SERVICEABILITY REPORT

FOR THE PROPOSED
RESIDENTIAL TOWER DEVELOPMENT

LOCATED AT
19 HERCULES STREET, HAMILTON, 4007

PREPARED FOR
PDS

BORNHORST
+WARD

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Bornhorst and Ward Project No: **20376**

If you have any queries regarding this proposal, then please contact: **Marnie Stollznow**

Revision	Date	Description	Author	Rev.	App.
A	30/11/2020	Draft Issue to Client	MST	AL	
B	14/12/2020	Issue for Approval – Architectural Layout Updated	MST		NR

Nicholas Rozis: RPEQ 7729

File Name: J:\2020\20376\07_REPORTS\DESIGNREPORTS\REV_(B)\SERVICEABILITY\RPT_Serviceability(B).docx

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1. INTRODUCTION

Bornhorst and Ward has been commissioned to investigate and report on the serviceability requirements pertaining to the proposed Material Change of Use at 19 Hercules Street, Hamilton (Lot 3 on SP172658). The proposal consists of constructing 3 Residential Towers with associated retail podium and outdoor plaza. Plans of the proposed development layout can be seen in Appendix A.

This document reports on the existing and proposed civil works and stormwater infrastructure required as part of the proposed development. The engineering requirements for this proposal shall be in accordance with Engineering Best Management Practices, Brisbane City Council City Plan (2014), the State Planning Policy (2017) and the Economic Development Queensland (EDQ) Priority Development Area (PDA) requirements.

This report outlines the preliminary design methodology in support of a Development Application and should be read in conjunction with other documents issued by the consultant team.

2. SITE CHARACTERISTICS

2.1 LOCATION AND EXISTING FEATURES

The development site, located at 19 Hercules Street, Hamilton has the following existing characteristics:

- The site is bound by Hercules Street to the north, existing commercial and residential lots to the east and west and a private roadway adjacent to the southern boundary of the lot. Kingsford Smith Drive is also approximately 115m from the north-western property boundary;
- The existing development site comprises of a sales office and associated car parking facilities along the Hercules Street frontage, while the remaining site area is unoccupied and contains hardstand with some vegetation;
- The total site area is 7,637m^2;
- The existing site entrance is via a crossover from Hercules Street;
- The closest waterway is the Brisbane River which is approximately 120m from the southern property boundary;
- There is a 130m^2 Energex Easement within the north-eastern corner of the site;

Refer to Figure 1 for Locality details.

Figure 1: Locality Plan

2.2 PROPOSED DEVELOPMENT

The following points outline information regarding the proposed development:

- Material Change of Use for a 3-Stage Residential Tower and Retail development;
- Each Tower will be surrounded by a podium of retail outlets and an outdoor central plaza area will connect each Tower;
- Two accesses will be provided from both Hercules Street and Main Road (the private roadway along the southern boundary). Both will provide access down to the below basement car parking. The existing crossovers will be made redundant;
- Pedestrian link will also be established between Main Road and Hercules Street, via the central outdoor plaza.

Refer to the development drawings in Appendix A for further details of the proposed development.

2.3 TOPOGRAPHY AND CATCHMENT CHARACTERISTICS

The existing topography and catchment characteristics are as follows:

- The high point of the existing site is RL 3.9m AHD which is located along the western property boundary;
- The site is considerably flat, with a low point of approximately 1.8m AHD along the eastern property boundary;
- During major storm events, runoff ponds within the development and eventually discharges as overland flow to Hercules Street where it is collected by stormwater infrastructure;
- Roof water from the sales office is collected by internal pipes and discharges to Hercules Street via kerb adaptors;
- The site is not impacted by any external catchments as it is bound by both road corridors and others buildings which act to divert any potential upstream runoff.

See the survey plan in Appendix C for more information.

2.4 EXISTING FLOODING CONDITIONS AND FREEBOARD REQUIREMENTS

A BCC Floodwise Report has been obtained for the site and states the following:

- The development site is within Flood Planning Area 5 (FPA5) for impacts associated with Brisbane River Flooding;
- FPA5 is described as an area that has no recent history of flooding but rather has the potential to flood;
- The development site is impacted by an overland flow path; and
- The development site falls within a medium storm tide inundation area.

Please refer to the Brisbane City Council's Floodwise Property Report in Appendix C and Figure 2 below for more details.

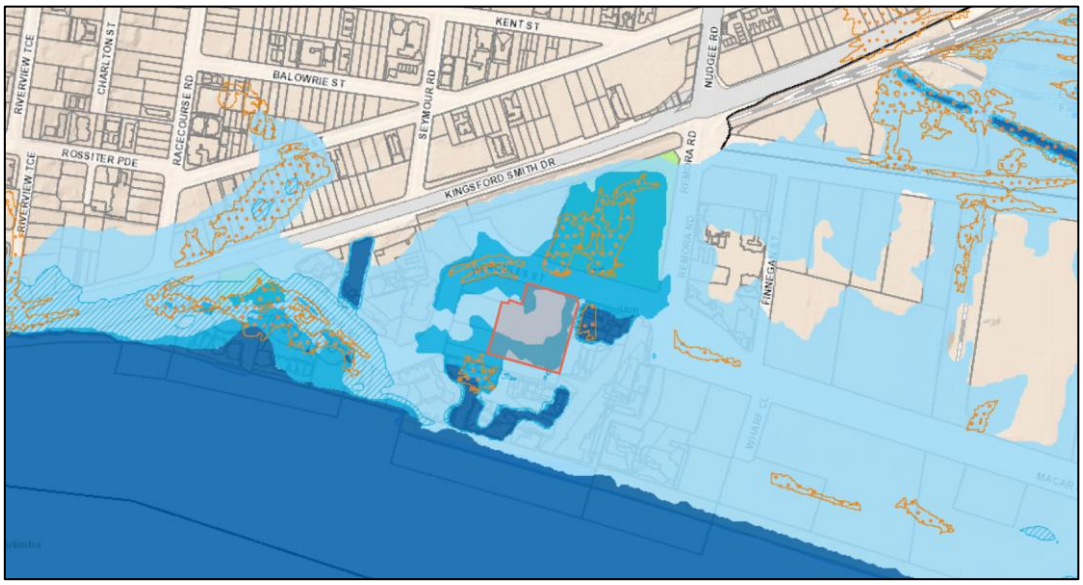


Figure 2: Brisbane City Council Interactive Flood Map

Design levels for the building must comply with the flood immunity standards specified by Brisbane City Council's City Plan 2014. The development will be assessed against the flood levels determined from this investigation. In accordance with the Brisbane City Council City Plan 2014, the minimum flood freeboard requirements must therefore consider impacts associated with both the BCC Flood Overlay Code and BCC Coastal Hazard Overlay Code, as specified in the BCC Floodwise Report. Tables 1 and 2 detail the outcomes of both of these investigations:

Table 1: Flood Freeboard Requirements – Flood Overlay Code

Development Area	Category	Brisbane River	Level (m AHD)	Overland Flow	Level (m AHD)
Building Floor Level (Class 6)	C	DFL	2.5	2% AEP FL	2.2
Basement entry (Class 3)	C + 0.3m	DFL	2.5 + 0.3 = 2.8	2% AEP FL	2.2 + 0.3 = 2.5
Essential services (Class 6)	A	RFL + 0.5m	2.5 + 0.5= 3	2% AEP FL + 0.5m	2.2 + 0.5 = 2.7

Table 8.2.11.3.D and Table 8.2.11.3.L of the Brisbane City Council's Flood Overlay Code were used to determine recommended development levels. The flood immunity levels have been based on a BCA building classification of 6 for the retail ground floor level and then building classification 3 for the basement residential parking facilities in accordance with Table 8.2.11.3D of the BCC Flood Overlay Code.

Table 2: Flood Freeboard Requirements - Coastal Overlay Code

Development Area	Category	Medium Storm Tide (m AHD)	Level (m AHD)
Building Floor Level (Class 6)	C	3.1	3.1
Basement entry (Class 3)	C + 300mm	3.1 + 0.3	3.4
Essential services (Class 6)	A	3.1 + 0.5	3.6

Table 8.2.6.3C and Table 8.2.6.3D of the Brisbane City Council's Coastal Hazard Overlay Code were used to determine recommended development levels. The flood immunity levels have been based on a medium storm tide as specified in the BCC Floodwise Property Report.

Table 1 and 2 above states the relevant flood immunity levels for the site. As the development site is impacted by both flooding and coastal inundation, the worst-case will be designated as the minimum development level. In this case, the storm tide produces the highest relative levels, so 3.1m AHD will be set as the minimum building floor level, and 3.4m AHD will be set at the minimum basement entry level.

Currently, the building floor level and the basement entry is set at the minimum required flood level, so immunity has been achieved.

3. EXISTING AND PROPOSED CIVIL WORKS AND INFRASTRUCTURE

3.1 STORMWATER

3.1.1 Existing Infrastructure

A Dial Before You Dig investigation was conducted for the site and 'As Constructed' plans from the Remora Road upgrade were sourced. The following stormwater infrastructure has been noted:

- The site has a stormwater property connection of a 525mm dia. class 3 pipe that connects to the northern site boundary off Hercules Street;
- This pipeline is then connected to a 1,500mm dia. BCC manhole located on the northern side of Hercules Street;
- Along the frontage of the site, 2 BCC Type A gully pits are also connected to this manhole;
- This infrastructure was constructed as part of the Remora Road upgrades and is connected to further stormwater infrastructure to the east within the intersection of Hercules Street, Remora Road and MacArthur Avenue. Here stormwater is conveyed south to outlet at the Brisbane River;
- Stormwater infrastructure as part of the Remora Road upgrade were designed to convey Q100 runoff from the surrounding developed lots.

Council Asset Plans of the existing stormwater infrastructure and 'As Constructed' plans can be found in Appendix C of this report.

3.1.2 Proposed Infrastructure

The following points outline the proposed stormwater infrastructure for the development site:

- All stormwater drainage within the development will be captured within internal hydraulics and directed towards the Hercules Street existing 525mm dia. stormwater pipe;
- Major flows that bypass the internal hydraulics will be directed towards Hercules Street through the use of an overland flow path within the central plaza;
- As there will be a negligible increase in the impervious area of the site and as the downstream stormwater infrastructure was designed to convey Q100 flows from the developed site, no stormwater detention is proposed for this development;
- Considering that the works area is greater than 2,500m^2, stormwater quality treatment measures will be required for the site to comply with State Planning Policy and BCC City Plan requirements;
- Stormwater quality treatment will take the form of proprietary cartridge/filtration devices, these devices will be designed such to treat the entire development site.

Refer to Bornhorst and Ward's Stormwater Management Plan for further details. Refer to the engineering drawings in Appendix B for further information.

3.2 EARTHWORKS

Earthworks will be required to construct building pads and 5 levels of basement car parking. A detailed earthworks plan will be prepared as a part of the detailed design operational works lodgement. A Preliminary Earthworks Plan has been provided in Appendix B and were based on the levels provided from the Architectural drawings seen in Appendix A.

The site has been identified on Brisbane City Council Potential and Actual Acid Sulphate Soils Overlay Map. As the proposed development is to undertake excavation below RL 20.0m AHD, it is anticipated that Acid Sulphate Soils may be encountered. Therefore, it is recommended that an Acid Sulphate Soil investigation be completed as part of the detailed geotechnical investigation conducted for the site. If Acid Sulphate Soils are present, then an Acid Sulphate Soil Management Plan will be required. Refer to Appendix D for the BCC Potential and Actual Acid Sulphate Overlay Map result.

All earthworks will be undertaken in accordance with the Brisbane City Council guidelines.

3.3 ROADWORKS

No major external roadworks are required for this development as the Hercules Street corridor and frontage to the site were upgraded as part of the Remora Road upgrade. The following roadworks are required to provide access to the development site:

- Existing crossovers along Hercules Street will be made redundant, kerb and channel, bicycle and pedestrian paths will be reinstated in these locations as per BCC Roadway corridor standards;
- New access driveway to the basement levels will be constructed on both Hercules Street and Main Road;
- Pedestrian links will connect Hercules Street and Main Road via the outdoor central plaza. Pedestrian facilities will be constructed as per BCC Pedestrian and Access requirements.

Refer to the engineering drawings in Appendix B for further information.

3.4 SEWER

3.4.1 Existing Infrastructure

The 'As Constructed' plans from the Remora Road upgrade indicates the following existing sewer infrastructure;

- A 225mm dia. DICL PN35 property connection is located towards the north-eastern corner of the site, at an invert level of 2.112m AHD;
- This pipeline is connected to a QUU manhole which then feeds into further QUU sewer infrastructure to the east of the development.

'As Constructed' plans of the existing sewer infrastructure can be found in Appendix C of this report.

3.4.2 Proposed Infrastructure

As per QUU advice received back in 2014, the site was originally allocated a Peak Wet Weather Flow of 20L/sec. A Peak Wet Weather Flow from the development site of 8.78L/sec was calculated using known master planned GFA and unit numbers. As this runoff is less than allocated within the masterplan, it is assumed that downstream infrastructure is able to cater for the proposed development. Internal plumbing will connect into the existing sewer connection and a stub for future lot connections will need to be provided between stages. All of the internal sewer infrastructure will be documented by a hydraulic consultant.

Refer to Appendix B for preliminary drawings of the proposed sewer works.

3.4.3 Service Advice Notice

A Service Advice Notice application has been lodged with QUU to determine if there are further requirements necessary to ensure that the site can be adequately serviced by QUU sewer infrastructure. Works required to service the site will be undertaken in accordance with QUU requirements and procedures.

3.5 WATER

3.5.1 Existing Infrastructure

The 'As Constructed' plans from the Remora Road upgrade indicates the following existing sewer infrastructure;

- There is an existing QUU 250mm dia. PE pipeline within the southern verge of Hercules Street, parallel to the frontage of the development site;
- 3, 150mm dia. DICL property connections exist along the northern boundary.

'As Constructed' plans of the existing sewer infrastructure can be found in Appendix C of this report.

3.5.2 Proposed Infrastructure

It is expected that the existing water connections will continue servicing the proposed lots. A QUU standard Water Meter will be constructed and placed along Hercules Street to allow both domestic and fire connections to service each lot. All of the internal water infrastructure will be documented by a hydraulic consultant.

Refer to Appendix B for preliminary drawings of the proposed water works.

3.5.3 Service Advice Notice

A Service Advice Notice application has been lodged with QUU to determine if there are further requirements necessary to ensure that the site can be adequately serviced by QUU water infrastructure. Works required to service the site will be undertaken in accordance with QUU requirements and procedures.

3.6 ELECTRICITY

The Energex Asset Plans from a Dial Before You Dig investigation indicates that underground electrical infrastructure is located on both sides of Hercules Street and services street lighting. The Energex Asset Plan of the existing electrical infrastructure can be found in Appendix C of this report.

Electrical services required for the proposed development including assessment of the existing infrastructure capacity will be designed and determined by an electrical engineer and will be assessed by Energex during the detailed design phase of the development.

3.7 COMMUNICATIONS

The Telstra, Optus, NBN, TPG and OptiComm Asset Plans from a Dial Before You Dig investigation indicate the following:

- Telstra infrastructure exists at the frontage of the site, within the southern verge of Hercules Street;
- Optus infrastructure exists to the west of the site, there is no direct Optus connection for the development site;
- NBN infrastructure exists both to the north of the development, within the southern verge of Hercules Street and it also runs through the development along the eastern property boundary;
- TPG infrastructure exists within the southern verge of Hercules Street, fronting the development site; and
- OptiComm infrastructure also exists within the northern and southern verge of Hercules Street, adjacent to the development site.

Telstra, Optus, NBN, TPG and OptiComm Asset Plans of the existing communications infrastructure can be found in Appendix C of this report.

All works required to provide communication services to the proposed development will be undertaken with the relevant service providers approval and coordination.

3.8 GAS

The APA Asset Plans from a Dial Before You Dig investigation indicate that there is a Medium Pressure PE gas pipeline within the southern verge of Hercules Street, fronting the development site. On the "As Constructed" plans for the Remora Road upgrade, a note signified that this gas pipeline would be removed.

All works required to provide gas services to the proposed development will be undertaken by the appropriate consultant with APA Group's approval and coordination. APA should be contacted to confirm the presence of this existing pipeline and whether or not it was removed during the Remora Road development.

APA Asset Plans of the existing gas infrastructure can be found in Appendix C of this report.

