.0 sqm
Total Site Coverage	=	37.6 %
Total Landscaped Area Required	=	202.3 sqm
Total Landscaped Area Provided	=	120.1 sqm
Total Site Area	=	2023.4 sqm

Car Parking

Car parking spaces required	=	4 + By assessment
Total car spaces provided	=	21

Driveways

Existing concrete driveway area	=	NIL
New concrete driveway area	=	1141.3 sqm
Total driveway area	=	1141.3 sqm

LEGEND

FH	Street Fire hydrant
CP	Communications Pit
ET	Electrical Turret
EP	Electrical Pit
WM	Water Meter
RWT	Rain Water Tank
BO	Bollard to eng's detail
FHR	Fire Hose Reel
MB	Electrical Meter Box
SWP	Storm Water Pit
MH	Man Hole
DP	Down Pipe
HC	Hose Cock
PH	Pilar Fire Attack Hydrant
TI	Tactile Indictor

ROCKHAMPTON REGIONAL COUNCIL
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19 November 2021
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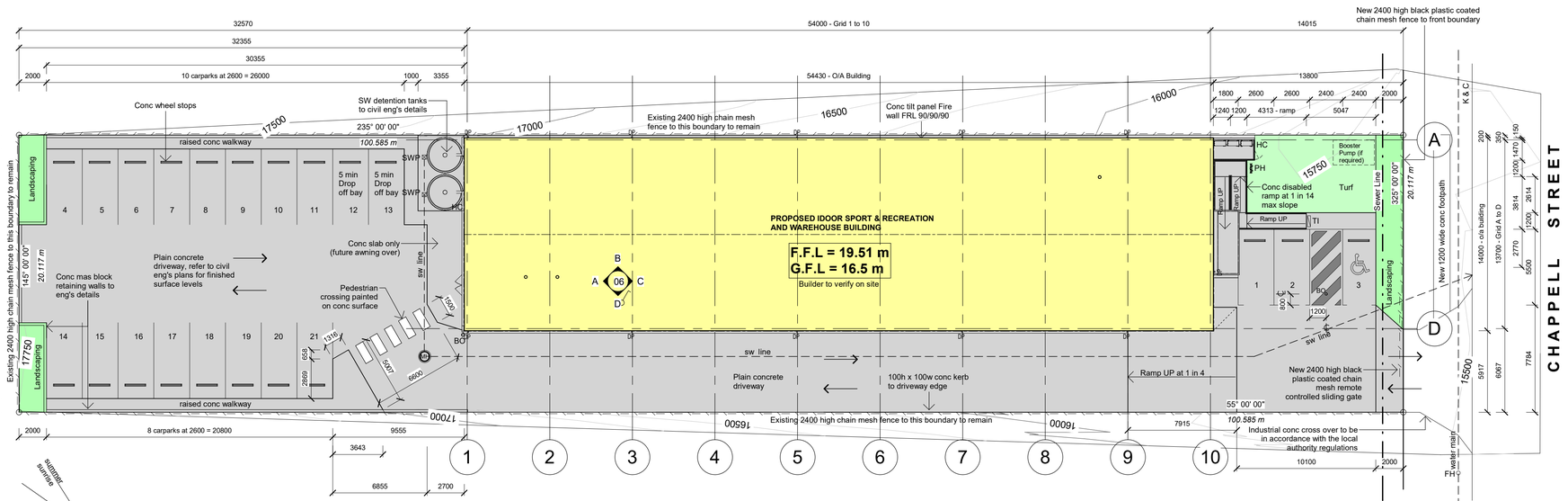

1 Site Plan
1 : 200

R.P.D.

Lot Number :	69
Reg./Survey Plan Number :	RP603516
Parish :	Murchison
County :	Livingstone
Area :	2023m²

PRELIM
DATE: **16/09/21**
02
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	DESCRIPTION

PROPOSED INDOOR SPORT & RECREATION & WAREHOUSE FOR ASM BUILDERS AT 10 CHAPPELL STREET, KAWANA

this drawing
Site Existing & Site Plan

Rufus Design Group
STYLE • QUALITY • INNOVATION
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PROJECT MANAGER : DJWebb
DRAWN : DJWebb
CHKD :
WIND SPEED C1
PLAN SIZE: A1
PROJECT NUMBER 210808 - 01
SHEET 01 OF 07 SHEETS
REVISION

PRINT DATE : 16/09/2021 12:28:06 PM

Plan Legend	
ACU	Air Conditioner Unit
AWC	Ambulant compliant Toilet
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.)
EL	Emergency Light in accord. with AS 2293.1
ESB	Electrical Sub Board
FE1	9kg water fire extinguisher (rating: 2A)
FHR	36m Fire Hose Reel in accord. with AS 1221 and AS 2441 (for fire fighting purposes)
HB	Hand Basin
HC	Hose Cock
HGD	Half Glass Door
IES	Illuminated Exit Sign
KS	Kitchen Sink
MSB	Main Switch Board
PH	Pillar Dual Outlet Fire Attack Hydrant to eng's details
RE	Required EXIT with lever action escape latch
RF	Refrigerator
TI	Tactile Indicator
VB	Vanity Basin
WC	Toilet

Floor Areas	
First Floor	
Dance Studio Mezzanine	50.8 m²
Warehouse Mezzanine	94.6 m²
	145.4 m²
Ground Floor	
Warehouse	295.1 m²
Dance Studio	463.7 m²
	758.8 m²
Grand total	904.2 m²

Window Legend

1218 - 1200 high x 1800 wide
XO - Sliding / Fixed
X - Sliding
O - Fixed
D - Double Hung
A - Awning
CMT - Casement
L - Louvre
F.G. - Fixed Glass

Glazing to wet areas to be obscure
Glazing to remainder to be clear

THRESHOLDS :
TO BE IN ACCORDANCE WITH AS 1428.1, "ACCESS FOR THE DISABLED". (MAX. STEP 5mm, THRESHOLD RAMP - MAX SLOPE 1 IN 8 FOR UP TO 35mm RISE, STEP RAMP - MAX SLOPE 1 IN 10 FOR UP TO 190mm RISE).

STAFF ACCESS ONLY TO MEZZANINE

CHS Beams at 1800 crs in between portal rafters for appartus attachment to eng's details

Void to Dance Studio 1
Void to Dance Studio 2
Void to Dance Studio 3
Void to Warehouse below
Void to hall below

Office (vinyl)
Staff WC (vinyl)
Storage Area (vinyl)
1000 high balustrade
Lunch Room (vinyl)
to units below
1000 high min steel balustrade
Storage Area (red tongue)
Fork lift access
Propietry Rollover access gate

ROCKHAMPTON REGIONAL COUNCIL
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2 Mezzanine Floor Plan
1 : 100

SW detention tanks to civil eng's details
Conc tilt panel fire wall to u/side roof sheeting (FRL 90/90/90)
batten out tilt panels, line & install insulation batts to toilet & office
1500 high p/coated alum screen fencing & gate
UB portal frames to eng's details above
Provide acoustic batts to all dance studio timber framed walls
Provide R1.5 acoustic batts to timber wall frames bounding Dance Studio
Doors fitted with devices for holding doors in open position
Space under stairs to be walled off (no access)
plain conc slab only
Threshold ramp at door, see slab plan
2200 high laminex toilet partitions
No storage under open stairs
sel balustrade
Hwd treads over RHS stringers
Threshold ramp at door, see slab plan
600 high FG panel above window & door
conc steps
Provide wall insulation to air conditioned rooms as per energy efficiency report

