SITE PLAN
1 : 200 @ A1

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/84-2019

Dated: 04 November 2019

SITE INFORMATION

L.36-38 on SP263881		**5,855 m²**
FLOOR AREA		**805 m²**
GROUND FLOOR		
Office		109 m²
Washbay		130 m²
Workshop		565 m²
TOTAL CARPARKS		**13**
LANDSCAPING	**6%**	**346 m²**

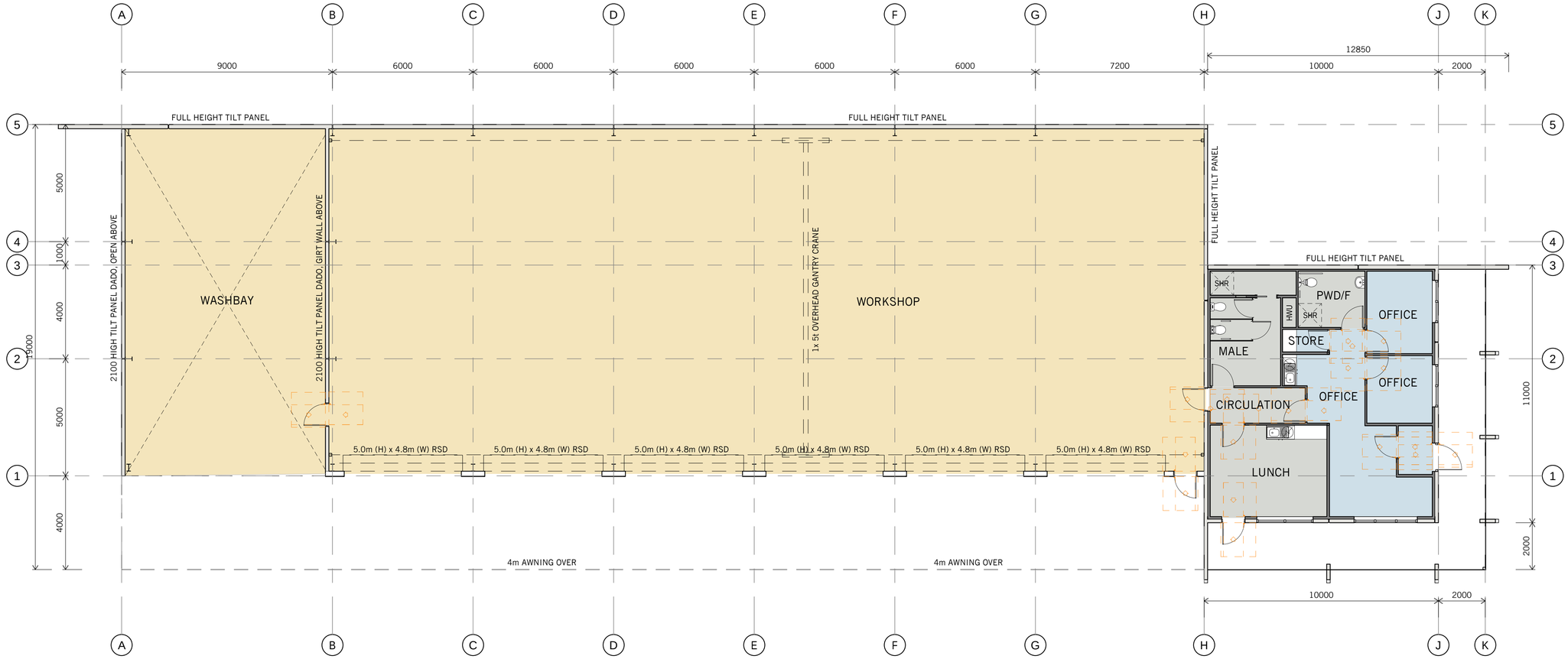
SITE PLAN

SHERRIN GROUP

155-157 MALONEY ST.
KAWANA, QLD 4701

DWG N° 4221-SK01-6 by IM
DATE 08/10/2019

space frame
DESIGN + CONSTRUCT SOLUTIONS



GROUND FLOOR PLAN

1 : 100 @ A1

ROCKHAMPTON REGIONAL COUNCIL

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Development Permit No.: D/84-2019

Dated: 04 November 2019

BUILDING INFORMATION

FLOOR AREA	**805 m²**
GROUND FLOOR	
Office	109 m²
Washbay	130 m²
Workshop	565 m²

FLOOR PLANS

SHERRIN GROUP

155-157 MALONEY ST.
KAWANA, QLD 4701

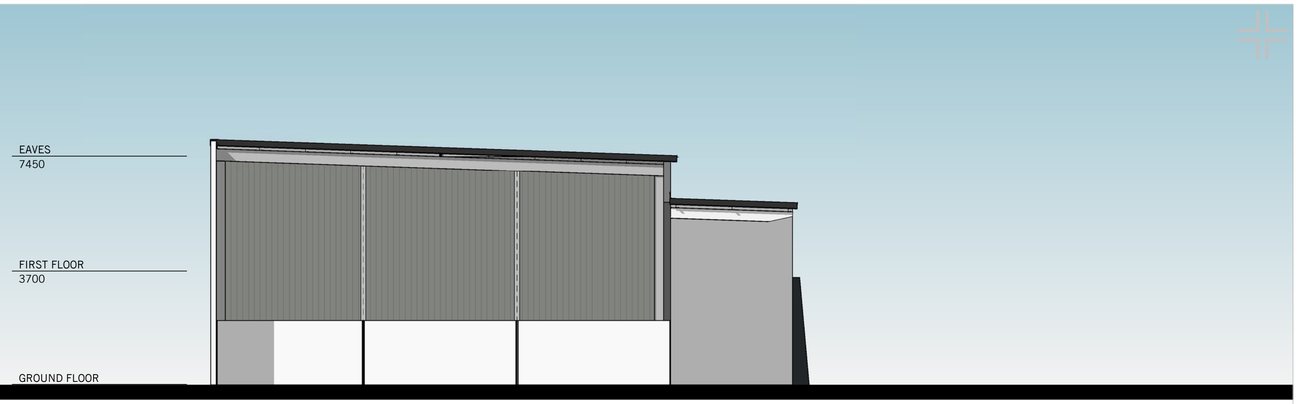
DWG N° 4221-SK02-4 by HAL

DATE 15/08/2019

spaceframe

DESIGN + CONSTRUCT SOLUTIONS

SOUTH ELEVATION
1 : 100 @ A1



NORTH ELEVATION
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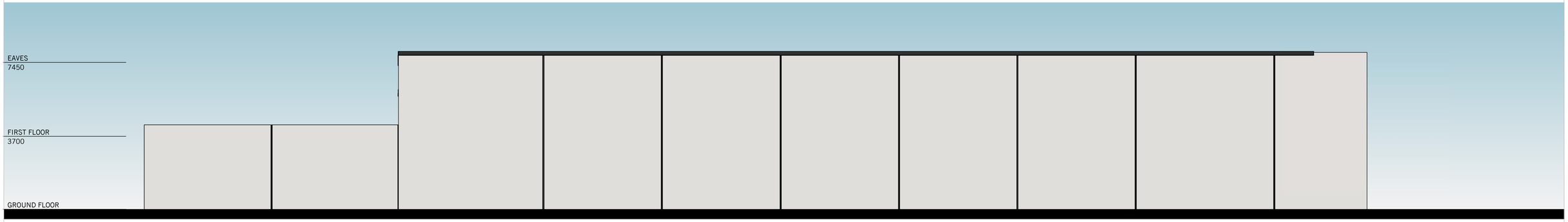