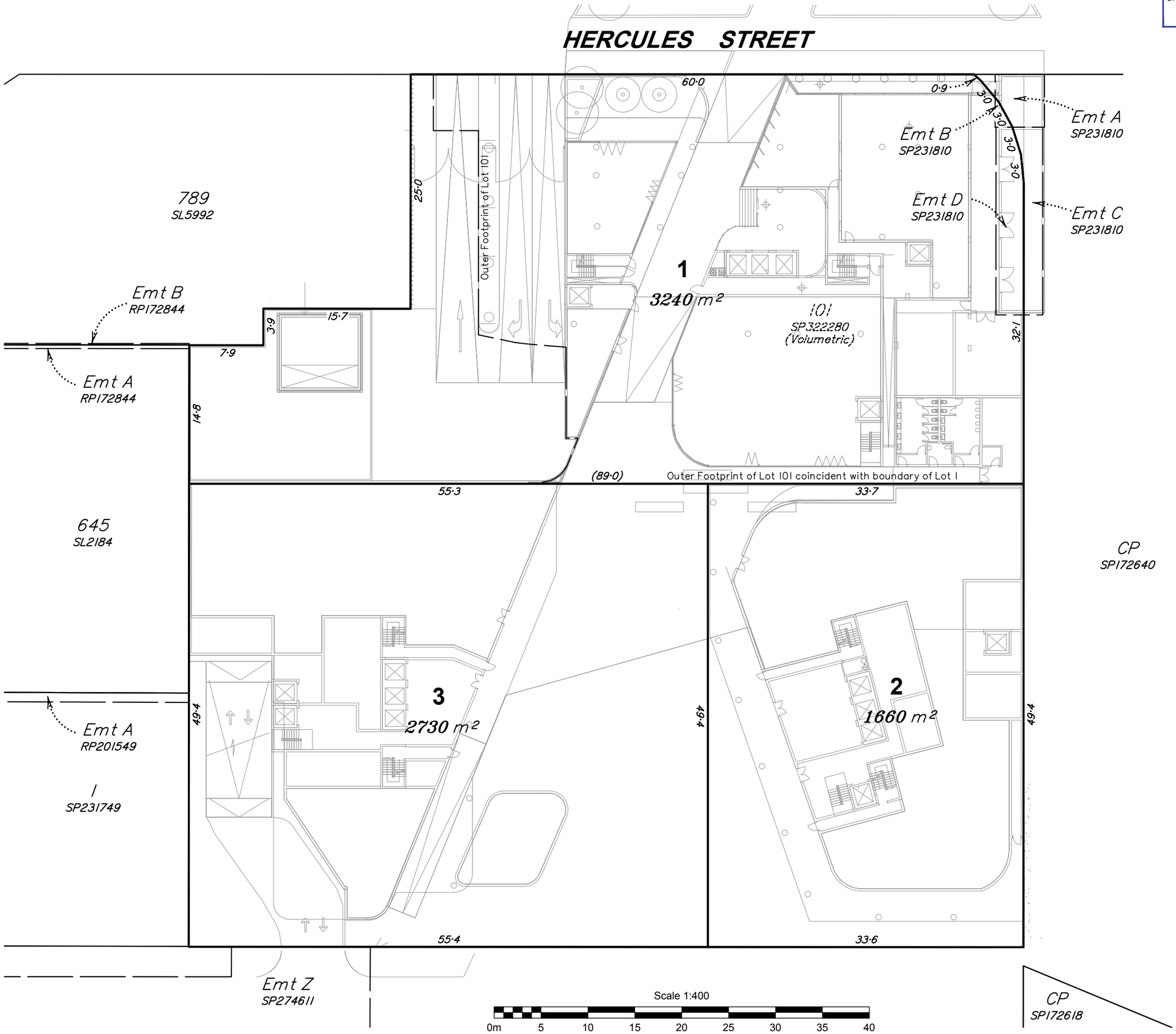
4. SUMMARY

This reporting relating to the proposed Material Change of Use located at 19 Hercules Street, Hamilton has shown the following:

- The proposed site has flags for Brisbane River, overland flow path and medium storm tide flooding. As a result, the site is expected to be at a relatively high risk for flood inundation so development levels have been set that consider freeboard requirements as specified by Brisbane City Council;
- Internal stormwater infrastructure is proposed to collect and convey all storm events to the existing stormwater pipe connection from Hercules Street;
- No stormwater detention measures are proposed as the downstream stormwater infrastructure was designed to convey the Q100 runoff from the surrounding lots in their developed condition;
- To comply with State Planning Policy requirements, stormwater quality treatment will take the form of proprietary filter/cartridge devices that treat the entire development site in the one location;
- Earthworks will be required to construct the proposed 5 levels of basement car parking as well as provide level building pads and ensure that the developments can be serviced;
- No major roadworks are required for this development as the Hercules Street frontage was recently upgraded. The existing crossovers from Hercules Street will be made redundant and a new access driveway will replace them in order to provide access to the lower basement levels. Another access driveway is proposed from Main Road;
- Existing water and sewer connections will continue to service the future lots. QUU must confirm the adequacy of these connection. Internal plumbing will connect each lot into the existing property connections;
- There is existing electrical, gas and telecommunications surrounding the site which may be used to service the development.

APPENDIX A

DEVELOPMENT DRAWINGS



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DRAFT

Note: Volumetric Format Lot 101 is fully contained within Standard Format Lot 1

NOTES:
1. Drawn to scale on an A3 sheet.
2. All dimensions and areas are subject to final survey and approval by E.D.Q.
3. Architectural Information shown for Ground Level only. This information has been provided by Fuse & is proposed only.

Issue	Revision	Int	Date
A	Original Issue	DJL	11/11/2020

Title:

Plan of Proposed Standard Format Subdivision of Lots 1-3

Cancelling Lot 900 on SP322280

(SP322281)

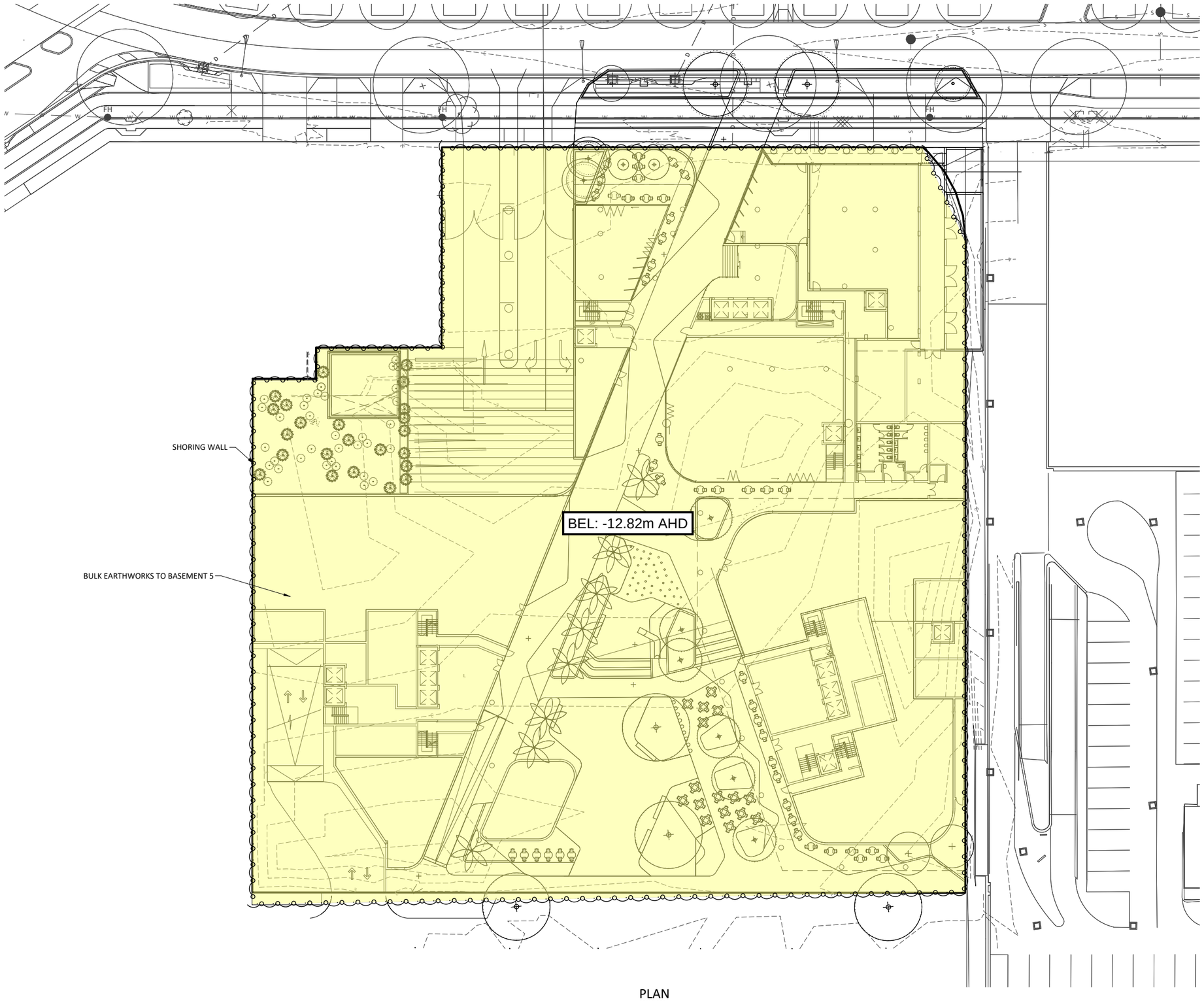
Client: **PDS**

Locality:	HAMILTON		
Local Gov:	BCC	Prepared By:	DJL
Surveyed By:		Approved:	BWM
Date Created:	11/11/2020	Scale:	1:400
Comp File:	10391.PROJECT		
Plan No:	**10391_004_PRO**		

A3

APPENDIX B

ENGINEERING DRAWINGS



PLAN
SCALE 250

EARTHWORKS

EXISTING PROPOSED

12.82 — BULK EARTHWORKS LEVEL

CUT

FILL

ESTIMATED BULK EARTHWORKS VOLUME

CUT	98,627m³

THIS DRAWING IS BEST VIEWED IN COLOUR AND ON AN ELECTRONIC DEVICE

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES

A1 UNREDUCED
A3 REDUCED

SCALES

UNREDUCED / REDUCED

0 2.5 5.0 7.5 10.0 12.5m

1 : 250 / 1 : 500

STATUS

PRELIMINARY

SCAN QR CODE TO CONFIRM CURRENT DRAWING REVISION
http://docs.bornhorstward.com.au/revision/

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
A	19.11.20	PRELIMINARY EARTHWORKS	TK	MST	AL	

ASSOCIATED CONSULTANTS

APPROVED
7729 RPEQ
DATE

CHECKED
DATE

BORNHORST +WARD
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CLIENT
WENTWORTH ENQUITIES No.2

PROJECT
HERCULES ST HAMILTON

SUBJECT
EARTHWORKS LAYOUT

PROJECT No.
20376

DRAWING No. DA-C010

REVISION A

J:\2020\20376\05_DRAWINGS\DRG\DA_STD_REV_JOB\DRG\DA-C010.DWG
20/11/2020 11:09:02 AM

0 10 20 30 40 50 100

ORIGINAL SIZE A1

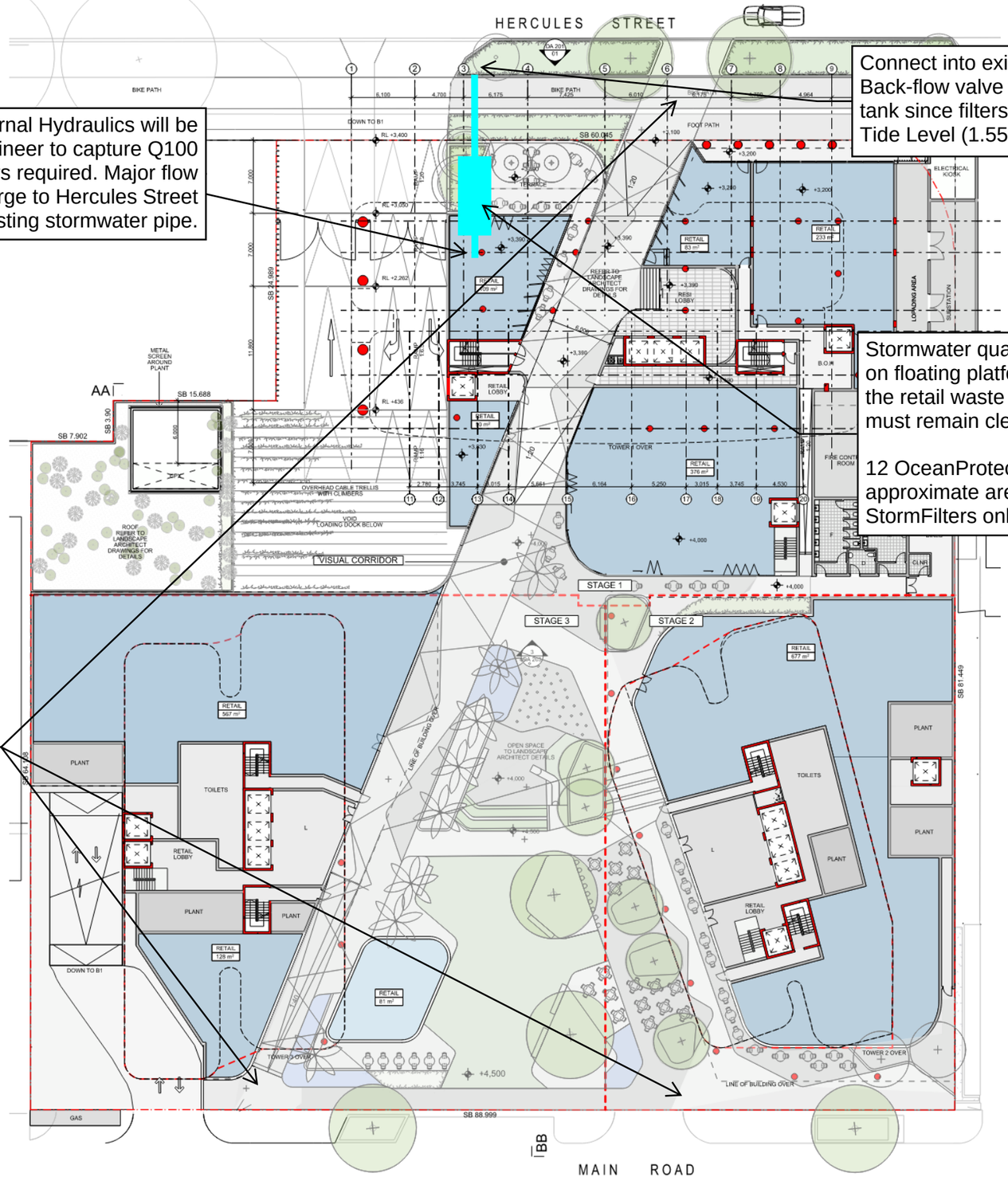
Connection for hydraulics. Internal Hydraulics will be documented by a Hydraulic Engineer to capture Q100 runoff. Low flow diversion to filters required. Major flow to bypass stormfilters and discharge to Hercules Street existing stormwater pipe.

Proposed Pedestrian link between Main Road and Hercules Street.

Connect into existing 525mm dia. stormwater pipeline. Back-flow valve to be fitted onto outlet from treatment tank since filters will be below the Highest Astronomical Tide Level (1.55m AHD)

Stormwater quality filters to be located within Basement 1 on floating platform/podium, approximately located within the retail waste collection area. Access via surface which must remain clear of obstructions/planting.

12 OceanProtect StormFilters and 2 OceanGuards, approximate area of system = 4.5m² (OceanGaurds + StormFilters only)



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PROJECT
19 Hercules Street, Hamilton

SUBJECT
Proposed Stormwater and Roadworks Layout Plan

PROJECT No.
20376

DRAWING No.

REVISION
B

0 10 20 30 40 50

ORIGINAL SIZE A3

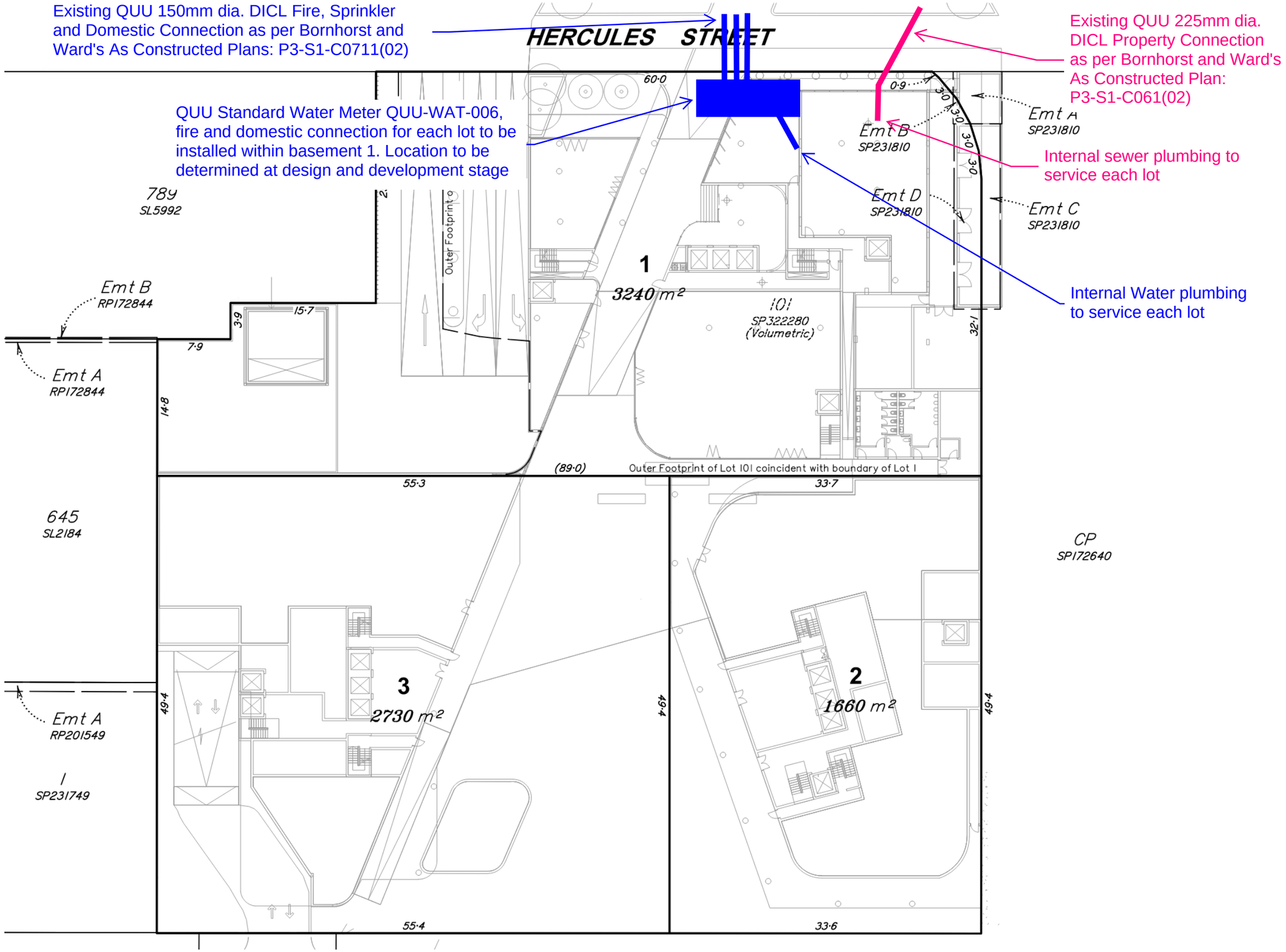
Existing QUU 150mm dia. DICL Fire, Sprinkler and Domestic Connection as per Bornhorst and Ward's As Constructed Plans: P3-S1-C0711(02)

QUU Standard Water Meter QUU-WAT-006, fire and domestic connection for each lot to be installed within basement 1. Location to be determined at design and development stage

Existing QUU 225mm dia. DICL Property Connection as per Bornhorst and Ward's As Constructed Plan: P3-S1-C061(02)

Internal sewer plumbing to service each lot

Internal Water plumbing to service each lot



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PROJECT
19 Hercules Street, Hamilton

SUBJECT
Proposed Water and Sewer Connections

PROJECT No.
20376

DRAWING No.

