

ROCKHAMPTON REGIONAL COUNCIL

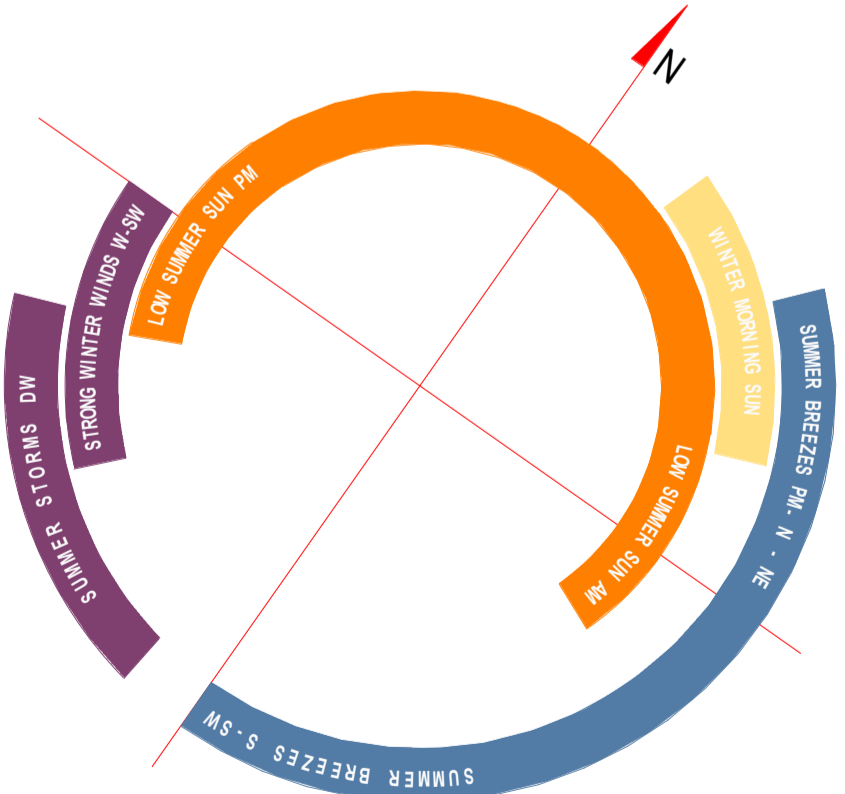
APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023

1 SITE PLAN
SCALE 1:200



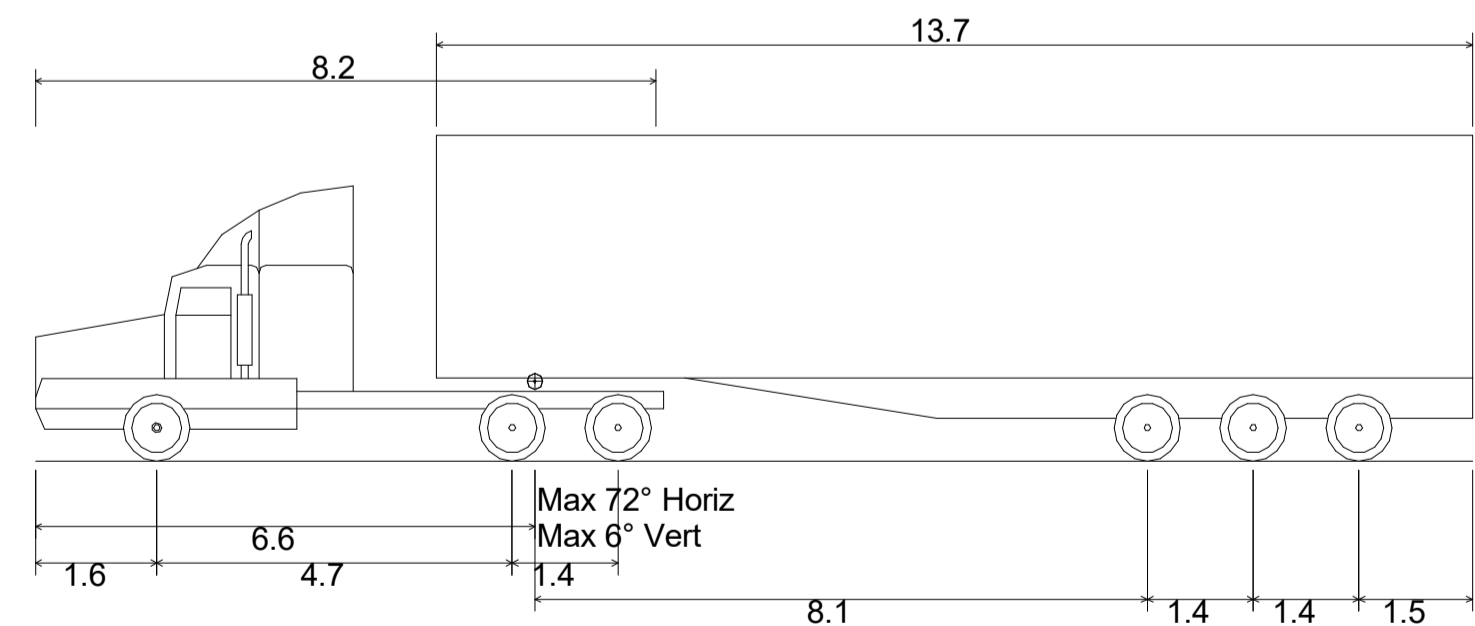
| SITE SCHEDULE | |
|---------------|---------------------|
| LOT/EASEMENT | AREA |
| LOT 71 | 2023 m ² |
| LOT 70 | 2023 m ² |

| BUILDING AREAS (GLA) | |
|--|---------------------|
| GROSS LEASE AREA CALCULATED AS PER PCA METHOD OF MEASUREMENT | |
| USE | AREA |
| OFFICE | 216 m ² |
| WAREHOUSE | 2020 m ² |
| GRAND TOTAL | 2236 m ² |

| GROSS FLOOR AREA | |
|---|---------------------|
| AREA CALCULATED BASED ON PLANNING SCHEME DEFINITION FOR GROSS FLOOR AREA. | |
| USE | AREA |
| WAREHOUSE | 2020 m ² |
| OFFICE | 216 m ² |
| GRAND TOTAL | 2236 m ² |

| DEVELOPMENT AREAS | | |
|----------------------|-----|---------------------|
| NAME | % | AREA |
| SITE COVER | 60% | 2424 m ² |
| LANDSCAPING | 3% | 132 m ² |
| IMPERVIOUS AREA | 88% | 3541 m ² |
| DRIVEWAY/CAR PARKING | 31% | 1251 m ² |

| CAR PARKING SCHEDULE | |
|-------------------------------------|-------|
| REQUIRED | |
| WAREHOUSE - 1 PER 100m ² | 23 |
| PROVIDED | |
| CAR PARK TYPE | COUNT |
| PARKING SPACE - 2400 x 5400 | 24 |
| TOTAL | 24 |



AV - Articulated Vehicle
Overall Length 19.00m
Overall Width 2.50m
Overall Body Height 4.30m
Min Body Ground Clearance 0.418m
Track Width 2.50m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 12.50m

DESIGN TEAM

URBAN CREATRIX
Planning + Design + Solutions

T: 0402 020 440
E: plan@urbancreatrix.com.au
M: PO Box 68 Morningside Qld 4170

ABN 52 652 883 522
PIA Member 74431
Bldg Des Lic 645557

PROJECT MANAGER



| REV | DESCRIPTION |
|-----|----------------------------------|
| A | PRELIMINARY DA ISSUE |
| B | DA ISSUE |
| C | SHADE TREES ADDED, FENCE AMENDED |

| DATE | INT |
|------------|-----|
| 11.01.2023 | RJJ |
| 13.01.2023 | RJJ |
| 16.03.2023 | RJJ |

CLIENT

VNU PROJECTS PTY LTD

PROJECT

PROPOSED WAREHOUSE

PROJECT ADDRESS

12-14 CHAPPELL STREET KAWANA
LOTS 70 & 71 RP603516

DRAWING TITLE

SITE PLAN

A1 DRAWING SHEET

SCALE As indicated

DO NOT SCALE FROM DRAWING. CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. IF IN DOUBT ASK. THE DRAWING MUST NOT BE REPRODUCED OR COPIED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE OWNER OF THE COPYRIGHT.

DRAWING STATUS

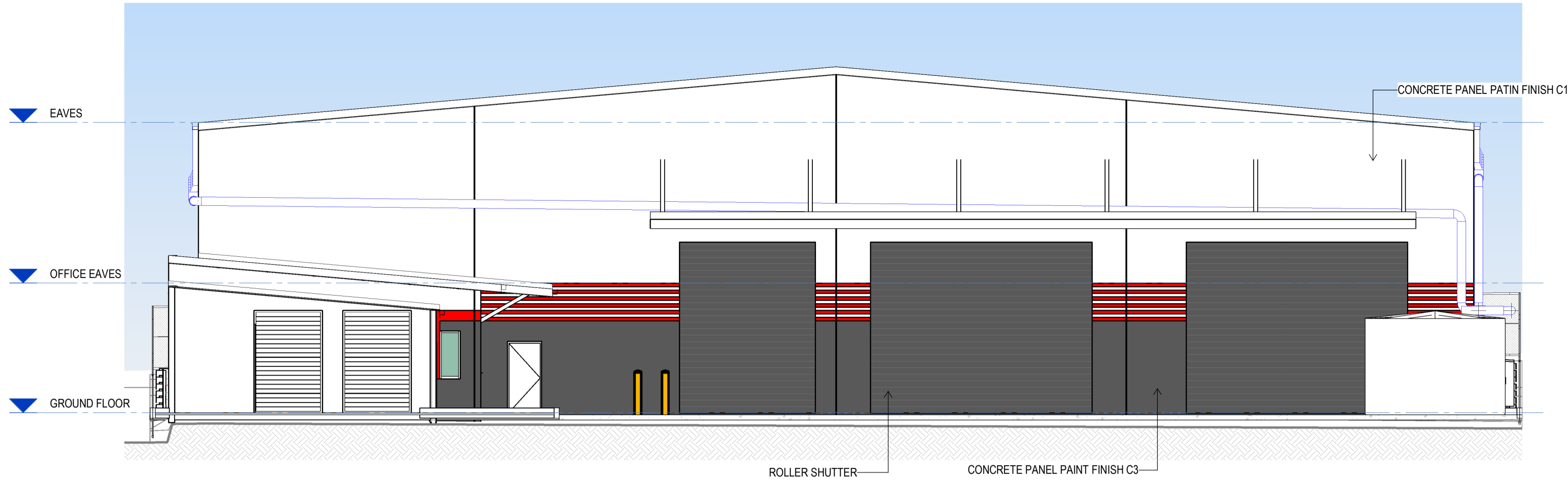
DA ISSUE

PROJECT NUMBER

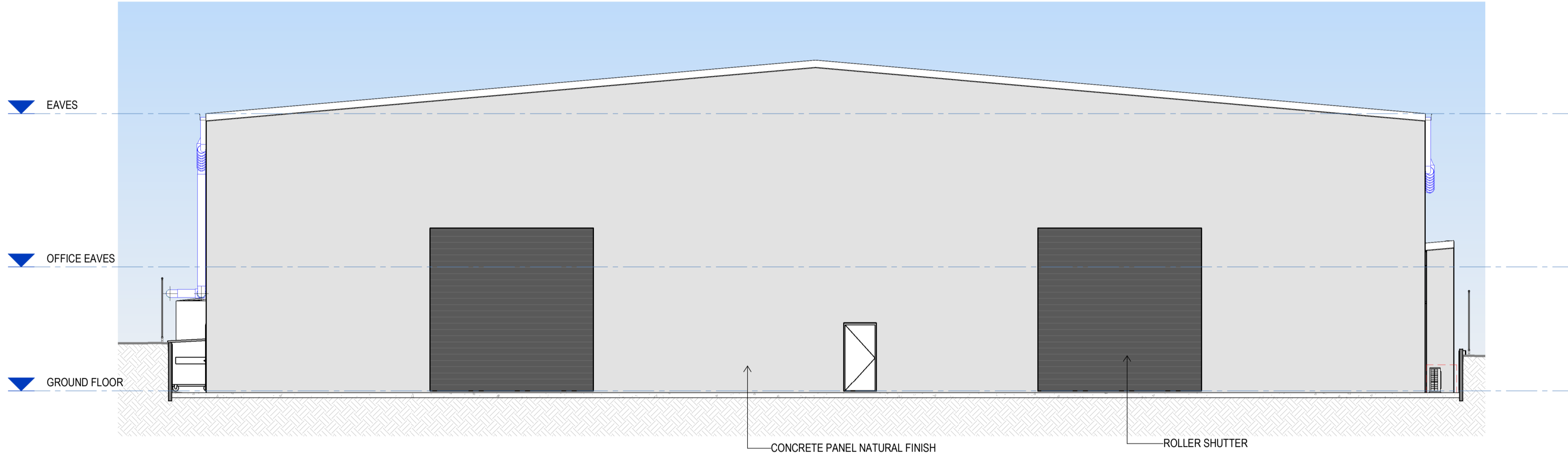
22-058

SHEET NUMBER
DA101

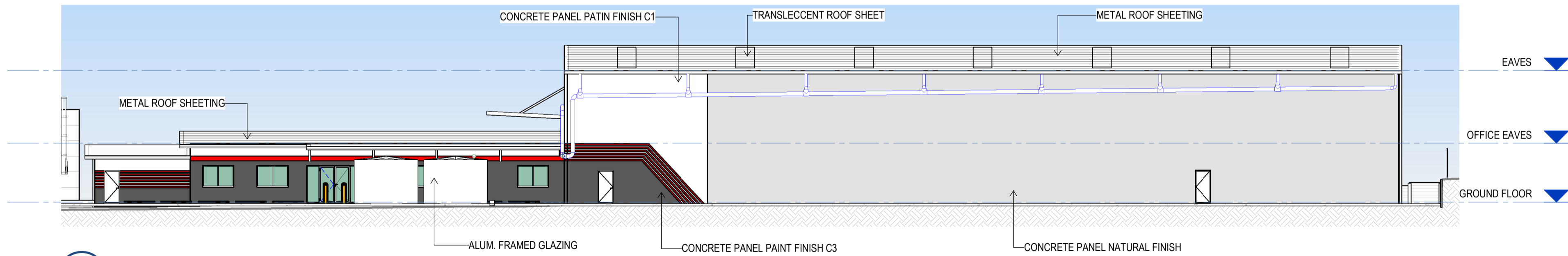
REVISION
C



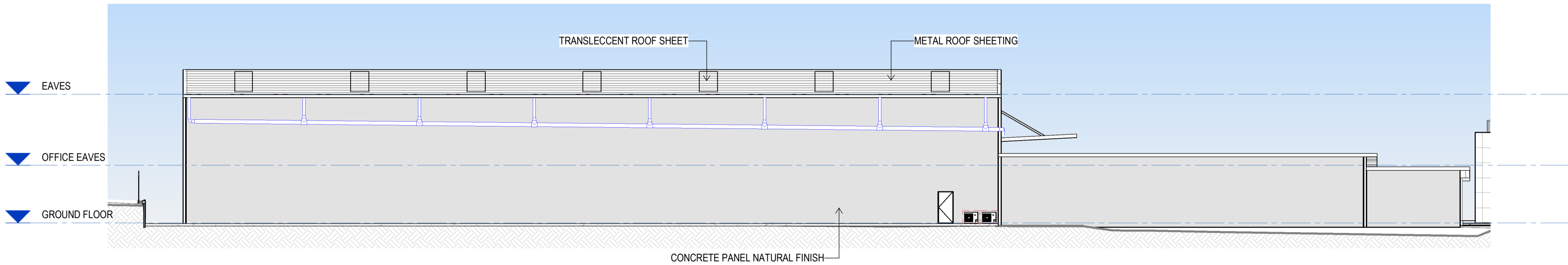
E1 SOUTH WEST (CHAPPELL ST) ELEVATION
SCALE 1:100



E3 NORTH EAST ELEVATION



E2 SOUTH EAST ELEVATION
SCALE 1:200



E4 NORTH WEST ELEVATION
SCALE 1:200

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023

| REV | DESCRIPTION | DATE | INT |
|-----|----------------------|------------|-----|
| A | PRELIMINARY DA ISSUE | 11.01.2023 | RJJ |
| B | DA ISSUE | 13.01.2023 | RJJ |

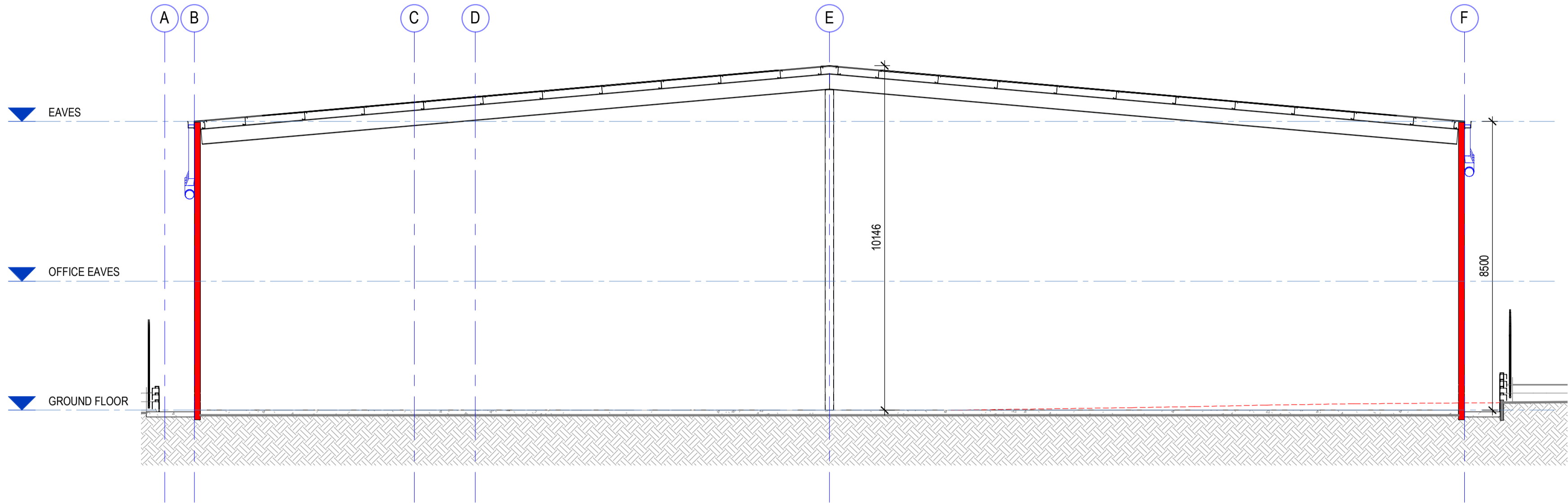
CLIENT
VNU PROJECTS PTY LTD

PROJECT
PROPOSED WAREHOUSE
PROJECT ADDRESS
12-14 CHAPPELL STREET KAWANA
LOTS 70 & 71 RP603516

DRAWING TITLE
ELEVATIONS
A1 DRAWING SHEET
SCALE As indicated

DO NOT SCALE FROM DRAWING. CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. IF IN DOUBT ASK.
THE DRAWING MUST NOT BE REPRODUCED OR COPIED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE OWNER OF THE COPYRIGHT.
DRAWING STATUS