EAST ELEVATION
1 : 100 @ A1

WEST ELEVATION
1 : 100 @ A1

ROCKHAMPTON REGIONAL COUNCIL

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ELEVATIONS

SHERRIN GROUP

155-157 MALONEY ST.
KAWANA, QLD 4701

DWG N° 4221-SK03-4 by HAL
DATE 15/08/2019

space frame
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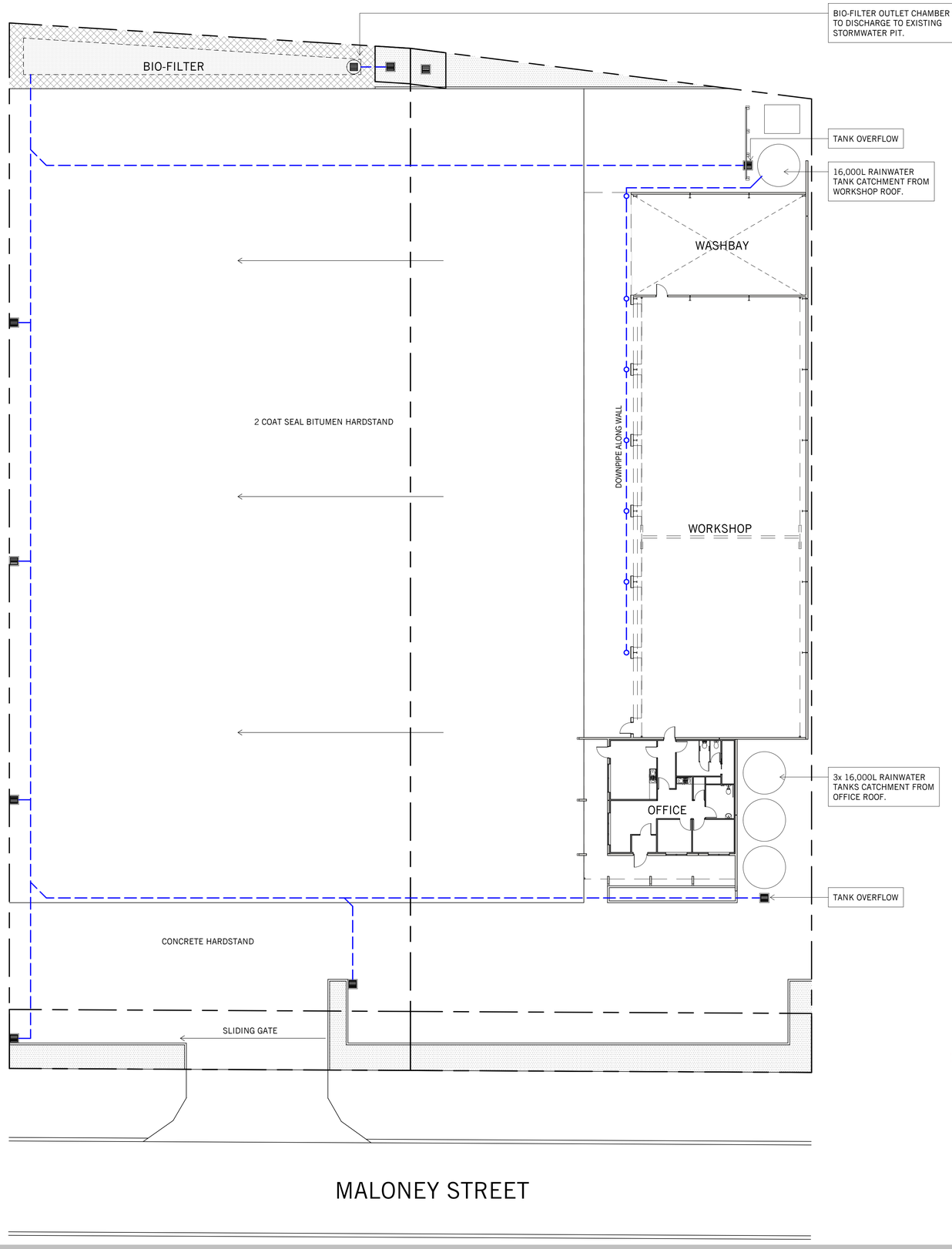

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LEGEND

SW—SW	EXISTING STORMWATER DRAINAGE
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— — —	PROPOSED STORMWATER DRAINAGE
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PSM	PERMANENT SURVEY MARK (A.H.D.)
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RCP	REINFORCED CONCRETE PIPE
RL	REDUCED LEVEL
SL	SURFACE LEVEL
SWIC	STORMWATER INSPECTION CHAMBER
IL	INVERT LEVEL
DS	DOWNSTREAM
US	UPSTREAM
WB	WATER BASIN
OCC	OUTLET CONTROL CHAMBER
	LANDSCAPING

BIO-RETENTION

	BIO-RETENTION (TREATMENT)
	BIO-RETENTION (FILTER)
TREATMENT	142m² x 300mm DEEP = 43m³
FILTER	62m² x 500mm DEEP = 31m³

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STORMWATER PLAN

1 : 200 @ A1

STORMWATER PLAN

SHERRIN GROUP

155-157 MALONEY ST.
KAWANA, QLD 4701

DWG N° 4221-61-2 by IM
DATE 08/10/2019

space frame

DESIGN + CONSTRUCT SOLUTIONS

TEMPLATE REVISION : F

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STORMWATER MANAGEMENT PLAN

155 & 157 MALONEY STREET, KAWANA

9 October 2019

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/84-2019

Dated: 04 November 2019

STORM Water Consulting Pty Ltd

ACN 105 078 377
5/541 Old Cleveland Rd, CAMP HILL QLD 4152
Ph (07) 3398 4992
www.stormw.com.au

Job No: J7059 v1.0

Job Name: 155 & 157 Maloney Street, Kawana

Report Name	Date	Report No.
Stormwater Management Plan	9 October 2019	J7059 v1.0

Project Engineer: Jack Hu
BE Civil, MIEAust
E Jack@stormw.com.au

Reviewed By: Darren Rogers
BE Civil (Hons), MIE Aust, RPEQ
Director
E darren@stormw.com.au

Table of Contents

1.0 INTRODUCTION

Storm Water Consulting Pty Ltd was commissioned by Peter Raspotnik (Spaceframe Buildings Pty Ltd) to prepare a Stormwater Management Plan for the development on 155 & 157 Maloney Street, Kawana .

This report has been prepared to address the issues of lawful point of discharge and stormwater quality treatment for the proposed industrial development. A bio-retention basin is proposed to meet the water quality objectives and the modelling procedures, analysis and results are presented in this report.

2.0 SITE CONDITIONS

2.1 Existing Site

The site is situated in an industrial precinct of Kawana. The site is bounded by Maloney Street to the south, Splitters Creek to the north and by industrial sites in all other directions. A locality plan is presented below. Photographs of the existing site condition are presented in Appendix B.

Figure 2.1 – Locality Plan (Bing Maps Overlay)

2.2 Developed Site

Development plans are presented in Appendix A.

3.0 LAWFUL POINT OF DISCHARGE / STORMWATER QUANTITY MANAGEMENT

The industrial subdivision was completed in 2013/2014 following the approved Op Works application (reference 136-2013) and approved development application (reference 377-2012). The industrial subdivision provided drainage pits toward the rear of each lot for the drainage of future hardstand areas. A copy of the approved plans showing the drainage pits are presented in Appendix C. An extract of the pit locations is presented in Figure 3.1 below.