REVISION
A

0 10 20 30 40 50

ORIGINAL SIZE A3

APPENDIX C

EXISTING SITE CHARACTERITICS & SERVICES INFORMATION

Brisbane City Council
FloodWise Property Report

Report Reference
1605493249099
16/11/2020 12:20:49

Dedicated to a better Brisbane

THIS REPORT IS FOR BUILDING AND DEVELOPMENT PURPOSES ONLY

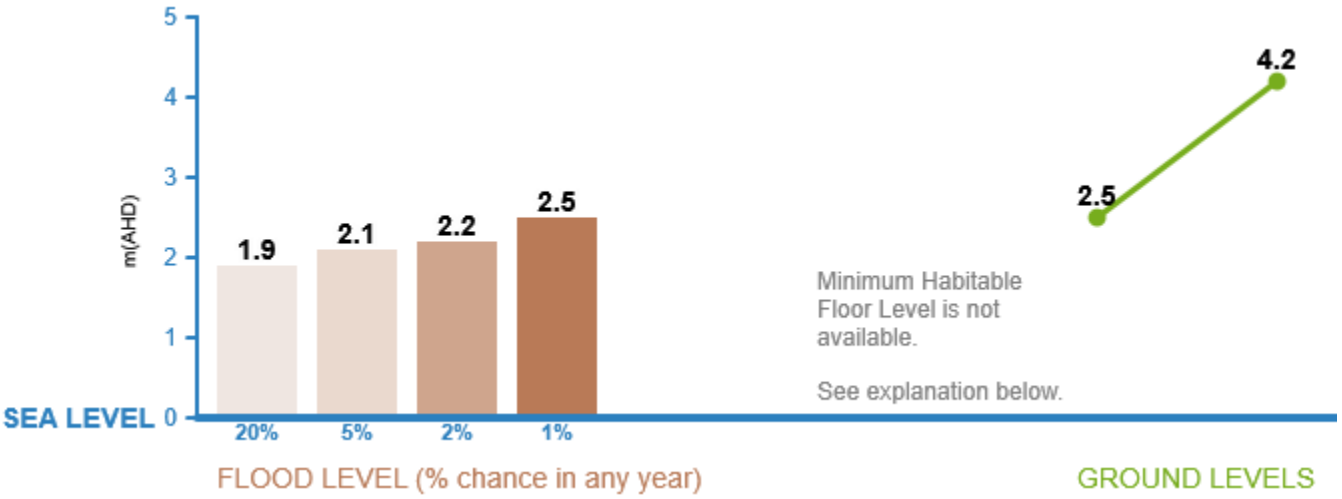
The FloodWise Property Report provides property or lot-based flood information for building and development requirements. This report provides information on estimated flood levels, habitable floor level requirements and more technical information on the four sources of flooding: river, creek / waterway, storm tide and overland flow. Refer to the Useful Definitions section for a glossary of terms.

To find out more about how the contents of this report may affect building or development on this property, please visit www.brisbane.qld.gov.au/planning-building.For more general information about understanding your flood risk and how to prepare your property, family or business for potential flooding visit www.brisbane.qld.gov.au/beprepared

THIS IS A REPORT FOR:

Rateable Address: 19 HERCULES ST, HAMILTON QLD 4007
Lot Details: L.3 SP.172658

FLOOD LEVEL INFORMATION



EXPLANATION

m(AHD) - Metres Australia Height Datum. The level of 0.0m AHD is approximately mean sea level.

Flood Levels - The Flood level bar chart above shows the possible flooding level and percentage chance of that level being reached or exceeded in any year. If an orange bar shows, it is the calculated January 2011 flood level at this address or lot. Refer to 'Useful Definitions' for further information.

Minimum Habitable Floor Level - Applies to residential development only. Please refer to Council's planning scheme to learn how this may affect you. If a property is in an overland flow path, or a large allotment, a minimum habitable floor level cannot be provided. Refer flood and planning development flags below.

Ground Levels- The green line above shows this property's approximate lowest and highest ground levels based on latest available information (2019 airborne laser survey) to Council. If you are building, please confirm with a surveyor.

For further information and definitions please refer to the Useful Definitions page

FLOOD AND PLANNING DEVELOPMENT FLAGS

DEVELOPMENT FLAG(S)

This property may also be affected by one or more flood or property development overlays or flags. These include: OVERLAND FLOW PATH,LARGE ALLOTMENT

Please review the technical summary over page and refer to Council's planning scheme for further information.

Brisbane City Council

FloodWise Property Report

Dedicated to a better Brisbane

Report Reference
1605493249099
16/11/2020 12:20:49

TECHNICAL SUMMARY

This section of the FloodWise Property Report contains more detailed flood information for this property so surveyors, builders, certifiers, architects and engineers can plan and build in accordance with Council's planning scheme. For more information about building and development in Brisbane please visit www.brisbane.qld.gov.au/planning-building or talk to a Development Assessment Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

THIS IS A REPORT FOR:

Rateable Address: 19 HERCULES ST, HAMILTON QLD 4007
Lot Details: L.3 SP.172658

PROPERTY INFORMATION (Summary)

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

PROPERTY SUMMARY	LEVEL (mAHD)
Minimum Ground Level	2.5
Maximum Ground Level	4.2
Min Habitable Floor Level	Contact Council
Defined Flood Event Level	2.5
Defined Flood Event Level Source	STORMTIDE
Flooding may also occur from	STORMTIDE,RIVER,OVERLAND FLOW

ESTIMATED PEAK FLOODING LEVELS

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning Development Information.

Note that the overland flow flooding level maybe higher than the levels below from other sources.

DESCRIPTION	LEVEL (mAHD)	SOURCE
20% AEP	1.9	STORMTIDE
5% AEP	2.1	STORMTIDE
2% AEP	2.2	STORMTIDE
1% AEP	2.5	STORMTIDE
1% AEP	2.2	RIVER

FLOOD PLANNING DEVELOPMENT INFORMATION

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

FLOOD OVERLAY CODE

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the Flood Planning Areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in Council's planning scheme, which is available from www.brisbane.qld.gov.au/planning-building.

FLOOD PLANNING AREAS (FPA)		
RIVER	CREEK/WATERWAY	OVERLAND FLOW
FPA5		Applicable

COASTAL HAZARD OVERLAY CODE

The coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new development. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following coastal hazard overlay sub-categories are explained in the planning scheme, which is available from www.brisbane.qld.gov.au/planning-building.

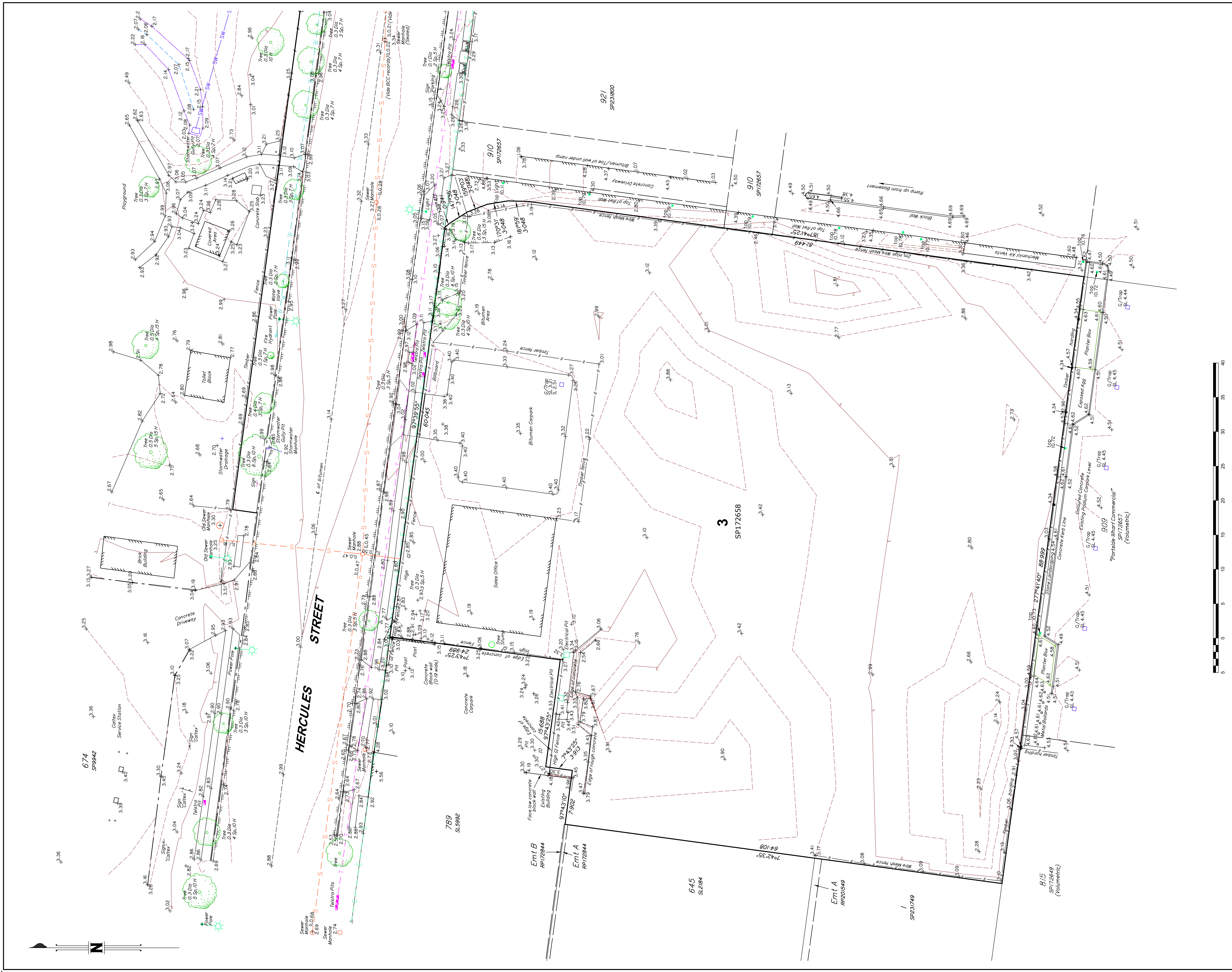
COASTAL HAZARD OVERLAY SUB-CATEGORIES
Medium Storm Tide Inundation Area

NOTE: Where land is identified within one or more flood planning area on the Flood Overlay, or is identified within a Storm Tide Inundation area on the Coastal Hazard Overlay, the assessment criteria that provide the highest level of protection from any source of flooding applies.

PROPERTY DEVELOPMENT FLAGS

Overland Flow Path - Mapping indicates this property may be located within an overland flow path. Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. It is recommended you consult a Registered Professional Engineer of Queensland to determine this property's habitable floor level and flooding depth. Please refer to Council's planning scheme for further information.

Large Allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, it is recommended you engage a Registered Professional Engineer of Queensland.



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Ph (07) 5574 0733

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Ph (07) 3839 7200

COOMERA OFFICE
Ph (07) 5573 6177

IPSWICH OFFICE
Ph (07) 3202 1575

SUNSHINE COAST OFFICE
Ph (07) 5438 8104

Experience, Resources... Results

Revision		Date
A	Added extra detail to south-west	4/07/2011
B	Added reinstated boundaries and easements	26/08/2011
C	Major Plan Update - Detail Added	3/04/2014

LEGEND

- S — Underground Sewer Line
- SW — Underground Stormwater Line
- W — Underground Water Reticulation Line
- T — Underground Telecommunications Line
- E — Overhead Power Line
- UE — Underground Power Line
- G — Underground Gas Line
- S — Sewer By Records
- SW — Stormwater By Records
- W — Water By Records
- G — Gas By Records
- E — Electricity By Records
- T — Telecommunications by Records
- Building Line
- Edge of Bitumen
- Top of Bank
- Toe of Bank
- Telecom Pit
- Power Pole
- Light Pole
- (1) Direction & Number of Photograph

40 35 30 25 20 15 10 5 0 5

NOTES
1. Drawn to scale on an A1 sheet.
2. All levels are in metres on Australian Height Datum as determined by PSM 35295 - RL 3.11m AHD.
3. All dimensions are vide title and subject to confirmation by survey.
4. Area vide title 7637m²
5. The location of services is approximate only and is plotted from surface installations and the relevant authority records. The exact nature and location of these services should be confirmed prior to construction.
6. Contour Interval . . . 0.25m
7. Boundaries need to be confirmed vide field survey.

Sheet 1 of 2

TITLE

Plan of Detail Survey 19 Hercules Street (Lot 3 on SP172658)

Client	WENTWORTH EQUITIES
Local Government	BRISBANE CITY COUNCIL
Locality	HAMILTON
Comp File	10391.project
Drawn	SS
Surv'd	CD
Approved	CWW
Date Created	3/4/14
Job Ref.	10391
SCALE @ A1	1:250
SCALE @ A3	1:500
PLAN No.	4
Rev.	C

10391DET2_C.DWG

Plot Date: 08/04/2014

REGISTERED SURVEYOR'S CERTIFICATION

I, Paul William Wild, hereby certify that the vertical and horizontal locations and dimensions shown on this plan are a true and correct record and were located by survey.

Registered Surveyor (sig.) Reg. Surveyor No. S1820 Date: 04/03/18

KINGSFORD SMITH DRIVE

EXTENT OF WORKS

ON ROAD CYCLE LANE AS PER KSD REFERENCE DESIGN

PEDESTRIAN ACCESS TO PARK TO BE MAINTAINED AT ALL TIMES

~~RELOCATE EIXSITNG THRESHOLD SIGN TO NEW ENTRANCE~~

~~NEW DRESSED HARDWOOD BARRIERS. REFER BCC STD DRG BSD-7013 FOR DETAILS~~

~~BCC REMOVABLE BOLLARDS. REFER BCC STD DRG BSD-7094 FOR DETAILS.~~

~~RELOCATE EXISTING PARK BINS. PROVIDE NEW CONCRETE SLAB. REFER BCC STD DRG BSD-7345 FOR DETAILS.~~

~~TERMINATE EXISTING FENCE AT NEW PROPERTY BOUNDARY~~

CONTROL LINE 2

CONTROL LINE 1

CONTROL LINE 3

CYCLIST EXIT RAMP

Plain concrete path

TIE IN NEATLY AND SMOOTHLY WITH EXISTING KERB

Garden bed

RAMP FROM FOOTPATH TO ROAD LEVEL

NEW ISLAND TO BE CUT INTO EXISTING SURFACE

Footpath extended to tie in to cafe

BLACK TGSI SCREWED DOWN BY ACCESS TILE 600 WIDE

CONSTRUCT PIT OVER EXISTING LINE, REMOVE UPSTREAM LINE AND RECONNECT ROOFWATER DRAINAGE IF REQUIRED

CONTRACTOR TO LIAISE WITH BUILDING TENANTS PRIOR TO IMPACTING ACCESSES.

REMOVE AND REINSTATE BOUNDARY FENCING AS NECESSARY TO COMPLETE WORKS

FUTURE CROSSOVER BY OTHERS

CONTRACTOR TO LIAISE WITH WENTWORTH EQUITIES PRIOR TO IMPACTING ACCESSES.

HERCULES STREET

HARBOUR ROAD

CH 20.000 TC 23.779 CH 40.000 CH 60.000 CH 80.000 CH 100.000 CT 109.800 CH 120.000 CH 140.000 CH 160.000 CH 180.000 CH 200.000

CH 20.000 TC 22.973 CH 40.000 CH 60.000 CH 80.000 CH 100.000 CT 114.518 CH 120.000 CH 140.000 CH 160.000 CH 180.000 CH 200.000 CH 220.000 CT 214.746 CH 240.000 CH 259.643 CH 200.000 TC 194.133

JOINS DWG P3-S1-C0310

JOINS DWG P3-S1-C0312

NOTE:

1. ALL EXISTING SERVICES PIT LIDS (ELECTRICAL, COMMUNICATIONS, GAS ETC.) TO BE ADJUSTED TO NEW SURFACE LEVELS. CONTRACTOR TO ARRANGE WITH SERVICE AUTHORITY.
2. ALL EXISTING SEWER, WATER AND STORMWATER LIDS TO BE ADJUSTED TO NEW SURFACE LEVELS. RAISE/LOWER/REPLACE/ROTATE ASPROS AS REQUIRED TO COMPLY WITH STANDARD DRAWINGS AND LIAISE WITH QUU FOR THEIR ASSET CHANGES.
3. FOR PAVEMENT JOINTS TO EXISTING, REFER PAVEMENT CUTBACK DETAIL DWG C0300.
4. FOR KERBS CONSTRUCTED IN EXISTING PAVEMENT REFER ROAD WIDENING CUTBACK DETAIL DWG C0300.
5. CONTRACTOR TO LIAISE WITH BUILDING TENANTS PRIOR TO IMPACTING ACCESSES.
6. EXTEND ROOFWATER CONNECTIONS INTO PROPERTY MIN 500 AND REINSTATE EXISTING SURFACE.
7. NEATLY SAWCUT EXISTING CONCRETE AT EXTENT OF REMOVAL BEFORE TYING INTO NEW CONCRE AREAS.