Dance & Aerial Studio 1 (flooring by owner)
CLASS 9b
Dance Studio 2 (flooring by owner)
Dance Studio 3 (flooring by owner)
Warehouse (steel trowelled plain conc)
CLASS 7b
Foyer (vinyl)
Mat Store (vinyl)
Female (vinyl)
Unisex Disabled Toilet (vinyl)
Store
Unisex Disabled Toilet (vinyl)
Gas Strut Room (steel trowelled plain conc)
Office 1 (carpet tiles)
Sales (carpet tiles)
Counter to owners detail
Ramp UP 1 in 14
Customer Service Area (carpet tiles)
Stock Display Area (carpet tiles)

5000h x 4000w R/SHUTTER (Chain operated)
5000h x 4000w R/SHUTTER (Motorised)
0630 FGP

1 Ground Floor Plan
1 : 100

ELEVATIONS

PRELIM
DATE: **16/09/21**

02

NOT FOR CONSTRUCTION

REVISIONS			
NO.	DATE	DESCRIPTION	

PROPOSED INDOOR SPORT & RECREATION & WAREHOUSE FOR ASM BUILDERS AT 10 CHAPPELL STREET, KAWANA

this drawing: Ground Floor Plan & Mezzanine Floor Plan

Rufus Design Group
STYLE • QUALITY • INNOVATION
MEMBER BUILDING DESIGNERS ASSOC. OF QLD INC.
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PROJECT MANAGER : DJWebb
DRAWN : DJWebb
CHKD :
WIND SPEED C1
PLAN SIZE: A1
PROJECT NUMBER 210808 - 02
SHEET 02 OF 07 SHEETS
REVISION

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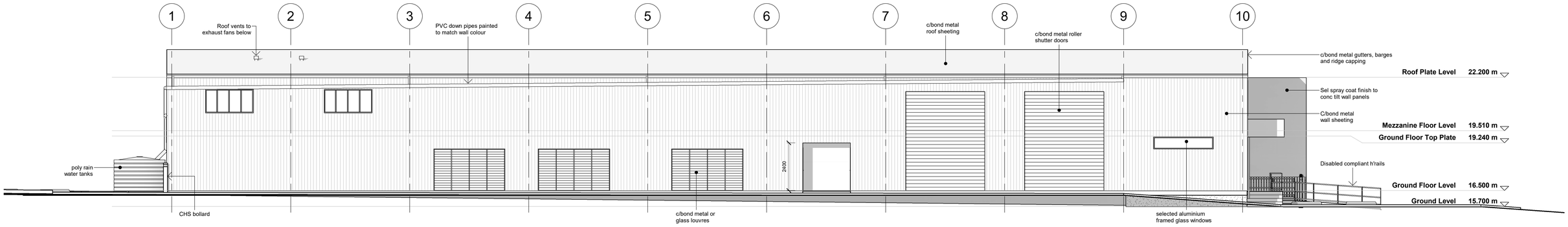
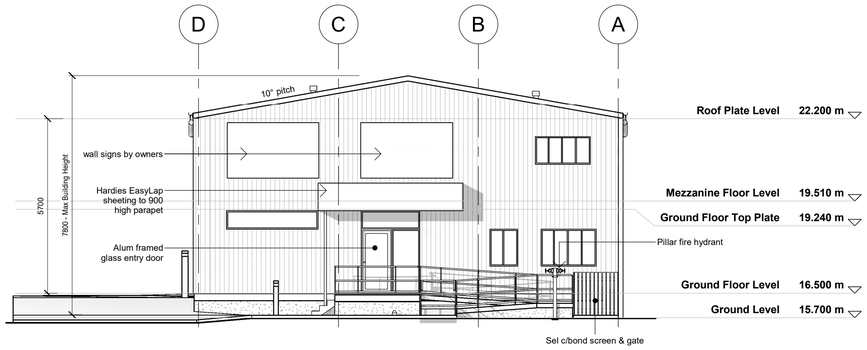


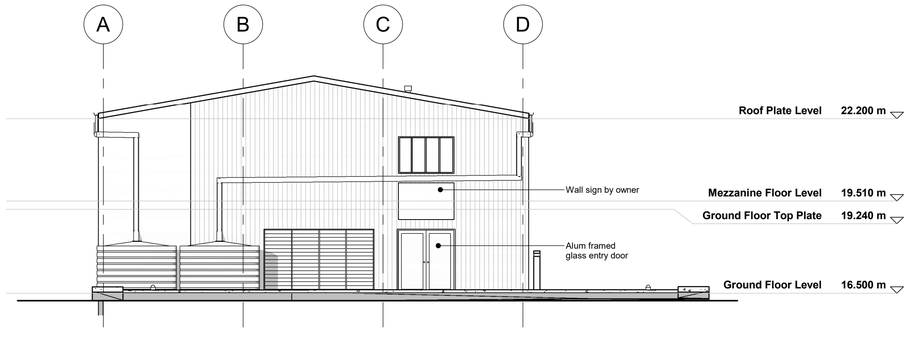
1 Elevation 1

1 : 100



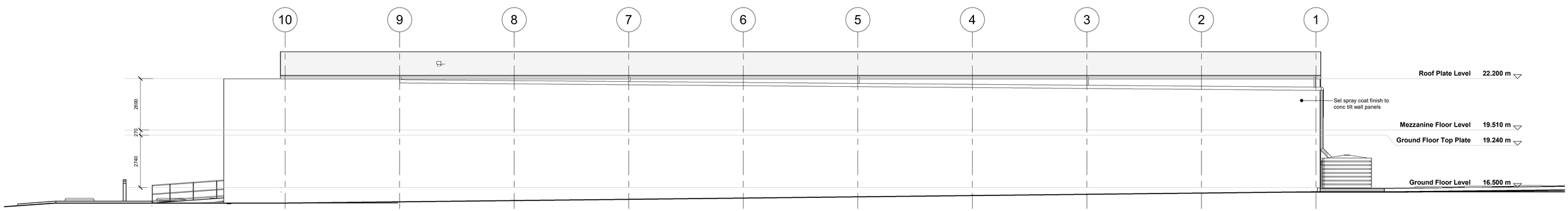
2 Elevation 2

1 : 100



4 Elevation 4

1 : 100



3 Elevation 3

1 : 100

ROCKHAMPTON REGIONAL COUNCIL

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Dated: 22 April 2021

PRELIM

DATE: **16/09/21**

02

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PROPOSED INDOOR SPORT & RECREATION & WAREHOUSE FOR ASM BUILDERS AT 10 CHAPPELL STREET, KAWANA

this drawing

Elevations

Rufus Design Group
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PROJECT MANAGER : DJWebb

DRAWN : DJWebb

CHKD :

PLAN SIZE: A1

WIND SPEED C1

PROJECT NUMBER 210808 - 03

SHEET 03 OF 07 SHEETS

REVISION

PRINT DATE : 16/09/2021 12:28:13 PM

2021

DILEIGH

CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

ROCKHAMPTON REGIONAL COUNCIL

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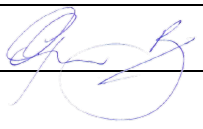
Dated: 22 April 2021

STORMWATER MANAGEMENT REPORT
PROPOSED INDOOR SPORT AND LOW IMPACT INDUSTRY
LOT 69 ON RP603516
10 CHAPPELL STREET, KAWANA

Table of Contents

Document Status					
Rev No.	**Author**	**Reviewer**	**Approved For Issue**		
			Name	**Signature**	**Date**
01	A Lucas	G Brown	Glenn Brown RPEQ 7682		
02	A Doherty	G Brown	Glenn Brown RPEQ 7682		
03	G Brown		Glenn Brown RPEQ 7682		02.11.2021

1. Introduction

This report was prepared for ASM Builders in support of a proposed development to the subject site at 10 Chappell Street. 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 indoor sport and low impact industry building with associated access and parking.