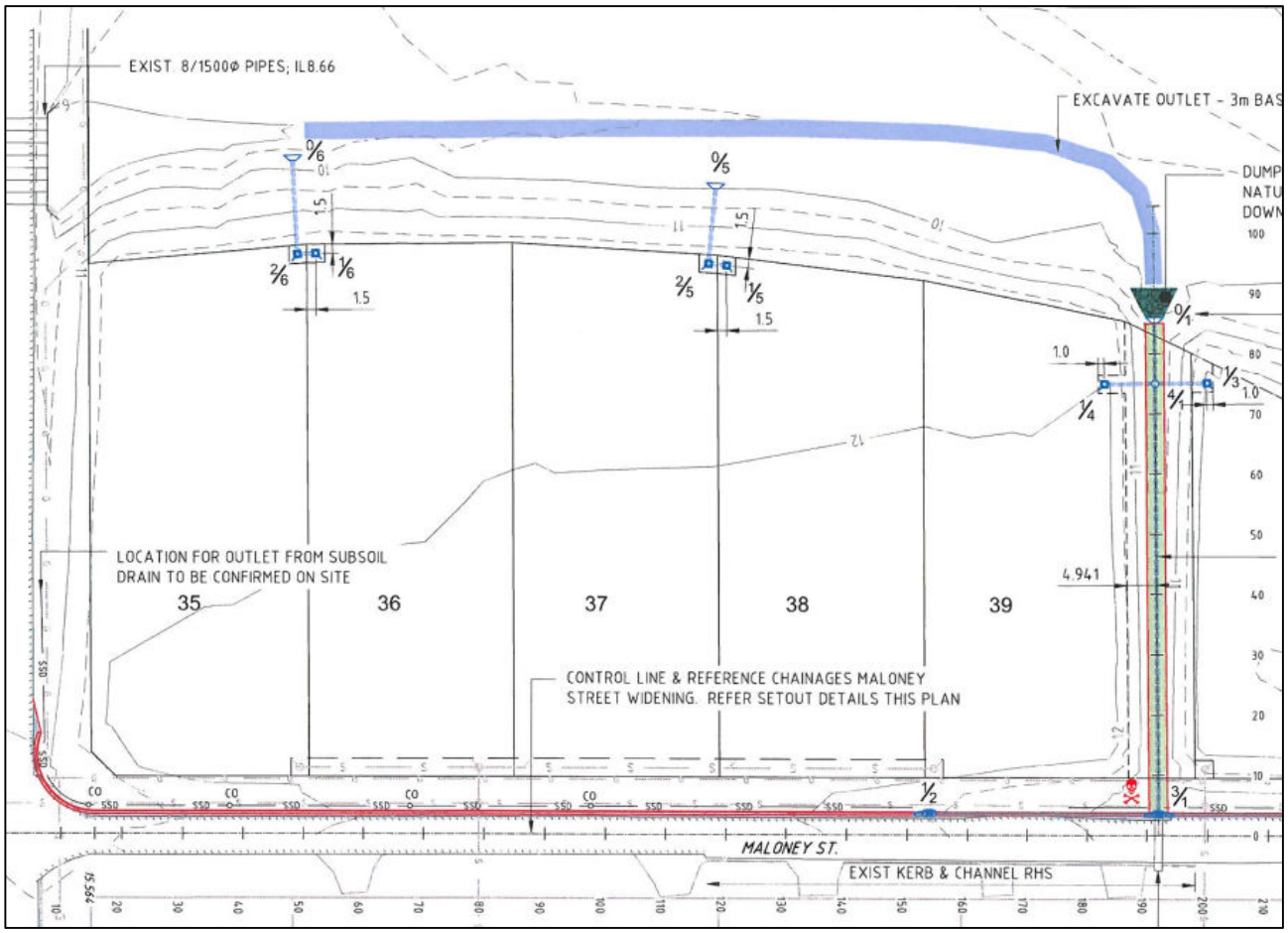

Figure 3.1 – Extract of Approved Op Works Drainage Plan

A 300 mm diameter pipe extends from the field inlet pit at 2/5 shown above, toward Splitters Creek. The field inlet and 300 mm pipe are nominated as the lawful point of discharge for the development.

A catchment plan of Splitters Creek is presented in Figure 3.2 on the following page. The location of the site is also shown on this figure. The site is located within approximately the bottom third of the Splitters Creek catchment. The background notes of the Queensland Urban Drainage Manual (QUDM 2016) presents recommendations for the management of site runoff based on the various site locations along a creek. QUDM 2016 states that stormwater detention would not be considered appropriate for sites located within the bottom third of a catchment, as delaying runoff from the site could increase the flood risk to downstream properties, due to the potential for the overlapping of the hydrographs from the site and from the creek.

As there are no flood-prone properties downstream of the site (in addition to the discussion regarding the location of the site within the bottom third of the Splitters Creek catchment), stormwater detention is not recommended for the proposed development.

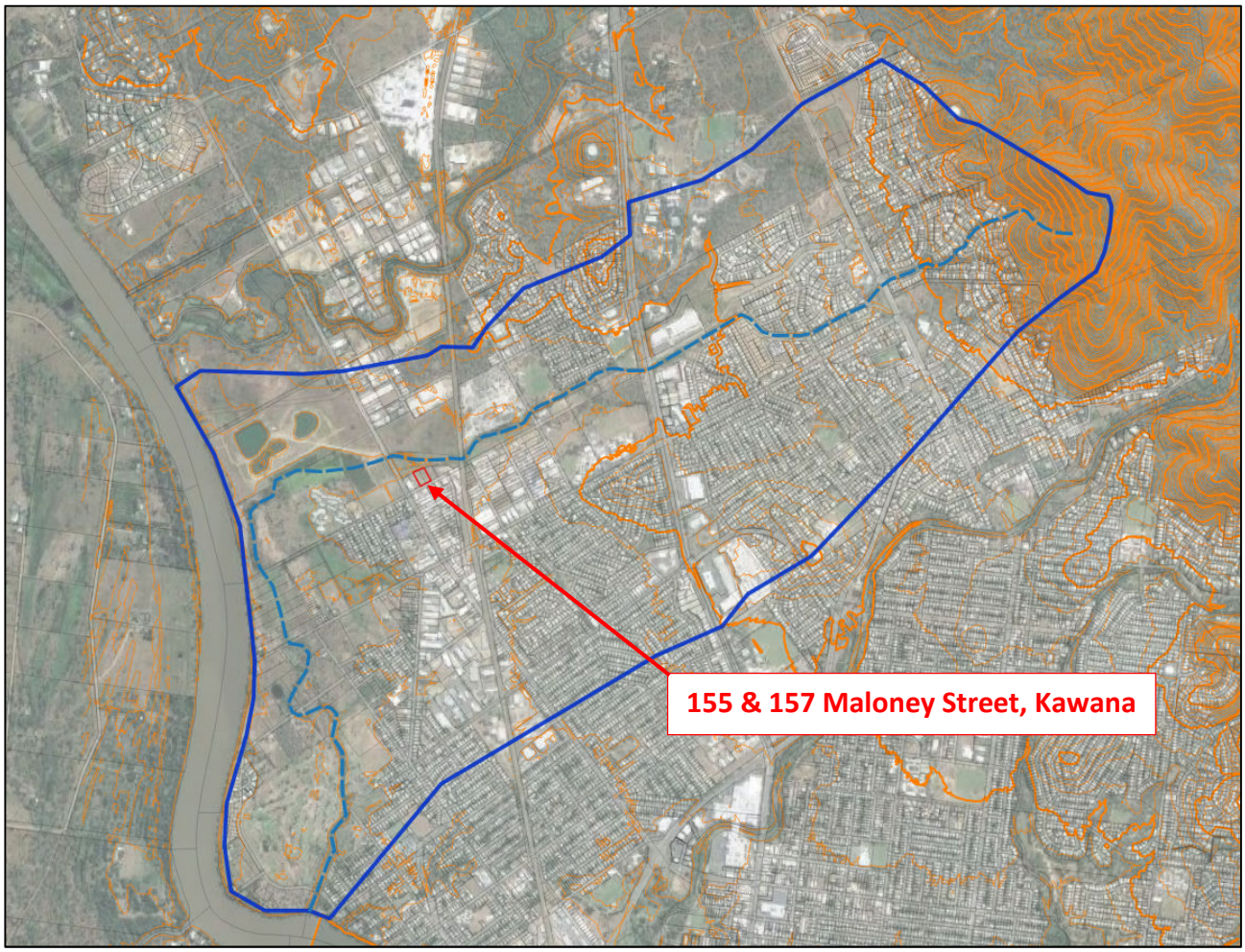

Figure 3.2 – Catchment Plan of Splitters Creek

4.0 WATER QUALITY

4.1 State Planning Policy (July 2017)

The State Planning Policy (SPP) sets out the requirements for water quality in the interest of the State. Developments which trigger the requirements summarised in Table 4.1 below would need to meet water quality objectives listed in Table B, Appendix 3 of the SPP.

Table 4.1 – Development Applications affecting Receiving Waters

State Planning Policy Criteria	Application to Development
(1) A material change of use for urban purposes that involves a land area greater than 2500 square metres that: (a) will result in an impervious area greater than 25 per cent of the net developable area, or	Criterion is applicable to development.
(b) will result in six or more dwellings, or	Criterion is NOT applicable to development.
(2) Reconfiguring a lot for urban purposes that involves a land area greater than 2500 square metres and will result in six or more lots, or	Criterion is NOT applicable to development.
(3) Operational works for urban purposes that involve disturbing more than 2500 square metres of land.	Criterion is NOT applicable to development.

The proposed development triggers the SPP, hence water quality objectives indicated in Table B, Appendix 3 of the SPP would need to be met.

4.2 Water Quality – Construction Phase

During the construction phase of a development, the pollutants listed in Table 4.2 are typically generated. Measures are required during the construction phase to manage each of these pollutants. These measures may include but are not limited to; bins and mini-skips, erosion and sediment control measures (discussed below), wash down and spill containment areas, bunds, spill clean-up kits, street sweeping and chemical agents.

Table 4.2 – Pollutants Generated during the Construction Phase

Pollutant	Source
Litter	Paper, construction packaging, food packaging, cement bags, off-cuts
Sediment	Unprotected exposed soils and stockpiles during earthworks and building operations
Hydrocarbons	Fuel and oil spills leaks from construction equipment
Toxic materials	Cement slurry, asphalt primer, solvents, cleaning agents, wash waters (e.g. from tile works)
pH altering substances	Acid sulphate soils, cement slurry and wash waters

4.2.1 Erosion and Sediment Control

During the construction phase of the development, an Erosion and Sediment Control Program (E&SCP) is required to minimise water quality impacts. Such an E&SCP should provide complete and detailed instructions on the following procedures;

- Before construction activities begin, sediment fences should be constructed on the downstream site boundaries and at the base of all proposed soil stockpiles;
- Areas for plant and construction material storage should be designated. Runoff from these areas should be directed to small holding ponds in case of spillages;
- Catch drains at the downstream boundary of construction activities should also be created to ensure that any sediment-laden runoff is contained and directed into a sediment basin and not permitted to flow unmitigated to downstream areas;
- Sediment basins should be constructed at appropriate locations to collect sediment at the downstream ends of the catch drains that convey runoff from exposed areas;
- Site personnel should be educated on the sediment and control measures implemented on site; and
- Following rainfall events greater than 20mm, inspection of silt fences, sedimentation basins and other erosion control measures should be carried out. Where necessary, collected material should be removed and damaged equipment should be replaced immediately.