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES

A1 UNREDUCED
A3 REDUCED

SCALES UNREDUCED / REDUCED

A 0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500

WORK AS CONSTRUCTED

NICHOLAS ROZIS NAME RPEQ 7729 RPEQ

PLAN
SCALE A

AS CONSTRUCTED

04 AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
03	12.10.17	ISLAND FRONTING DEVINE ENTRY REVISED	ABL	BBE	KR	
02	18.07.17	TEMPORARY WORKS REMOVED	MS	KR	KR	NR
01	01.12.16	FOR CONSTRUCTION	SE	BBE	KR	NR
G	31.08.16	ISSUE FOR TENDER				
F	23.05.16	FOOTPATH AMENDED				

ASSOCIATED CONSULTANTS

APPROVED N. ROZIS 7729 RPEQ DATE 01/12/16

CHECKED K. RENSCH DATE 01/12/16

BORNHORST + WARD CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
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P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

CLIENT ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)

PROJECT REMORA ROAD ROADWORKS NORTHSHORE HAMILTON

SUBJECT ROADWORKS AND DRAINAGE LAYOUT SHEET 2

PROJECT No. 12191C

DRAWING No. P3-S1-C0311 REVISION ~~03~~ 04

0 10 20 30 40 50 100 ORIGINAL SIZE A1

13/10/2017 3:46:44 PM

...P3_C\05_DRAWINGS\DWGS\P3-S1-C0310.DWG

STORMWATER DRAINAGE LONGITUDINAL SECTION

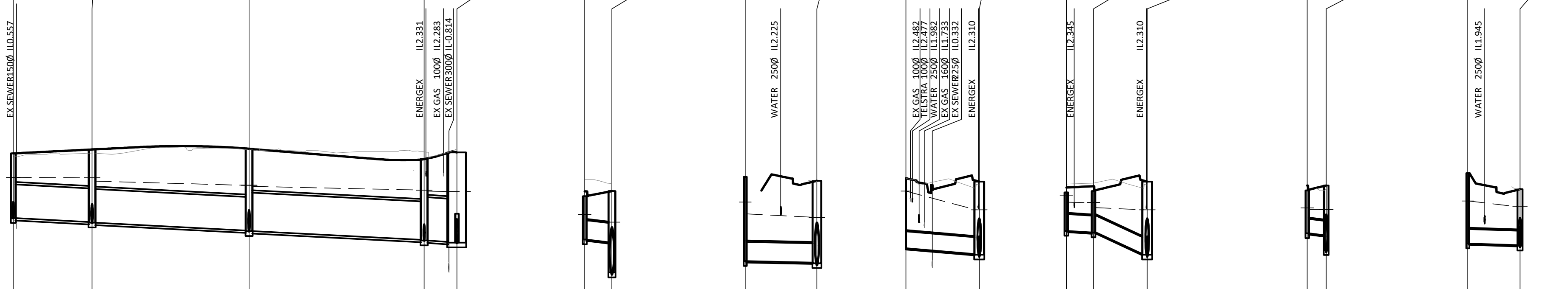
SCALE A (HOR)
B (VERT)

STRUCTURE NAME / STRUCTURE DESCRIPTION

Structure	Description
32.4	BCC MANHOLE 1350mm DIA
32.3	BCC MANHOLE 1500mm DIA; EXT 900mm
32.2	BCC MANHOLE 1500mm DIA; EXT 600mm
32.1	BCC MANHOLE 1500mm DIA; EXT 600mm
29.1	CUSTOM CHAMBER: 2.300 x 3.200 REFER MANHOLE STRUCTURAL DETAILS DRG C0550
33.1	BCC TYPE A GULLY (SAG) L.I.L; 2.4m Lintel; TYPE E K&C
32.1	BCC MANHOLE 1500mm DIA; EXT 600mm
34.1	BCC FIELD INLET 900x900 TYPE 1
32.2	BCC MANHOLE 1500mm DIA; EXT 600mm
35.1	STUB CONNECTION
32.3	BCC MANHOLE 1500mm DIA; EXT 900mm
36.2	BCC TYPE A GULLY (SAG) L.I.L; 4.8m Lintel; TYPE E K&C
36.1	BCC TYPE A GULLY (SAG) L.I.L; 4.8m Lintel; TYPE E K&C
32.3	BCC MANHOLE 1500mm DIA; EXT 900mm
37.1	BCC TYPE A GULLY (SAG) L.I.L; 2.4m Lintel; TYPE E K&C
32.4	BCC MANHOLE 1350mm DIA
38.1	BCC FIELD INLET 900x900 TYPE 1
32.5	BCC MANHOLE 1500mm DIA; EXT 900mm

SETOUT DETAILS FOR MANHOLES & GULLIES

STRUCTURE TYPE	SET-OUT POINT	LEVEL REFERENCE
MANHOLE & ROOFWATER PIT	CENTRE OF MAIN SHAFT	FINISHED SURFACE LEVEL - MANHOLE/ PIT COVER
GULLY PIT ROADWAY TYPE CHANNEL	CO-ORDINATE SETOUT (CENTRE OF GULLY) / CHAINAGE SETOUT	LIP OF KERB
FIELD INLET AND ROOFWATER PIT	CENTRE OF GULLY	TOP OF GRATE OR COVER
END WALL	CENTRE OF END WALL (END OF INLET/OUTLET PIPE)	INVERT OF OUTLET/ INLET PIPE



Pipe data

Pipe	PIPE SIZE (mm)	PIPE CLASS	PIPE GRADE (%)	PIPE SLOPE (1 in X)	FULL PIPE VELOCITY (m/s)	PART FULL VELOCITY (m/s)	DATUM RL	PIPE FLOW (m³/s)	PIPE CAPACITY AT GRADE (m³/s)
32.4–32.3	1050	3 SW	0.48% ~~0.50%~~	~~200.00~~ 207.81	0.70	1.97	-12.0	0.605	1.932
32.3–32.2	1050	3 SW	0.49% ~~0.50%~~	~~200.03~~ 204.60	1.61	2.43		1.397	1.932
32.2–32.1	1200	3 SW	0.46% ~~0.50%~~	~~200.74~~ 215.38	1.59	2.59		1.799	2.753
32.1–29.1	1350	3 SW	0.13% ~~0.45%~~	~~220.56~~ 775.27	1.34	2.55		1.923	3.595
33.1–32.1	450	3 SW	1.82% ~~1.00%~~	~~100.00~~ 54.96	1.21	1.93	-11.0	0.193	0.285
34.1–32.2	600	3 SW	0.22% ~~0.20%~~	~~500.00~~ 458.61	1.52	1.52	-11.0	0.431	0.275
35.1–32.3	525	3 SW	0.74% ~~0.80%~~	~~124.91~~ 135.60	3.18	3.18	-11.0	0.688	0.385
36.2–36.1	525	3 SW	0.64% ~~0.59%~~	~~168.82~~ 157.29	0.97	1.62	-11.0	0.210	0.331
36.1–32.3	525	3 SW	3.59% ~~4.14%~~	~~24.13~~ 27.86	1.30	3.60		0.282	0.876
37.1–32.4	450	3 SW	1.74% ~~1.00%~~	~~100.01~~ 57.61	0.47	1.51	-11.0	0.074	0.285
38.1–32.5	450	3 SW	0.32% ~~0.30%~~	~~333.33~~ 315.35	1.87	1.87	-11.0	0.297	0.156

H.G.L IN PIPE & W.S.E IN STRUCTURE

- 32: 2.138, 2.142, 2.130, 2.024, 1.896, 1.863, 1.747, 1.715, 1.701, 1.681
- 33: 1.786, 1.747, 1.715
- 34: 2.006, 1.896, 1.863
- 35: 2.715, 2.130, 2.024
- 36: 2.371, 2.350, 2.201, 2.130, 2.024
- 37: 2.142, 2.138, 2.142
- 38: 2.405, 2.229, 2.173

DEPTH TO INVERT / INVERT LEVEL OF DRAIN / DESIGN SURFACE LEVEL / SETOUT COORDS / RD CHAINAGE / CHAINAGE

(as-constructed values in red; superseded design values struck through)

32
- DEPTH TO INVERT: 2.033 ~~1.998~~ · ~~2.018~~ 2.033 · 2.187 ~~2.263~~ · ~~2.283~~ 2.231 · 2.551 ~~2.550~~ · ~~2.570~~ 2.591 · 2.550 ~~2.521~~ · ~~2.541~~ 2.568 · 2.701 ~~2.794~~ · ~~2.814~~ 2.735
- INVERT LEVEL OF DRAIN: 0.895 ~~0.893~~ · ~~0.873~~ 0.895 · 0.776 ~~0.750~~ · ~~0.730~~ 0.732 · 0.495 ~~0.486~~ · ~~0.466~~ 0.455 · 0.203 ~~0.194~~ · ~~0.174~~ 0.185 · 0.174 ~~0.128~~ · ~~0.108~~ 0.140
- DESIGN SURFACE LEVEL: 2.928 ~~2.891~~ · 2.963 ~~3.014~~ · 3.046 ~~3.036~~ · 2.753 ~~2.715~~ · 2.875 ~~2.922~~
- SETOUT COORDS / RD CHAINAGE: E 6812.435 ~~CH 133.356~~ · ~~OFF -2.000~~ N 4920.369 · E 6836.273 ~~CH 157.918~~ · ~~OFF -2.000~~ N 4913.911 · E 6883.001 ~~CH 206.796~~ · ~~OFF -2.000~~ N 4900.237 · E 6935.231 ~~CH 261.110~~ · ~~OFF -2.004~~ N 4885.308 · E 6939.281 ~~CH 272.779~~ · ~~OFF -2.919~~ N 4877.803
- CHAINAGE: ~~39.664~~ · 24.729 ~~24.562~~ · ~~64.225~~ · 48.491 ~~48.885~~ · ~~113.110~~ · 54.276 ~~54.529~~ · ~~167.639~~ · 8.528 ~~10.183~~ · ~~177.822~~

33
- DEPTH TO INVERT: ~~1.350~~ 1.326 · 1.650 ~~1.596~~ · ~~2.541~~ 2.568
- INVERT LEVEL OF DRAIN: ~~1.204~~ 1.253 · 1.103 ~~1.119~~ · ~~0.174~~ 0.185
- DESIGN SURFACE LEVEL: 2.579 ~~2.554~~ · 2.753 ~~2.715~~
- SETOUT COORDS / RD CHAINAGE: E 6930.516 ~~CH 254.641~~ · ~~OFF -7.267~~ N 4892.077 · E 6935.231 ~~CH 261.110~~ · ~~OFF -2.004~~ N 4885.308
- CHAINAGE: ~~0.000~~ · 8.244 ~~8.466~~ · ~~8.466~~

34
- DEPTH TO INVERT: ~~2.632~~ 1.481 · 2.566 ~~2.550~~ · ~~2.570~~ 2.591
- INVERT LEVEL OF DRAIN: ~~0.530~~ 0.529 · 0.480 ~~0.486~~ · ~~0.466~~ 0.455
- DESIGN SURFACE LEVEL: 2.010 ~~3.162~~ · 3.046 ~~3.036~~
- SETOUT COORDS / RD CHAINAGE: E 6884.279 ~~E 6884.272~~ · ~~N 4922.533~~ N 4922.673 · E 6883.001 ~~CH 206.796~~ · ~~OFF -2.000~~ N 4900.237
- CHAINAGE: ~~0.000~~ · 22.472 ~~22.308~~ · ~~22.308~~

35
- DEPTH TO INVERT: ~~2.186~~ 2.188 · 2.200 ~~2.264~~ · ~~2.283~~ 2.231
- INVERT LEVEL OF DRAIN: ~~0.933~~ 0.931 · 0.763 ~~0.750~~ · ~~0.730~~ 0.732
- DESIGN SURFACE LEVEL: 3.119 · 2.963 ~~3.014~~
- SETOUT COORDS / RD CHAINAGE: E 6829.757 ~~E 6829.533~~ · ~~N 4891.761~~ N 4891.850 · E 6836.273 ~~CH 157.918~~ · ~~OFF -2.000~~ N 4913.911
- CHAINAGE: ~~0.000~~ · 22.780 ~~22.859~~ · ~~22.859~~

36
- DEPTH TO INVERT: ~~1.200~~ 1.260 · 1.337 ~~1.292~~ · ~~1.272~~ 1.364 · 2.200 ~~2.263~~ · ~~2.283~~ 2.231
- INVERT LEVEL OF DRAIN: ~~1.473~~ 1.445 · 1.393 ~~1.423~~ · ~~1.443~~ 1.366 · 0.763 ~~0.750~~ · ~~0.730~~ 0.732
- DESIGN SURFACE LEVEL: 2.705 ~~2.673~~ · 2.730 ~~2.715~~ · 2.963 ~~3.014~~
- SETOUT COORDS / RD CHAINAGE: E 6816.966 ~~CH 148.304~~ · ~~OFF 7.267~~ N 4903.850 · E 6824.831 ~~CH 156.745~~ · ~~OFF 7.267~~ N 4901.595 · E 6836.273 ~~CH 157.918~~ · ~~OFF -2.000~~ N 4913.911
- CHAINAGE: ~~0.000~~ · 8.179 ~~8.441~~ · ~~8.441~~ · 16.800 ~~16.721~~ · ~~25.162~~

37
- DEPTH TO INVERT: ~~1.350~~ 1.463 · 1.744 ~~1.566~~ · ~~2.018~~ 2.033
- INVERT LEVEL OF DRAIN: ~~1.385~~ 1.287 · 1.184 ~~1.325~~ · ~~0.873~~ 0.895
- DESIGN SURFACE LEVEL: 2.750 ~~2.735~~ · 2.928 ~~2.891~~
- SETOUT COORDS / RD CHAINAGE: E 6811.289 ~~CH 130.774~~ · ~~OFF -7.267~~ N 4926.159 · E 6812.435 ~~CH 133.356~~ · ~~OFF -2.000~~ N 4920.369
- CHAINAGE: ~~0.000~~ · 5.934 ~~5.912~~ · ~~5.912~~

38
- DEPTH TO INVERT: ~~2.196~~ 2.322 · 1.801 ~~1.742~~ · ~~1.762~~ 1.827
- INVERT LEVEL OF DRAIN: ~~1.080~~ 1.078 · 1.026 ~~1.031~~ · ~~1.011~~ 1.000
- DESIGN SURFACE LEVEL: 3.400 ~~3.276~~ · 2.827 ~~2.773~~
- SETOUT COORDS / RD CHAINAGE: E 6794.541 ~~E 6794.344~~ · ~~N 4942.488~~ N 4942.811 · E 6790.114 ~~CH 109.800~~ · ~~OFF -2.000~~ N 4927.085
- CHAINAGE: ~~0.000~~ · 16.398 ~~16.263~~ · ~~16.263~~

32 33 34 35 36 37 38

02 (revision cloud markers)

REGISTERED SURVEYOR'S CERTIFICATION

I, Paul William Wild, hereby certify that the vertical and horizontal locations and dimensions shown on this plan are a true and correct record and were located by survey.

Registered Surveyor (sig.) Reg. Surveyor No. S1820 Date: 04/03/18

WORK AS CONSTRUCTED
NICHOLAS ROZIS RPEQ 7729
NAME RPEQ

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES — A1 UNREDUCED / A3 REDUCED

SCALES — UNREDUCED / REDUCED
A: 0 10 20 30 40 50m — 1 : 1000 / 1 : 2000
B: 0 1.0 2.0 3.0 4.0 5.0m — 1 : 100 / 1 : 200

STATUS
AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
03		AS CONSTRUCTED				
02	26.06.17	REVISED PIT DEPTH AS SHOWN	AB	BBE	NR	NR
01	01.12.16	FOR CONSTRUCTION	SE	BBE	KR	NR
E	31.03.16	ISSUE FOR TENDER	MS	BBe	KR	NR
D	11.03.16	FOR REVIEW				
C	24.02.16	ISSUE TO APA FOR CO-ORDINATION				

ASSOCIATED CONSULTANTS

APPROVED: N. ROZIS 7729 RPEQ — DATE 01/12/16
CHECKED: K. RENSCH — DATE 01/12/16

BORNHORST + WARD
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CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace
Spring Hill, QLD 4000, Australia
P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)