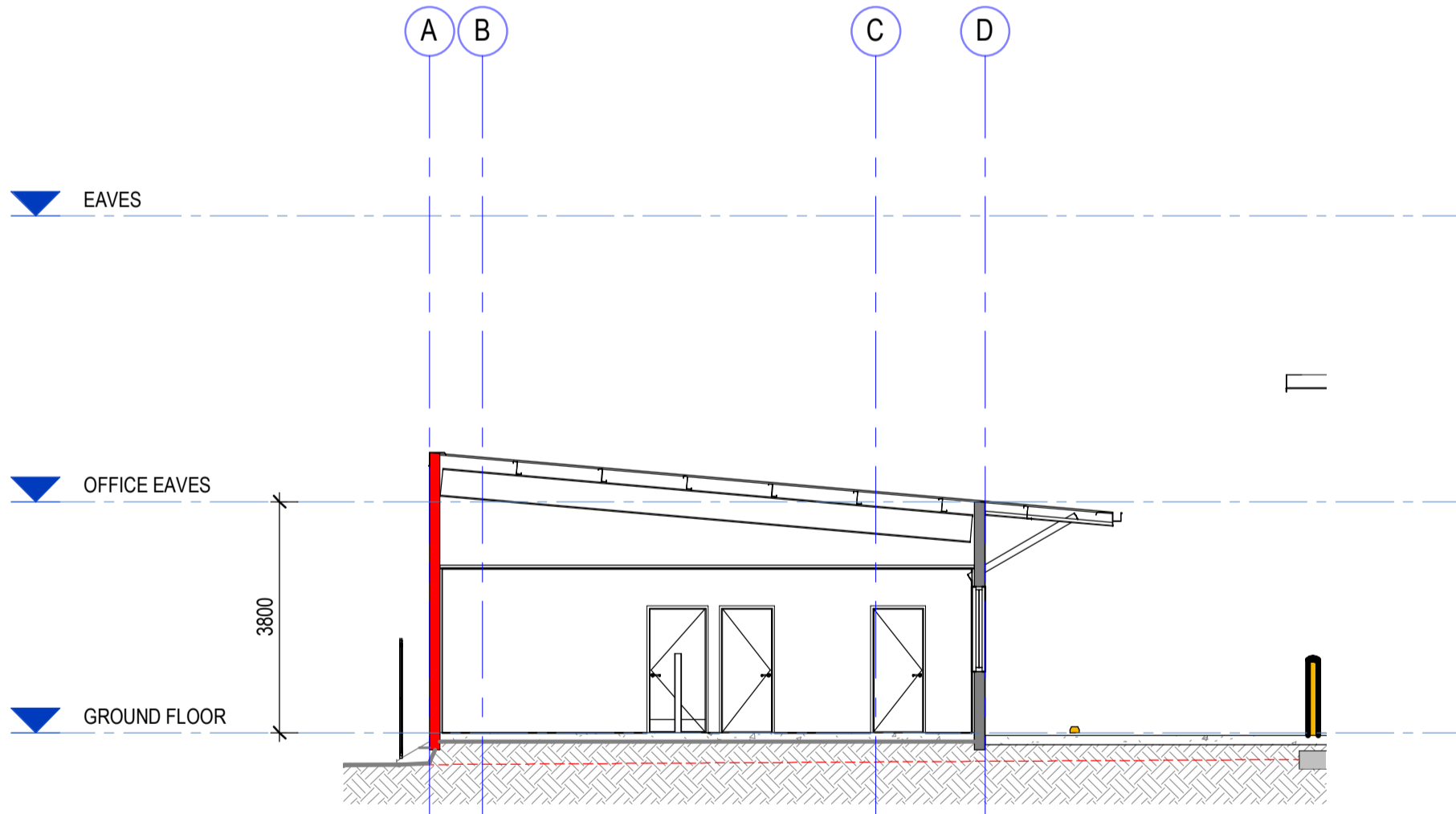
DA ISSUE
PROJECT NUMBER
22-058
SHEET NUMBER
DA201
REVISION
B



S1 BUILDING SECTION - WAREHOUSE
SCALE 1 : 100

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/20-2023
Dated: 19 May 2023



S2 BUILDING SECTION - OFFICE
SCALE 1 : 100

| REV | DESCRIPTION | DATE | INT |
|-----|----------------------|------------|-----|
| A | PRELIMINARY DA ISSUE | 11.01.2023 | RJJ |
| B | DA ISSUE | 13.01.2023 | RJJ |

CLIENT
VNU PROJECTS PTY LTD

PROJECT
PROPOSED WAREHOUSE
PROJECT ADDRESS
12-14 CHAPPELL STREET KAWANA
LOTS 70 & 71 RP603516

DRAWING TITLE
BUILDING SECTIONS
A1 DRAWING SHEET
SCALE As indicated

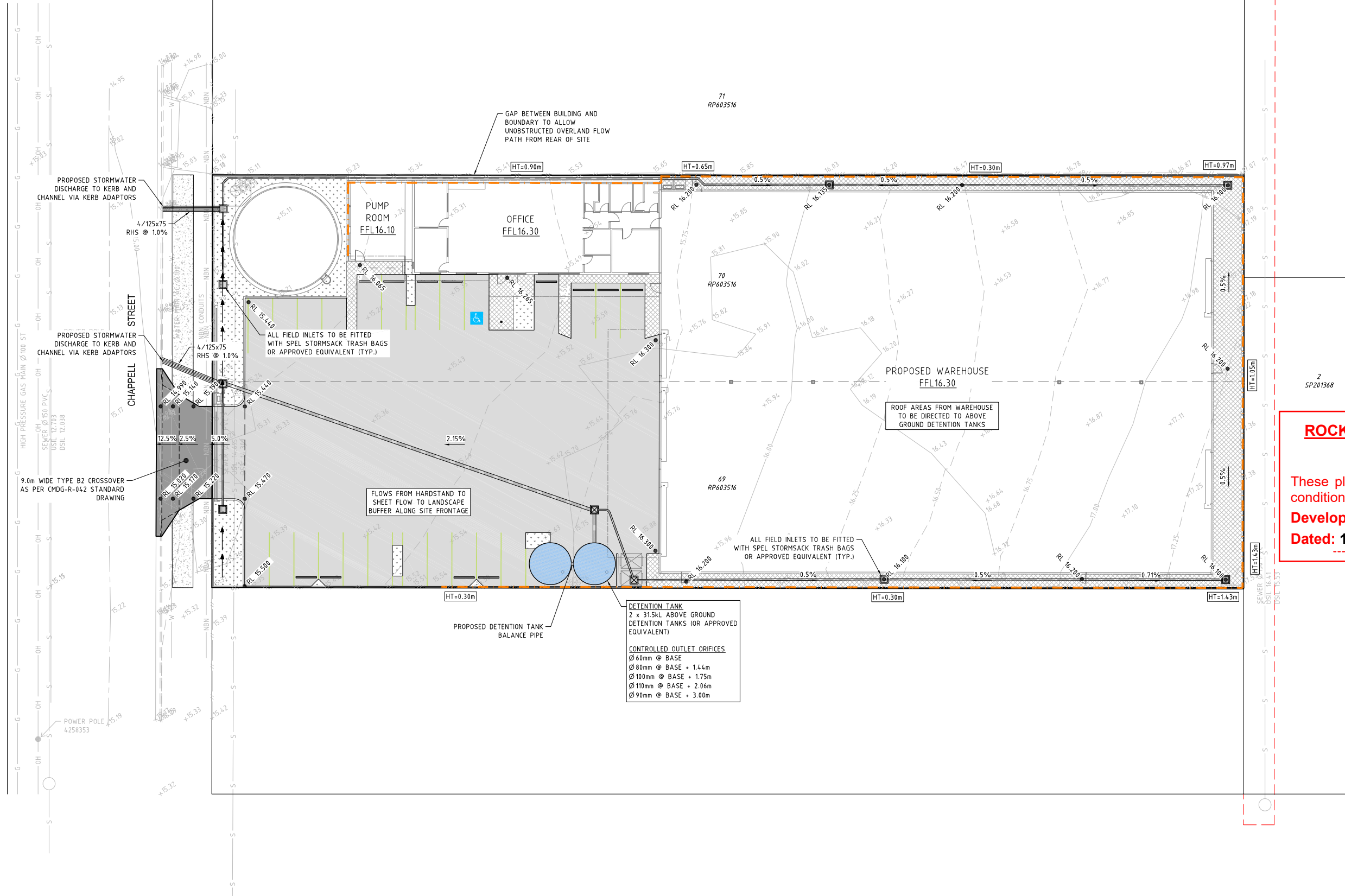
DO NOT SCALE FROM DRAWING. CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. IF IN DOUBT ASK.
THE DRAWING MUST NOT BE REPRODUCED OR COPIED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE OWNER OF THE COPYRIGHT.

DRAWING STATUS

DA ISSUE
PROJECT NUMBER

22-058
SHEET NUMBER
DA301

REVISION
B



LEGEND

- STORMWATER DRAINAGE PIPE
- STORMWATER FIELD INLET PIT
- DETENTION TANK
- STORMWATER CONNECTION POINT
- INDICATIVE DRIVEWAY CROSSOVER LOCATION
- PROPOSED RETAINING WALL
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER
- EXISTING WATER
- EXISTING OVERHEAD ELECTRICITY
- EXISTING TELECOMMUNICATION

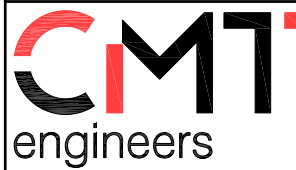
ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023



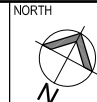
P: (07) 3849 8388
M: PO BOX 79, CAPALABA QLD 4157
A: S2 / L2, 96 MOUNT GRAVATT, CAPALABA RD, UPPER MOUNT GRAVATT QLD 4122
E: info@cmtengineers.com.au

| ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. |
|-------|--|------------|-------|-------|
| A | PRELIMINARY ISSUE | 31.01.2023 | DR | CMT |
| B | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT |
| C | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT |

ISSUE FOR APPROVAL
NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL

SURVEY INFORMATION
PM - RL -

SURVEYOR
RP DESCRIPTION
LOT 69 & 70 RP603516



FILE NAME
LAND SIZE

CITY COUNCIL APPROVAL NUMBER:

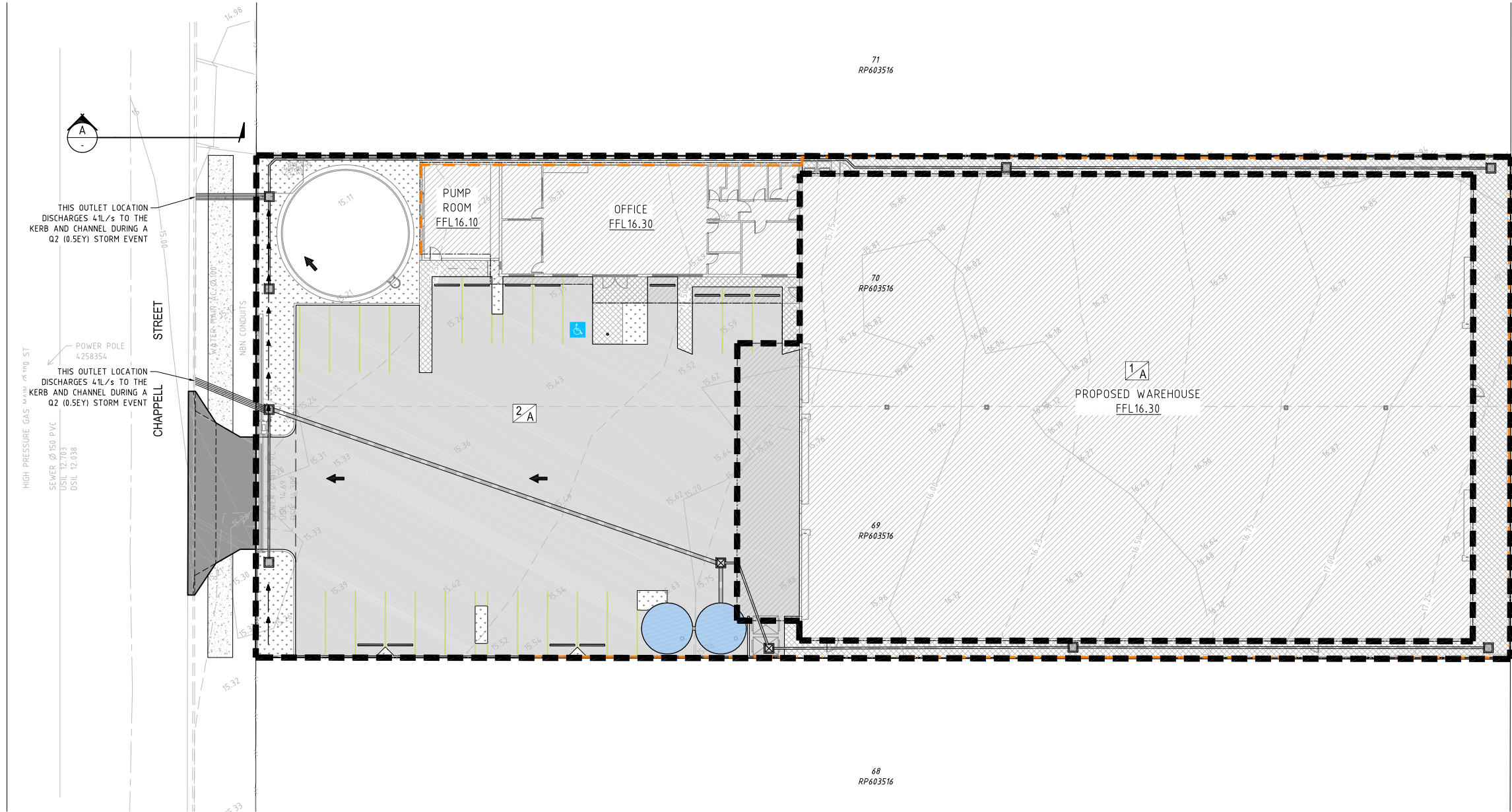
SCALE BAR
0 4 8 12m
SCALE 1:200 @ A1

CLIENT:
VNU PROJECTS

PROJECT TITLE:
PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA

DRAWING TITLE:
CONCEPT STORMWATER DRAINAGE PLAN

| | | | |
|------------------------|-------|-------------------|-------|
| DESIGN: DR | DATE: | DESIGN CHECK: CMT | DATE: |
| DRAWN: DR | DATE: | DWG CHECK: CP | DATE: |
| AUTHORISED FOR ISSUE | | ORIG. SIZE | |
| CHING MENG TAN | | A1 | |
| PROJECT NUMBER / SHEET | | ISSUE | |
| C23-079 | | C | |



| LEGEND | |
|--------|----------------------|
| | CATCHMENT BOUNDARIES |
| | CATCHMENT NAME |
| | FLOW DIRECTION ARROW |

| CATCHMENT TABLE | |
|-----------------|-----------|
| CATCHMENT | AREA (ha) |
| 1/A | 0.213 |
| 2/A | 0.192 |

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

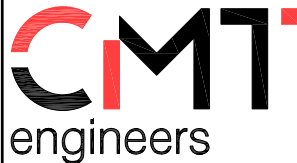
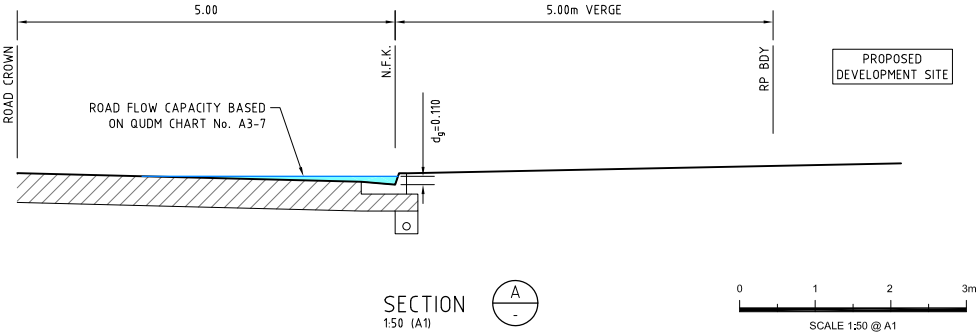
Development Permit No.: D/20-2023

Dated: 19 May 2023

ROAD FLOW MANNING'S CALCULATION
ROAD SLOPE = 0.3%
 $d_g = 0.110m$
 $Q = 0.08m^3/s$
 $V = 0.53m/s$
 $d_g V = 0.06m^2/s$

NOTE:
ROAD FLOWS SHOWN ARE FOR
THE DEVELOPMENT SITE ONLY.
NO EXTERNAL CATCHMENT
FLOWS CONSIDERED

SUM OF CATCHMENTS
1/A & 2/A FLOWS
 Q_2 ROAD FLOW = $0.082 \frac{m^3}{s}$



P: (07) 3949 8388
M: PO BOX 79,
CAPALABA QLD 4157
A: S2 / L12, 96 MOUNT GRAVATT
CAPALABA RD, UPPER MOUNT
GRAVATT QLD 4122
E: Info@cmtengineers.com.au

THIS DRAWING IS CONFIDENTIAL AND IS NOT TO BE REPRODUCED IN ANY FORM AS A WHOLE OR IN PART WITHOUT EXPRESS WRITTEN PERMISSION FROM CMT ENGINEERS, THE EXISTING SERVICES INFORMATION SHOWN HAS NOT BEEN CONFIRMED ON SITE AND IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY SERVICES RELEVANT PRIOR TO THE START OF CONSTRUCTION. IF IN DOUBT - ASK.

| ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. |
|-------|--|------------|-------|-------|
| A | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT |
| B | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ISSUE STAMP
ISSUE FOR APPROVAL
NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL

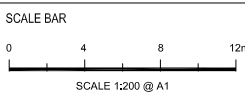
SURVEY INFORMATION
PM - RL -

SURVEYOR
RP DESCRIPTION
LOT 69 & 70 RP603516



FILE NAME
LAND SIZE

CITY COUNCIL APPROVAL NUMBER:

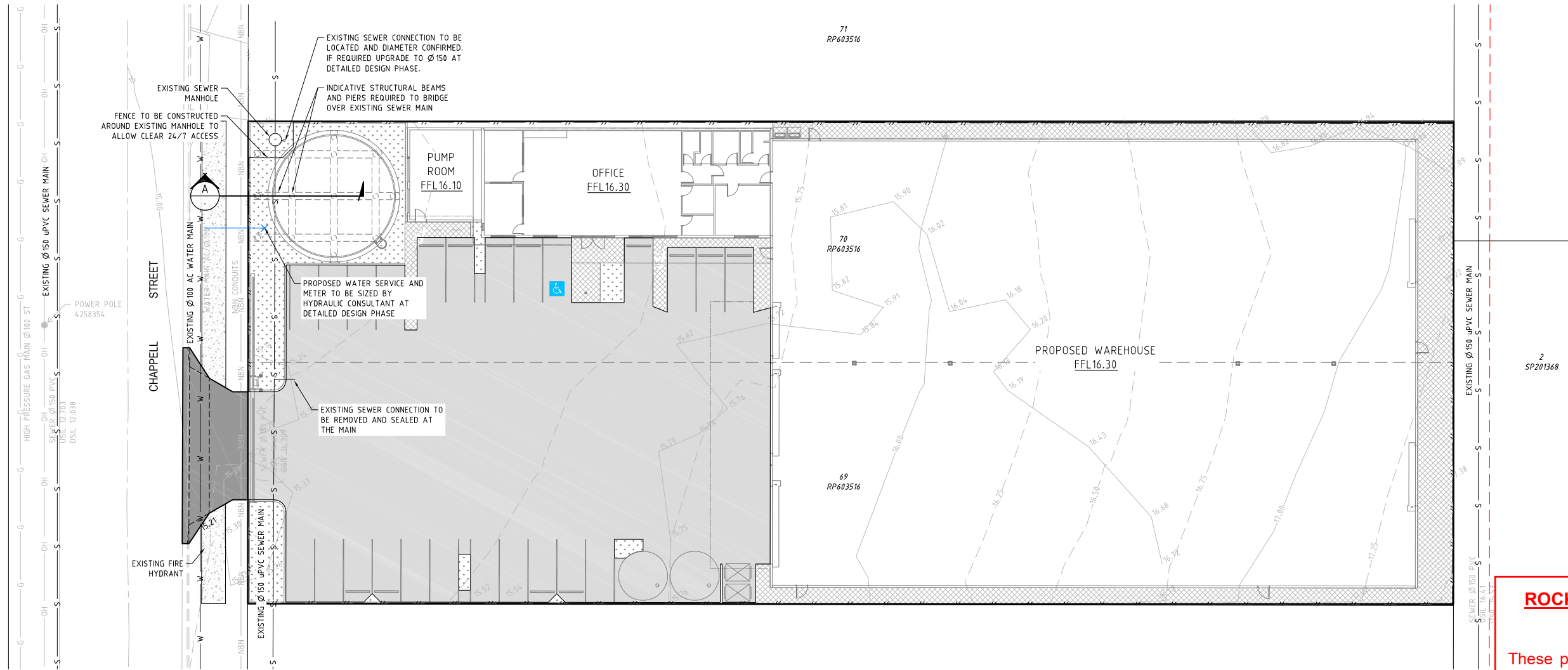


CLIENT:
VNU PROJECTS

PROJECT TITLE:
PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET,
KAWANA

DRAWING TITLE:
CONCEPT STORMWATER CATCHMENT PLAN

| | | | |
|------------------------|-------|----------------------|-------|
| DESIGN: DR | DATE: | DESIGN CHECK: CMT | DATE: |
| DRAWN: DR | DATE: | DWG CHECK: CP | DATE: |
| AUTHORISED FOR ISSUE | | ORIG. SIZE | |
| CHING MENG TAN | | A1 | |
| PROJECT NUMBER / SHEET | | ISSUE | |
| C23-079 | | B | |
| RPEQ NoJ1311 | | SK02 | |



| LEGEND | |
|--------|---|
| | PROPOSED DOMESTIC WATER SERVICE & METER |
| | EXISTING SEWER MAIN |
| | EXISTING WATER MAIN |

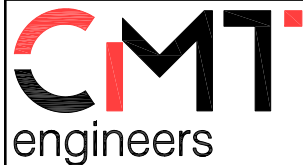
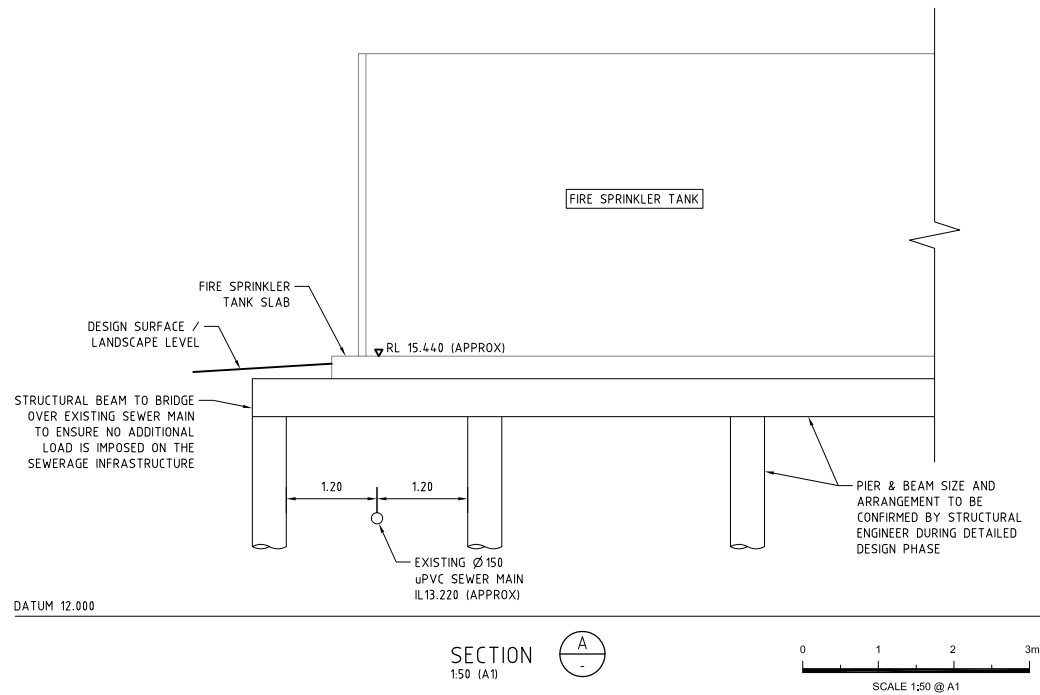
ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023



P: (07) 3849 8388
M: PO BOX 79,
CAPALABA QLD 4157
A: S2 / L2, 96 MOUNT GRAVATT
CAPALABA RD, UPPER MOUNT
GRAVATT QLD 4122
E: Info@cmtengineers.com.au

THIS DRAWING IS CONFIDENTIAL AND IS NOT TO BE REPRODUCED IN ANY FORM AS A WHOLE OR IN PART WITHOUT EXPRESS WRITTEN PERMISSION FROM CMT ENGINEERS. THE EXISTING SERVICES INFORMATION SHOWN HAS NOT BEEN CONFIRMED ON SITE AND IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY SERVICES RELEVANT PRIOR TO THE START OF CONSTRUCTION. IF IN DOUBT - ASK.

| ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. |
|-------|--|------------|-------|-------|
| A | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT |
| B | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ISSUE STAMP
ISSUE FOR APPROVAL
NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL

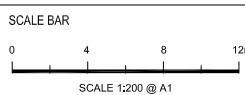
SURVEY INFORMATION
PM - RL -

SURVEYOR
RP DESCRIPTION
LOT 69 & 70 RP603516



FILE NAME
LAND SIZE

CITY COUNCIL APPROVAL NUMBER:

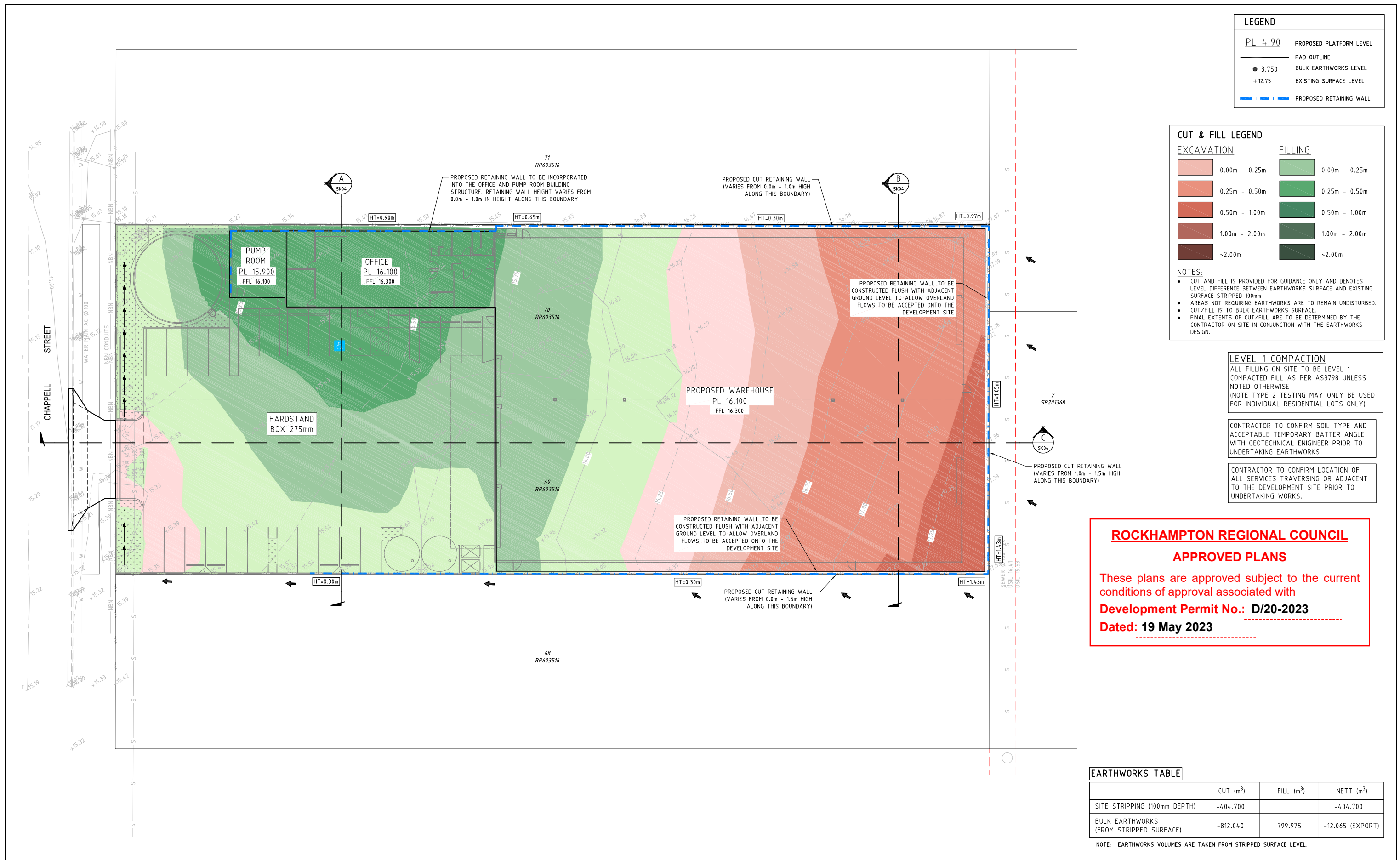


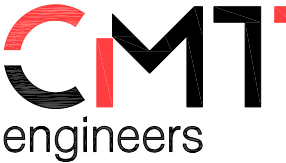
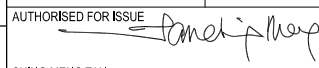
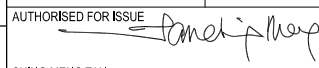
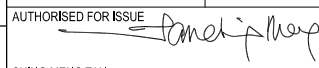
CLIENT:
VNU PROJECTS

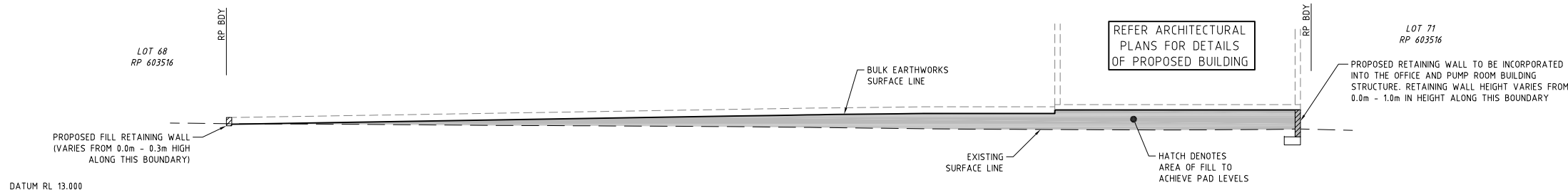
PROJECT TITLE:
PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET,
KAWANA

DRAWING TITLE:
CONCEPT SEWER & WATER PLAN

| | | | |
|------------------------|-------|----------------------|-------|
| DESIGN: DR | DATE: | DESIGN CHECK: CMT | DATE: |
| DRAWN: DR | DATE: | DWG CHECK: CP | DATE: |
| AUTHORISED FOR ISSUE | | ORIG. SIZE | |
| CHING MENG TAN | | A1 | |
| PROJECT NUMBER / SHEET | | ISSUE | |
| C23-079 | | B | |
| RPEQ NoJ1311 | | SK05 | |

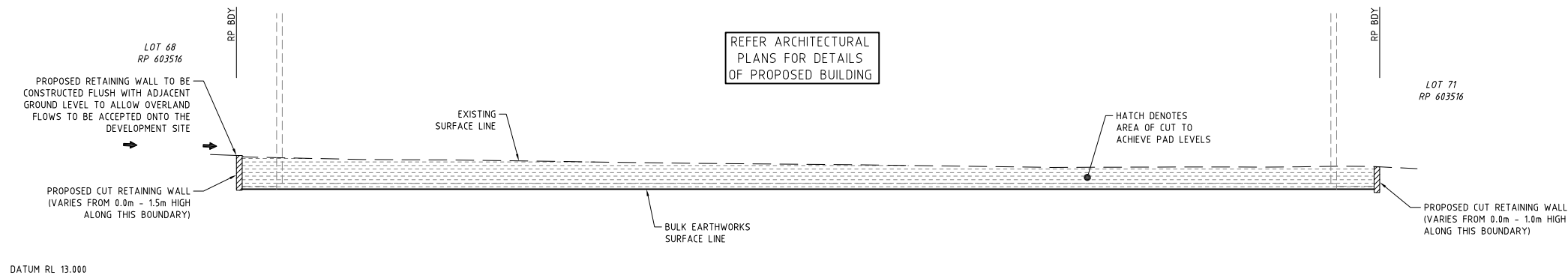


|  <p>P: (07) 3949 8388 M: PO BOX 79, CAPALABA QLD 4157 A: S2 / L2, 96 MOUNT GRAVATT, CAPALABA RD, UPPER MOUNT GRAVATT QLD 4122 E: Info@cmtengineers.com.au</p> | <table><tr><th>ISSUE</th><th>DESCRIPTION</th><th>DATE</th><th>DRAWN</th><th>AUTH.</th></tr><tr><td>A</td><td>PRELIMINARY ISSUE</td><td>07.02.2023</td><td>DR</td><td>CMT</td></tr><tr><td>B</td><td>RESPONSE TO COUNCIL RFI DATED 10.03.2023</td><td>21.03.2023</td><td>CP</td><td>CMT</td></tr></table> | ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. | A | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT | B | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT | <table><tr><th>ISSUE STAMP</th></tr><tr><td>ISSUE FOR APPROVAL NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL</td></tr></table> | ISSUE STAMP | ISSUE FOR APPROVAL NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL | <table><tr><th>SURVEY INFORMATION</th><th>SURVEYOR</th><th>FILE NAME</th><th>SCALE BAR</th></tr><tr><td>PM - RL -</td><td></td><td></td><td>0 4 8 12m SCALE 1:200 @ A1</td></tr></table> | SURVEY INFORMATION | SURVEYOR | FILE NAME | SCALE BAR | PM - RL - | | | 0 4 8 12m SCALE 1:200 @ A1 | <table><tr><th>CITY COUNCIL APPROVAL NUMBER:</th><th>CLIENT:</th><th>PROJECT TITLE:</th><th>DESIGN:</th><th>DATE:</th><th>DESIGN CHECK:</th><th>DATE:</th></tr><tr><td></td><td>VNU PROJECTS</td><td>PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA</td><td>DR</td><td></td><td>CMT</td><td></td></tr><tr><td></td><td></td><td></td><td>DRAWN:</td><td></td><td>DWG CHECK:</td><td></td></tr><tr><td></td><td></td><td></td><td>DR</td><td></td><td>CP</td><td></td></tr></table> | CITY COUNCIL APPROVAL NUMBER: | CLIENT: | PROJECT TITLE: | DESIGN: | DATE: | DESIGN CHECK: | DATE: | | VNU PROJECTS | PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA | DR | | CMT | | | | | DRAWN: | | DWG CHECK: | | | | | DR | | CP | | <table><tr><th>DRAWING TITLE:</th><th>AUTHORISED FOR ISSUE</th><th>ORIG. SIZE</th></tr><tr><td>CONCEPT BULK EARTHWORKS PLAN</td><td> CHING MENG TAN PROJECT NUMBER / SHEET C23-079</td><td>A1</td></tr><tr><td></td><td>RPEQ NoJ1311 SK03</td><td>ISSUE B</td></tr></table> | DRAWING TITLE: | AUTHORISED FOR ISSUE | ORIG. SIZE | CONCEPT BULK EARTHWORKS PLAN |  CHING MENG TAN PROJECT NUMBER / SHEET C23-079 | A1 | | RPEQ NoJ1311 SK03 | ISSUE B |
|---|--|---|-------------------------------|-------|---------------|-------|---|-------------------|------------|----|-----|---|--|------------|----|-----|---|-------------|--|--|--------------------|----------|-----------|-----------|-----------|--|--|-------------------------------|---|-------------------------------|---------|----------------|---------|-------|---------------|-------|--|--------------|---|----|--|-----|--|--|--|--|--------|--|------------|--|--|--|--|----|--|----|--|--|----------------|----------------------|------------|------------------------------|--|----|--|----------------------|------------|
| | ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISSUE STAMP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISSUE FOR APPROVAL NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SURVEY INFORMATION | SURVEYOR | FILE NAME | SCALE BAR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PM - RL - | | | 0 4 8 12m SCALE 1:200 @ A1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CITY COUNCIL APPROVAL NUMBER: | CLIENT: | PROJECT TITLE: | DESIGN: | DATE: | DESIGN CHECK: | DATE: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | VNU PROJECTS | PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA | DR | | CMT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | DRAWN: | | DWG CHECK: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | DR | | CP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DRAWING TITLE: | AUTHORISED FOR ISSUE | ORIG. SIZE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONCEPT BULK EARTHWORKS PLAN |  CHING MENG TAN PROJECT NUMBER / SHEET C23-079 | A1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | RPEQ NoJ1311 SK03 | ISSUE B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