4.3 Water Quality – Operational Phase

During the operational (post-construction) phase of the proposed development, the following pollutants are typically generated;

- Sediment,
- Litter,
- Faecal coliforms,
- Hydrocarbons,
- Heavy Metals,
- Thermal Pollution,
- Nutrients (N & P) and
- Surfactants.

4.3.1 Water Quality Objectives

Key pollutant levels will be reduced to the levels indicated in Table B, Appendix 3 of the State Planning Policy. The Water Quality Objectives are summarised in Table 4.3 below.

Table 4.3 – Water Quality Objectives for Central Queensland (South)

Parameter	Load-based Reduction
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	60%
Total Nitrogen (TN)	45%
Gross Pollutants > 5mm	90%

Note that the percentage reduction refers to a comparison between the un-mitigated developed site and the mitigated developed site.

5.0 WATER QUALITY MODELLING

A stormwater treatment train is proposed to meet the WQOs stated in Section 4.3.1. The Stormwater Quality Improvement Devices (SQIDs) for the treatment train were selected based on site constraints, opportunities and practicality.

A bio-retention basin is proposed toward the rear of the development. The roof runoff would be directed toward the bio-retention basin. The runoff from the balance ground areas would be captured by field inlets and filtered using trash baskets, before being directed toward the bio-retention basin.

5.1 Source Nodes

A MUSIC sub-catchment plan is presented in Figure 5.1 below. The sub-catchment types, areas and impervious proportions are summarised in Table 5.1 below.

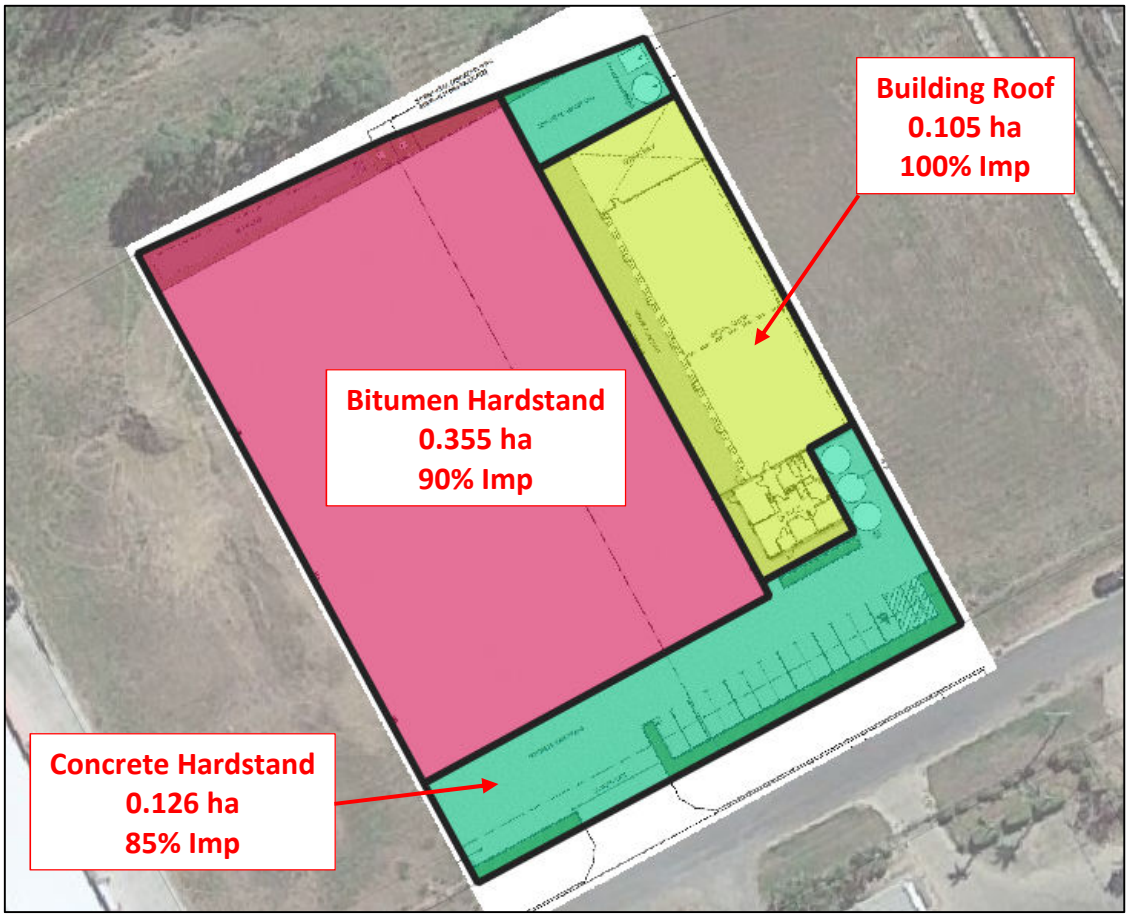

Figure 5.1 – MUSIC Sub-Catchment Plan

Table 5.1 – Source Node Fractions Impervious

Source Node	Area	Type	Fraction Impervious
Building Roof	0.105 ha	Industrial Roof	100%
Concrete Hardstand	0.126 ha	Industrial Road	85%
Bitumen Hardstand	0.355 ha	Industrial Road	90%

Rainfall-runoff parameters were assigned to the source nodes in accordance with the Water by Design MUSIC Modelling Guidelines Version 1.0 – 2010 Industrial Use of the site. These parameters are summarised in Table 5.2 below.

Table 5.2 – Rainfall – Runoff Parameters

Parameter		Industrial
Impervious Area Properties	Rainfall threshold (mm/day)	1
Pervious Area Properties	Soil storage capacity (mm)	18
	Initial storage (% of capacity)	10
	Field Capacity (mm)	80
	Infiltration Capacity Coefficient – a	243
	Infiltration Capacity Exponent – b	0.6
Groundwater Properties	Initial depth (mm)	50
	Daily recharge rate (%)	0
	Daily base flow rate (%)	31
	Daily deep seepage rate (%)	0

Pollutant export parameters were assigned according to the Water by Design MUSIC Modelling Guidelines Version 1.0 – 2010. The pollutant export parameters adopted in the MUSIC model are summarised in Table 5.3 below.

Table 5.3 – Pollutant Export Parameters (Industrial)

Source		Log_{10} TSS (mg/L)		Log_{10} TP (mg/L)		Log_{10} TN (mg/L)	
		Base flow	Storm flow	Base flow	Storm flow	Base flow	Storm flow
Roof	Mean	NA	1.30	NA	-0.89	NA	0.25
	Std Dev	NA	0.44	NA	0.36	NA	0.32
Road	Mean	0.78	2.43	-1.11	-0.30	1.40	0.25
	Std Dev	0.45	0.44	0.48	0.36	0.20	0.32

5.2 Treatment Node – Bio-Retention Basin

A bio-retention basin is proposed and has been modelled in MUSIC with the parameters listed in Table 5.4 below.

Table 5.4 – Bio-Retention MUSIC Parameters

Parameter	Bio-Retention Basin
Extended Detention Depth	0.3 m
Surface Area	62 m^2
Seepage Loss	0 mm/hr
Filter Area	62 m^2
Filter Depth	0.5 m
Filter median Particle Diameter	0.45 mm
Drainage	Slotted PVC Pipes
Saturated Hydraulic Conductivity	200 mm/hr
Overflow Weir Width	3.6 m

The location of the proposed bio-retention basin is shown in Appendix A. The underdrain and overflow pit will be connected to the existing field inlet pit at the rear of the site (i.e. lawful point of discharge). Inlet drains into the bio-retention basin will require adequate scour and erosion protection, which will be configured during detailed design stage.

5.2.1 Maintenance

The recommended maintenance checklist is presented in Appendix D. The maintenance schedule can be summarised as follows:

- Monthly cleaning of litter from surface of the bio-retention basin;
- Monthly cleaning of overflow pit and immediate cleaning if a blockage is observed;
- Implementation of erosion and sedimentation controls in accordance with industry standards;
- Regular cleaning of pavements to reduce contaminants entering the bio-retention basin.

5.3 Treatment Node – Trash Baskets

Trash baskets are proposed in all field inlets within the development. Trash baskets are effective for the removal of gross pollutants and sediments and prolongs the life of the bio-retention basin. Seven (7) trash baskets were modelled in MUSIC with the parameters listed in Table 5.5 and 5.6 below.

Table 5.5 – MUSIC Input Parameters for Trash Basket

Inlet Properties	GPT
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	7 x 0.02 m^3/s

Table 5.6 – MUSIC Transfer Functions for Trash Basket

Transfer Functions	In	Out
Total Suspended Solids (TSS)	0	0
	100	40
Total Nitrogen (TN)	0	0
	50	50
Total Phosphorus (TP)	0	0
	10	10
Gross Pollutants	0	0
	14.8	0

The proposed location of the field inlet pits is presented in Appendix A. Trash baskets are proposed in all field inlet pits.