PROJECT: REMORA ROAD ROADWORKS NORTHSHORE HAMILTON

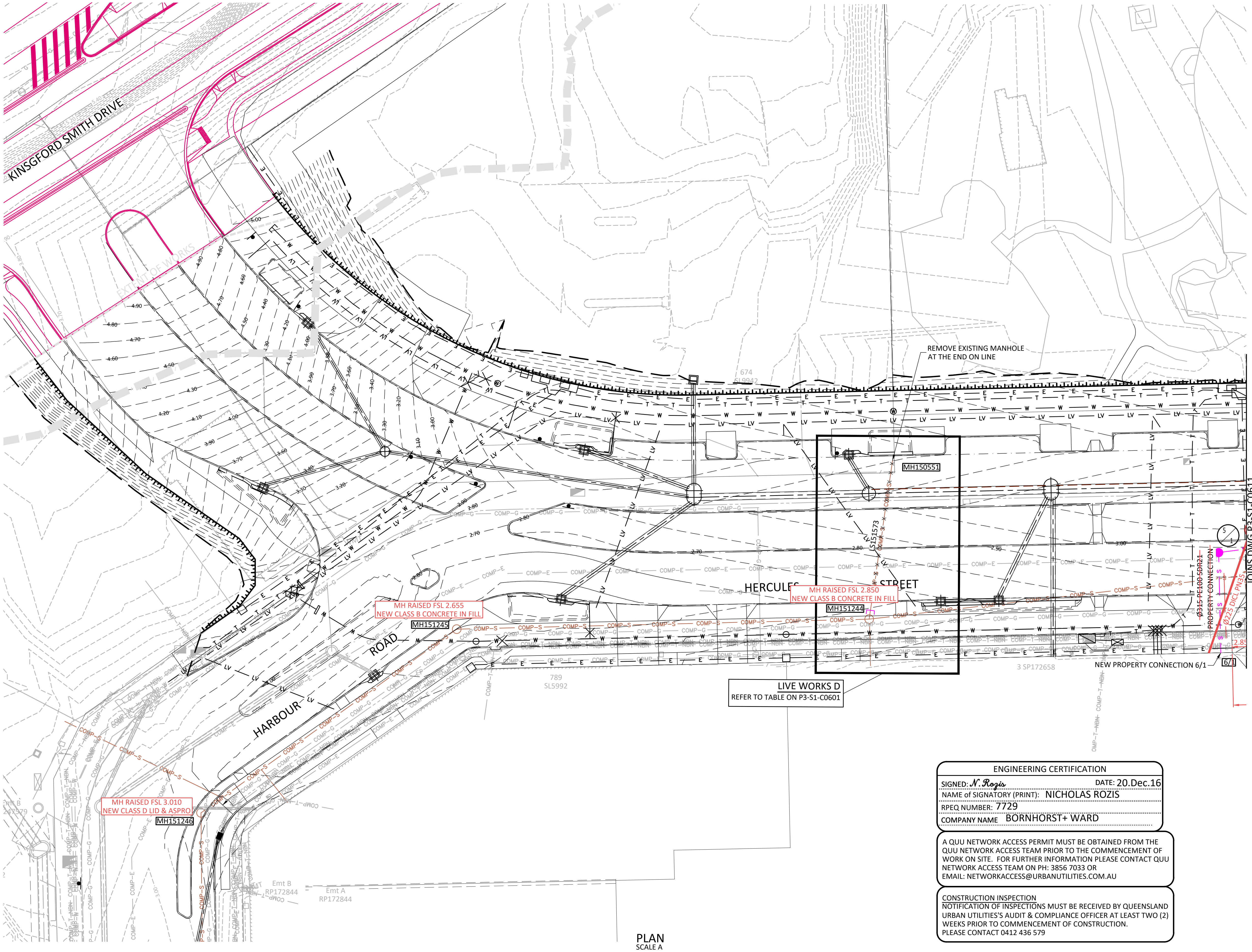
SUBJECT: STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 6

PROJECT No. 12191C

DRAWING No. P3-S1-C0505 — REVISION ~~02~~ 03

ORIGINAL SIZE A1

NOTE:
1. ALL SEWER AND ASSOCIATED MANHOLES MARKED TO BE ABANDONED LOCATED INSIDE WORKS ZONE TO BE REMOVED FROM SITE UNLESS NOTED OTHERWISE. TRENCHES TO BE BACKFILLED WITH IMPORTED MATERIAL AS PER EARTHWORKS SPECIFICATION.
2. FOR EXISTING MANHOLES TO BE ADJUSTED, REFER LIVE WORKS G TABLE DRG C0601.



PLAN
SCALE A

ASCONSTRUCTED

EYRE CONSTRUCTION SURVEYING PTY LTD ENGINEERING SURVEYORS Hereby certify that this drawing is a true and accurate representation of the As-constructed works at the time of survey.
I hereby certify that the vertical and horizontal locations and dimensions shown on this plan are a true and correct record and were located by survey

Name Paul Wild Date 16/01/18
Signature (S1820)

ORIGINAL SIGNED BY [Pakee Bala] DATE: 22/12/16
QUEENSLAND URBAN UTILITIES DELEGATE
(VALID FOR 12 MONTHS FROM DATE SHOWN)

CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND
CONTACT: BORNHORST & WARD
QUU AUDITOR: AUDIT AND COMPLIANCE OFFICER
CONTACT: GREG LOVELOCK 0414 326 408

AS CONSTRUCTED DETAILS FOR AMEND. A

I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS

SIGNED DATE: 14/04/20
NAME of SIGNATORY NICk ROZIS
RPEQ No. or LICENCE 7729
COMPANY NAME BORNHORST + WARD PTY LTD
START DATE 01/02/17 FINISH DATE 05/02/18

SHEET No. 3 OF 8

QUEENSLAND URBAN UTILITIES DRAWING No.	AMEND.
486/5/9 - 0271 - 003	A

QUEENSLAND UrbanUtilities

ENGINEERING CERTIFICATION

SIGNED: N. Rozis DATE: 20.Dec.16
NAME of SIGNATORY (PRINT): NICHOLAS ROZIS
RPEQ NUMBER: 7729
COMPANY NAME BORNHORST+ WARD

A QUU NETWORK ACCESS PERMIT MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM PRIOR TO THE COMMENCEMENT OF WORK ON SITE. FOR FURTHER INFORMATION PLEASE CONTACT QUU NETWORK ACCESS TEAM ON PH: 3856 7033 OR EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU

CONSTRUCTION INSPECTION
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES'S AUDIT & COMPLIANCE OFFICER AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
PLEASE CONTACT 0412 436 579

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES

A1 UNREDUCED
A3 REDUCED

SCALES UNREDUCED / REDUCED
A 0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500

STATUS
AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
02	27.07.18	AS CONSTRUCTED FOR QUU COMMENT	ABU	BBE	KR	NR
01	20.12.16	FOR CONSTRUCTION	SE	BBe	KR	NR
E	31.08.16	ISSUE FOR TENDER				
D	31.03.16	ISSUE FOR TENDER	MS	BBe	KR	NR
C	11.03.16	FOR REVIEW				

ASSOCIATED CONSULTANTS

APPROVED 7729 RPEQ DATE

CHECKED DATE

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
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www.bornhorstward.com.au

CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)

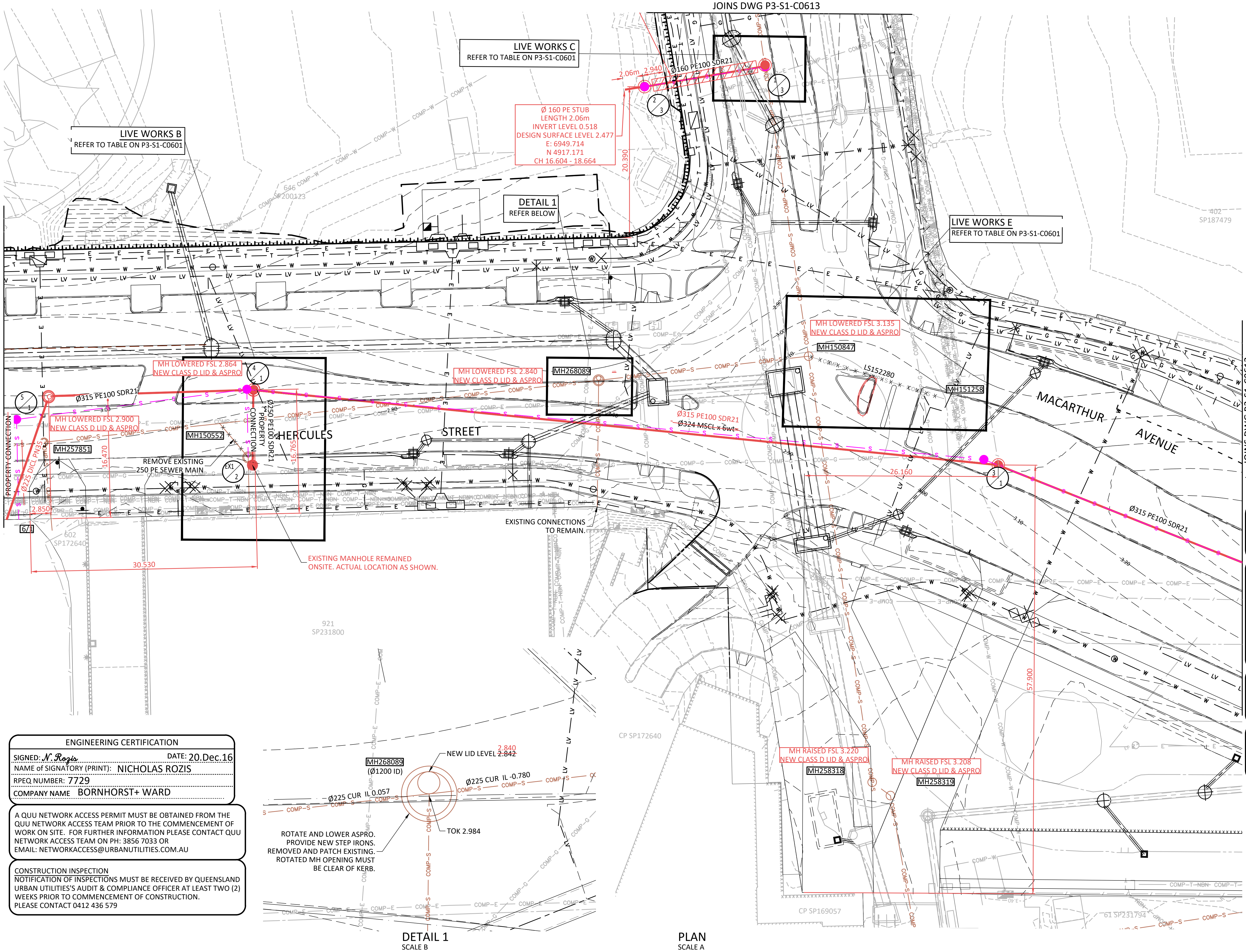
PROJECT: REMORA ROAD ROADWORKS NORTHSHORE HAMILTON

SUBJECT: SEWER RETICULATION LAYOUT SHEET 1

PROJECT No. 12191C
DRAWING No. P3-S1-C0610 REVISION 02

0 10 20 30 40 50 100 ORIGINAL SIZE A1

15/04/2020 9:57:44 AM



NOTE:
FOR ALL CONNECTIONS TO EXISTING MANHOLES, CONTRACTOR TO VERIFY INVERT LEVELS AT THESE MANHOLES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

NOTE:
1. ALL SEWER AND ASSOCIATED MANHOLES MARKED TO BE ABANDONED LOCATED INSIDE WORKS ZONE TO BE REMOVED FROM SITE UNLESS NOTED OTHERWISE. TRENCHES TO BE BACKFILLED WITH IMPORTED MATERIAL AS PER EARTHWORKS SPECIFICATION.
2. FOR EXISTING MANHOLES TO BE ADJUSTED, REFER LIVE WORKS G TABLE DRG C0601.

ENGINEERING CERTIFICATION

SIGNED: N. Rozis DATE: 20.Dec.16
NAME of SIGNATORY (PRINT): NICHOLAS ROZIS
RPEQ NUMBER: 7729
COMPANY NAME BORNHORST+ WARD

A QUU NETWORK ACCESS PERMIT MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM PRIOR TO THE COMMENCEMENT OF WORK ON SITE. FOR FURTHER INFORMATION PLEASE CONTACT QUU NETWORK ACCESS TEAM ON PH: 3856 7033 OR EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU

CONSTRUCTION INSPECTION
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES'S AUDIT & COMPLIANCE OFFICER AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
PLEASE CONTACT 0412 436 579

ASCONSTRUCTED
EYRE CONSTRUCTION SURVEYING PTY LTD
ENGINEERING SURVEYORS Hereby certify that this drawing is a true and accurate representation of the As-constructed works at the time of survey.
I hereby certify that the vertical and horizontal locations and dimensions shown on this plan are a true and correct record and were located by survey
Name Paul Wild Date 16/01/18
Signature (S1820)

ORIGINAL SIGNED BY [Pakee Bala] DATE:22/12/16
QUEENSLAND URBAN UTILITIES DELEGATE
(VALID FOR 12 MONTHS FROM DATE SHOWN)

CLIENT	ECONOMIC DEVELOPMENT QUEENSLAND
CONTACT:	BORNHORST & WARD
QUU AUDITOR:	AUDIT AND COMPLIANCE OFFICER
CONTACT:	GREG LOVELOCK 0414 326 408

AS CONSTRUCTED DETAILS FOR AMEND. A

I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS
SIGNED N. Rozis DATE: 14/04/20
NAME of SIGNATORY NICk ROZIS
RPEQ No. or LICENCE 7729
COMPANY NAME BORNHORST + WARD PTY LTD
START DATE 01/02/17 FINISH DATE 05/02/18

SHEET No. 4 OF 8
QUEENSLAND URBAN UTILITIES DRAWING No. 486/5/9 - 0271 - 004
AMEND. A

QUEENSLAND UrbanUtilities

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES
A1 UNREDUCED
A3 REDUCED

SCALES UNREDUCED / REDUCED
A 0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500
B 0 0.5 1.0 1.5 2.0 2.5m 1 : 50 / 1 : 100

STATUS
AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
03	27.07.18	AS CONSTRUCTED FOR QUU COMMENT	ABU	BBE	KR	NR
02	10.02.17	PIPE DETAIL MENDED				
01	20.12.16	FOR CONSTRUCTION	SE	BBe	KR	NR
D	31.03.16	ISSUE FOR TENDER	MS	BBe	KR	NR
C	11.03.16	FOR REVIEW				

ASSOCIATED CONSULTANTS

APPROVED 7729 RPEQ DATE

CHECKED DATE

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace
Spring Hill, QLD 4000, Australia
P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

CLIENT
ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)

PROJECT
REMORA ROAD ROADWORKS NORTHSHORE HAMILTON

SUBJECT
SEWER RETICULATION LAYOUT SHEET 2

PROJECT No. 12191C
DRAWING No. P3-S1-C0611 REVISION 03

ORIGINAL SIZE A1

15/04/2020 9:57:49 AM

SEWER RETICULATION LONGITUDINAL SECTION

SCALE A (HOR)
B (VERT)

LINE 1

MANHOLE/END NAME	EX1/4	2/1	3/1	4/1	5/1	6/1
Deflection		22°	-16°	-13° 2	-84°	
MANHOLE TYPE	EXISTING	F	F	F	F	PROPERTY CONNECTION END CAP
LID TYPE		D	D	D	D	
JUNCTION LINE						
DROP TYPE		A	A	A	W A	
JUNCTION INVERT LEVEL				1.473		
DEPTH TO INVERT	3.228 3.362 3.094 3.106	3.288 3.279 3.249 3.267	2.319 2.190 2.160 2.285	1.757 1.813 1.783 1.740	1.758 1.577 1.527 1.178	0.988 1.523
INVERT LEVEL	-0.020 -0.154 -0.114 0.081	0.187 0.177 0.207 0.208	0.981 1.017 1.047 1.015	1.352 1.297 1.327 1.369	1.446 1.405 1.455 2.026	2.112 1.489
DESIGN SURFACE LEVEL	3.187 3.208	3.475 3.456	3.300 3.207	3.109 3.110	3.204 2.983	3.100 3.012
NATURAL SURFACE	3.188	3.088	3.106	3.041	3.208	3.010
COORDINATES	E 7065.140 E 7065.252 N 4796.724 N 4796.658	E 7041.264 E 7041.252 N 4804.214 N 4804.205	E6979.869 E 6978.228 N 4855.11 N 4853.832	E 6886.785 E 6885.964 N 4893.59 N 4893.227	E 6860.083 E 6855.054 N 4898.888 N 4900.540	E 6849.782 E 6851.349 N 4885.906 N 4886.353
CHAINAGE	0.000	25.142 25.040	106.150 103.984	206.117 205.062	237.478 232.747	250.979 250.280

Segment	EX1/4–2/1	2/1–3/1	3/1–4/1	4/1–5/1	5/1–6/1
EMBEDMENT TYPE	REFER DETAIL ON DRG C0601	REFER TYPICAL DETAIL ON DRG C0601 WITH ROCK STABILISATION; REFER DETAIL DRG C0601; REFER DETAIL ON DRG C0601	REFER DETAIL DRG C0601 TYPE 9	REFER DETAIL DRG C0601	REFER DETAIL DRG C0601
PROPERTY DESCRIPTION		MACARTHUR AVENUE	HERCULES STREET		
DIAMETER	315Ø PE 100 SDR 21	315Ø PE 100 SDR 21	Ø315 PE 100 SDR 21 / 315Ø PE 100 SDR21	315Ø PE 100 SDR 21	Ø225 DICL PN35 / 315Ø PE 100 SDR 21
GRADE	1 in 400 / 224	1 in 100.00 / 101.00	1 in 400 / 296	1 in 400 / 345	1 in 400 / 199
DATUM RL	-11.000				
CHAINAGE (length)	25.142 / 25.040	81.009 / 78.944	99.966 / 101.078	31.361 / 27.685	13.501 / 17.533

CH 5.430 — CH 71.978

PROPERTY CONNECTION

LINE 2

MANHOLE/END NAME	4/1	EX1/2
Deflection	1	
MANHOLE TYPE	F	CONNECTION TO EXISTING LINE
LID TYPE	D	
DROP TYPE	A	
JUNCTION INVERT LEVEL	1.473	
DEPTH TO INVERT	1.757 1.813 1.636 1.735	1.085 1.356 0.081
INVERT LEVEL	1.352 1.297 1.473 1.374	1.822 1.534
DESIGN SURFACE LEVEL	3.109 3.110	2.907 2.890
NATURAL SURFACE	3.041	3.082
COORDINATES	E 6886.785 E 6885.964 N 4893.59 N 4893.227	E 6883.662 E 6883.423 N 4884.752 N 4883.581
CHAINAGE	0.000	9.196 9.716

EMBEDMENT TYPE: REFER DETAIL DRG C0601; PROPERTY DESCRIPTION: HERCULES STREET; DIAMETER: 250Ø PE 100 SDR 21; GRADE: 1 in 151 / 20; DATUM RL: -12.000; length 9.196 / 9.716

PROPERTY CONNECTION

LINE 3

MANHOLE/END NAME	1/3	2/3
MANHOLE TYPE	F	F
LID TYPE	D	D
DROP TYPE	A	A
DEPTH TO INVERT	4.048 4.047 4.047 3.569	2.925 4.114
INVERT LEVEL	-0.997 -0.997 -0.518	0.355 -0.916
DESIGN SURFACE LEVEL	3.051 3.050	3.280 3.199
NATURAL SURFACE	3.133	3.199
COORDINATES	E 6965.752 E 6965.7 N 4914.553 N 4914.756	E 6949.340 E 6949.347 N 4916.772 N 4916.783
CHAINAGE	0.000	16.503 16.537