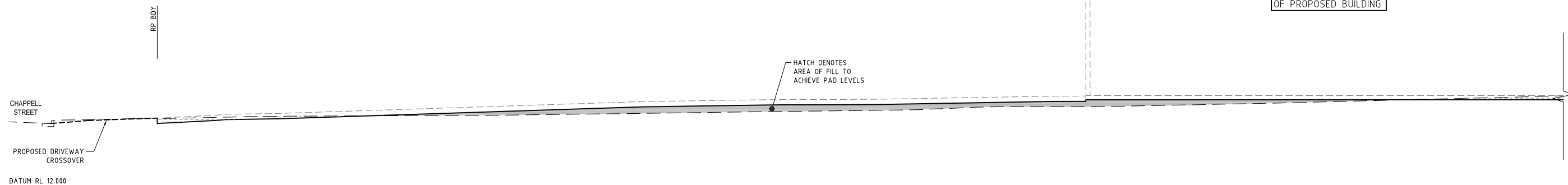
SECTION
1:100 (A1)

A
SK03



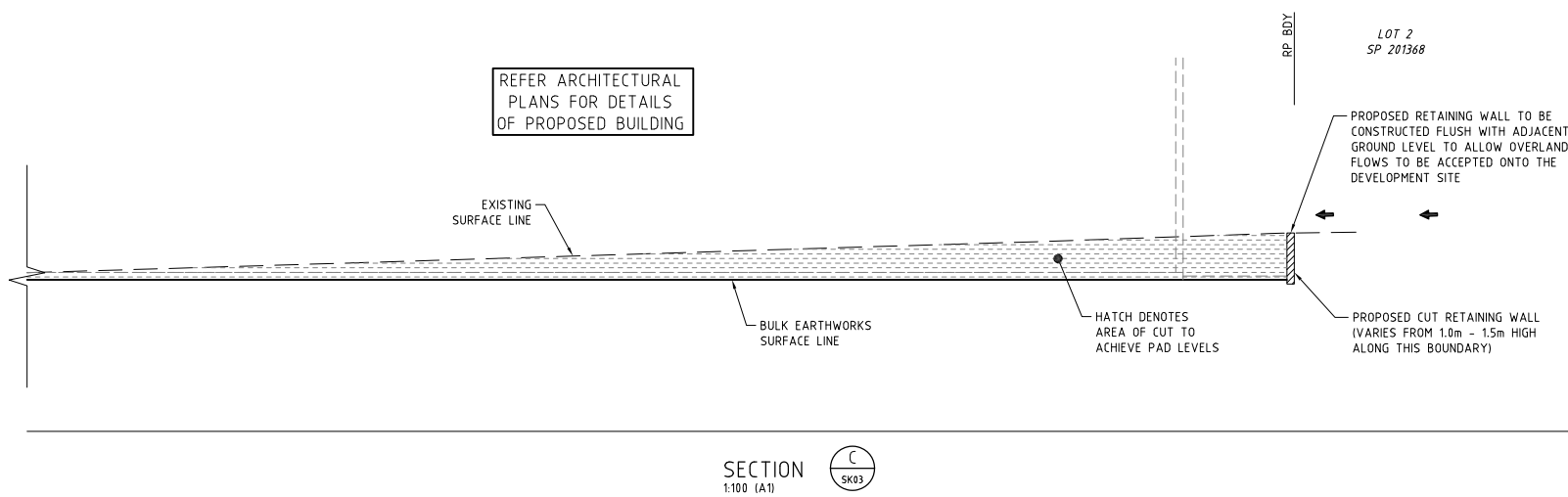
SECTION
1:100 (A1)

B
SK03



SECTION
1:100 (A1)

C
SK03



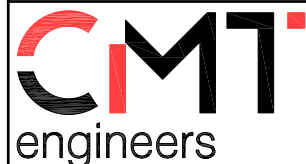
ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023



P: (07) 3849 8388
M: PO BOX 79,
CAPALABA QLD 4157
A: S2 / L2, 96 MOUNT GRAVATT
CAPALABA RD, UPPER MOUNT
GRAVATT QLD 4122
E: Info@cmtengineers.com.au

THIS DRAWING IS CONFIDENTIAL AND IS NOT TO BE REPRODUCED IN ANY FORM AS A WHOLE OR IN PART
WITHOUT EXPRESS WRITTEN PERMISSION FROM CMT ENGINEERS. THE EXISTING SERVICES INFORMATION
SHOWN HAS NOT BEEN CONFIRMED ON SITE AND IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY
SERVICES RELEVANT PRIOR TO THE START OF CONSTRUCTION. IF IN DOUBT - ASK.

| ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. |
|-------|--|------------|-------|-------|
| A | RESPONSE TO COUNCIL RFI DATED 10.03.2023 | 21.03.2023 | CP | CMT |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ISSUE STAMP

ISSUE FOR APPROVAL
NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL

SURVEY INFORMATION
PM - RL -

SURVEYOR
•
RP DESCRIPTION
LOT 69 & 70 RP603516

FILE NAME
•
LAND SIZE
•

SCALE BAR
0 2 4 6m
SCALE 1:100 @ A1

CITY COUNCIL APPROVAL NUMBER:

CLIENT:
VNU PROJECTS

PROJECT TITLE:
PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET,
KAWANA

DRAWING TITLE:
CONCEPT BULK EARTHWORKS SECTIONS

| | | | |
|---|-------|----------------------|------------------|
| DESIGN: DR | DATE: | DESIGN CHECK: CMT | DATE: |
| DRAWN: DR | DATE: | DWG CHECK: CP | DATE: |
| AUTHORISED FOR ISSUE <i>Ching Meng Tan</i> | | | ORIG. SIZE A1 |
| CHING MENG TAN PROJECT NUMBER / SHEET C23-079 | | | ISSUE A |

SITE BASED STORMWATER MANAGEMENT REPORT

PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA 4701

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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

Development Permit No.: D/20-2023

Dated: 19 May 2023

CLIENT: VNU Projects Pty Ltd

DATE WRITTEN: 19.01.2023

COUNCIL AUTHORITY: Rockhampton Regional Council

COUNCIL REF: -

JOB NO: C23-079

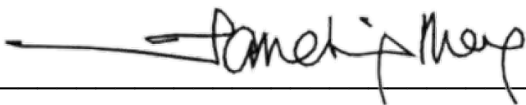
REVISION: A

DOCUMENT INFORMATION SHEET

This document reflects the current information provided by the client, survey data from council mapping systems and a survey taken on site. This document is meant for this project site only. Any changes of the landform or terrain within this project will result in this report as null and void. Survey data and landform represents part of a prerequisite for stormwater quantity and quality design. Any change of surface level or terrain will influence and change the stormwater flow behaviour. CMT Engineers will not take any responsibility for the use of this document as a reference to any works or designs within this project vicinity by others. Any information from this report used by third parties should be checked.

DOCUMENT RECORD

| Revision: | Date: | Written By: | Revised By: | Issued by: |
|-----------|------------|-------------|----------------|----------------|
| A | 08/02/2023 | Daniel Rowe | Ching Meng Tan | Original Issue |
| | | | | |
| | | | | |



This document is certified by Ching Meng Tan

RPEQ No. 11311

CONTENTS

| | | |
|------------|---|-----------|
| 1.0 | INTRODUCTION | 5 |
| 2.0 | SCOPE OF THE PROJECT | 6 |
| 3.0 | SITE CHARACTERISTICS..... | 7 |
| 3.1 | LOCATION AND SITE TOPOGRAPHY | 7 |
| 3.2 | CURRENT LAND USE AND STORMWATER DISCHARGE | 8 |
| 3.3 | PROPOSED LAND USE..... | 8 |
| 3.4 | PROPOSED STORMWATER DISCHARGE | 8 |
| 4.0 | STORMWATER QUANTITY | 10 |
| 4.1 | HYDRAULIC MODELLING | 10 |
| 4.2 | ADOPTED HYDRAULIC MODEL PARAMETERS | 10 |
| 4.3 | PRE-DEVELOPMENT INFORMATION | 10 |
| 4.4 | POST-DEVELOPMENT INFORMATION..... | 11 |
| 4.5 | PRE vs POST DEVELOPMENT UNMITIGATED DISCHARGE | 11 |
| 4.6 | PRE vs POST DEVELOPMENT MITIGATED DISCHARGE | 12 |
| 5.0 | STORMWATER QUALITY | 14 |
| 5.1 | SITE CLASSIFICATION | 14 |
| 5.2 | STATE GOVERNMENT PLANNING POLICY ASSESSMENT | 14 |
| 5.3 | LOCAL AUTHORITY ASSESSMENT..... | 15 |
| 5.4 | WATER QUALITY OBJECTIVES..... | 15 |
| 6.0 | MUSIC MODELLING | 16 |
| 6.1 | CONCEPTUAL STORMWATER QUALITY MANAGEMENT..... | 16 |
| 6.2 | STORMWATER QUALITY RESULTS..... | 17 |
| 7.0 | MAINTENANCE AND OBSERVATION PERIOD..... | 18 |
| 7.1 | MAINTENANCE CRITERIA | 18 |
| 8.0 | EROSION AND SEDIMENT MANAGEMENT | 19 |
| 8.1 | IMPLEMENTATION PHASES..... | 19 |
| 8.1.1 | PHASE 1 - EXISTING..... | 19 |
| 8.1.2 | PHASE 2 AND 3 – CONSTRUCTION AND EXCAVATION & FILLING | 19 |
| 9.0 | CONCLUSION | 20 |
| 9.1 | LAWFUL POINT OF DISCHARGE..... | 20 |
| 9.2 | STORMWATER QUANTITY | 20 |
| 9.3 | STORMWATER QUALITY..... | 20 |

TABLE OF FIGURES

| | | |
|------------|--|----|
| Figure 1-1 | SITE LOCATION | 5 |
| Figure 3-1 | AERIAL PHOTOGRAPH | 7 |
| Figure 4-1 | DRAINS MODEL | 12 |
| Figure 4-2 | WORST CASE STORM (1% AEP STORM EVENT) | 12 |
| Figure 6-1 | PROPOSED STORMWATER QUALITY TREATMENT TRAIN..... | 16 |

TABLE OF TABLES

| | | |
|-----------|--|----|
| Table 3-1 | PRE-DEVELOPMENT CATCHMENT DETAILS | 8 |
| Table 3-2 | POST-DEVELOPMENT CATCHMENT DETAILS | 8 |
| Table 4-1 | PRE-DEVELOPMENT HYDROLOGICAL MODEL | 10 |
| Table 4-2 | POST-DEVELOPMENT HYDROLOGICAL MODEL | 11 |
| Table 4-3 | PRE VS POST-DEVELOPMENT UNMITIGATED DISCHARGE | 11 |
| Table 4-4 | PRE VS POST-DEVELOPMENT MITIGATED DISCHARGE | 13 |
| Table 4-5 | DETENTION TANK PARAMETERS | 13 |
| Table 5-1 | STATE GOVERNMENT PLANNING POLICY CHECKLIST | 14 |
| Table 5-2 | WATER QUALITY OBJECTIVES | 15 |
| Table 6-1 | POLLUTANT REDUCTIONS ACHIEVED FROM TREATMENT TRAIN | 17 |

TABLE OF APPENDICES

| |
|---|
| Appendix A – ARCHITECTURAL LAYOUT PLAN |
| Appendix B - DETAIL SURVEY |
| Appendix C - COUNCIL MAP DATA |
| Appendix D – CONCEPT STORMWATER DRAINAGE & CATCHMENT PLAN |
| Appendix E – SPEL STORMSACK MANUAL |

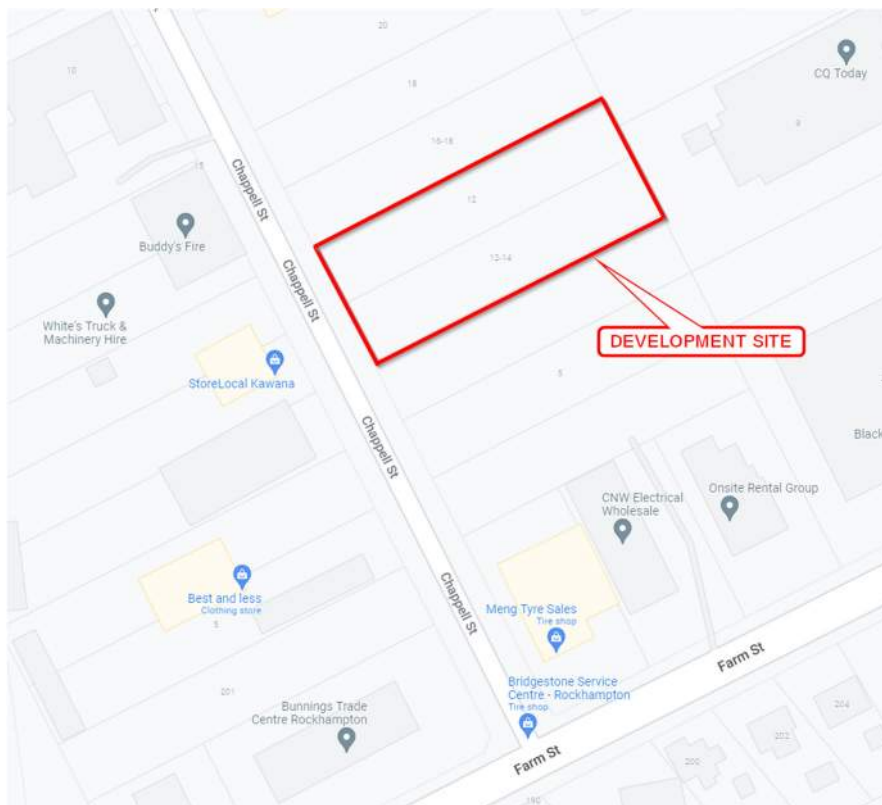
1.0 INTRODUCTION

CMT Engineers Pty Ltd has been engaged by our client VNU Projects Pty Ltd to prepare a Site-Based Stormwater Management Report for a Proposed Warehouse at 12-14 Chappell Street, Kawana 4701.

The following is the available supporting information:

- Proposed Architectural Layout prepared by Urban Creatrix (Appendix A),
- Detailed Survey Prepared by Capricorn Survey Group CQ (Appendix B);
- Rockhampton Regional Council Mapping Information (Appendix C)

Figure 1-1 SITE LOCATION



2.0 SCOPE OF THE PROJECT

The following issues concerning stormwater quantity and quality will be addressed within this report:

- Identify the location of the lawful discharge point(s) of discharge.
- Prepare a concept stormwater layout for the proposed development.
- Identify the planning policies and guidelines; and classify potential impacts on stormwater quality.
- If applicable, identify the Water Quality Objective Targets as determined by Local Authority Planning Schemes & The Department of Environment & Resources Management.
- If required, develop a suitable “stormwater treatment train” that complies with Water Quality Objectives.
- If applicable, Modelling using Urban Stormwater Improvement Software (MUSIC Version 6.0.1) will be utilized to illustrate compliance with the determined Water Quality Objectives.
- Details of monitoring and maintenance requirements for all stormwater treatment devices.
- Indicate the location of the lawful points of discharge for the development and demonstrate that the proposed stormwater discharge will not adversely affect downstream properties and drainage systems.

3.0 SITE CHARACTERISTICS

3.1 LOCATION AND SITE TOPOGRAPHY

The Proposed Development Site is located approximately 4km North of Rockhampton CBD. The site address is 12-14 Chappell Street, Kawana and also described as Lot 70 & 71 on RP603516.

The topography of the site in its current state is sloping from the eastern boundary towards the western boundary of the site towards Chappell Street with an average grade of 2%. The total site area is 4,047m².

Figure 3-1 AERIAL PHOTOGRAPH



3.2 CURRENT LAND USE AND STORMWATER DISCHARGE

The development site is currently unoccupied and consists of vegetation and open space grassed areas. According to the detailed survey stormwater runoff sheet flows across the site and discharges to Chappell Street. Based on Council records and detail survey there is no stormwater infrastructure located within Chappell Street.

The current land use catchment area consists of the following areas (Refer to the table below);

Table 3-1 PRE-DEVELOPMENT CATCHMENT DETAILS

| Pre-Development Areas (4,047m ²) | | |
|--|----------------------|-------|
| Impervious Area | 0 m ² | 0 % |
| Pervious Area | 4,047 m ² | 100 % |

3.3 PROPOSED LAND USE

The project consists of a warehouse development with associated hardstand and landscape areas.

Refer to Appendix A of this report for the Architectural Layout.

For catchment properties refer to the table below.

Table 3-2 POST-DEVELOPMENT CATCHMENT DETAILS

| Post-Development Areas (4,047m ²) | | |
|---|----------------------|------|
| Impervious Area | 3,888 m ² | 96 % |
| Pervious Area | 159 m ² | 4 % |

3.4 PROPOSED STORMWATER DISCHARGE

It is proposed that development is split into two sub-catchment as shown on Concept Stormwater Drainage Catchment Plan SK02 in Appendix D.

Catchment 1/A

Catchment 1/A consists of the warehouse roof area. The proposed roof area is to be captured by a series of gutters and downpipes and directed to the proposed above ground detention tanks. Flows from the detention tanks will be conveyed to the kerb and Chappell in Chappell Street.