The land subject to this application is described as Lot 69 on RP603516 which has a total area of 2023m^2.

2. Existing Stormwater Conditions

Lot 69 is an undeveloped greenfield site. Runoff is generated from two existing site catchments:

- Catchment A1 discharges from site as sheet flow to the kerb and channel in Chappell Street.
- Catchment A2 discharges across the site boundary to the adjacent allotment, which drains to Chappell Street.

Based on the average 2.3% slope of the main flow path and poor grass cover of the site, an overall time of concentration (Tc) of 15 minutes has been adopted in accordance with QUDM Figure 4.4 with a C_{10} value of 0.700 in accordance with QUDM Table 4.5.4.

Friends Equation (Eq 4.5) - Shallow overland sheet flow				
L	**Surface**	**n**	**S**	**Tc**
m		Mannings	%	minutes
100	Poorly Grassed	0.035	2.3	15

Utilising a Tc of 15 minutes and the relevant rainfall intensities, the following discharges for a range of events were calculated using the C_{10} value of 0.700 where Qy=F*Cy*Iy*A for the existing site.

PRE-DEVELOPMENT – CATCHMENT A1

Development Area **0.1250** ha

Event AEP	**C**	**I**	**A**	**Q**
%	coefficient	mm/hr	ha	m^3/s
63.2	0.560	82	0.125	0.0160
50	0.595	91	0.125	0.0189
20	0.665	121	0.125	0.0279
10	0.700	142	0.125	0.0345
5	0.735	163	0.125	0.0416
2	0.805	193	0.125	0.0539
1	0.840	216	0.125	0.0630

Fi	0.0
$^1I_{10}$ (mm/hr)	65.1
Tc (minutes)	15
C_{10}	0.700

From QUDM Table 4.5.4

PRE-DEVELOPMENT – CATCHMENT A2

Development Area **0.0773** ha

Event AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m^3/s
63.2	0.560	82	0.0773	0.0099
50	0.595	91	0.0773	0.0117
20	0.665	121	0.0773	0.0173
10	0.700	142	0.0773	0.0213
5	0.735	163	0.0773	0.0257
2	0.805	193	0.0773	0.0334
1	0.840	216	0.0773	0.0390

Fi	0.0
$^1I_{10}$ (mm/hr)	65.1
Tc (minutes)	15
C_{10}	0.700

From QUDM Table 4.5.4

3. Post Developed Site Flows and Management

3.1 Post Developed Flows

The proposed development of the site increases the fraction impervious to a value of 0.809 as per the table below. Based on this value, a C10 value of 0.695 (From QUDM Table 4.5.3) was adopted.

Total site area	0.2023 ha
Proposed concrete access	0.1015 ha
Proposed concrete slabs and paths	0.0107 ha
Proposed roof area	0.0762 ha
Total Impervious Area	**0.1884 ha**
Fraction Impervious (Total / Site Area)	**0.931**

A post-development time of concentration (Tc) of 7 minutes has been adopted in accordance with QUDM Figures 4.4 and 4.5 with a C_{10} value of 0.888 in accordance with QUDM Table 4.5.3.

Friends Equation (Eq 4.5) - Shallow overland sheet flow

Description	L	Surface	n	S	Tc
	m		Mannings	%	minutes
Rear turf	2	Average Grassed	0.045	2.3	1
Driveway	47	Paved	0.015	1.0	5

Argue, 1986 (Fig 4.5) – Flow travel times in pipes and channels

Description	L	S	Fall	Tc
	m	%	m	minutes
V-drain	36	2.5	0.9	1
			Total Tc	**7**

Rainfall intensities were reviewed and adjusted in line with the post-development time of concentration.

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

POST DEVELOPED					TC= 7 min			
Development Area		0.2023 ha						
	F	C	I	A	Q			
AreaA	sq kms	co eff	mm/hr	sq kms	m3/sec		Fi	0.940
Q2	0.278	0.7548	119.0	0.00202	0.0505		$^1I_{10}$	65.10 mm/hr
Q5	0.278	0.8436	159.0	0.00202	0.0754		C_{10}	0.888
Q10	0.278	0.888	186.0	0.00202	0.0929		From QUDM T4.5.3	
Q20	0.278	0.9324	214.0	0.00202	0.1122			
Q50	0.278	1	252.0	0.00202	0.1417			
Q100	0.278	1	282.0	0.00202	**0.1586**			

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

COMPARING PRE-TREATMENT FLOWS			
EVENT ARI	**PRE-DEV**	**POST -DEV**	**CHANGE**
Q2	0.0307	0.0505	64.44%
Q5	0.0456	0.0754	65.33%
Q10	0.0563	0.0929	65.00%
Q20	0.0682	0.1122	64.53%
Q50	0.0883	0.1417	60.54%
Q100	0.1030	0.1586	54.00%

3.2 Discharge Flow Management

It is proposed to mitigate the increase in flows with two 10,000L detention tanks capturing roof water flows from the proposed indoor sport and low impact industry building.

The proposed detention tanks will be situated at the rear of the building adjacent the rear (dance studio) access and waiting area. The overflow outlet for both tanks will be controlled by a 20mm diameter orifice and will discharge to ground. Flows will return to sheet flow along the access driveway and discharge to the kerb and channel in Chappell Street. The tank detention will reduce the post developed 20% AEP discharge to 45.3L/s (a 0.3L/s decrease on pre-development flows) and post-developed 1% AEP discharge to 102.8L/s (a 0.2L/s decrease on pre-development flows) as noted in the tables below and hydrographs on drawing D21.057-03.

COMPARING Q5 FLOWS POST TREATMENT'			
PRE DEV.	0.0456	m3/sec	
POST DEV	0.0452	m3/sec	
EQUALS	1.03	% DECREASE IN MINOR FLOWS	

COMPARING Q100 FLOWS POST TREATMENT'			
PRE DEV.	0.1030	m3/sec	
POST DEV	0.1021	m3/sec	
EQUALS	0.84	% DECREASE IN MAJOR FLOWS	

It is proposed to direct flows from the rear parking area and roof water tank outlets away from and around the proposed building with a shallow v-drain. The v-drain is to flatten and flare to return flows to sheet flow prior to discharging from site. Refer D21.057-02 for the extent of the proposed v-drain.