5.3.1 Maintenance

Monthly cleaning of all field inlets is required and immediate cleaning is required if blockage is observed. Cleaning is also recommended after significant rainfall events.

5.4 MUSIC Analysis

The quality of stormwater runoff and the impact of the proposed SQIDs were analysed using MUSIC version 6.2 in accordance with the water quality objectives from Table B, Appendix 3 of the State Planning Policy.

The MUSIC model was based on the 2000 to 2010 rainfall series for Rockhampton (39083) with 6-minute time steps. The MUSIC model schematic is presented in Figure 5.2 below. The MUSIC modelling results are presented in Table 5.7 below.

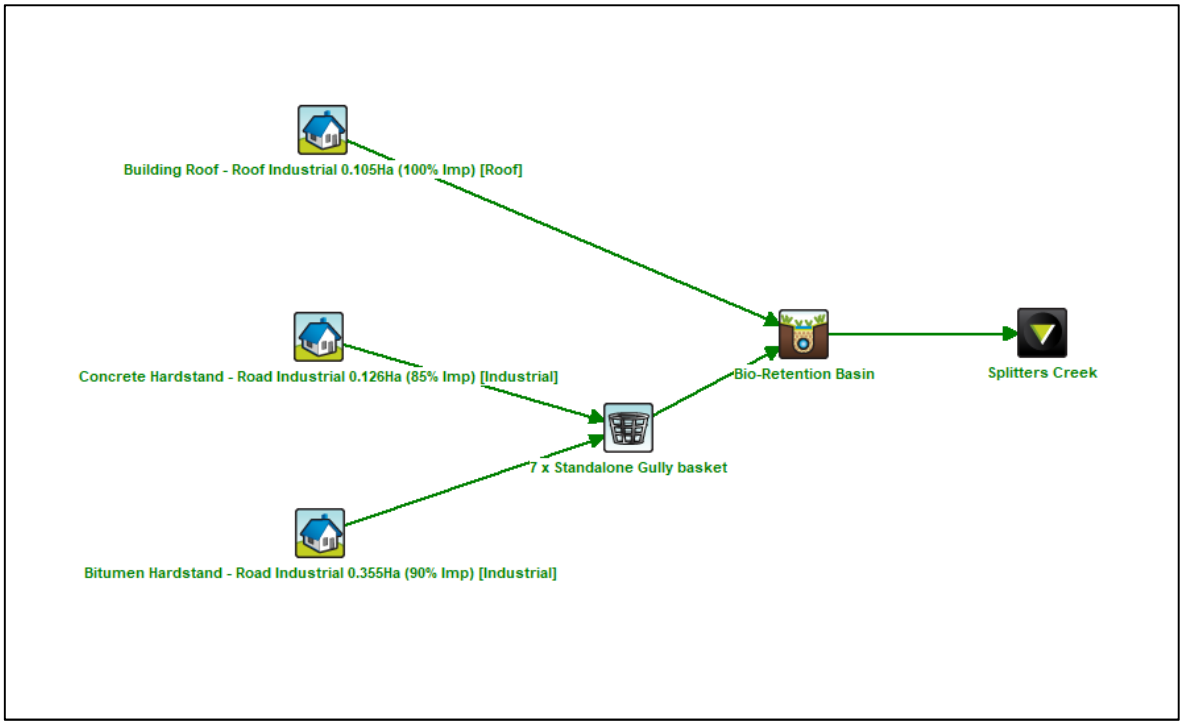

Figure 5.2 – MUSIC Model Schematic

Table 5.7 – MUSIC Model Results

Indicator	Annual Loads (kg/yr)		Reduction	
	Without SQIDs	With SQIDs	Actual	Target
TSS	1190	109	91%	85%
TP	1.98	0.53	73%	60%
TN	7.71	4.27	45%	45%
GP	83.8	0	100%	90%

The results above indicate that the required water quality objectives are met for the development.

6.0 CONCLUSIONS

This Stormwater Management Plan was prepared to address the issues of lawful point of discharge and stormwater quality treatment for the proposed industrial development at 155 & 157 Maloney Street, Kawana.

A 300 mm diameter pipe extends from the field inlet pit at 2/5 shown above, toward Splitters Creek. The field inlet and 300 mm pipe are nominated as the lawful point of discharge for the development.

The site is located within approximately the bottom third of the Splitters Creek catchment. The background notes of the Queensland Urban Drainage Manual (QUDM 2016) presents recommendations for the management of site runoff based on the various site locations along a creek. QUDM 2016 states that stormwater detention would not be considered appropriate for sites located within the bottom third of a catchment, as delaying runoff from the site could increase the flood risk to downstream properties, due to the potential for the overlapping of the hydrographs from the site and from the creek. As there are no flood-prone properties downstream of the site (in addition to the discussion regarding the location of the site within the bottom third of the Splitters Creek catchment), stormwater detention is not recommended for the proposed development.

A bio-retention basin is proposed toward the rear of the development. The roof runoff would be directed toward the bio-retention basin. The runoff from the balance ground areas would be captured by field inlets and filtered using trash baskets, before being directed toward the bio-retention basin. MUSIC model results show that the water quality objectives of the State Planning Policy are achieved through the proposed treatment train.

Darren Rogers
BE Civil (Hons), MIE Aust, RPEQ 5016
Director

LIST OF APPENDICIES

APPENDIX A

Development Plans

MALONEY STREET

SITE PLAN
1 : 200 @ A1

SITE PLAN

SHERRIN GROUP

155-157 MALONEY ST.
KAWANA, QLD 4701

DWG N° 4221-SK01-6 by IM
DATE 08/10/2019

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space frame

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TEMPLATE REVISION : F

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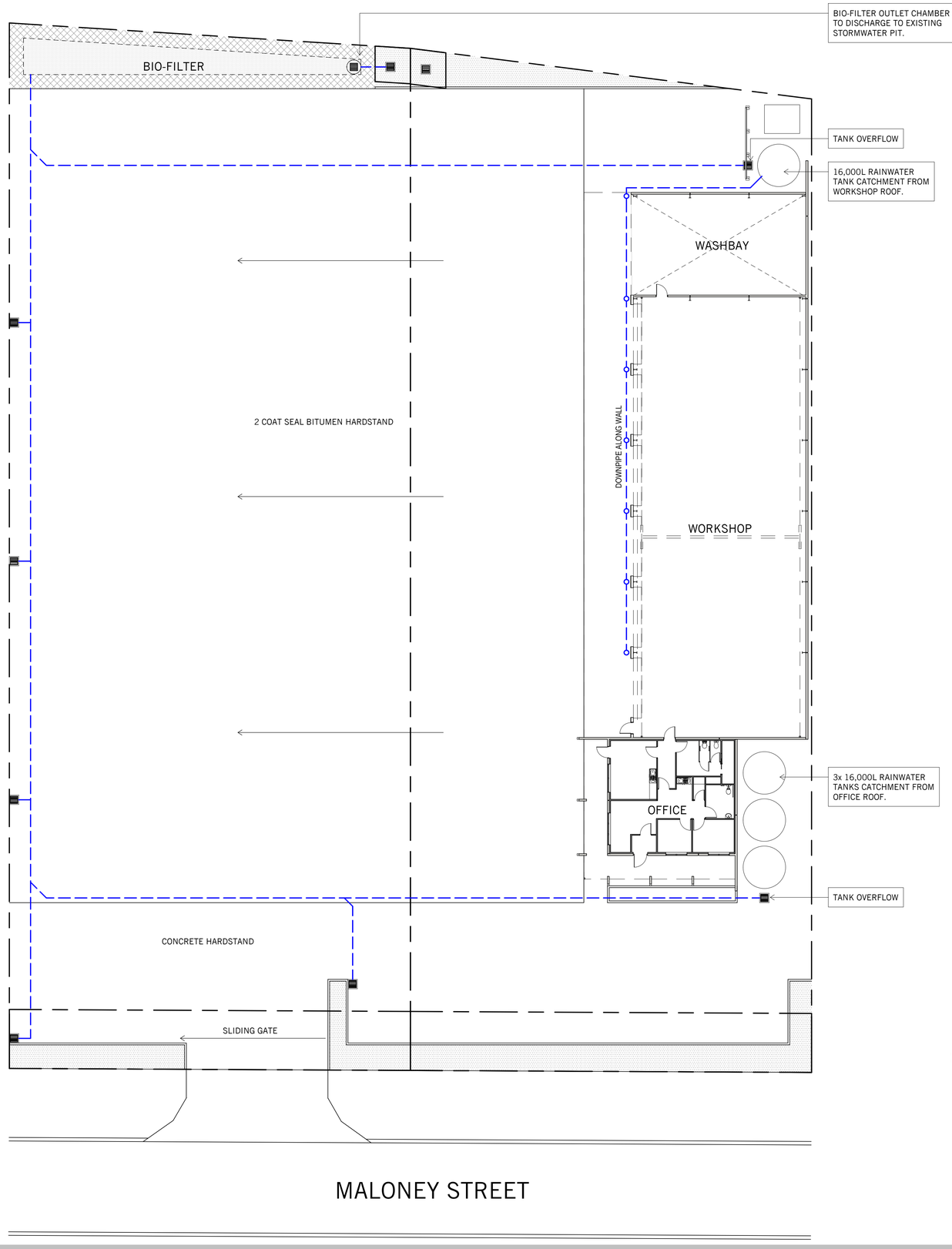