Catchment 2/A

Catchment 2/A consists of the office building roof area, pump room roof area, hardstand, landscaping and pedestrian access around the warehouse. Flows from the catchment will be directed to a series of field inlet pits. All field inlets located on site are to be fitted with SPEL Stormsack trash bag pre-treatment devices which remove large particles. The hardstand area will sheet flow overland to a landscape buffer along the sites frontage before being collected by a series of field inlets.

Due to the absence of Council underground stormwater infrastructure, flows from both catchments will ultimately discharge to the sites lawful point of discharge being the kerb and channel in Chappell Street as per existing conditions. Two discharge points are proposed within the kerb and channel to reduce concentration of flows.

Refer Appendix D for the Concept Stormwater Drainage Plan and Concept Stormwater Catchment Plan.

4.0 STORMWATER QUANTITY

4.1 HYDRAULIC MODELLING

Peak stormwater discharge from the development site has been determined by using Urban Stormwater drainage modelling software “DRAINS” version 2019.08. This software is used for the design and analysis of urban stormwater drain systems which utilises either the “Extended Rational Method” Or the “ILSAX Method” hydrological loss model to convert Australian Rainfall and Runoff temporal patterns and rainfall data into runoff hydrographs. The ILSAX hydrological model has been adopted for the purposes of this analysis.

The ARR 2019 Procedures were chosen to undertake the assessment with input data specified by the ARR 2019 data hub. The model was set up with pre and post development catchments and simulations undertaken for the Q100 (1% AEP) storm event with varying storm durations from 5 minutes to 2 hours.

The initial simulations were run using the “Ensembles of Storms” to determine the Median storm event for the pre development Q100 (1% AEP) of the development site. The median storm burst for the Q100 (1% AEP) event was then adopted for the Q2 (0.5EY), Q5 (0.2EY), Q10 (10% AEP), Q20 (5% AEP), Q50 (2% AEP) & Q100 (1% AEP) to determine the median storm number for each of these events.

The individual storm numbers derived from the above process were then adopted and run within “DRAINS” to undertake detention tank design to mitigate the post development flows to equal or less than pre development flows.

4.2 ADOPTED HYDRAULIC MODEL PARAMETERS

| | |
|---|--------|
| Default Hydrological Model: | ILSAX |
| Paved area and Depression storage (mm): | 1 |
| Supplementary area and Depression storage (mm): | 1 |
| Grassed area and Depression storage (mm): | 5 |
| Soil types: | Normal |
| Antecedent rainfall depth for AMC: | 3 mm |

4.3 PRE-DEVELOPMENT INFORMATION

| | |
|-------------------------------------|--------------------------------|
| Sub-catchment area (ha): | 0.4047 |
| Hydrological Model: | ILSAX |
| Time of Concentration (Impervious): | 15 mins. (QUDM – Section 4.06) |
| Time of Concentration (Pervious): | 15 mins. (QUDM – Section 4.06) |

Table 4-1 PRE-DEVELOPMENT HYDROLOGICAL MODEL

| | PAVED | SUPPLEMENTARY | GRASSED |
|------------------------------|-------|---------------|---------|
| Percentage of area (%) | 0 | 0 | 100 |
| Time of Concentration (mins) | 15 | 0 | 15 |

4.4 POST-DEVELOPMENT INFORMATION

| | |
|-------------------------------------|-------------------------------|
| Sub-catchment area (ha): | 0.4047 |
| Hydrological Model: | ILSAX |
| Time of Concentration (Impervious): | 6 mins. (QUDM – Section 4.06) |
| Time of Concentration (Pervious): | 6 mins. (QUDM – Section 4.06) |

Table 4-2 POST-DEVELOPMENT HYDROLOGICAL MODEL

| | PAVED | SUPPLEMENTARY | GRASSED |
|------------------------------|-------|---------------|---------|
| Percentage of area (%) | 96 | 0 | 4 |
| Time of Concentration (mins) | 6 | 0 | 6 |

4.5 PRE vs POST DEVELOPMENT UNMITIGATED DISCHARGE

The pre-development and post-development results produced within “DRAINS” using the ILSAX hydrological model have been compared in the table below.

Table 4-3 PRE VS POST-DEVELOPMENT UNMITIGATED DISCHARGE

| Storm Event ARI (EY or AEP) | Pre-Development Runoff (m ³ /s) | Post-Development Unmitigated Runoff (m ³ /s) | Peak Discharge Difference (m ³ /s) |
|--------------------------------|--|---|--|
| Q1 (1EY) 10min, Storm 3 | 0.028 | 0.112 | + 0.084 |
| Q2 (0.5EY) 10min, Storm 3 | 0.045 | 0.140 | + 0.095 |
| Q5 (0.2EY) 10min, Storm3 | 0.065 | 0.172 | + 0.107 |
| Q10 (10%) 10min, Storm 3 | 0.081 | 0.199 | + 0.118 |
| Q20 (5%) 10min, Storm 5 | 0.100 | 0.229 | + 0.129 |
| Q50 (2%) 10min, Storm 4 | 0.126 | 0.267 | + 0.141 |
| Q100 (1%) 10min, Storm 4 | 0.146 | 0.298 | + 0.152 |

The above table demonstrates an increase in post-development peak discharge. A detention tank will be required to mitigate flows.

4.6 PRE vs POST DEVELOPMENT MITIGATED DISCHARGE

Figure 4-1 DRAINS MODEL

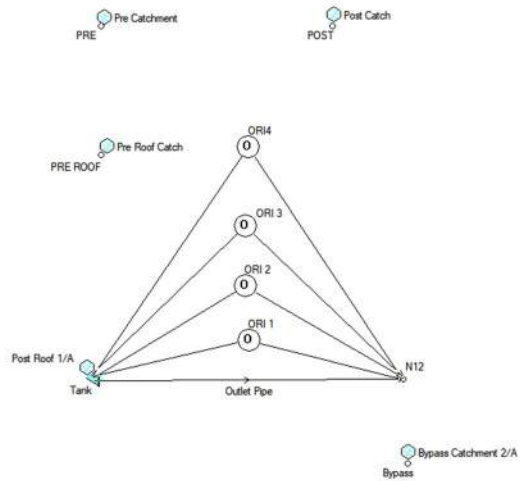


Figure 4-2 WORST CASE STORM (1% AEP STORM EVENT)

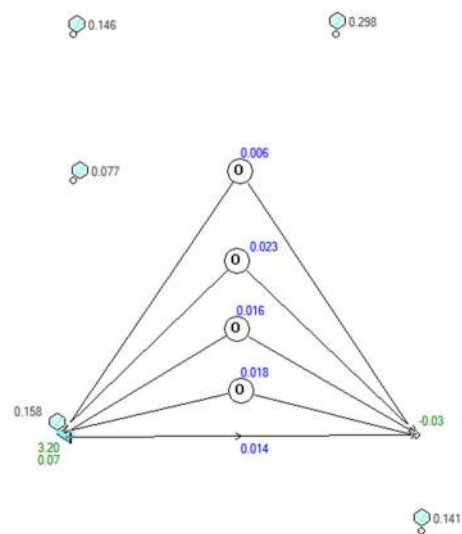


Table 4-4 PRE VS POST-DEVELOPMENT MITIGATED DISCHARGE

| Storm Event ARI (EY or AEP) | Pre-Development Runoff (m ³ /s) | Total Post Development Mitigated Flows – including bypass | Peak Discharge Difference - Mitigated (m ³ /s) | Peak Discharge Difference - Unmitigated (m ³ /s) | Post Development Unmitigated Flow Reduction |
|--------------------------------|--|--|---|---|---|
| Q1 (1EY) 10min, Storm 3 | 0.028 | 0.060 | +0.032 | +0.084 | 38% |
| Q2 (0.5EY) 10min, Storm 3 | 0.045 | 0.082 | +0.037 | +0.095 | 38% |
| Q5 (0.2EY) 10min, Storm 3 | 0.065 | 0.110 | +0.045 | +0.107 | 42% |
| Q10 (10%) 10min, Storm 3 | 0.081 | 0.134 | +0.053 | +0.118 | 45% |
| Q20 (5%) 10min, Storm 5 | 0.100 | 0.161 | +0.061 | +0.129 | 47% |
| Q50 (2%) 10min, Storm 4 | 0.126 | 0.191 | +0.065 | +0.141 | 46% |
| Q100 (1%) 10min, Storm 4 | 0.146 | 0.218 | +0.072 | +0.152 | 47% |

As demonstrated in the above table flows have been reduced in the post development scenario. Whilst there is an increase post-development the absence of Council underground infrastructure makes it difficult to capture and mitigate the ground level. Therefore, the implementation of the above ground tank to mitigate flows from the roof is proposed to provide some reduction in the vicinity of 30-50%. The above table is based on a detention tank with the following characteristics to achieve the reduction of discharge;

Table 4-5 DETENTION TANK PARAMETERS

| Detention Tank Parameters | |
|---------------------------|--|
| Volume | 63m ³ (2 x 31.5m ³ Above Ground Tanks) |
| Outlet 1 | 60mm Orifice IL = Base of Tank |
| Outlet 2 | 80mm Orifice IL = Base + 1440mm |
| Outlet 3 | 100mm Orifice IL = Base + 1750mm |
| Outlet 4 | 110mm Orifice IL = Base + 2060mm |
| Outlet 5 | 90mm Orifice IL = Base + 3000mm |

5.0 STORMWATER QUALITY

5.1 SITE CLASSIFICATION

The implementation of a suitable Stormwater Management Plan for the proposed development is determined from the following:

- Identify if compliance with the Department of Environment and Resource Management, State Planning Policy is required, or
- Identify if compliance with the local authorities Stormwater Quality is required, or
- Implement Best Management Practice Guidelines for low risk sites as per local authority development guidelines.

Either compliance objective will still be designed based on the following key principles:

- The use of Water Sensitive Urban Design (WSUD) principles are to be adopted throughout the site where possible,
- Water Quality controls are to be considered under two separate phases of the development, the construction phase and the operational phase,
- The construction phase requires the assessment of the site during the construction and maintenance period of the development.
- The operational phase requires assessment of the site over the total life of the site and its water quality control measures.

5.2 STATE GOVERNMENT PLANNING POLICY ASSESSMENT

To determine whether compliance with DERM's State Planning Policy is required, it is important to undertake the State Planning Policies Checklist. If any of the trigger questions are answered Yes, then compliance is expected with the State Planning Policy. If all trigger questions are answered No, then stormwater quality best management practices will be adopted.

Table 5-1 STATE GOVERNMENT PLANNING POLICY CHECKLIST

| Development Application Types | | | |
|--|-----------|--|-----------|
| Material Change in Use MCU | Yes / No? | Reconfiguration of Lots ROL | Yes / No? |
| A material change of use for an urban purpose that involves premises 2500m ² OR greater in size? | YES | Reconfiguring a lot for an Urban purpose that involves premises 2500m ² OR greater in size and will result in six OR more lots? | NO |
| AND Will result in six or more dwellings; | NO | OR Operational work for an urban purpose that involves disturbing a land area 2500m ² OR greater in size? | NO |
| OR Will result in an impervious area greater than 25% of the NET development area? | YES | | |

As the above table demonstrates stormwater quality treatment is required and compliance with the State Planning Policy Water Quality Objectives is expected by the local authority.

5.3 LOCAL AUTHORITY ASSESSMENT

As the development triggers one or more of the State Planning Policy's checklist criteria, compliance with DERM's State Planning Policy is required, therefore a Local Authority Assessment will not be carried out.

5.4 WATER QUALITY OBJECTIVES

For this development, it is necessary to identify the Water Quality Objectives (WQO's) with regards to the future stormwater discharge from the site. Based on "Urban Stormwater Quality Planning Guidelines 2010" obtained from Queensland Government, Department of Natural Resource, Mines and Energy, the removal of the following pollutants from stormwater discharge is required, to meet Water Quality Objectives.

Table 5-2 WATER QUALITY OBJECTIVES

| INDICATORS | % REDUCTION REQUIRED TO MEET WQO'S |
|-----------------------------|------------------------------------|
| Total Suspended Solid (TSS) | 80% |
| Total Phosphorus (TP) | 60% |
| Total Nitrogen (TN) | 45% |
| Gross Pollutants (GP) | 90% |

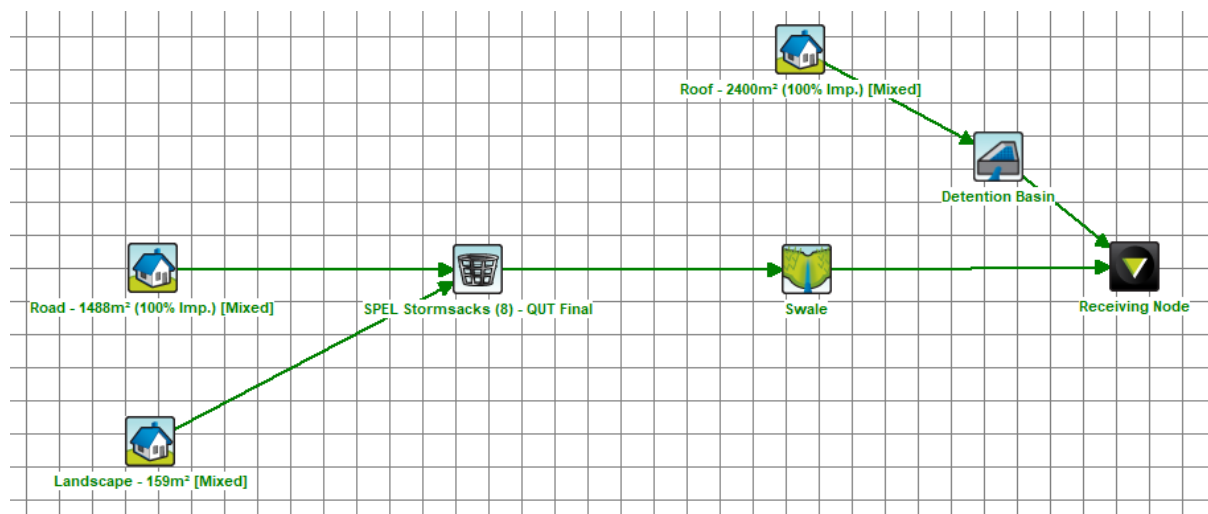
6.0 MUSIC MODELLING

MUSIC Version V6.0.1 was used to assess pollutants and the performance of the proposed stormwater treatment train to be adopted for this development. Modelling was undertaken in accordance with "Water by Design – Music Modelling Guidelines Version 1.0 – 2010"

6.1 CONCEPTUAL STORMWATER QUALITY MANAGEMENT

The below MUSIC model treatment train has been adopted for the development.

Figure 6-1 PROPOSED STORMWATER QUALITY TREATMENT TRAIN



The proposed stormwater treatment train will consist of the following:

- All roof areas from the warehouse are to be collected internally and discharged to the above ground detention tank.
- Flows from the office, pump room and pedestrian path adjacent to the warehouse are to be directed overland to field inlet pits. All field inlets located on site are to be fitted with SPEL Stormsack trash bag devices which remove large particles prior to being directed to the sites lawful point of discharge.
- Flows from the hardstand/carpark will be directed to a landscape buffer at the front of the site before being captured by a series of field inlet pits fitted with SPEL Stormsack trash bag devices.

6.2 STORMWATER QUALITY RESULTS

A MUSIC analysis was carried out on the proposed development site based on the “stormwater quality treatment train”. The results of the annual pollutant load reductions based on the above design calculations are shown in the table below.

Figure 6-4 TREATMENT TRAIN RESULTS

| | Sources | Residual Load | % Reduction |
|---------------------------------------|---------|---------------|-------------|
| Flow (ML/yr) | 1.06 | 1.05 | 0.6 |
| Total Suspended Solids (kg/yr) | 177 | 25.2 | 85.7 |
| Total Phosphorus (kg/yr) | 0.372 | 0.161 | 56.8 |
| Total Nitrogen (kg/yr) | 2.25 | 1.8 | 20 |
| Gross Pollutants (kg/yr) | 23.3 | 0 | 100 |

Table 6-1 POLLUTANT REDUCTIONS ACHIEVED FROM TREATMENT TRAIN

| INDICATOR | WQO's Target | WQO's ACHIEVED | OBJECTIVES MET |
|------------------------------|--------------|----------------|----------------|
| Total Suspended Solids (TSS) | 80% | 85.7% | YES |
| Total Phosphorus (TP) | 60% | 56.8% | NO |
| Total Nitrogen (TN) | 45% | 20% | NO |
| Gross Pollutants (GP) | 90% | 100% | YES |

The above table demonstrates that the installation of the proposed stormwater treatment measures achieves the required reduction requirements for Total Suspended Solids, and Gross Pollutants. Total Phosphorus and Total Nitrogen are reduced also however, they do not achieve the full reduction.

Short falls in modelling results are attributed to the absence of Council underground Stormwater Infrastructure making it difficult to provide underground mechanical treatment or bio-retention.

Approval is sought based on the proposed water quality treatment measures providing significant reductions in all pollutants and is considered a reasonable and practical approach in line with best management practices.

Trace and heavy metals are usually associated with fine sediment. The proposed treatment train removes very significant proportions of suspended solids therefore it is expected that the removal of trace and heavy metals will be acceptable to adequately protect downstream habitats and ecosystems from heavy metal contamination.

7.0 MAINTENANCE AND OBSERVATION PERIOD

7.1 MAINTENANCE CRITERIA

Regular maintenance of the proposed stormwater quality devices is required to minimise the potential for dirty stormwater being discharged from the site.

The stormwater treatment devices shall be maintained using the following:

- Manufacturers specifications for proprietary stormwater management devices,
- Water by Design's "Maintaining Vegetated Stormwater Assets" Manual,

SPEL Stormsack Manual is attached within Appendix E.

8.0 EROSION AND SEDIMENT MANAGEMENT

8.1 IMPLEMENTATION PHASES

8.1.1 PHASE 1 - EXISTING

Prior to construction commencing, the following Sediment and Erosion Control measures will be implemented to minimise disturbance and ensure water quality is maintained:

- Designation of transport routes to ensure minimal vegetation disturbance. Transport routes will have construction exits in accordance with IECA Guidelines,
- Construction entry/exit to be installed and will comprise of a designed gravel pad or placement of hardwood logs in accordance with the IECA Guidelines,
- Install sediment fences around the proposed site (along tow of batter alignment),
- Install check dams if required.