EMBEDMENT TYPE: REFER DETAIL DRG C0601; PROPERTY DESCRIPTION: REMORA ROAD; DIAMETER: 160Ø PE 100 SDR 21; GRADE: 1 in 203 / 18; DATUM RL: -13.000; length 16.503 / 16.537

LINE 4

MANHOLE/END NAME	MH521119	1/4
MANHOLE TYPE	INTERNAL DROP IN EXISTING MANHOLE REFER SEQ STD DRG SEQ-SEW-1301-8	STUB CONNECTION
DEPTH TO INVERT	3.578 2.243 2.249	2.531 2.500
INVERT LEVEL	-0.120 1.215 1.188	1.269 1.268
DESIGN SURFACE LEVEL	3.437 3.458	3.800 3.768
NATURAL SURFACE	3.586	3.708
COORDINATES	E 7136.732 E 7136.654 N 4774.424 N 4774.529	E 7139.931 E 7139.968 N 4784.398 N 4784.411
CHAINAGE	0.000	10.511 10.387

EMBEDMENT TYPE: REFER DETAIL DRG C0601; PROPERTY DESCRIPTION: MACARTHUR AVENUE; DIAMETER: 250Ø PE 100 SDR 21; GRADE: 1 in 200 / 121; DATUM RL: -11.000; length 10.511 / 10.387

PROPERTY CONNECTION

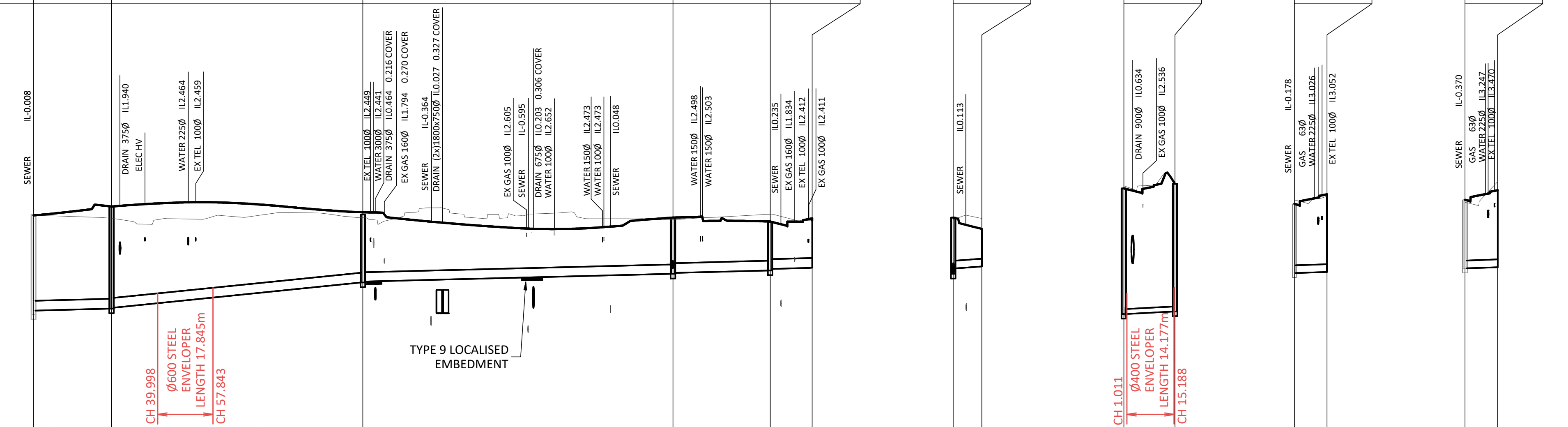
LINE 5

MANHOLE/END NAME	MH521120	1/5
MANHOLE TYPE	INTERNAL DROP IN EXISTING MANHOLE REFER SEQ STD DRG SEQ-SEW-1301-8	STUB CONNECTION
DEPTH TO INVERT	3.872 2.224 2.175	2.420 2.480
INVERT LEVEL	-0.280 1.386 1.408	1.460 1.421
DESIGN SURFACE LEVEL	3.583 3.592	3.880 3.901
NATURAL SURFACE	3.509	4.179
COORDINATES	E 7205.167 E 7205.222 N 4752.733 N 4752.755	E 7208.439 E 7208.548 N 4762.733 N 4762.763
CHAINAGE	0.000	10.539 10.530

EMBEDMENT TYPE: REFER DETAIL DRG C0601; PROPERTY DESCRIPTION: MACARTHUR AVENUE; DIAMETER: 250Ø PE 100 SDR 21; GRADE: 1 in 200 / 190; DATUM RL: -11.000; length 10.539 / 10.530

PROPERTY CONNECTION

Other rows (blank): DEPTH TO HC, HC INVERT LEVEL, INVERT LEVEL, HC TYPE, HC LOT No., CH. FROM D/S MH



ENGINEERING CERTIFICATION

SIGNED: N. Rozis DATE: 20.Dec.16
NAME of SIGNATORY (PRINT): NICHOLAS ROZIS
RPEQ NUMBER: 7729
COMPANY NAME BORNHORST+ WARD

A QUU NETWORK ACCESS PERMIT MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM PRIOR TO THE COMMENCEMENT OF WORK ON SITE. FOR FURTHER INFORMATION PLEASE CONTACT QUU NETWORK ACCESS TEAM ON PH: 3856 7033 OR EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU

CONSTRUCTION INSPECTION
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES'S AUDIT & COMPLIANCE OFFICER AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. PLEASE CONTACT 0412 436 579

MILD STEEL PIPES
- M1 MILD STEEL PIPES AND FITTINGS SHALL COMPLY WITH A.S.1579 AND BE CEMENT LINED IN ACCORDANCE WITH A.S.1281 UNLESS NOTED OTHERWISE.
- M2 EXTERNAL COATINGS ON THE PIPES AND FITTINGS SHALL BE FUSION BONDED MEDIUM DENSITY POLYETHYLENE COMPLYING WITH A.S.4321 (SINTAKOTE II).
- M3 ALL MILD STEEL FITTINGS (BRANCHES ETC.) TO BE WELDED IN ACCORDANCE WITH THE SEQ WATER SUPPLY AND SEWERAGE DESIGN & CONSTRUCTION CODE (2013).

ASCONSTRUCTED
EYRE CONSTRUCTION SURVEYING PTY LTD
ENGINEERING SURVEYORS Hereby certify that this drawing is a true and accurate representation of the As-constructed works at the time of survey.
I hereby certify that the vertical and horizontal locations and dimensions shown on this plan are a true and correct record and were located by survey
Name Paul Wild Date 16/01/18
Signature (S1820)

Pakee Bala DATE: 22.Dec.16
QUEENSLAND URBAN UTILITIES DELEGATE
(VALID FOR 12 MONTHS FROM DATE SHOWN)

CLIENT	ECONOMIC DEVELOPMENT QUEENSLAND
CONTACT:	BORNHORST & WARD
QUU AUDITOR:	AUDIT AND COMPLIANCE OFFICER
CONTACT:	GREG LOVELOCK 0414 326 408

AS CONSTRUCTED DETAILS FOR AMEND.
I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS
SIGNED DATE: 14/04/20
NAME of SIGNATORY NICK ROZIS
RPEQ No. or LICENCE 7729
COMPANY NAME BORNHORST + WARD PTY LTD
START DATE 01/02/17 FINISH DATE 05/02/18

SHEET No. 8 OF 8
QUEENSLAND URBAN UTILITIES DRAWING No. 486/5/9 - 0271 - 008 AMEND. 0

QUEENSLAND UrbanUtilities

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES — A1 UNREDUCED / A3 REDUCED
SCALES — UNREDUCED / REDUCED
A 0 10 20 30 40 50m 1 : 1000 / 1 : 2000
B 0 1.0 2.0 3.0 4.0 5.0m 1 : 100 / 1 : 200

STATUS
AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
03	27.07.18	AS CONSTRUCTED FOR QUU COMMENT	ABL	BBE	KR	NR
02	09.02.17	PIPE DETAIL AMENDED				
01	20.12.16	FOR CONSTRUCTION	SE	BBe	KR	NR
F	31.08.16	ISSUE FOR TENDER				
E	31.03.16	ISSUE FOR TENDER	MS	BBe	KR	NR

ASSOCIATED CONSULTANTS

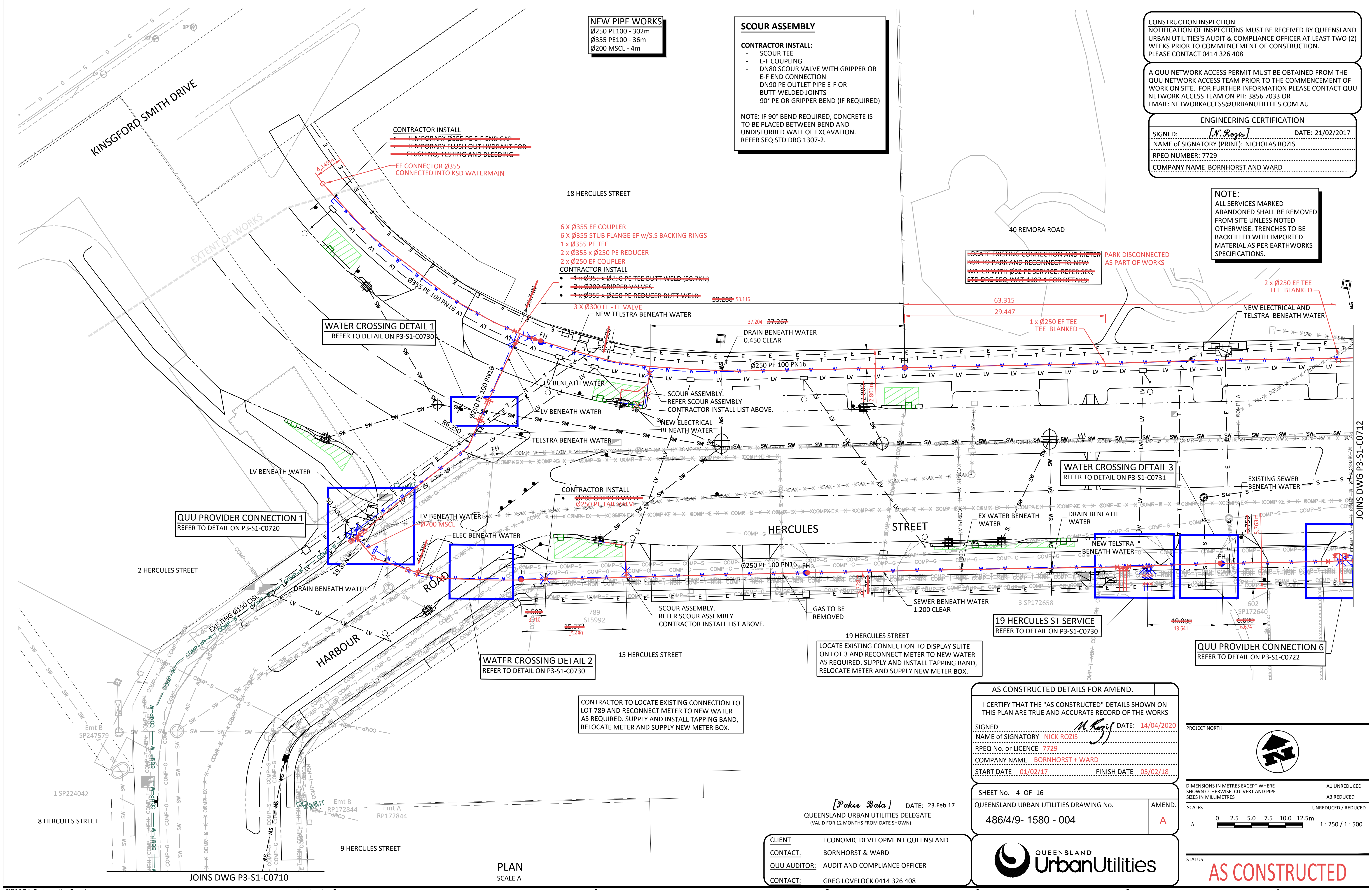
APPROVED N. Rozis 7729 RPEQ DATE 22/12/16
CHECKED K. Rensch DATE 22/12/16

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace Spring Hill, QLD 4000, Australia
P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)
PROJECT: REMORA ROAD ROADWORKS NORTHSHORE HAMILTON
SUBJECT: SEWER RETICULATION LONGITUDINAL SECTIONS
PROJECT No. 12191C
DRAWING No. P3-S1-C0620 REVISION 03

ORIGINAL SIZE A1

15/04/2020 9:58:17 AM


KINGSFORD SMITH DRIVE
18 HERCULES STREET
40 REMORA ROAD
EXTENT OF WORKS
CONTRACTOR INSTALL
~~TEMPORARY Ø355 PE E-F END CAP~~
~~TEMPORARY FLUSH OUT HYDRANT FOR FLUSHING, TESTING AND BLEEDING~~
EF CONNECTOR Ø355 CONNECTED INTO KSD WATERMAIN
6 X Ø355 EF COUPLER
6 X Ø355 STUB FLANGE EF w/S.S BACKING RINGS
1 x Ø355 PE TEE
2 x Ø355 x Ø250 PE REDUCER
2 x Ø250 EF COUPLER
CONTRACTOR INSTALL
~~1 x Ø355 x Ø250 PE TEE BUTT WELD (50.7KN)~~
~~2 x Ø300 GRIPPER VALVES~~
~~1 x Ø355 x Ø250 PE REDUCER BUTT WELD~~
3 X Ø300 FL - FL VALVE
NEW TELSTRA BENEATH WATER
~~LOCATE EXISTING CONNECTION AND METER BOX TO PARK AND RECONNECT TO NEW WATER WITH Ø32 PE SERVICE. REFER SEQ STD DRG SEQ-WAT-1107-1 FOR DETAILS.~~
PARK DISCONNECTED AS PART OF WORKS
2 x Ø250 EF TEE TEE BLANKED
1 x Ø250 EF TEE TEE BLANKED
NEW ELECTRICAL AND TELSTRA BENEATH WATER
Ø355 PE 100 PN16
WATER CROSSING DETAIL 1
REFER TO DETAIL ON P3-S1-C0730
DRAIN BENEATH WATER 0.450 CLEAR
Ø250 PE 100 PN16
LV BENEATH WATER
SCOUR ASSEMBLY. REFER SCOUR ASSEMBLY CONTRACTOR INSTALL LIST ABOVE.
NEW ELECTRICAL BENEATH WATER
TELSTRA BENEATH WATER
WATER CROSSING DETAIL 3
REFER TO DETAIL ON P3-S1-C0731
EXISTING SEWER BENEATH WATER
QUU PROVIDER CONNECTION 1
REFER TO DETAIL ON P3-S1-C0720
CONTRACTOR INSTALL
~~Ø200 GRIPPER VALVE~~
~~Ø250 PE TAIL VALVE~~
LV BENEATH WATER
Ø200 MSCL
ELEC BENEATH WATER
HERCULES STREET
EX WATER BENEATH WATER
DRAIN BENEATH WATER
NEW TELSTRA BENEATH WATER
2 HERCULES STREET
DRAIN BENEATH WATER
HARBOUR ROAD
EXISTING Ø150 CISL
SCOUR ASSEMBLY. REFER SCOUR ASSEMBLY CONTRACTOR INSTALL LIST ABOVE.
GAS TO BE REMOVED
SEWER BENEATH WATER 1.200 CLEAR
19 HERCULES ST SERVICE
REFER TO DETAIL ON P3-S1-C0730
QUU PROVIDER CONNECTION 6
REFER TO DETAIL ON P3-S1-C0722
WATER CROSSING DETAIL 2
REFER TO DETAIL ON P3-S1-C0730
15 HERCULES STREET
19 HERCULES STREET
789 SL5992
3 SP172658
602 SP172640
Emt B SP247579
1 SP224042
8 HERCULES STREET
9 HERCULES STREET
Emt B RP172844
Emt A RP172844
JOINS DWG P3-S1-C0712
JOINS DWG P3-S1-C0710
53.116
63.315
29.447
10.000
13.641
6.600
6.674
3.500
15.373
15.480

NEW PIPE WORKS
Ø250 PE100 - 302m
Ø355 PE100 - 36m
Ø200 MSCL - 4m

SCOUR ASSEMBLY

CONTRACTOR INSTALL:
- SCOUR TEE
- E-F COUPLING
- DN80 SCOUR VALVE WITH GRIPPER OR E-F END CONNECTION
- DN90 PE OUTLET PIPE E-F OR BUTT-WELDED JOINTS
- 90° PE OR GRIPPER BEND (IF REQUIRED)

NOTE: IF 90° BEND REQUIRED, CONCRETE IS TO BE PLACED BETWEEN BEND AND UNDISTURBED WALL OF EXCAVATION. REFER SEQ STD DRG 1307-2.

CONSTRUCTION INSPECTION
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES'S AUDIT & COMPLIANCE OFFICER AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. PLEASE CONTACT 0414 326 408

A QUU NETWORK ACCESS PERMIT MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM PRIOR TO THE COMMENCEMENT OF WORK ON SITE. FOR FURTHER INFORMATION PLEASE CONTACT QUU NETWORK ACCESS TEAM ON PH: 3856 7033 OR EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU

ENGINEERING CERTIFICATION
SIGNED: [N. Rozis] DATE: 21/02/2017
NAME of SIGNATORY (PRINT): NICHOLAS ROZIS
RPEQ NUMBER: 7729
COMPANY NAME BORNHORST AND WARD

NOTE:
ALL SERVICES MARKED ABANDONED SHALL BE REMOVED FROM SITE UNLESS NOTED OTHERWISE. TRENCHES TO BE BACKFILLED WITH IMPORTED MATERIAL AS PER EARTHWORKS SPECIFICATIONS.