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	LANDSCAPING

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	BIO-RETENTION (FILTER)
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KAWANA, QLD 4701

DWG N° 4221-61-2 by IM
DATE 08/10/2019

space frame
DESIGN + CONSTRUCT SOLUTIONS

TEMPLATE REVISION : F

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APPENDIX B

Photographs

Photograph 1 – Existing site condition

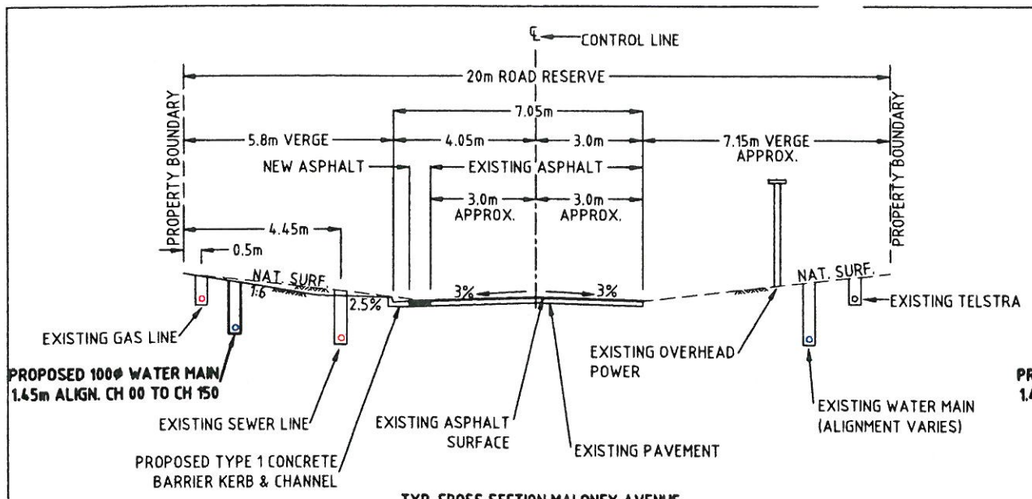
Photograph 2 – Splitters Creek at rear of site

Photograph 3 – Existing field inlet pits at rear of site

Photograph 4 – Outlet from existing field inlets to Splitters Creek

APPENDIX C

Approved Subdivision Plans



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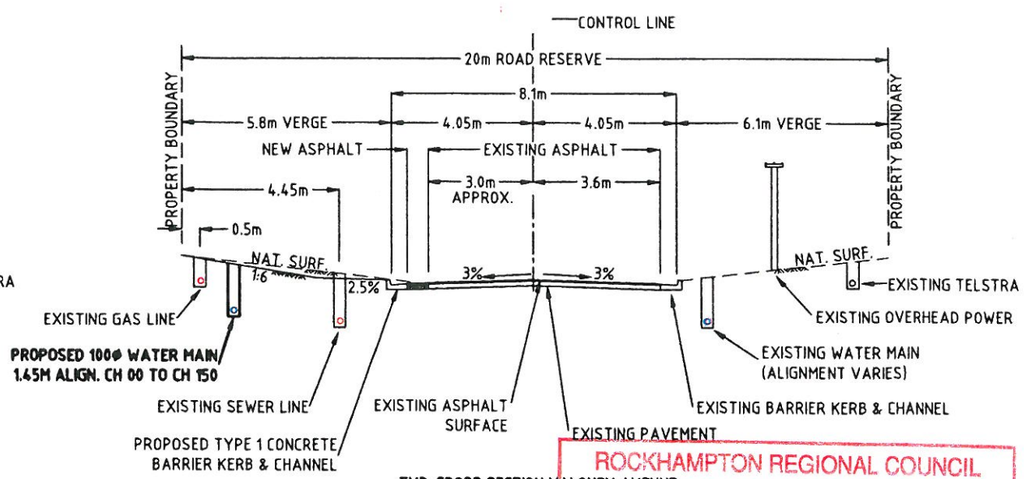
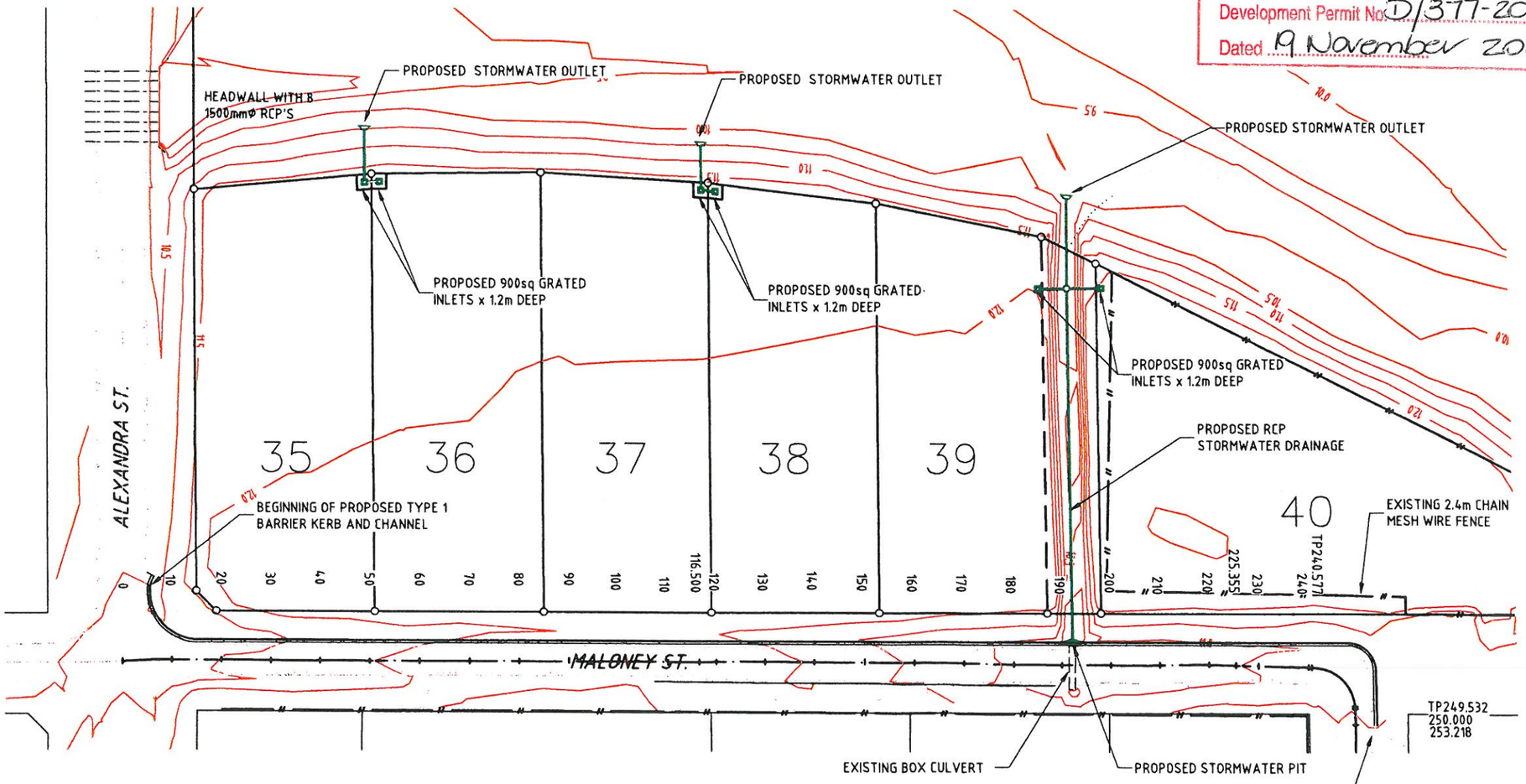
NTS



TYP. CROSS SECTION MALONEY AVENUE
CH116.500 TO CH200.000
NTS

ROCKHAMPTON REGIONAL COUNCIL
These plans are approved subject to the current conditions of approval associated with Development Permit No. D/377-2012.
Dated 9 November 2012.