The proposed parking spaces and associated pathways at the front of the site are not introducing concentrated flow paths and are unlikely to introduce runoff nuisances to neighbouring allotments. Flows from these areas will discharge from site as sheet flow to the existing point of discharge in Chappell Street.

3.3 Stormwater Quality Management

Due to the size of the development (<2500m^2), State Planning Policy Healthy Water has not been triggered. No additional stormwater quality improvement devices (SQIDs) are required at this time.

4. Conclusion

The proposed development will increase the impervious area of the site and requires quantity management of the stormwater discharge. It is proposed to mitigate the increase in flow with two 10,000L detention tanks capturing roof water. Tank overflow will discharge to ground and be captured by a shallow v-drain in the concrete driveway. The v-drain will flare and return flows to sheet flow prior to exiting the site.

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

10 CHAPPELL STREET, KAWANA

ASM BUILDERS

LOT 69 ON RP603516

D21.057

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

LOCALITY PLAN
(Not To Scale)

CIVIL WORKS DRAWING INDEX

SH.	DWG. No.	DRAWING TITLE
-	D21.057-00	TITLE SHEET
1	D21.057-01	EXISTING SITE LAYOUT PLAN
2	D21.057-02	PROPOSED SITE LAYOUT PLAN
3	D21.057-03	PROPOSED DETENTION TANKS HYDROGRAPHS AND DETAILS
4	D21.057-04	ACCESS AND PARKING LAYOUT
5	D21.057-05	VEHICLE SWEPT PATHS
6	D21.057-06	CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN
7	D21.057-07	CONSTRUCTION EROSION AND SEDIMENT CONTROL NOTES

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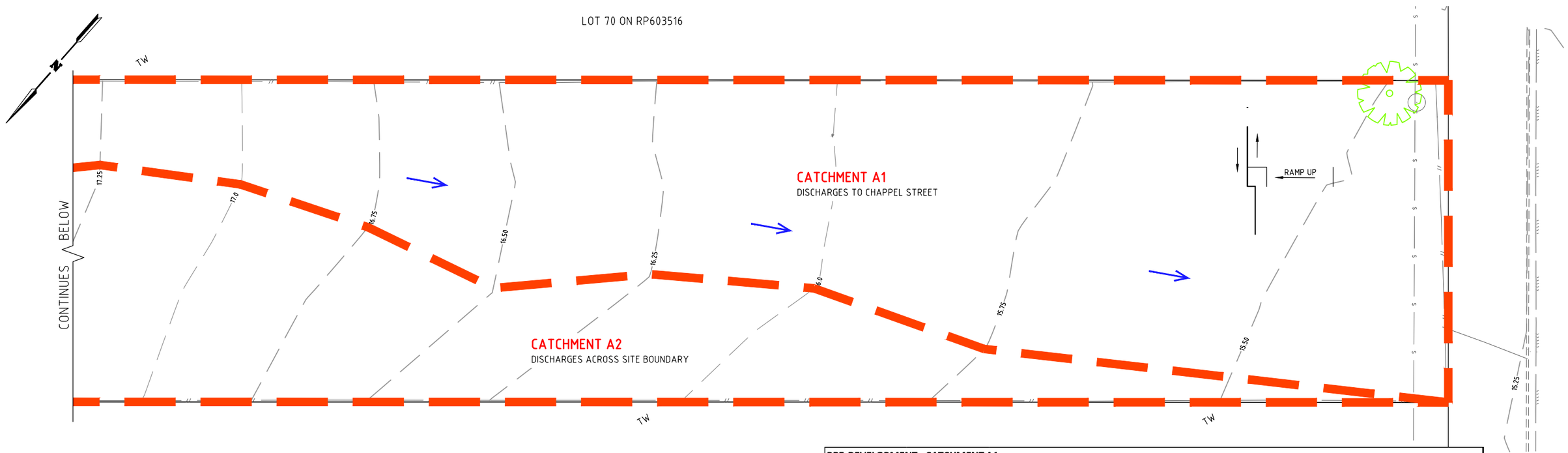

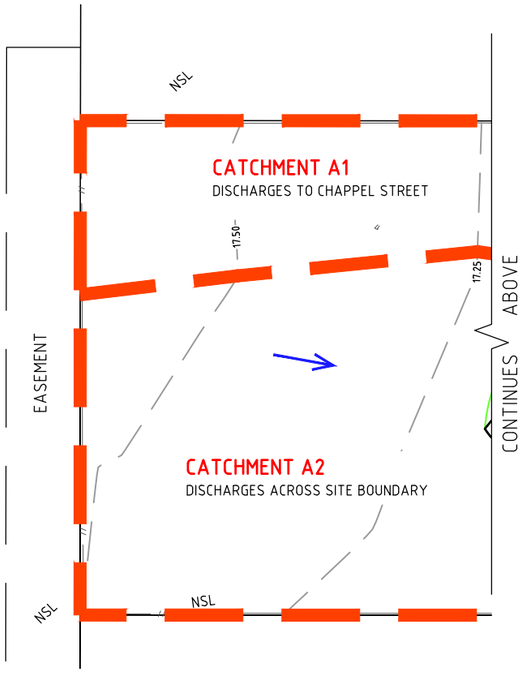

LEGEND

- 17.0 — EXISTING SURFACE CONTOUR
- OVERLAND FLOW DIRECTION
- S — EXISTING SEWER MAIN AND PIT
- // — EXISTING FENCE
- EXISTING KERB AND CHANNEL / EDGE OF BITUMEN

ROCKHAMPTON REGIONAL COUNCIL
AMENDED PLANS APPROVED
19 November 2021
DATE
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/7-2021
Dated: 22 April 2021

PRE-DEVELOPMENT - CATCHMENT A1

Development Area **0.125** ha

Event AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m3/s
63.2	0.560	82	0.125	0.0160
50	0.595	91	0.125	0.0189
20	0.665	121	0.125	0.0279
10	0.700	142	0.125	0.0345
5	0.735	163	0.125	0.0416
2	0.805	193	0.125	0.0539
1	0.840	216	0.125	0.0630

Fi	0
$^1I_{10}$ (mm/hr)	65.1
TC (minutes)	15
C_{10}	0.700

From QUDM Table 4.5.4

PRE-DEVELOPMENT - CATCHMENT A2

Development Area **0.0773** ha

Event AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m3/s
63.2	0.560	82	0.0773	0.0099
50	0.595	91	0.0773	0.0117
20	0.665	121	0.0773	0.0173
10	0.700	142	0.0773	0.0213
5	0.735	163	0.0773	0.0257
2	0.805	193	0.0773	0.0334
1	0.840	216	0.0773	0.0390

Fi	0
$^1I_{10}$ (mm/hr)	65.1
TC (minutes)	15
C_{10}	0.700

From QUDM Table 4.5.4

PRE-DEVELOPMENT

Development Area **0.2023** ha

Event AEP	C	I	A	Q
%	coefficient	mm/hr	ha	m3/s
63.2	0.560	82	0.2023	0.0258
50	0.595	91	0.2023	0.0305
20	0.665	121	0.2023	0.0452
10	0.700	142	0.2023	0.0559
5	0.735	163	0.2023	0.0673
2	0.805	193	0.2023	0.0873
1	0.840	216	0.2023	0.1020