LOCATE EXISTING CONNECTION TO DISPLAY SUITE ON LOT 3 AND RECONNECT METER TO NEW WATER AS REQUIRED. SUPPLY AND INSTALL TAPPING BAND, RELOCATE METER AND SUPPLY NEW METER BOX.

CONTRACTOR TO LOCATE EXISTING CONNECTION TO LOT 789 AND RECONNECT METER TO NEW WATER AS REQUIRED. SUPPLY AND INSTALL TAPPING BAND, RELOCATE METER AND SUPPLY NEW METER BOX.

AS CONSTRUCTED DETAILS FOR AMEND.
I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS
SIGNED [signature] DATE: 14/04/2020
NAME of SIGNATORY NICK ROZIS
RPEQ No. or LICENCE 7729
COMPANY NAME BORNHORST + WARD
START DATE 01/02/17 FINISH DATE 05/02/18

SHEET No. 4 OF 16
QUEENSLAND URBAN UTILITIES DRAWING No. 486/4/9- 1580 - 004 AMEND. A

[Pakee Bala] DATE: 23.Feb.17
QUEENSLAND URBAN UTILITIES DELEGATE
(VALID FOR 12 MONTHS FROM DATE SHOWN)

CLIENT	ECONOMIC DEVELOPMENT QUEENSLAND
CONTACT:	BORNHORST & WARD
QUU AUDITOR:	AUDIT AND COMPLIANCE OFFICER
CONTACT:	GREG LOVELOCK 0414 326 408

QUEENSLAND UrbanUtilities

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES
A1 UNREDUCED
A3 REDUCED
SCALES UNREDUCED / REDUCED
A 0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500

STATUS
AS CONSTRUCTED

PLAN
SCALE A

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
02	06.06.19	AS CONSTRUCTED	HA	KR	NR	NR
01	21.02.17	FOR CONSTRUCTION				
G	17.02.17	QUU REVIEW SET				
F	19.12.16	FOR INFORMATION				
E	31.08.16	ISSUE FOR TENDER				

ASSOCIATED CONSULTANTS

APPROVED N.ROZIS 7729 RPEQ DATE 21-02-17
CHECKED K.RENSCH DATE 21-02-17

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace Spring Hill, QLD 4000, Australia
P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

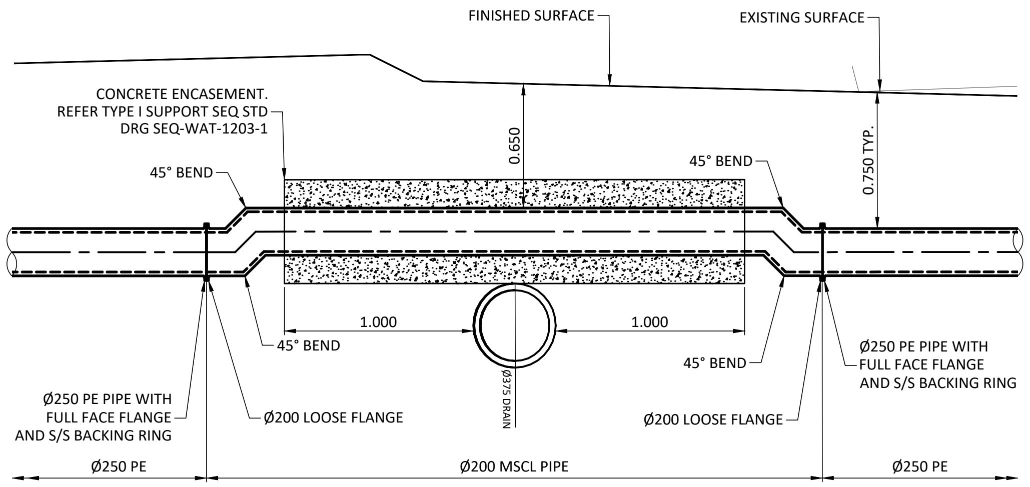
CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)
PROJECT: REMORA ROAD ROADWORKS NORTHSHORE HAMILTON
SUBJECT: WATER RETICULATION LAYOUT SHEET 2
PROJECT No. 12191C
DRAWING No. P3-S1-C0711 REVISION 02

ORIGINAL SIZE A1

J:\2012\12191_C10_SITE\TEST RESULTS\QUU\05_WATER\AS CONS\DELIVERABLES\200323 - WATER AS CONS\DWG\P3-S1-C0711[02].DWG 14/04/2020 4:17:46 PM

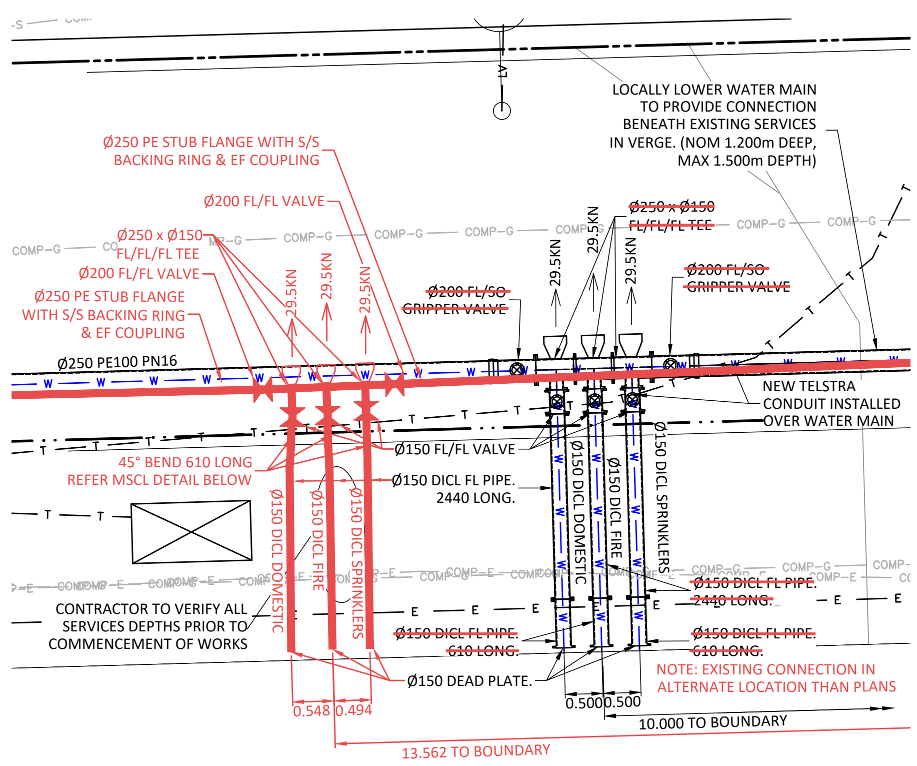
WATER CROSSING 1

CONTRACTOR INSTALL:
- 4 x Ø200 45° MSCL BUTT WELD BENDS
- 2 x Ø200 LOOSE FLANGES
- 2 x Ø250 PE FULL FACE FLANGES WITH S/S STEEL BACKING RINGS
- 2.4m Ø200 MSCL PIPE



WATER CROSSING DETAIL 1
SCALE A

NOTE:
CONFIRM ALL SERVICE DEPTHS ON SITE PRIOR TO COMMENCEMENT OF WORKS



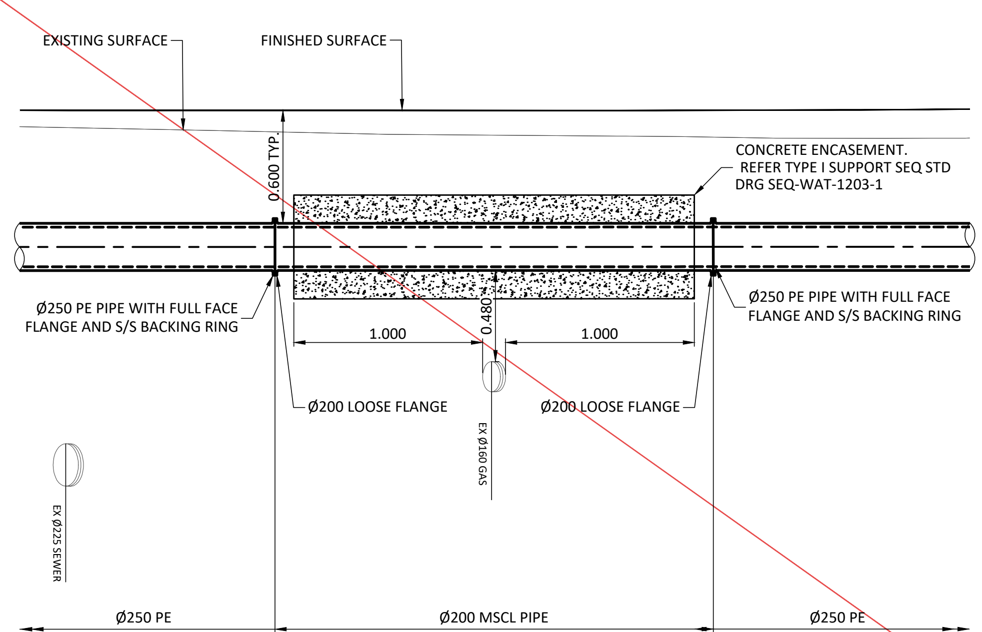
19 HERCULES STREET WATER SERVICE
SCALE A

WATER SERVICE

CONTRACTOR INSTALL:
- 3 x Ø150 DEAD PLATE
- ~~3 x Ø150 DICL FL PIPE. 610 LONG.~~
- 3 x Ø150 DICL FL PIPE. 2440 LONG.
- 3 x Ø150 FL/FL VALVE
- ~~2 x Ø200 FL/SO GRIPPER VALVE~~
- 3 x Ø250 x Ø150 FL/FL/FL TEE
- 3 x Ø150 MSCL FL PIPE. 610 LONG.
- 2 x Ø200 FL/FL VALVE
- 6 x Ø150 45° MSCL BUTT WELD BENDS.
- 2 x Ø200 FL-SP ADAPTOR
- 6 x LOOSE FLANGES
- 2 x Ø200 EF COUPLING
- 2 x Ø250 PE STUB FLANGES WITH S/S BACKING RING

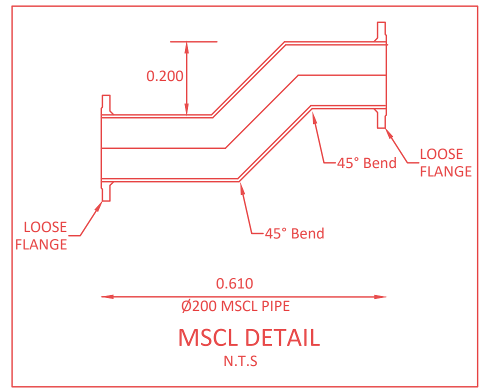
WATER CROSSING 2

CONTRACTOR INSTALL:
- 2 x Ø200 LOOSE FLANGE
- 2 x Ø250 PE FULL FACE FLANGES WITH S/S STEEL BACKING RINGS
- 2.1m Ø200 MSCL PIPE



WATER CROSSING DETAIL 2
SCALE A

NOT REQUIRED - SUFFICIENT COVER OVER THE GAS



MSCL DETAIL
N.T.S

[Pakee Bala] DATE: 23.Feb.17
QUEENSLAND URBAN UTILITIES DELEGATE
(VALID FOR 12 MONTHS FROM DATE SHOWN)

CLIENT	ECONOMIC DEVELOPMENT QUEENSLAND
CONTACT:	BORNHORST & WARD
QUU AUDITOR:	AUDIT AND COMPLIANCE OFFICER
CONTACT:	GREG LOVELOCK 0414 326 408

AS CONSTRUCTED DETAILS FOR AMEND.

I CERTIFY THAT THE "AS CONSTRUCTED" DETAILS SHOWN ON THIS PLAN ARE TRUE AND ACCURATE RECORD OF THE WORKS

SIGNED [signature] DATE: 14/04/2020
NAME of SIGNATORY NICK ROZIS
RPEQ No. or LICENCE 7729
COMPANY NAME BORNHORST + WARD
START DATE 01/02/17 FINISH DATE 05/02/18

SHEET No. 14 OF 16

QUEENSLAND URBAN UTILITIES DRAWING No.	AMEND.
486/4/9 - 1580 - 014	A

QUEENSLAND UrbanUtilities

CONSTRUCTION INSPECTION
NOTIFICATION OF INSPECTIONS MUST BE RECEIVED BY QUEENSLAND URBAN UTILITIES'S AUDIT & COMPLIANCE OFFICER AT LEAST TWO (2) WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. PLEASE CONTACT 0414 326 408

A QUU NETWORK ACCESS PERMIT MUST BE OBTAINED FROM THE QUU NETWORK ACCESS TEAM PRIOR TO THE COMMENCEMENT OF WORK ON SITE. FOR FURTHER INFORMATION PLEASE CONTACT QUU NETWORK ACCESS TEAM ON PH: 3856 7033 OR EMAIL: NETWORKACCESS@URBANUTILITIES.COM.AU

ENGINEERING CERTIFICATION
SIGNED: [N. Rozis] DATE: 21/02/2017
NAME of SIGNATORY (PRINT): NICHOLAS ROZIS
RPEQ NUMBER: 7729
COMPANY NAME BORNHORST AND WARD

PROJECT NORTH

DIMENSIONS IN METRES EXCEPT WHERE SHOWN OTHERWISE. CULVERT AND PIPE SIZES IN MILLIMETRES
A1 UNREDUCED
A3 REDUCED
SCALES UNREDUCED / REDUCED
A 0 0.2 0.4 0.6 0.8 1 m 1 : 20 / 1 : 40

STATUS
AS CONSTRUCTED

REV	DATE	DESCRIPTION	DWN	DES	CHK	APP
02	06.06.19	AS CONSTRUCTED	HA	KR	NR	NR
01	21.02.17	FOR CONSTRUCTED				
F	17.02.17	QUU REVIEW SET				
E	19.12.16	FOR INFORMATION				
D	31.08.16	ISSUE FOR TENDER				

ASSOCIATED CONSULTANTS

APPROVED N.ROZIS 7729 RPEQ DATE 21-02-17
CHECKED K.RENSCH DATE 21-02-17

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
Level 4, 67 Astor Terrace Spring Hill, QLD 4000, Australia
P. +61 (7) 3013 4699
mail@bornhorstward.com.au
www.bornhorstward.com.au

CLIENT: ECONOMIC DEVELOPMENT QUEENSLAND (EDQ)

PROJECT: REMORA ROAD ROADWORKS NORTHSHORE HAMILTON

SUBJECT: WATER RETICULATION DETAILS SHEET 1

PROJECT No. 12191C
DRAWING No. P3-S1-C0730 REVISION 02

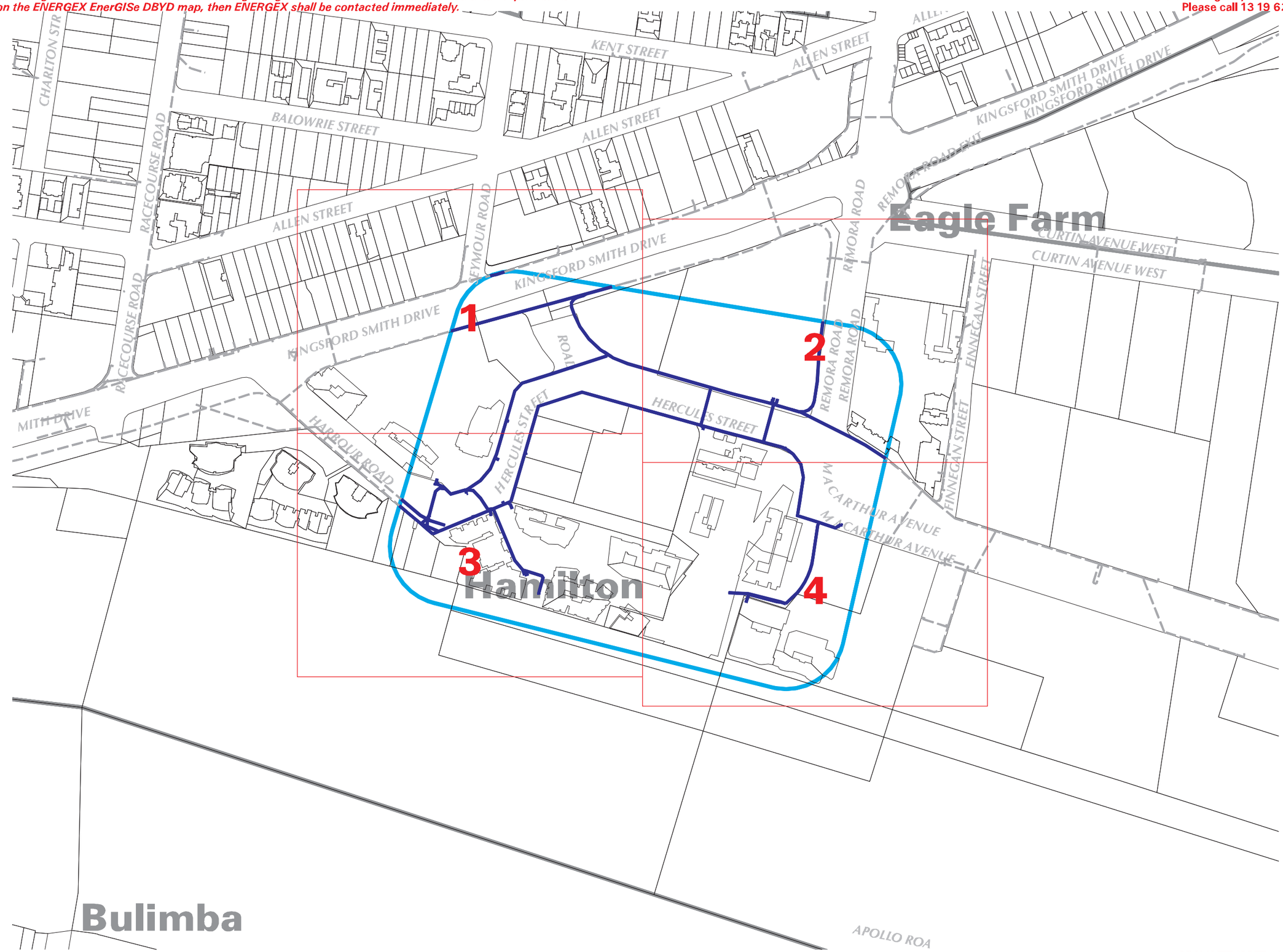
ORIGINAL SIZE A1

J:\2012\12191_C\10_SITE\TEST RESULTS\QUU\05_WATER\AS CONS\REDLINE MARKUPS\200323 - WATER AS CONS\DWG\P3-S1-C0730(02).DWG 14/04/2020 4:18:43 PM

PAPER SIZE A3

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISe DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations Please call 13 19 62



This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

energex

EnerGISe DBYD

Date: 16 Nov 20 Time: 12.11.42
Requested By: DBYD

NOT TO SCALE

0 100m

Enquiry No: 103924029

KEY MAP

Enquiry Area

LOCALITY DIAGRAM

PAPER SIZE A3

PAPER SIZE A3 Map has been designed to be reproduced in colour

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX EnerGISe DBYD map, then ENERGEX shall be contacted immediatelv.