ROAD AND DRAINAGE LAYOUT

DO NOT SCALE OFF DRAWING
DIMENSIONS METERS UND

SURVEY DATUM:
MGA ZONE 56 BASED ON PSM90439
AZIMUTH DATUM DERIVED FROM PSM45254
LEVEL DATUM AHD
CONTOURS 0.5m EXIST SURFACE

PROPERTY DESCRIPTION:
LOT 1 ON RP601930

FOR ROL APPROVAL

AMENDMENTS

ISSUE	DATE	SUBJECT	AUTHORISED
1	07/12	ROL APPLICATION	NG
2	27/08/12	SECOND ISSUE	NG

XREF FILES

DRAWING NO.	TITLE

DRAWN KL DATE 07/12
DESIGN KL DATE 07/12

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N. G. GARDNER & ASSOCIATES
CONSULTING ENGINEERS
ACN 063 548 390
PH: 4927 3220
Email: mail@ngga.com.au
ROCKHAMPTON

AUTHORISED FOR ISSUE MGardner DATE 24/07/12

HUNTLY HEAVY EQUIPMENT HIRE PTY LTD
LOT 1 ON RP601930
232 ALEXANDRA STREET
RECONFIGURATION OF A LOT
ROAD AND DRAINAGE LAYOUT

FILE NO
JOB NO 928
SCALE 0 10 20 AT A3 SIZE
1:1000 U.N.O.

DRAWING NUMBER	ISSUE	SHEET NO.
928-RD	2	3

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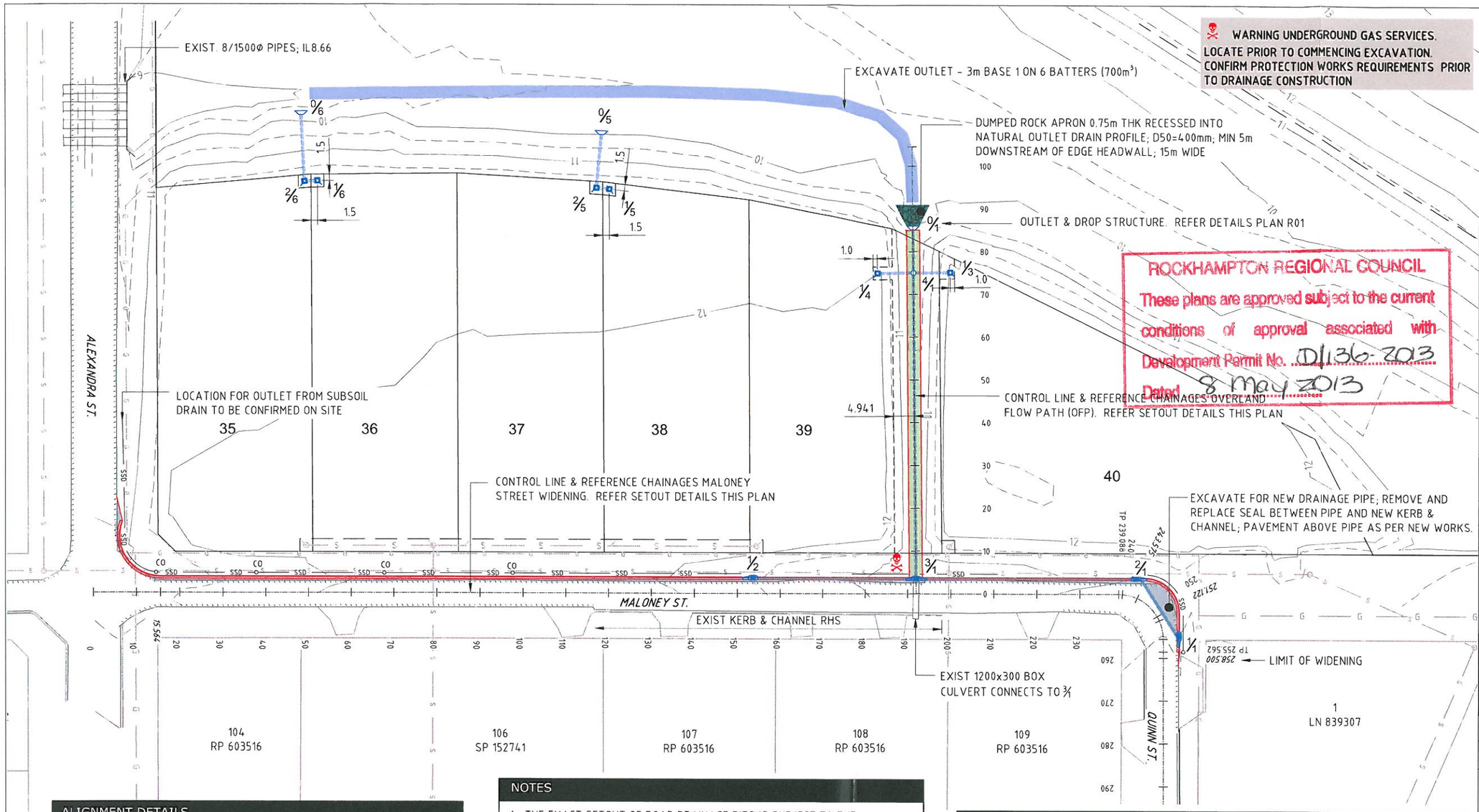

ALIGNMENT DETAILS

MALONEY STREET WIDENING

-CHARACTERISTICS-	-LENGTH-	-STATION-	-EASTING-	-NORTHING-
		0.000	244845.470	7416863.466
STRAIGHT 61°53'35"	239.088			
		239.088	245056.362	7416976.105
XC = 245061.309	16.474			
YC = 7416966.843				
R = 10.500				
		255.562	245070.561	7416971.807
STRAIGHT 151°47'16"	39.329			
		294.892	245089.154	7416937.150
(XC, YC & R SETOUT & RADIUS CURVES)				
ALIGNMENT LENGTH	294.892			

OVERLAND FLOW PATH (OFP)

-CHARACTERISTICS-	-LENGTH-	-STATION-	-EASTING-	-NORTHING-
		0.000	245014.814	7416953.914
STRAIGHT 331°14'53"	104.502			
		104.502	244964.547	7417045.531
ALIGNMENT LENGTH	104.502			

NOTES

1. THE EXACT SETOUT OF ROAD DRAINAGE PITS IS SUBJECT TO THE MANUFACTURERS DETAILS. THE CONTRACTOR SHALL USE THE GULLY PIT DETAILS PROVIDED BY THE MANUFACTURE TO SET THE PITS & CHAMBERS OUT IN RELATION TO THE REFERENCE POINT PROVIDED. THE PIT REFERENCE POINT PROVIDED IS LOCATED ON THE LIP LINE AND IS GIVEN AS A ROAD CHAINAGE/OFFSET AND OR CO-ORDINATE. REFER DRAINAGE LONGITUDINAL SECTIONS FOR REFERENCE POINT CO-ORDINATES. THE INVERT LEVELS, PIPELINE LENGTHS AND GRADES PROVIDED ON THE DRAINAGE LONGITUDINAL SECTIONS RELATE TO THE REFERENCE POINT.
2. THE CONTRACTOR IS TO SELECT APPROPRIATE CONSTRUCTION TECHNIQUES AND COMPACTION EQUIPMENT IN THE VICINITY OF UNDERGROUND PIPES & SERVICES TO ENSURE NO DAMAGE OR DEFORMATION OF THE UNDERGROUND SERVICE.
3. REFER DRAINAGE LONGITUDINAL SECTIONS FOR DRAINAGE STRUCTURE SETOUT CO-ORDINATES.
4. **PIPES TO BE CUT FLUSH WITH INSIDE FACE OF CHAMBERS, NO PROTRUSIONS.**
5. SUBSOIL DRAINAGE REQUIREMENTS TO BE CONFIRMED ON SITE. SUBSOIL CLEANOUT POINTS TO BE PROVIDED AT ENDS OF DRAINS & 30m CTRS EXCEPT AT GULLY PIT LOCATIONS WHERE THE INLET TO THE DRAIN IS TO BE IN THE GULLY PIT. IN GENERAL WHERE STORMWATER TRENCHES ARE LOCATED BEHIND THE KERB THE SUBSOIL DRAIN SHALL COMPRISE A 3m SECTION AT THE LEVEL OF THE TOP OF THE STORMWATER PIPE CONNECTING THE DOWNSTREAM END OF THE STORMWATER TRENCH TO A GULLY PIT.
6. REFER TESTING SCHEDULE PLAN NO. R01.