Fi	0
$^1I_{10}$ (mm/hr)	65.1
TC (minutes)	15
C_{10}	0.700

From QUDM Table 4.5.4

PRE-DEVELOPMENT TOTAL SITE HYDROLOGY

SCALE
0 1.5 3 4.5 6 1:300
LAYOUT

REV	REVISION	DATE
A	FOR APPROVAL	11/03/2021
B	FOR APPROVAL - AMENDED SITE PLAN	29/09/2021

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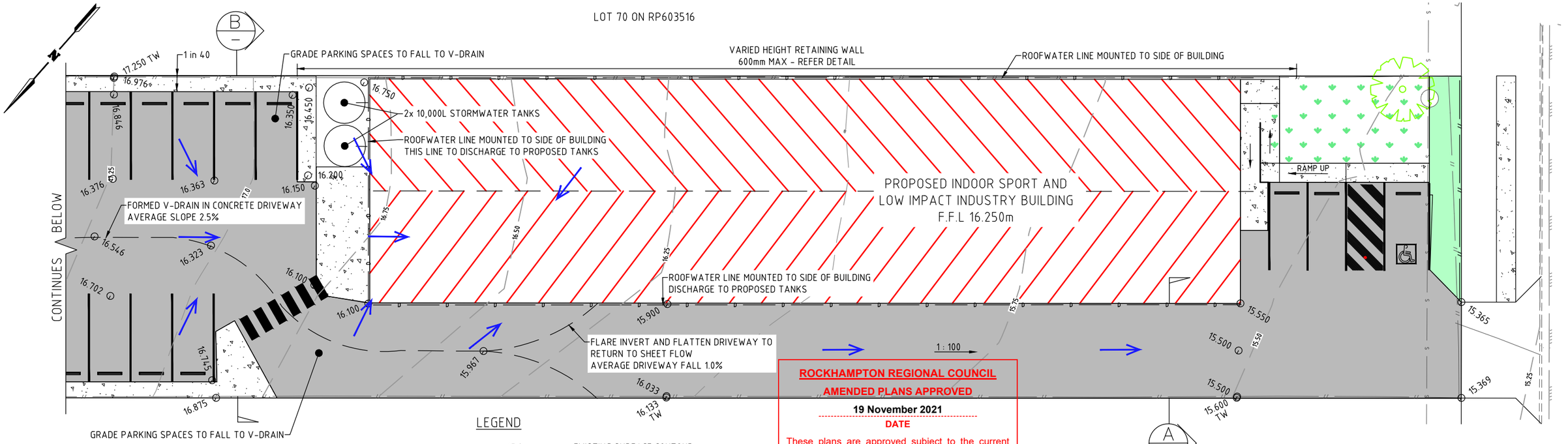
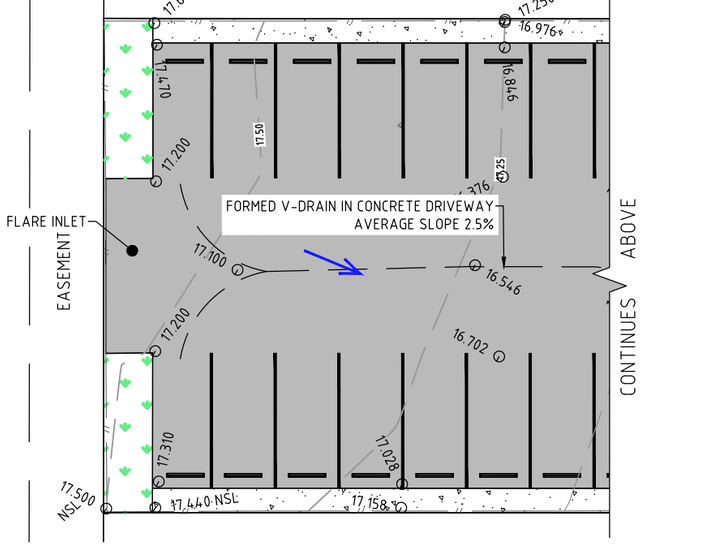
Drawn by	AML
Checked by	GJB
Approved	GLENN J BROWN
RPEQ	7682
Sign	
Date	28.10.2021

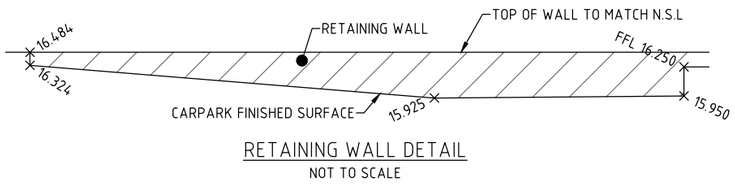
ASM BUILDERS
STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU
10 CHAPPELL STREET, KAWANA
EXISTING SITE LAYOUT PLAN

D21.057-01
SHEET 01 OF 07
A B

LOT 70 ON RP603516







RETAINING WALL DETAIL
NOT TO SCALE

LEGEND

- 17.0 — EXISTING SURFACE CONTOUR
- OVERLAND FLOW DIRECTION
- S — EXISTING SEWER MAIN AND PIT
- // — EXISTING FENCE
- EXISTING KERB AND CHANNEL / EDGE OF BITUMEN
- D — PROPOSED MOUNTED DRAINAGE LINE
- PROPOSED LINEMARKING
- // — PROPOSED FENCE
- PROPOSED ROOF AREA
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED RAISED CONCRETE FOOTPATH / SLAB
- PROPOSED TURF
- PROPOSED LANDSCAPING

COMPARING PRE-TREATMENT FLOWS			
EVENT ARI	PRE-DEV	POST -DEV	CHANGE
Q2	0.0307	0.0505	64.44%
Q5	0.0456	0.0754	65.33%
Q10	0.0563	0.0929	65.00%
Q20	0.0682	0.1122	64.53%
Q50	0.0883	0.1417	60.54%
Q100	0.1030	0.1586	54.00%

ROCKHAMPTON REGIONAL COUNCIL
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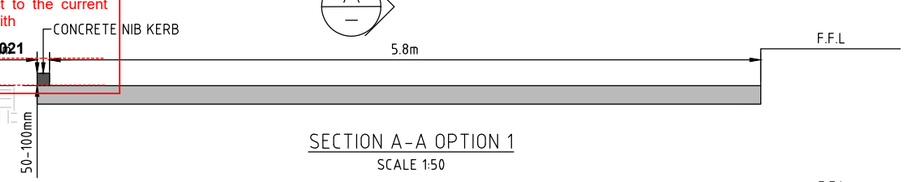
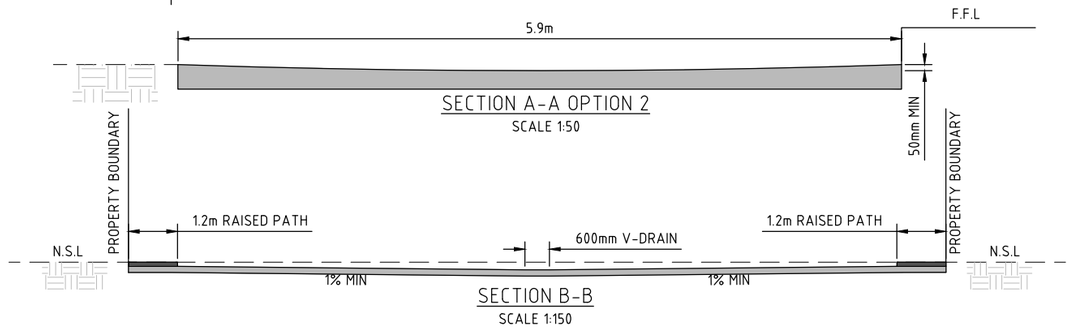