8.1.2 PHASE 2 AND 3 – CONSTRUCTION AND EXCAVATION & FILLING

The following measures will be undertaken to mitigate adverse impact to water quality during the Construction Phase:

- Sediment fences to be erected at the base of all batters and stockpiles to prevent sediment transportation off site,
- Turf filter strips to be placed along all road verges,
- Diversion swales to divert sediment laden water,
- Rock check dams are to be placed intermittently along diversion swales,
- Incorporate a temporary sediment basin in the treatment of sediment laden water.
- Re-vegetation of all disturbed areas as soon as possible,
- All sediment control structures to be maintained in an effective manner and inspected after each stormwater event. No structure is to accumulate sediment above 40% of its capacity,
- Construction of water quality treatment devices are to be undertaken in the final stages of construction of the development to ensure that clogging of the filter media is avoided, and
- Regular monitoring of water quality to determine the effectiveness of the Sediment and Erosion Control measures.

9.0 CONCLUSION

9.1 LAWFUL POINT OF DISCHARGE

Stormwater flows from the development will discharge to the sites lawful point of discharge being the kerb and channel in Chappell Street as per existing conditions. Two discharge points are proposed within the kerb and channel to reduce concentration of flows.

9.2 STORMWATER QUANTITY

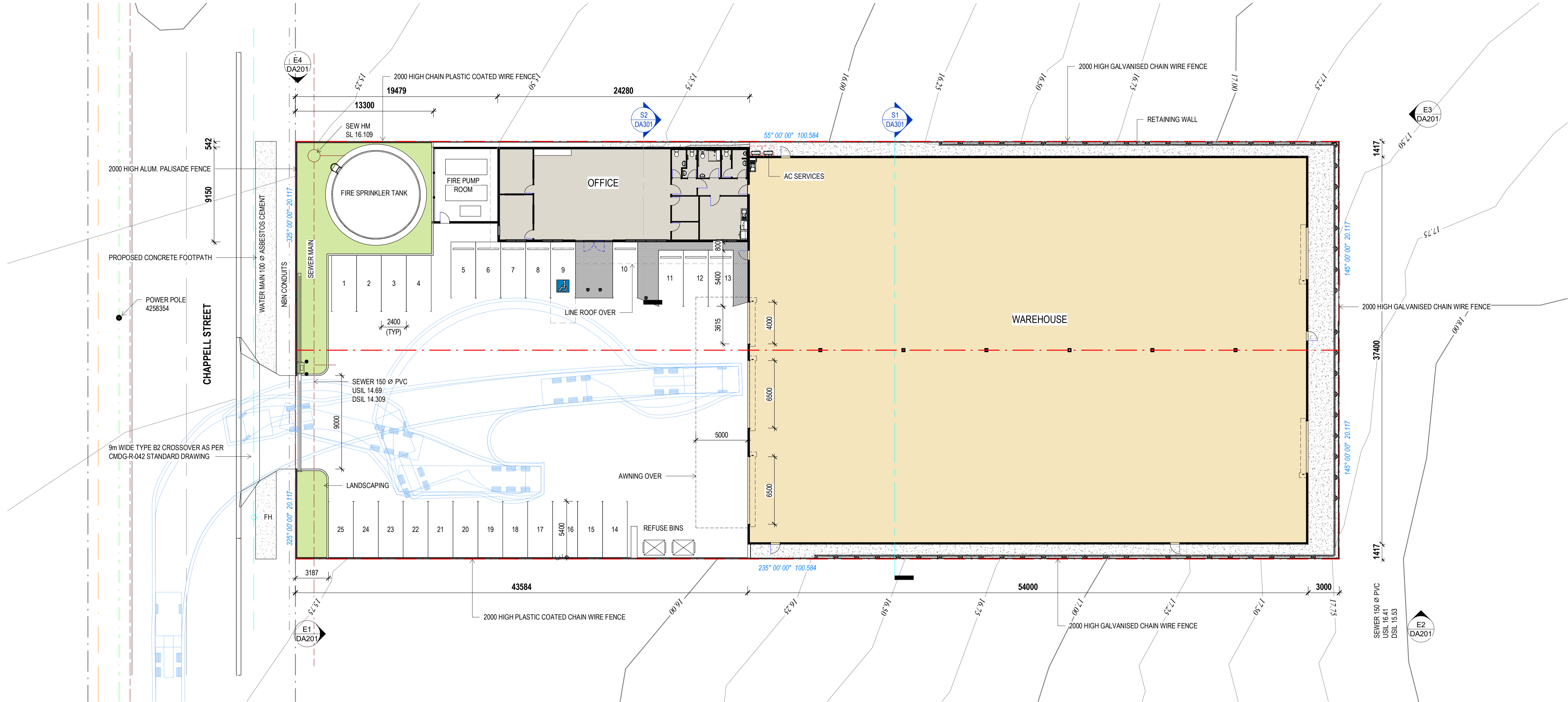
An assessment of the pre vs post development flows has been undertaken and it is determined that on-site detention is required to mitigate the post development flows from the development. Stormwater detention is provided by an above ground detention tank with a volume of 63kL. Whilst there is an increase post-development, the absence of Council underground infrastructure makes it difficult to capture and mitigate the ground level. Therefore, the implementation of the above ground tank to mitigate flows from the roof is proposed to provide some reduction.

9.3 STORMWATER QUALITY

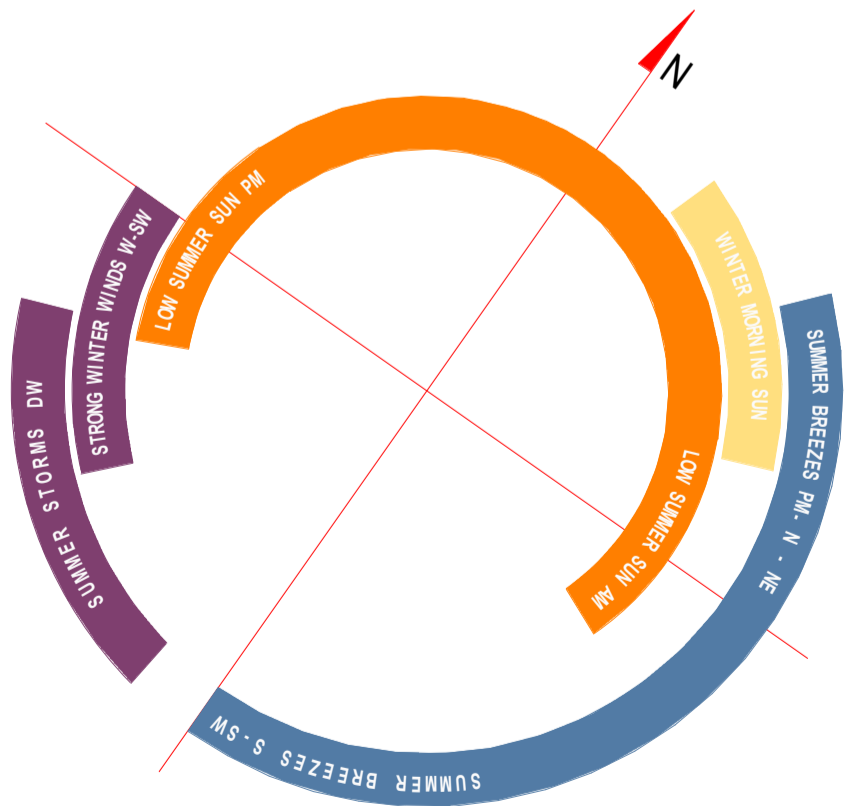
A detention tank, vegetated swale/buffer and SPEL Stormsacks are proposed to address water quality. As the water quality does not meet the required objectives, best practice methods have been incorporated.

APPENDICES

Appendix A – ARCHITECTURAL LAYOUT PLAN



1 SITE PLAN
SCALE 1 : 200



| SITE SCHEDULE | |
|---------------|---------------------|
| LOT/EASEMENT | AREA |
| | 2023 m ² |
| | 2023 m ² |

| BUILDING AREAS (GLA) | |
|--|---------------------|
| GROSS LEASE AREA CALCULATED AS PER PCA METHOD OF MEASUREMENT | |
| USE | AREA |
| OFFICE | 216 m ² |
| WAREHOUSE | 2020 m ² |
| GRAND TOTAL | 2236 m ² |

| GROSS FLOOR AREA | |
|---|---------------------|
| AREA CALCULATED BASED ON PLANNING SCHEME DEFINITION FOR GROSS FLOOR AREA. | |
| USE | AREA |
| WAREHOUSE | 2020 m ² |
| OFFICE | 216 m ² |
| GRAND TOTAL | 2236 m ² |

| DEVELOPMENT AREAS | | |
|----------------------|-----|---------------------|
| NAME | % | AREA |
| DRIVEWAY/CAR PARKING | 33% | 1331 m ² |
| LANDSCAPING | 3% | 121 m ² |
| SITE COVER | 55% | 2240 m ² |

| CAR PARKING SCHEDULE | |
|-------------------------------------|-------|
| REQUIRED | |
| WAREHOUSE - 1 PER 100m ² | 23 |
| PROVIDED | |
| CAR PARK TYPE | COUNT |
| PARKING SPACE - 2400 x 5400 | 25 |
| TOTAL | 25 |

DESIGN TEAM

URBAN CREATRIX
Planning + Design + Solutions

T: 0402 020 440
E: plan@urbancreatrix.com.au
M: PO Box 68 Morningside Qld 4170

ABN 52 652 883 522
PIA Member 74431
Bldg Des Lic 645557

PROJECT MANAGER



REV DESCRIPTION
A PRELIMINARY DA ISSUE

DATE INT
11.01.2023 RJJ

CLIENT

VNU PROJECTS PTY LTD

PROJECT

PROPOSED WAREHOUSE

PROJECT ADDRESS

12-14 CHAPPELL STREET KAWANA

DRAWING TITLE

SITE PLAN

A1 DRAWING SHEET

SCALE As indicated

DO NOT SCALE FROM DRAWING. CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. IF IN DOUBT ASK.
THE DRAWING MUST NOT BE REPRODUCED OR COPIED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE OWNER OF THE COPYRIGHT.

DRAWING STATUS

DRAFT ISSUE

PROJECT NUMBER

22-058

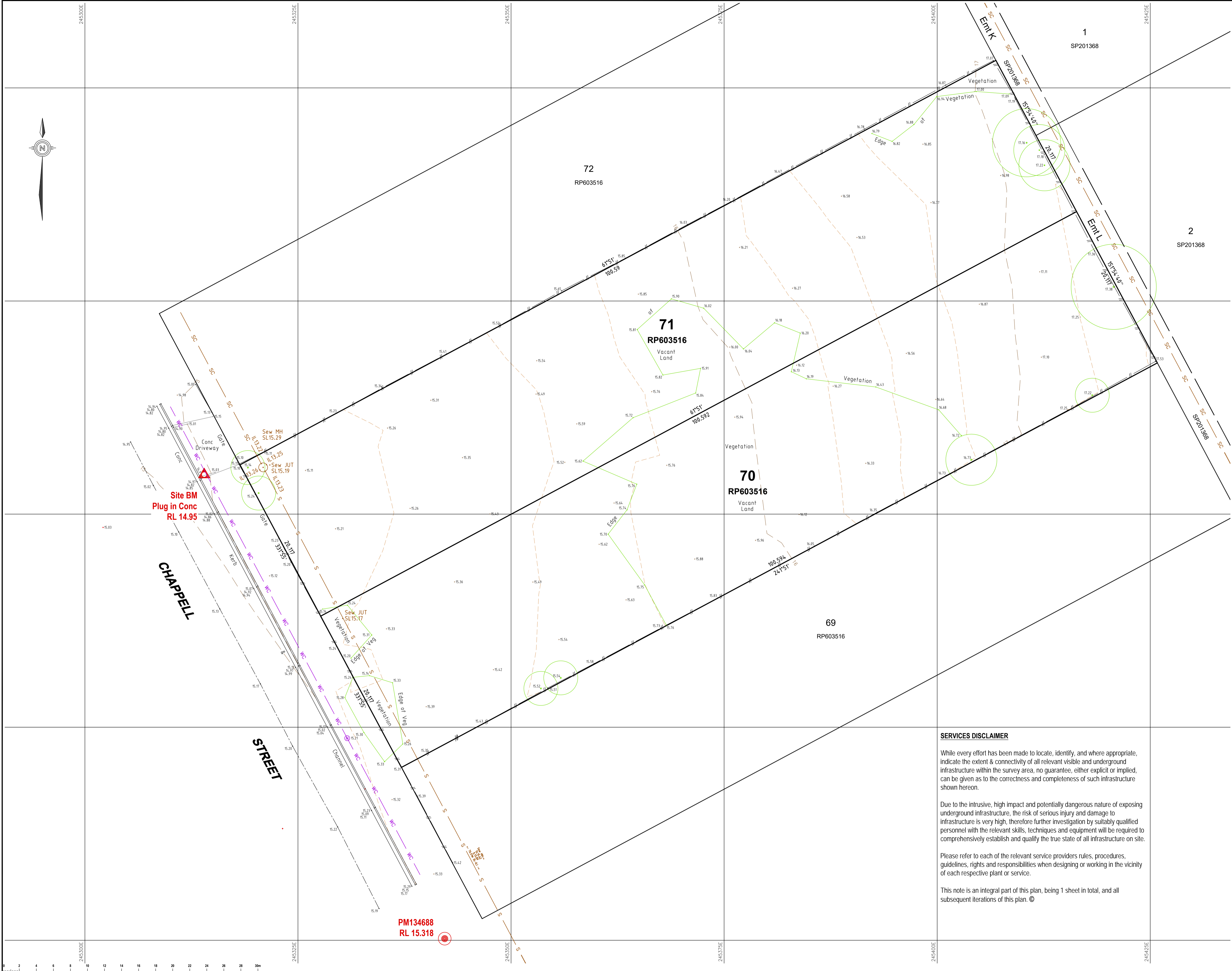
SHEET NUMBER

DA101

REVISION

A

Appendix B - DETAIL SURVEY



URBAN CREATRIX PTY LTD

DETAIL SURVEY OF
LOTS 70 & 71 ON RP603516

12-14 CHAPPELL STREET, KAWANA

REAL PROPERTY DESCRIPTION
Lot/Plan : Lot 70 & 71 on RP603516
Area : 2023m2 each (Deed)
Locality : Kawana
Local Authority : Rockhampton Regional Council

NOTES
This plan was prepared for URBAN CREATRIX PTY LTD from field survey for the purpose of designing new constructions on the subject land and should not be used by any other persons for any other purpose.

Property boundaries have not been reinstated or marked at the time of survey and are approximate only, based on appropriate boundary connections.

Where possible underground services have been located by field survey. Some services shown hereon are compiled from local authority and service provider plans and/or plans provided by the client and are noted accordingly on the plan.

Prior to any design, excavation or construction on site, the relevant authorities, and a qualified service locator should be engaged to ensure all services that may be affected by any future works have been located.

These plans have been prepared as verification plots only. Some text RL's have been omitted for clarity. Please refer to the relevant 3D data files for any spatial interrogation requirements.

Any discrepancies should be verified in writing with Capricorn Survey Group (CQ) Pty Ltd.

This note is an integral part of this plan.

LEGEND

LINETYPE LEGEND

S

UG Sewerage Line

SC

UG Sewerage Line (Compiled)

SW

UG Stormwater Line

SWC

UG Stormwater Line (Compiled)

>

Overland Flow/Direction

E

UG Electrical Line

EC

UG Electrical Line (Compiled)

W

UG Water Line

WC

UG Water Line (Compiled)

W

AG Water Line

G

UG Gas Line

GC

UG Gas Line (Compiled)

Top of Bank

Toe of Bank

CIL of Bitumen

Edge of Bitumen

Retaining Wall

Line Marking

Fence Line

Roof / Guttering

Eaves

0.25m Interval

1.00m Interval

GENERAL SYMBOL LEGEND

Comms Conduit Marker

Stormwater MH

Comms Pit

Stormwater Pit

Elec Conduit Marker

Stormwater DP / Outlet

Elec Turret

Stormwater IO

Elec Pit

Water Fire Hydrant

Elec Light Bollard

Water Meter

Elec Light Pole

Water Valve

Elec Power Pole

Water Tap

Elec Power Pole + Light

Water Control Tap

Elec Power Pole + Transformer

Water Tee

Elec Stay Point

Water Conduit Marker

Traffic Lights

Water Tapping Band

Gas Marker

Post

Gas Valve

Bollard

Gas Hot Water System

Guide Sign

Sewerage MH

Flag Pole

Sewerage Vent

Australia Post Box

Sewerage IO

Shrub

DATUM
Vertical Datum : AHD Vide PM134688 RL15.318
Horizontal Datum : MGA2020 Vide PM134688
Contour Interval : 0.25m, 1.0m Index
Co-ord System : MGA2020 Vide PM134688

WARNING

LOCATION AND CONNECTIVITY OF U/G SERVICES SHOWN HEREON HAVE BEEN DETERMINED BY DIRECT ACCESS OR COMPILED FROM LOCAL AUTHORITY AND SERVICE PROVIDER PLANS ONLY. FURTHER INVESTIGATION MAY BE REQUIRED TO DETERMINE LOCATIONS OF ALL INACCESSIBLE SERVICES.

REVISION

| Issue | Date | Details | Authorised |
|-------|------------|---------------|------------|
| A | 18-01-2023 | Initial Issue | RJKF |

CREATED

capricornsurveygroup
SURVEYING & PLANNING SOLUTIONS

07 4927 5199 | reception@csagroup.com.au | 132 Victoria Parade, Rockhampton QLD 4700

SCALE
1:200 @ A1

DRAWING NUMBER
8850-02-DTL (1/1)

ISSUE
A

SERVICES DISCLAIMER

While every effort has been made to locate, identify, and where appropriate, indicate the extent & connectivity of all relevant visible and underground infrastructure within the survey area, no guarantee, either explicit or implied, can be given as to the correctness and completeness of such infrastructure shown hereon.

Due to the intrusive, high impact and potentially dangerous nature of exposing underground infrastructure, the risk of serious injury and damage to infrastructure is very high, therefore further investigation by suitably qualified personnel with the relevant skills, techniques and equipment will be required to comprehensively establish and qualify the true state of all infrastructure on site.

Please refer to each of the relevant service providers rules, procedures, guidelines, rights and responsibilities when designing or working in the vicinity of each respective plant or service.