LEGEND

- SSD — SUBSOIL DRAINAGE. REFER DETAIL PLAN NO. R07; CLEANOUT (CO)
- CO — STORMWATER LINE (CLASS 2 SRC); ROAD GULLY PIT (C M PITS UNO)
- REAR OF ALLOTMENT ROOF WATER STORMWATER LINES (uPVC/CLASS 2 SRC/CLASS 2 FRC) & PITS WITH STUB CONNECTION FOR LOT CONNECTION; HUMES OR HARDIE FRC PRECAST PITS WITH GRATED TOP; CHAMBER SIZE DETAILS SHOWN ON LONGITUDINAL SECTIONS.
- S — SEWERAGE
- 1/2 — STRUCTURE/PIT/STUB #1 ON LINE #2
- 26.352 / *33.521* — UPRIGHT REFERENCE CHAINAGE REFERS TO CONTROL LINE. SLOPING REFERENCE CHAINAGE REFER TO OFFSET SET OUT POINT ON LIP OR IP OF INTERSECTION
- PRECAST PROPRIETARY PRODUCT HEADWALL WITH INTEGRATED WINGS & APRON
- EXIST. SERVICES SHOWN GREYED

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DIMENSIONS METERS UNO

SCHLENCKER SURVEYING
A.B.N. 37 147 098 815
SURVEYING, MAPPING & DEVELOPMENT CONSULTANTS
181 East St., ROCKHAMPTON
Ph. (07) 49 271744

LEVEL DATUM:
AHD PSM45254
MERIDIAN MGA ZONE 56 PSM90349
E244828.276 N7416865.593
CONTOURS 0.5m FINISH SURF.

PROPERTY DESCRIPTION:
LOT 1 RP601930; 232 ALEXANDRA STREET
D/377-2012

COUNCIL APPROVAL

AMENDMENTS

ISSUE	DATE	SUBJECT	AUTHORISED
2	21/03/13	FIRST ISSUE	NG
2	05/04/13	POST DESIGN REVIEW	NG

XREF FILES

DRAWING NO.	TITLE.
G1302-4-BASE.DWG	BASE PLAN

DRAWN DATE
DESIGN DATE

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N. G. GARDNER & ASSOCIATES
CONSULTING ENGINEERS
ACN 063 548 390
PH: 4927 3220
EMAIL:mail@ngga.com.au
ROCKHAMPTON

AUTHORISED FOR ISSUE RPEQ 2393 DATE 10/02/2013

HUNTLY HEAVY EQUIPMENT HIRE
ALEXANDRA STREET
INDUSTRIAL LOT DEVELOPMENT
ROADWORKS & DRAINAGE LAYOUT

FILE NO G1302-4-R03.DWG
JOB NO G1302/4
SCALE 0 1:1000 HORZ. 20 AT A3 SIZE

DRAWING NUMBER 928-R03 | ISSUE 2 | SHEET NO 5

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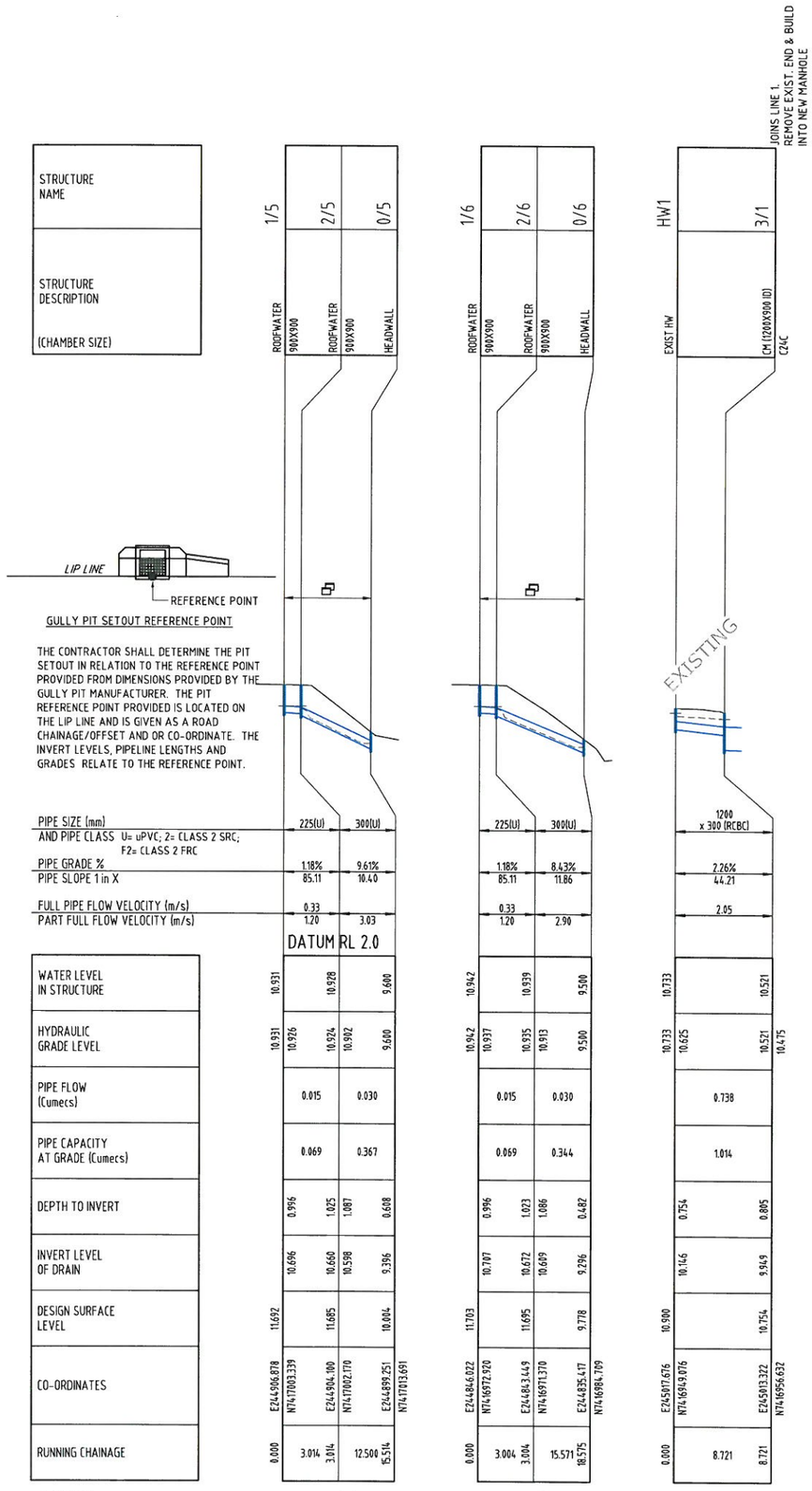

ROCKHAMPTON REGIONAL COUNCIL
These plans are approved subject to the current conditions of approval associated with Development Permit No. D/136-2013
Dated 8 May 2013

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SCHLENCKER SURVEYING
A.B.N. 37 147 098 815
SURVEYING, MAPPING & DEVELOPMENT CONSULTANTS
181 East St.,
ROCKHAMPTON
Ph. (07) 49 271744

LEVEL DATUM:
AHD PSM45254
MERIDIAN MGA ZONE 56 PSM90349
E244828.276 N7416865.593

PROPERTY DESCRIPTION:

LOT 1 RP601930; 232
ALEXANDRA STREET
D/377-2012

COUNCIL APPROVAL

AMENDMENTS

ISSUE	DATE	SUBJECT	AUTHORISED
2	21/03/13	FIRST ISSUE	NG
2	05/04/13	POST DESIGN REVIEW	NG

XREF FILES
DRAWING NO. | TITLE.

DRAWN DATE
DESIGN DATE

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ACN 063 548 390
PH: 4927 3220
EMAIL:mail@ngga.com.au
ROCKHAMPTON

AUTHORISED FOR ISSUE NGardner RPEQ 2393 DATE 10/02/2013

HUNTLY HEAVY EQUIPMENT HIRE
ALEXANDRA STREET
INDUSTRIAL LOT DEVELOPMENT
ROADWORKS & DRAINAGE
DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 2

FILE NO G1302-4-R05.DWG
JOB NO G1302/4
SCALE 0 1:1000 HORZ. 20 AT A3 SIZE
0 1:200 VERT. 4
DRAWING NUMBER 928-R10 ISSUE 2 SHEET NO. 12

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APPENDIX D

Stormwater Quality Maintenance Checklist

BIORETENTION BASIN MAINTENANCE CHECKLIST				
Inspection Frequency:	1 to 6 monthly	Date of Visit:		
Location:				
Description:				
Asset I.D.				
Site Visit by:				
INSPECTION ITEMS:		Y	N	Action Required (details)
Sediment accumulation at inflow points?				
Litter within basin?				
Erosion at inlet or other key structures?				
Traffic damage present?				
Evidence of dumping (e.g. building waste)?				
Vegetation condition satisfactory (density, weeds etc)?				
Watering of vegetation required?				
Replanting required?				
Mowing/slashing required?				
Clogging of drainage points (sediment or debris)?				
Evidence of ponding?				
Damage/vandalism to structures present?				
Surface clogging visible?				
Drainage system inspected?				
Resetting of system required?				
COMMENTS				