SECTION A-A OPTION 1
SCALE 1:50



SECTION A-A OPTION 2
SCALE 1:50

SECTION B-B
SCALE 1:150

POST DEVELOPED					TC= 7 min			
Development Area		0.2023 ha						
	F	C	I	A	Q			
AreaA	sq kms	co eff	mm/hr	sq kms	m3/sec			
Q2	0.278	0.7548	119.0	0.00202	0.0505		Fi	0.940
Q5	0.278	0.8436	159.0	0.00202	0.0754		$^1I_{10}$	65.10 mm/hr
Q10	0.278	0.888	186.0	0.00202	0.0929		C_{10}	0.888
Q20	0.278	0.9324	214.0	0.00202	0.1122		From QUDM T4.5.3	
Q50	0.278	1	252.0	0.00202	0.1417			
Q100	0.278	1	282.0	0.00202	**0.1586**			

POST-DEVELOPMENT SITE HYDROLOGY

SCALE
0 1.25 2.5 3.75 5
LAYOUT 1:250

REV	REVISION	DATE
A	FOR APPROVAL	11/03/2021
B	FOR APPROVAL - AMENDED SITE PLAN	29/09/2021
C	FOR APPROVAL - AMENDED LEVELS	20/10/2021
D	FOR APPROVAL - AMENDED CALCULATIONS	28/10/2021

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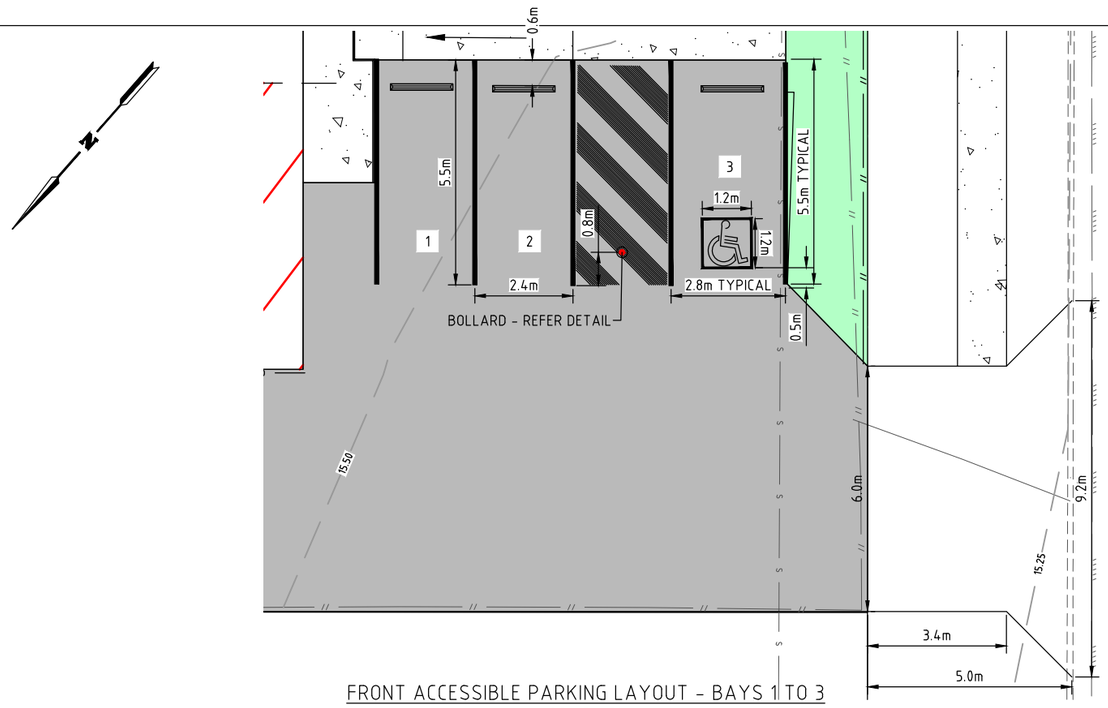
Drawn by	AML
Checked by	GJB
Approved	GLENN J BROWN
RPEQ	7682
Sign	
Date	28.10.2021

ASM BUILDERS
STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU
10 CHAPPELL STREET, KAWANA
PROPOSED SITE LAYOUT PLAN

D21.057-02

SHEET 02 OF 07

A B C D



FRONT ACCESSIBLE PARKING LAYOUT - BAYS 1 TO 3

SCALE 1:150

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

19 November 2021

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Dated: 22 April 2021

LEGEND

- 17.0 — EXISTING SURFACE CONTOUR
- S — EXISTING SEWER MAIN AND PIT
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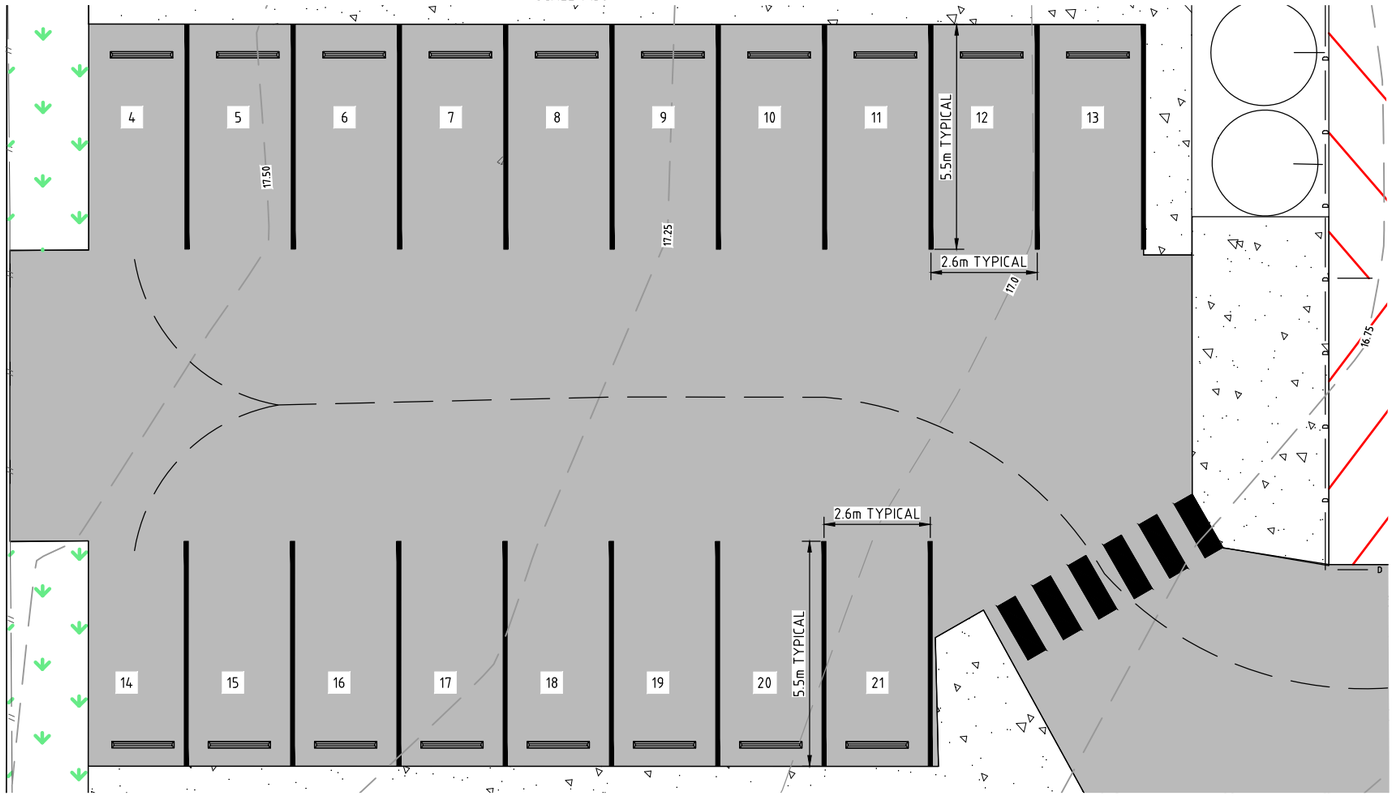
- PROPOSED RAISED CONCRETE FOOTPATH / SLAB
- PROPOSED TURF
- PROPOSED LANDSCAPING