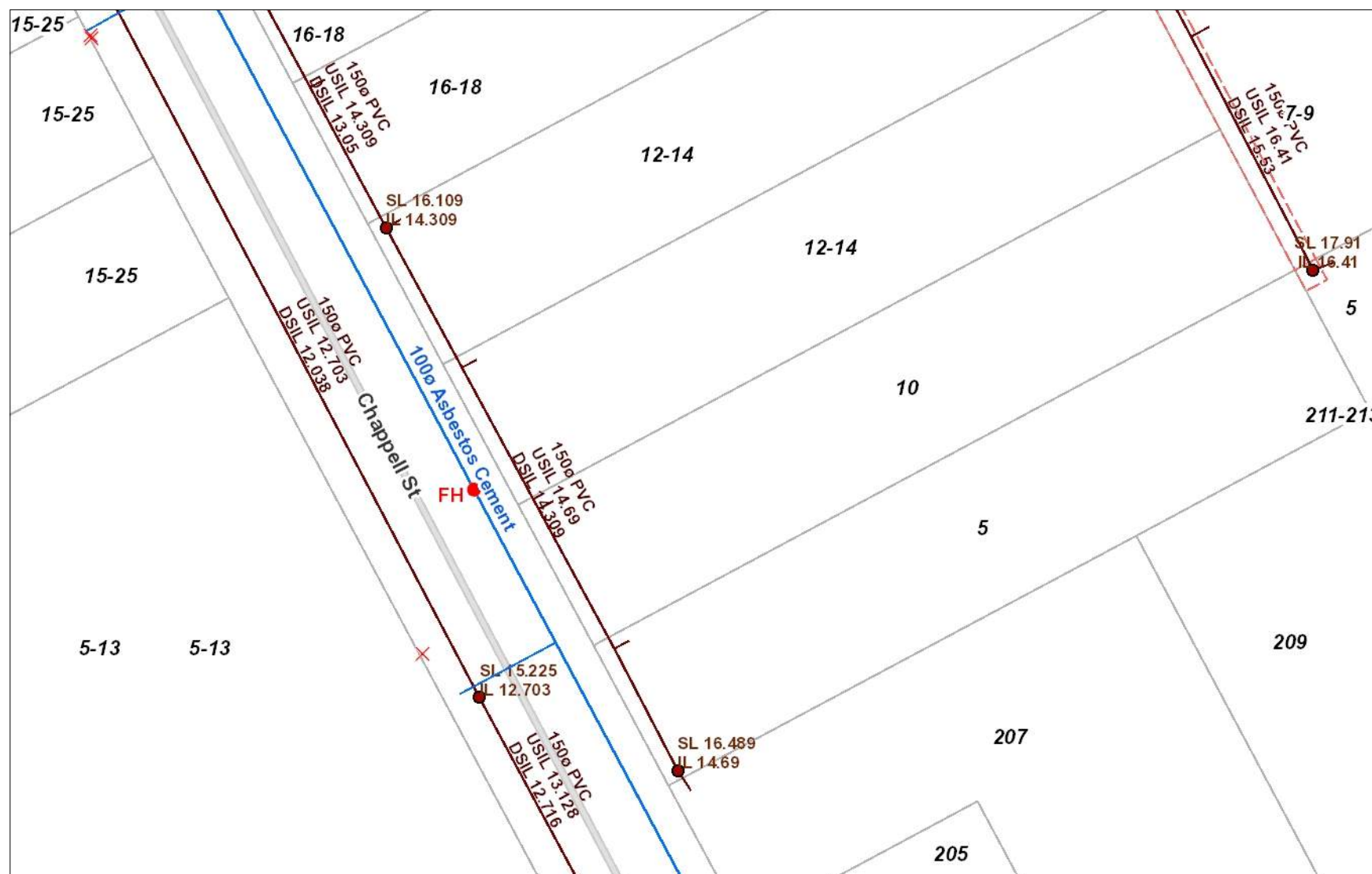
This note is an integral part of this plan, being 1 sheet in total, and all subsequent iterations of this plan. ©

Appendix C - COUNCIL MAP DATA



A4 Page scale at 1: 753.04

Printed from GeoCortex on 19/12/2022



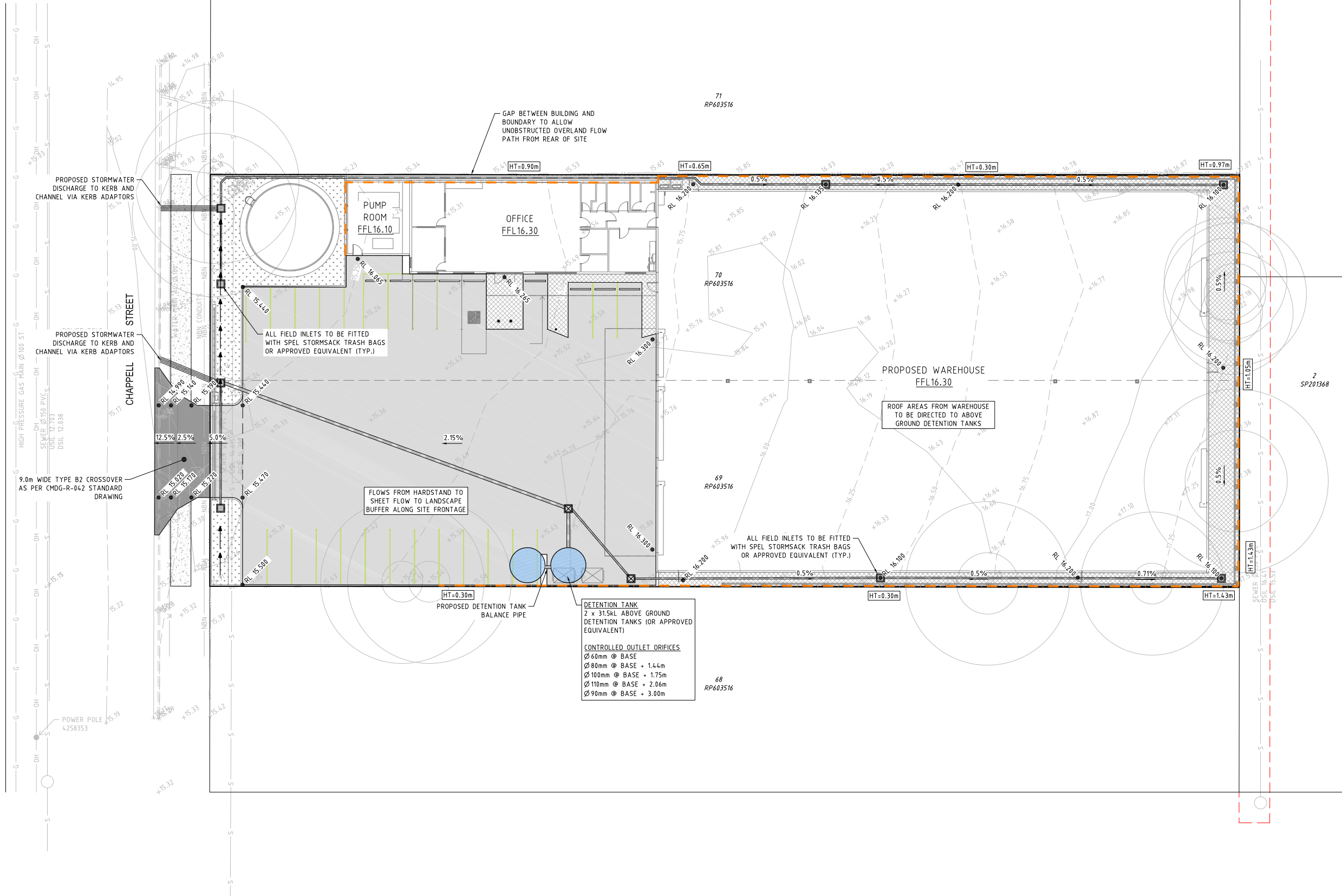
Legend

- Structures
 - Unknown
 - Intake
 - Pump Station
 - Treatment Plant
 - Reservoirs
 - Hydrants
 - Water Valves
 - Other Valve Type
 - Gate, Sluice, Butterf
 - Air Valve
 - Ball Cock, Stop Cock
 - Ball Valve
 - Motor Sluice Valve
 - Non Return Valve
 - Pressure Reducing V
 - RPZ Valve
 - Reflux Valve
 - Scour Valve
 - Sluice Bypass Valve
 - Tap
 - Water Valve Function
 - Open - Dialysis
 - Closed - Zone
 - Water Valve Op Status
 - Valve Normally Oper
 - Valve Normally Close
 - Water Mains
 - Other Main Type
 - Trunk Main
 - Reticulation Main
 - Raw Water Main
 - Scour Line
 - Water Service
 - Water Meters
 - Sampling Points
 - Abandoned Mains
 - Private Water Hydrants
 - Private Water Valves
 - Private Water Mains
 - Private Water Abandoned M
 - Sewer Network Structures
 - Pump Station
 - Treatment Plant
 - Sewer Access Chambers
 - Access Chambers
 - Roll Over
 - Lamp Hole | Inspects
 - Overflow Chamber
 - Sewer Valves
 - Sewer Jump Ups
 - Sewer Gravity Mains
 - Overflow Main
 - Combined Main
 - Reticulation Main
 - Trunk Main
 - Sewer Rising Mains
 - Sewer Access Chambers Abandoned
 - Sewer Mains Abandoned
 - Sewer Network Structures Pr
 - Pump Station
- Other
 - Sewer Gravity Mains Private
 - Sewer Rising Mains Private
 - Sewer Jump Ups Private
 - Sewer Mains Abandoned Pri
 - Sewer Access Chambers Abandoned Private
 - Easements
 - Property Parcels (Main)
 - Roads1
 - Main Roads
 - Major Council Roads
 - Standard Council Ro
 - Access Roads
 - Private Roads
 - Unconstructed
 - Ocean
 - Rivers
 - DCDB Parks
 - National Park
 - Reserves
 - State Forest

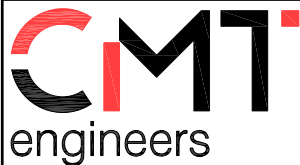
Copyright protects this publication. Reproduction by whatever means is prohibited without prior written permission of the Chief Executive Officer, Rockhampton Regional Council. Rockhampton Regional Council will not be held liable under any circumstances in connection with or arising out of the use of this data nor does it warrant that the data is error free. Any queries should be directed to the Customer Service Centre, Rockhampton Regional Council or telephone 1300 22 55 77. The Digital Cadastral DataBase is current as at December 2022. © The State Government of Queensland (Department of Natural Resources and Mines) 2022. All other data © Rockhampton Regional Council 2022. This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.



Appendix D – CONCEPT STORMWATER DRAINAGE & CATCHMENT PLAN



| LEGEND | |
|--------|--|
| | STORMWATER DRAINAGE PIPE |
| | STORMWATER FIELD INLET PIT |
| | DETENTION TANK |
| | STORMWATER CONNECTION POINT |
| | INDICATIVE DRIVEWAY CROSSOVER LOCATION |
| | PROPOSED RETAINING WALL |
| | EXISTING STORMWATER DRAINAGE |
| | EXISTING SEWER |
| | EXISTING WATER |
| | EXISTING OVERHEAD ELECTRICITY |
| | EXISTING TELECOMMUNICATION |



P: (07) 3949 8398
M: PO BOX 79,
CAPALABA QLD 4157
A: S2 / L2, 96 MOUNT GRAVATT
CAPALABA RD, UPPER MOUNT
GRAVATT QLD 4122
E: Info@cmtengineers.com.au

THIS DRAWING IS CONFIDENTIAL AND IS NOT TO BE REPRODUCED IN ANY FORM AS A WHOLE OR IN PART WITHOUT EXPRESS WRITTEN PERMISSION FROM CMT ENGINEERS. THE EXISTING SERVICES INFORMATION SHOWN HAS NOT BEEN CONFIRMED ON SITE AND IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY SERVICES RELEVANT PRIOR TO THE START OF CONSTRUCTION. IF IN DOUBT - ASK.

| ISSUE | DESCRIPTION | DATE | DRAWN | AUTH. |
|-------|-------------------|------------|-------|-------|
| A | PRELIMINARY ISSUE | 31.01.2023 | DR | CMT |
| B | PRELIMINARY ISSUE | 07.02.2023 | DR | CMT |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| ISSUE STAMP | |
|----------------------|--|
| PRELIMINARY ISSUE | |
| SURVEY INFORMATION | |
| PM - RL - | |
| SURVEYOR | |
| | |
| RP DESCRIPTION | |
| LOT 69 & 70 RP603516 | |

| NORTH |
|-----------|
| |
| FILE NAME |
| |
| LAND SIZE |
| |

| CITY COUNCIL APPROVAL NUMBER: |
|-------------------------------|
| |
| SCALE BAR |
| 0 4 8 12m |
| SCALE 1:200 @ A1 |

| CLIENT: |
|--------------|
| VNU PROJECTS |

| PROJECT TITLE: |
|---|
| PROPOSED WAREHOUSE AT 12-14 CHAPPELL STREET, KAWANA |
| DRAWING TITLE: |
| CONCEPT STORMWATER DRAINAGE PLAN |

| DESIGN: | DATE: | DESIGN CHECK: | DATE: |
|------------------------|-------|---------------|------------|
| DR | | CMT | |
| DRAWN: | DATE: | DWG CHECK: | DATE: |
| DR | | CP | |
| AUTHORISED FOR ISSUE | | | ORIG. SIZE |
| | | | A1 |
| PROJECT NUMBER / SHEET | | | ISSUE |
| C23-079 | | | B |

Appendix E – SPEL STORMSACK MANUAL



Model Number

Job Number

SPEL StormSack

OPERatiOnS & MaintEnanCE

www.spel.com.au

Manual Introduction

Maintenance of the SPEL StormSack is essential to preservation of its condition to ensure lifetime operational effectiveness.

The SPEL StormSack is a highly engineered water quality device that is deployed directly in the stormwater system as primary treatment to capture contaminants close to the surface. To ensure full operational capacity, it is vital to ensure that the pollutants it captures are periodically removed, and filtration components are thoroughly cleaned.

Maintenance frequencies and requirements of the SPEL StormSack are dependent on the biological factors of the site in which it is situated. These factors can include excessive sediment loading or occurrence of toxic chemicals due to the natural and unnatural factors such as site erosion, chemical spills or extreme storms.

This manual has been designed by the SPEL StormSack Manufacturer the client or device owner in the maintenance of the SPEL StormSacks.

This manual should be used in conjunction with the relevant site traffic management and safety plans, as well as any other provided documentation from SPEL.

1. General Description

the SPEL StormSack provides effective filtration of solid pollutants and debris typical of urban runoff, while utilising the existing or new storm drain infrastructure. the StormSack is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.

Components:

- a. adjustable Flange and Deflector: aluminium alloy 6063-T6
- b. Splash Guard: neoprene rubber
- c. StormSack: woven polypropylene geotextile with US Mesh 20
- d. Corner Filler: aluminium alloy 5052-H32
- e. Lifting tabs: aluminium alloy 5052-H32
- f. replaceable Oil Boom: polypropylene 3 inch (76 mm) diameter
- g. Mesh Liner: HDPE, diamond configuration
- h. Support Hardware: CrES 300 Series

Sizes:

Standard SPEL StormSack to suit Pit Sizes

- 450x450mm
- 600x600mm
- 900x600mm
- 900x900mm

Custom sizes (i.e. 1200x900mm) can be manufactured on short lead times.

1. Personal Health & Safety

When carrying out maintenance operations of the SPEL StormSack all contractors and staff personnel must comply with all current workplace health and safety legislation.

the below measures should be adhered to as practically as possible:

- Comply with all applicable laws, regulations and standards
- All those involved are informed and understand their obligations in respect of the workplace health and safety legislation.
- Ensure responsibility is accepted by all employees to practice and promote a safe and healthy work environment.

2. Personal Protective Equipment

When carrying out maintenance operations of the SPEL StormSack, wearing the appropriate personal protective equipment is vital to reducing potential hazards. Personal protective equipment in this application includes:

- Eye protection
- Safety apron
- Fluorescent safety vest
- Form of skin protection
- Puncture resistant gloves
- Steel capped safety boots



3. Maintenance of the SPEL StormSacks is a specialist activity.

When carrying out maintenance operations of the SPEL StormSack, factors such as equipment handling methods, pollutants and site circumstances can impose potential risks to the maintainer and nearby civilians.

4. Captured Pollutants

the material captured by the SPEL StormSack can be harmful and needs to be handled correctly. the nature and amount of the captured pollutants depends on the characteristics of the site. Pollutants can include from organic material such as leaves and sticks through to debris such as plastics, glass and other foreign objects such as syringes.

5. Site Circumstances

it is essential that Occupational Safety and Health guidelines and site specific safety requirements are followed at all times. it is important that all following steps specified by SPEL are carried out to ensure safety in the entire maintenance operation. the general workplace hazards associated with working outdoors also need to be taken into account.

6. Equipment Handling

Handling activities such as a removing the drain grate a well as managing pedestrians and other non-worker personnel at the site should be exercised in accordance with specified safety procedures and guidelines.

7. Confined Spaces

Confined space entry procedures are not covered in this manual. it is requested that all personnel carrying out maintenance of the SPEL StormSack must evaluate their own needs for confined space entry and compliance with occupational health and safety regulations

When maintenance operations cannot be carried out from the surface and there is a need to enter confined space, only personnel that currently hold a Confined Space Entry Permit are allowed to enter the confined space. all appropriate safety equipment must be worn, and only trained personnel are permitted to use any required breathing apparatus gear. necessary measures and controls must always be exercised to meet the confined space entry requirements. non trained staff are not permitted to participate in any confined space entries.

8. Traffic Management

typically stormwater gully pits are situated on roads and carparks, or adjacent to roads in a footpath or swale. as traffic requirements vary depending on the circumstance of the site, separate traffic control plans should be prepared for each site.

the specific road safety requirements for each site can be obtained from the relevant road authority to ensure all maintenance operations comply with the laws and regulations. State government publications can also be useful to find out the signage requirements, placement of safety cones and barricades that are required when working on public roads.

1. General Monitoring

the SPEL StormSack must be checked on a regular basis to analyse whether it requires maintenance or cleaning.

as gully pit grates are usually quite heavy, it is vital to exercise the correct lifting techniques and also ensure that the area surrounding the open pit is shielded from access of non-work personnel.

to ensure optimal performance of the SPEL StormSack, the material collected by the filter bag should not exceed the level of approximately a half to two thirds of the total bag depth. When this material collected is showing signs of exceeding this level they should be scheduled to be emptied.

it is also recommended that additional monitoring is conducted following moderate to extreme rainfall events, especially when previous months have had little or no rainfall.



2. Gully Pit Cover Removal

Opening a Hinged Pit Cover

- a. insert the lifting hooks beneath the grate
- B. Check hinge points are not damaged and debris is not caught in the hinge area
- C. Fully open pit grate, ensuring that the grate will stay in the open position without any external forces applied. Grates that do not remain open without being held, should be removed or secured during maintenance activities.



Opening a Non-Hinged Pit Cover

- a. Place lifting hooks beneath grate, where possible in the four corners of the grate. Concrete lids may have Gatic lifting points, a key arrangement or holes in the lid, which may require special equipment such as Gatic lifters. alternatively if safe to do so grip the grade with your hands.
- B. Position each person on either side of the grate.
- C. Lift the grate, ensuring that good heavy lifting posture is used at all times.
- D. Place the grate on angle on the gutter, to allow for the lifting hooks to be removed.
- E. For extremely heavy one-piece grates and concrete Gatic covers, insert the lifters in place and slide the lids back.



3. Cleaning Methods

Cleaning using an inductor truck

- a. Open Gully pit
- B. Place the indicator hose, suck out all of the sediment, organic leaf material, litter and other materials that were collected in the filter bag
- C. allow the filter bag to be sucked up in the inductor hose for a few seconds to allow for the filter mesh pores to be cleaned.
- D. Use the inductor hose to remove any build-up of material around the overflows and in the bottom of the pit.
- E. remove filter back from pit
- F. remove any sediment and litter caught in the Gully pit grate
- G. Back opening channels are to be cleared of any debris to ensure flow is not hindered.
- H. thoroughly examine the structural integrity of the filter bag and frame.
- i. reinstate filter bag and gully pit covers

Hand Maintenance

- a. Open Gully pit
- B. Using the correct lifting technique, lift the StormSack out by the diagonal lifting corners fitted to the frame.
- C. For extremely heavy and overfilled bags either use a hydraulic lifting arm to lift the StormSack, or remove excess material using a shovel or etc. take care not to damage the bag when removing litter form the bag.
- D. Lift the StormSack clear of the stormwater pit.



- E. Position the StormSack over the collection bin or vehicle.
- F. Lift and empty the bag by holding the bottom lifting loops only.
- G. Brush the StormSack with a stiff brush to remove the sediment from the filterpores.
- H. thoroughly examine the structural integrity of the filter bag and frame.
- i. reinstate StormSack and gully pit covers.



4. SPEL StormSack Post Maintenance Inspection

after the SPEL Stormsack has been removed, emptied and cleaned, it should be thoroughly examined to sure that:

- There is no movement or damage to the Cage
- There is no movement or damage to the plastic pit seals
- Structural integrity is in good condition including all fixings, joints and connections.
- The filter bag pores are not clogged
- The filter bag is not damaged in anyway.

the gully pit, pipe inlet/outlets and its cover should also be inspected to ensure there is no damage, debris build up or any potential to cause the SPEL StormSack to operate inefficiently.



5. Material Disposal

Collected materials can be potentially harmful to humans and the environment.

Once all captured material from the SPEL Stormsack has been removed, it must be taken off site and disposed of at a transfer station or a similar approved disposal site.

6. SPEL StormSack Repairs

Depending on the extent of the damage to the SPEL StormSack unit, it can usually be repaired.

Small tears to the filter bag can be repaired by either sewing the tear back together with additional fabric to increase the strength of the stitching, or by sewing a patch of filter material onto the filter bag.

if large tears or irreparable damage to the frame and structure are present, it is advisable to replace the components.

all required spare parts can be sourced from SPEL Environmental at a cost to the owner of the SPEL Stormsack.

7. Emergency Procedures

Spills and blockages can be detrimental to the performance of a stormwater management system, potentially damaging the surrounding built infrastructure, waterways and environment.

Spill Procedures

in the event of a spill discharging into a gully pit, all effected sediment must be removed from the filter bags and the filter bags are to be removed and replaced with new filter bags. all additional cleaning as a result of the spill should also be carried out in accordance with the normal operation procedures.

Blockages

in the unlikely event of surface flooding around a gully pit which has a SPEL StormSack fitted, the following steps should be carried out:

- a. Check the overflow bypass.
- B. if overflow is clear and surface flooding still exists remove the SPEL StormSack and check the outlet pipe for blockages. removal of the SPEL StormSack can be difficult if clogged with sediment and holding water.
- C. if the filter is clogged brush the side walls to dislodge particles trapped at the interface allowing water to flow through the filter.
- D. if the outlet pipe is blocked, it is likely that a gully sucker truck will be required to unblock it. Litter can be removed from the SPEL StormSack using the gully sucker truck before the SPEL StormSack is removed. if a gully sucker truck is not available and the SPEL StormSacks need to be removed by hand follow the below steps.
 - i. remove excess debris by hand or brush the side of the filter bag
 - ii. remove entire SPEL Stormsack by taking hold of the inside of the frame.
 - iii. Unblock the outlet pipe



HEAD OFFICE

PO Box 6144
Silverwater nSW 1811

100 Silverwater rd
Silverwater nSW 2128

Phone: +61 2 8705 0255

Fax: +61 2 8014 8699



DESIGN OFFICES

new South Wales 61 2 8705 0255

Canberra 61 2 6128 1000

Queensland 61 7 3271 6960

Victoria & Tasmania 61 3 5274 1336

South australia 61 8 8275 8000

West Australia 61 8 9350 1000

northern territory 61 2 8705 0255

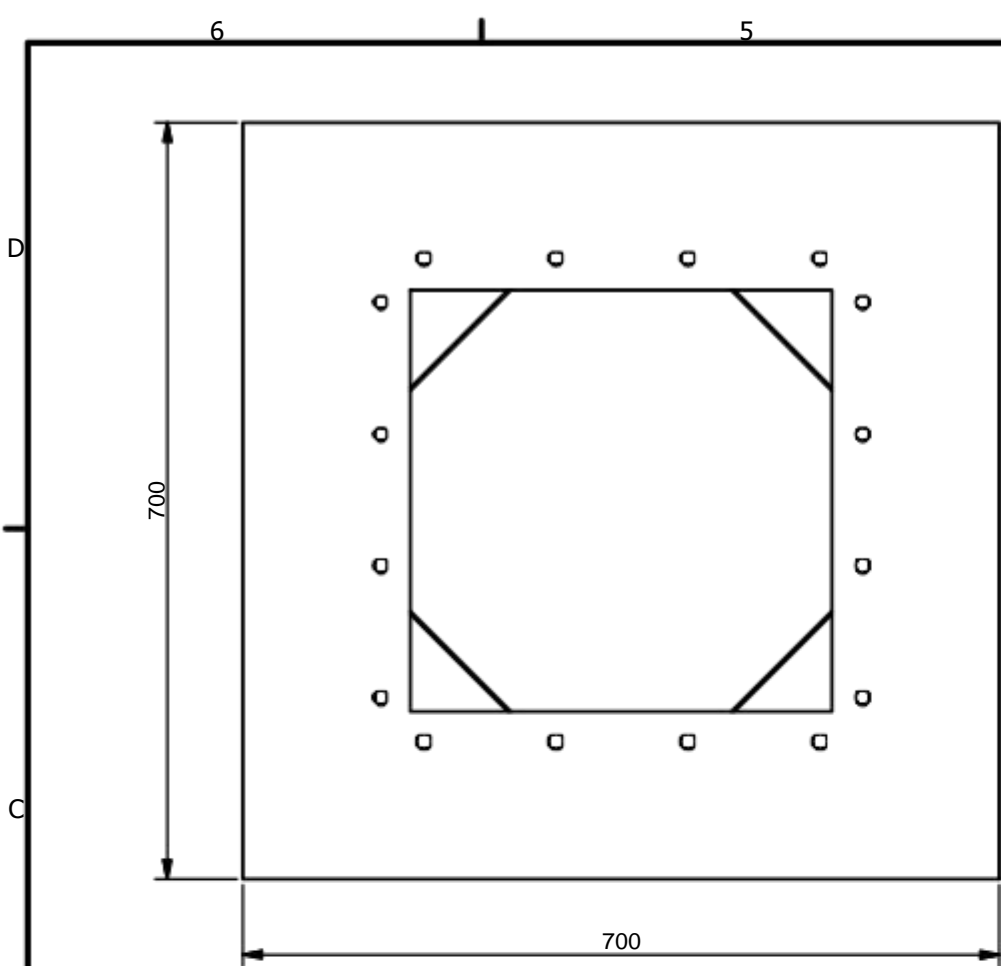
New Zealand 64 9 276 9045



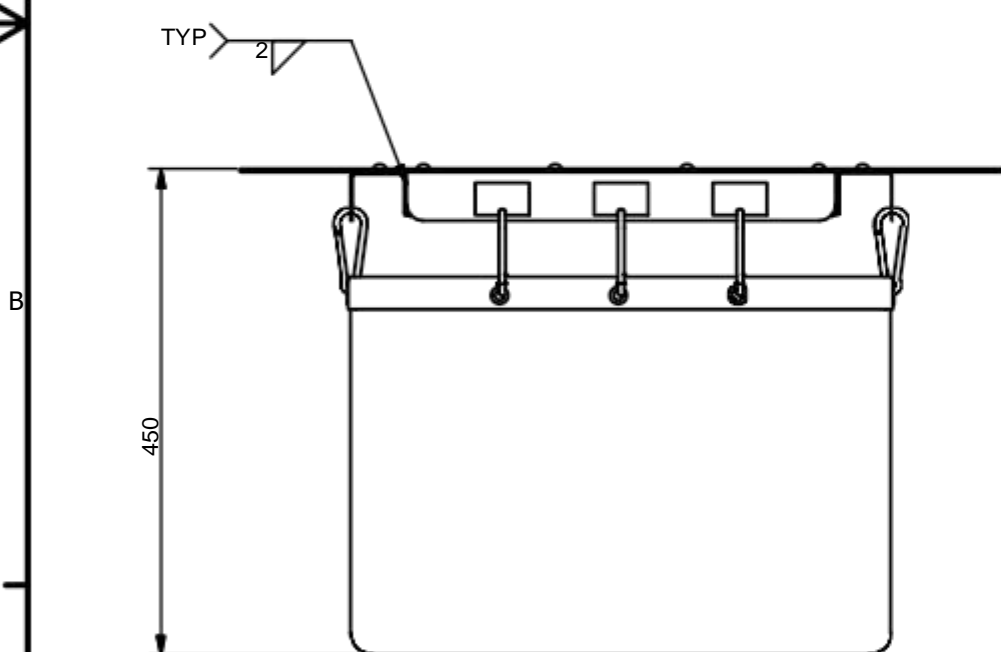
www.spel.com.au

SPEL Environmental accepts no responsibility for any loss or damage resulting from any person acting on this information. the details and dimensions contained in this document may change, please check with SPEL Environmental for confirmation of current specifications.

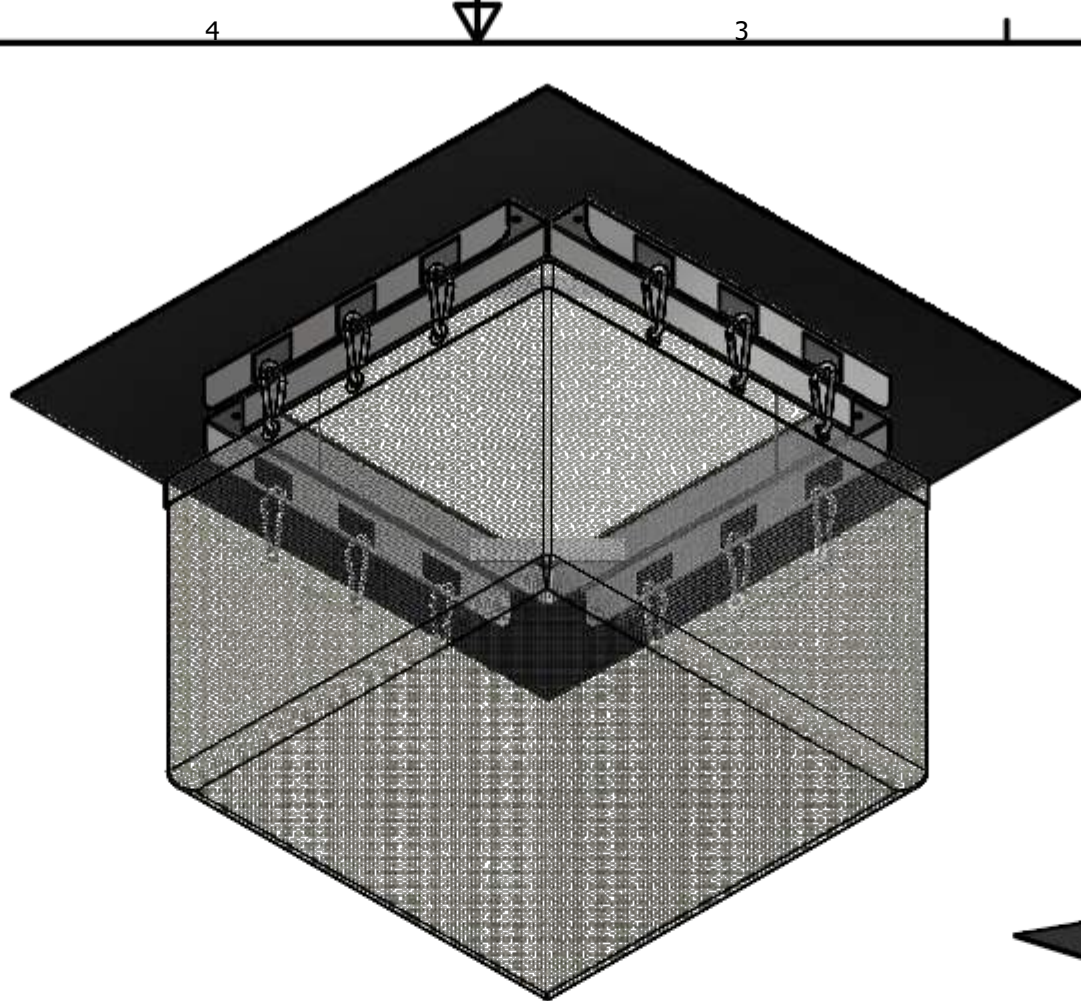
| REVISION HISTORY | | | | |
|------------------|-----------------|----------|------------|------------|
| REV | DESCRIPTION | DESIGNER | DATE | CHECKED BY |
| 1 | INITIAL RELEASE | M.M | 25/03/2015 | |



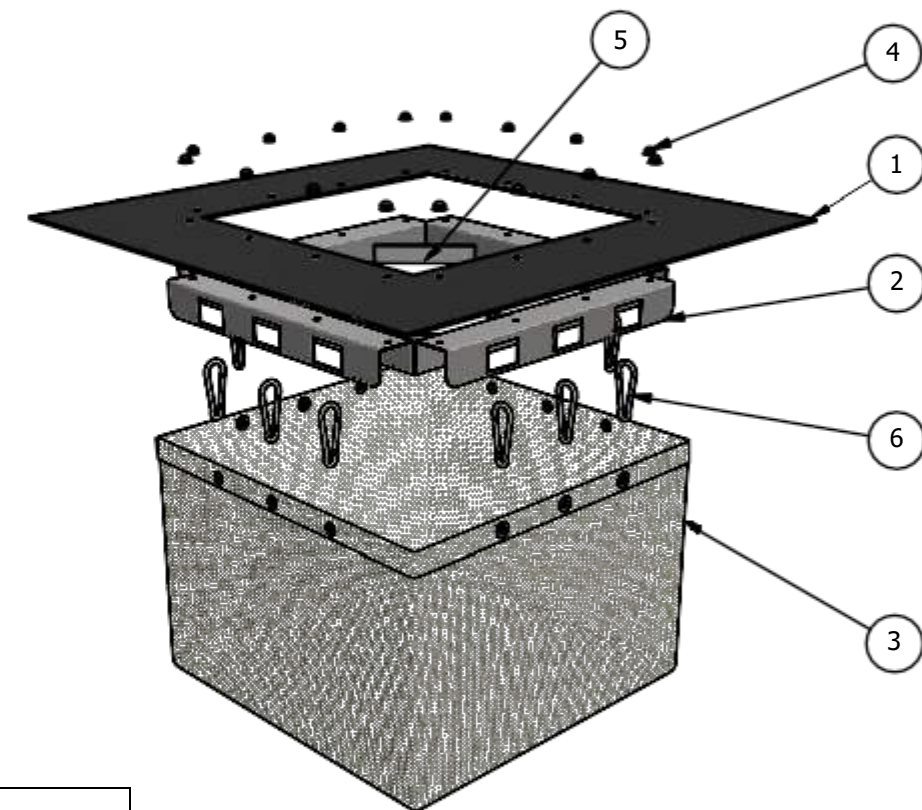
PLAN VIEW



ELEVATION VIEW



ISOMETRIC VIEW
BOTTOM VIEW



ISOMETRIC VIEW
EXPLOSION

| PARTS LIST | | | |
|------------|-----|--|---------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | PLASTIC SHEETING | HDPE |
| 2 | 4 | SHEET METAL BENDING | STAINLESS STEEL 304 |
| 3 | 1 | TEXTILE FABRIC & MESH LINER | HDPE |
| 4 | 16 | BLIND RIVIT 7 DIA. | STAINLESS STEEL 304 |
| 5 | 4 | CORNER ESTIFFENER - FLAT BAR 25 x 2 - 141 LG | STAINLESS STEEL 304 |
| 6 | 12 | CARABINER CLIP 6 | ALUMINIUM |

CLIENT:

DISTRIBUTOR

CONFIDENTIAL - The drawings must not be disclosed to any third parties without written permission from SPEL Environmental Sydney. Unauthorised disclosure may result in prosecution.
© SPEL Environmental - This drawing is the property of SPEL Environmental ABN: 83 151 832 629 and is subject to return on demand. It is submitted for the use only in connection with the proposal and contracts of SPEL Environmental with the expressed conditions that it is not to be reproduced or copied in any form. This data must only be used in accordance with our standard terms and conditions.
© Copyright
SPEL Environmental accepts no responsibility for any loss or damage resulting from any person acting on this information. The details and dimensions contained in this document may change, please check with SPEL Environmental for confirmation of current specifications.

Drawn M.M Date 25/03/2015
CHECKED BY Date
Verified Date
Approved Date
Customer Code :



TITLE
SPEL STOMSACK
FRAME 600 x 600
BASKET MOUNTING ASSEMBLY DRAWING

| REQUEST No. | SIZE | SHEET | REV |
|-------------|---------------|-------|-----|
| D20194 | A3 | 1 | 1 |
| SCALE | DWG No. | | |
| N.T.S | SP15-BB4610-S | | |