REAR PARKING LAYOUT - BAYS 4 TO 21

SCALE 1:150

21

BOLLARD DETAIL

SCALE

0 0.75 1.5 2.25 3

1:150

LAYOUT

REV	REVISION	DATE
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B	FOR APPROVAL - AMENDED SITE PLAN	29/09/2021

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RPEQ	7682
Sign	
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ASM BUILDERS

STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU

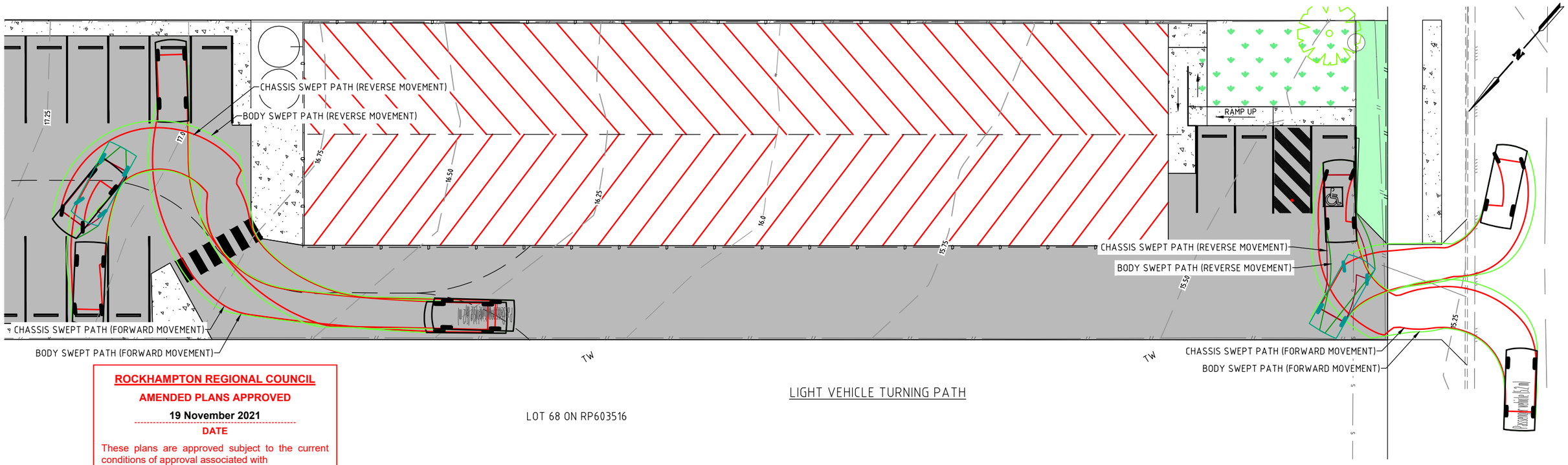
10 CHAPPELL STREET, KAWANA

ACCESS AND PARKING LAYOUT PLAN

D21.057-04

SHEET 04 OF 07

A B



LIGHT VEHICLE TURNING PATH

LOT 68 ON RP603516

ROCKHAMPTON REGIONAL COUNCIL
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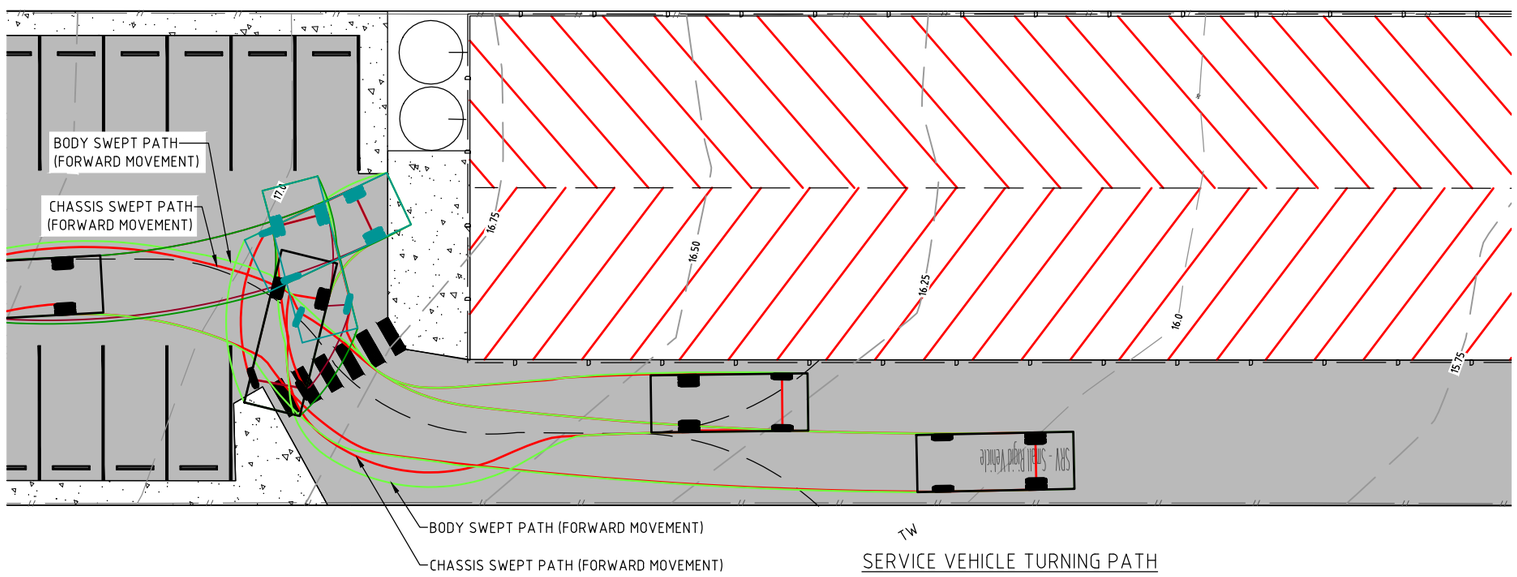

SERVICE VEHICLE TURNING PATH

LOT 68 ON RP603516

LEGEND

17.0	EXISTING SURFACE CONTOUR
S	EXISTING SEWER MAIN AND PIT
//	EXISTING FENCE
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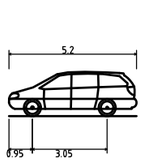
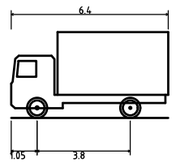
	PROPOSED TURF
	PROPOSED LANDSCAPING





Passenger vehicle (5.2 m)		SRV - Small Rigid Vehicle	
Overall Length	5.200m	Overall Length	6.400m
Overall Width	1.940m	Overall Width	2.330m
Overall Body Height	1.804m	Overall Body Height	3.500m
Min Body Ground Clearance	0.295m	Min Body Ground Clearance	0.398m
Track Width	1.840m	Track Width	2.330m
Lock-to-lock time	4.00s	Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.300m	Curb to Curb Turning Radius	7.100m

SCALE
0 1.25 2.5 3.75 5
LAYOUT 1:250

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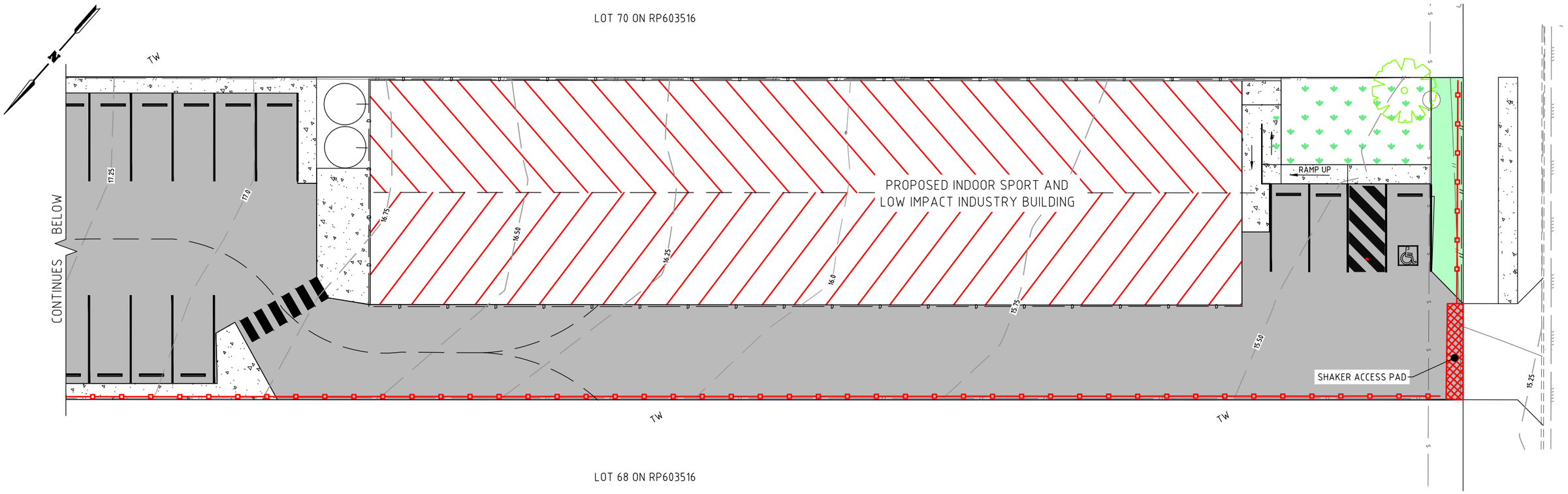
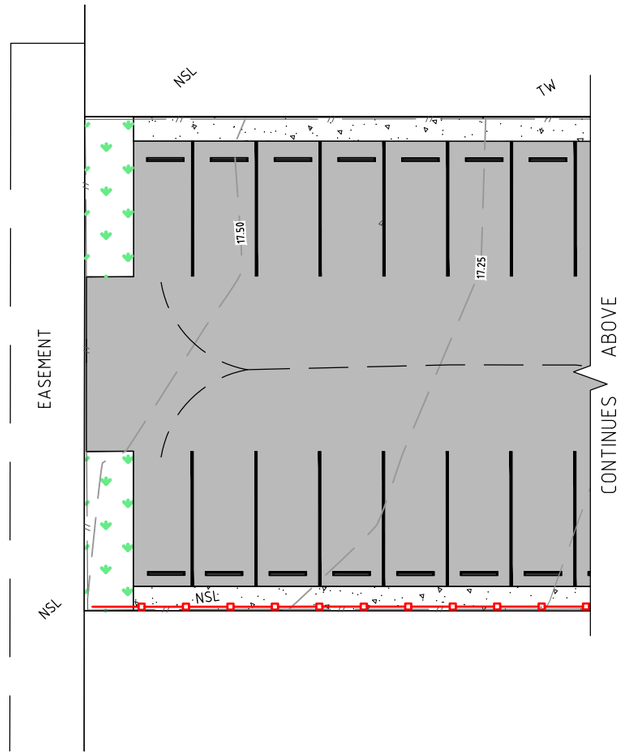
ASM BUILDERS
STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU
10 CHAPPELL STREET, KAWANA
VEHICLE SWEPT PATHS

D21.057-05
SHEET 05 OF 07
A B

LOT 70 ON RP603516



LOT 68 ON RP603516



LEGEND

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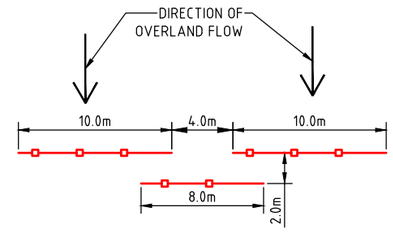
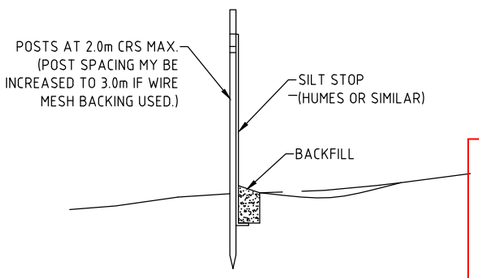
- PROPOSED LANDSCAPING



SEDIMENT FENCE LAYOUT
N.T.S



SEDIMENT FENCE DETAIL
N.T.S

ROCKHAMPTON REGIONAL COUNCIL
AMENDED PLANS APPROVED
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SCALE
0 1.25 2.5 3.75 5
LAYOUT 1:250

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ASM BUILDERS
STORMWATER MANAGEMENT PLAN ASSOC WITH AN MCU
10 CHAPPELL STREET, KAWANA
CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

D21.057-06

SHEET 06 OF 07

A | B