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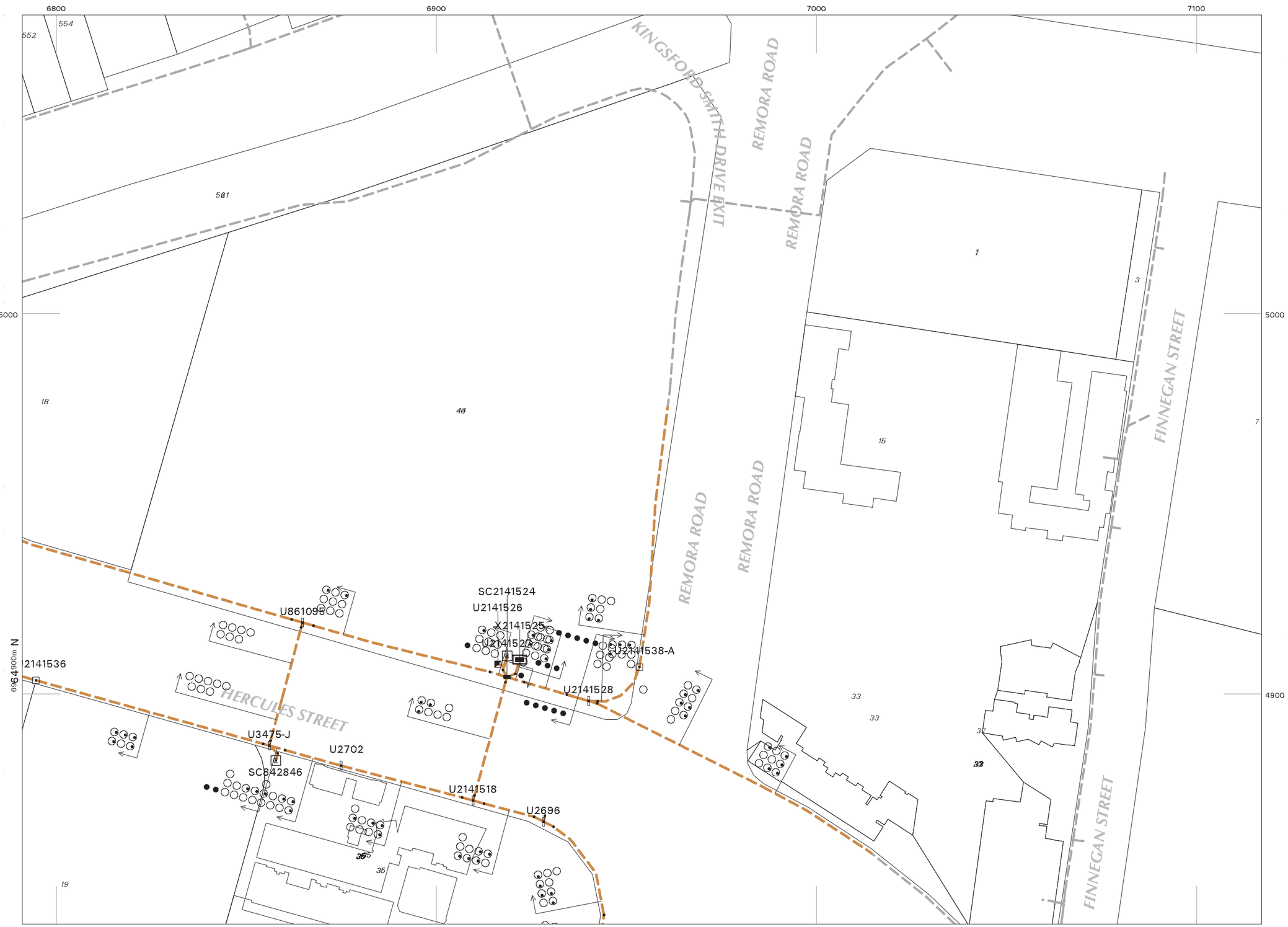


This output provides details of the ENERGEX electrical network. As variations may exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

UNCONTROLLED COPY

energex

EnerGISe
DBYD

Date: 16 Nov 20 Time: 12.12.23
Requested By: DBYD

SCALE 1:1000

20 0 20m

Enquiry No: 103924029

STRIP No: 2

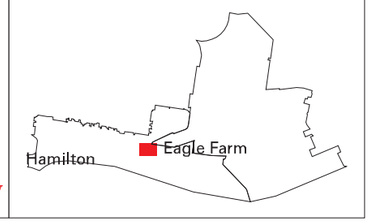
- Ground Transformer
- Cubicle Transformer
- Ring Main Unit
- Metering Unit
- Link Pillar
- Service Pillar
- Junction Pillar
- Pit
- Cable Joint
- Cable Termination
- Cable Marker
- Street Light Pole
- Earth
- Planned Work labelled by Work Order
- Cable Voltage Less Than 33kV
- Cable Voltage 33kV or Higher
- Direct-Lay Cable
- Conduit
- Multi-Section Duct
- Trench
- Cable Tray
- Tunnel

N W E S

INDEX TO SHEETS

1	2
3	4

LOCALITY DIAGRAM



PAPER SIZE A3 Map has been designed to be reproduced in colour

Cable Plan

Telstra

For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

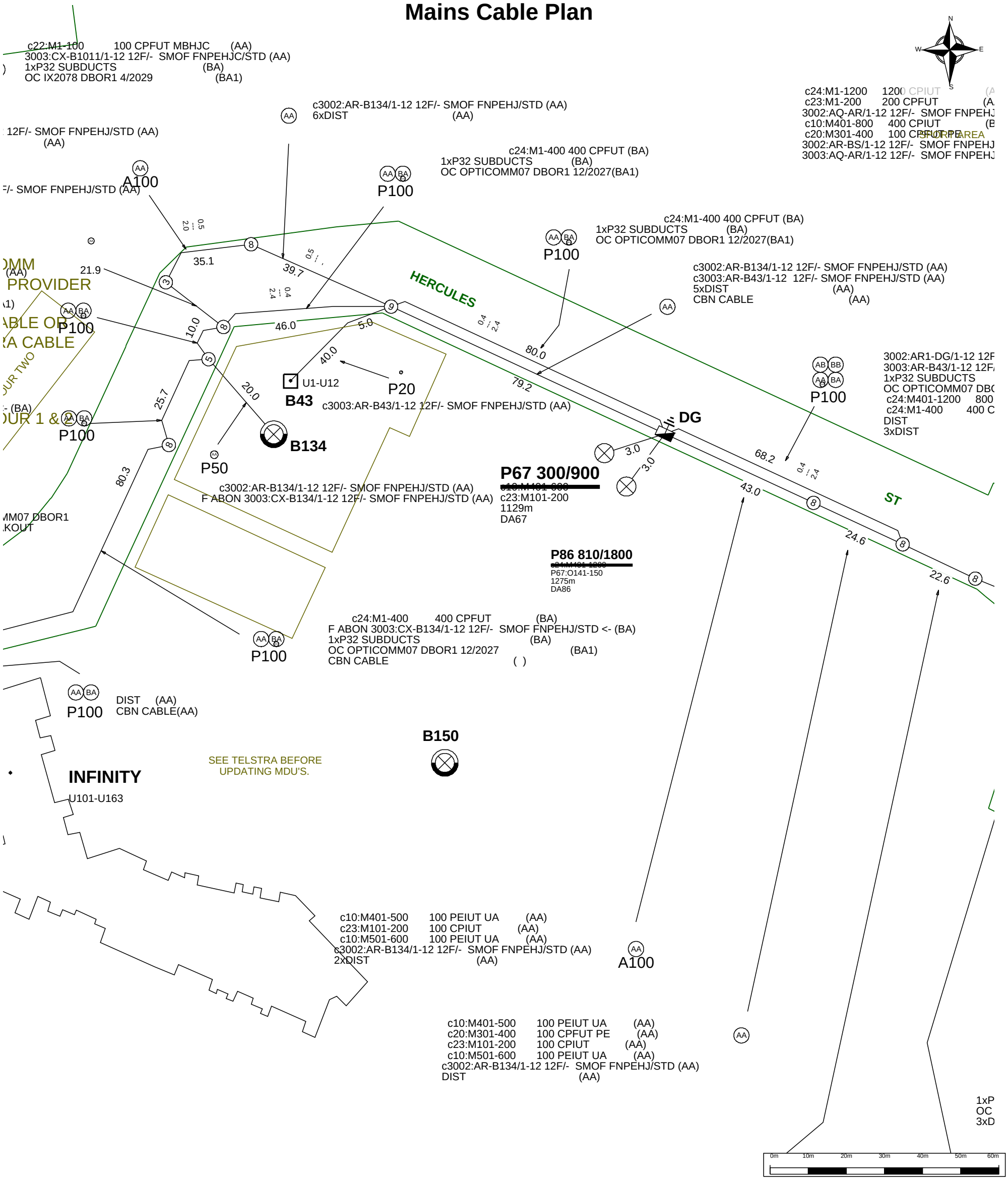
Generated On 06/06/2014 09:37:20

Sequence Number: 34383544

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

Mains Cable Plan



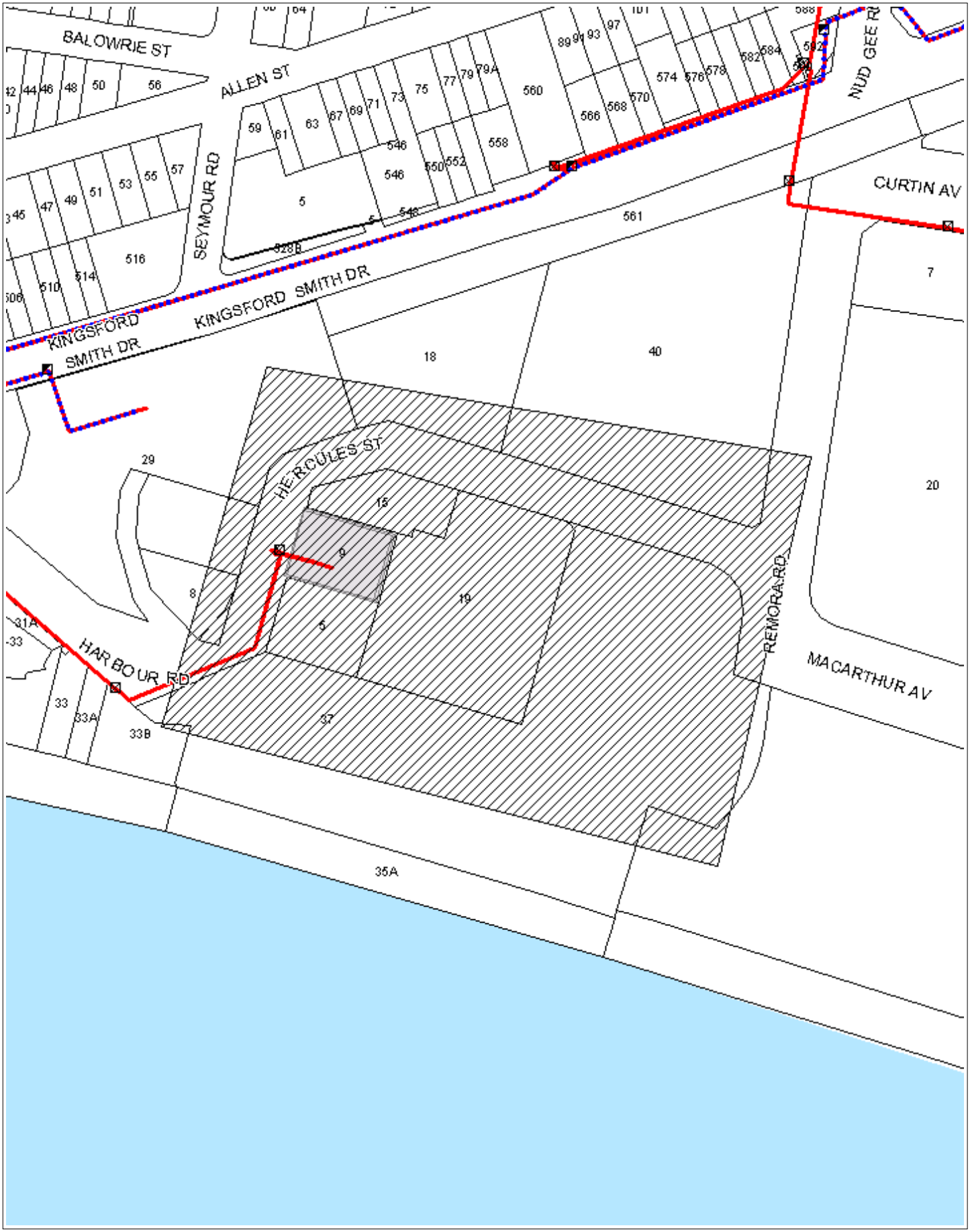
For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 06/06/2014 09:37:31

Sequence Number: 34383544

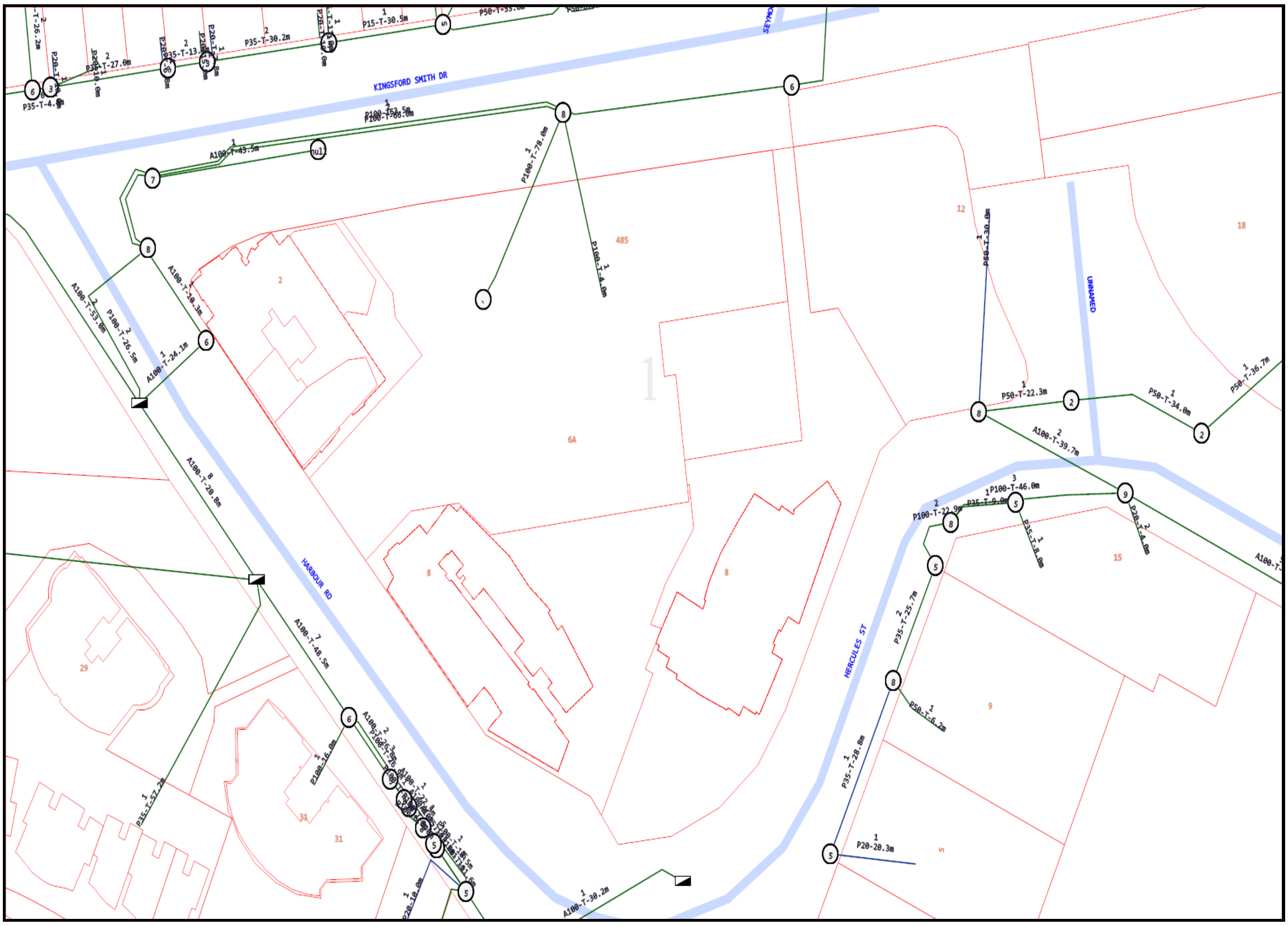
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

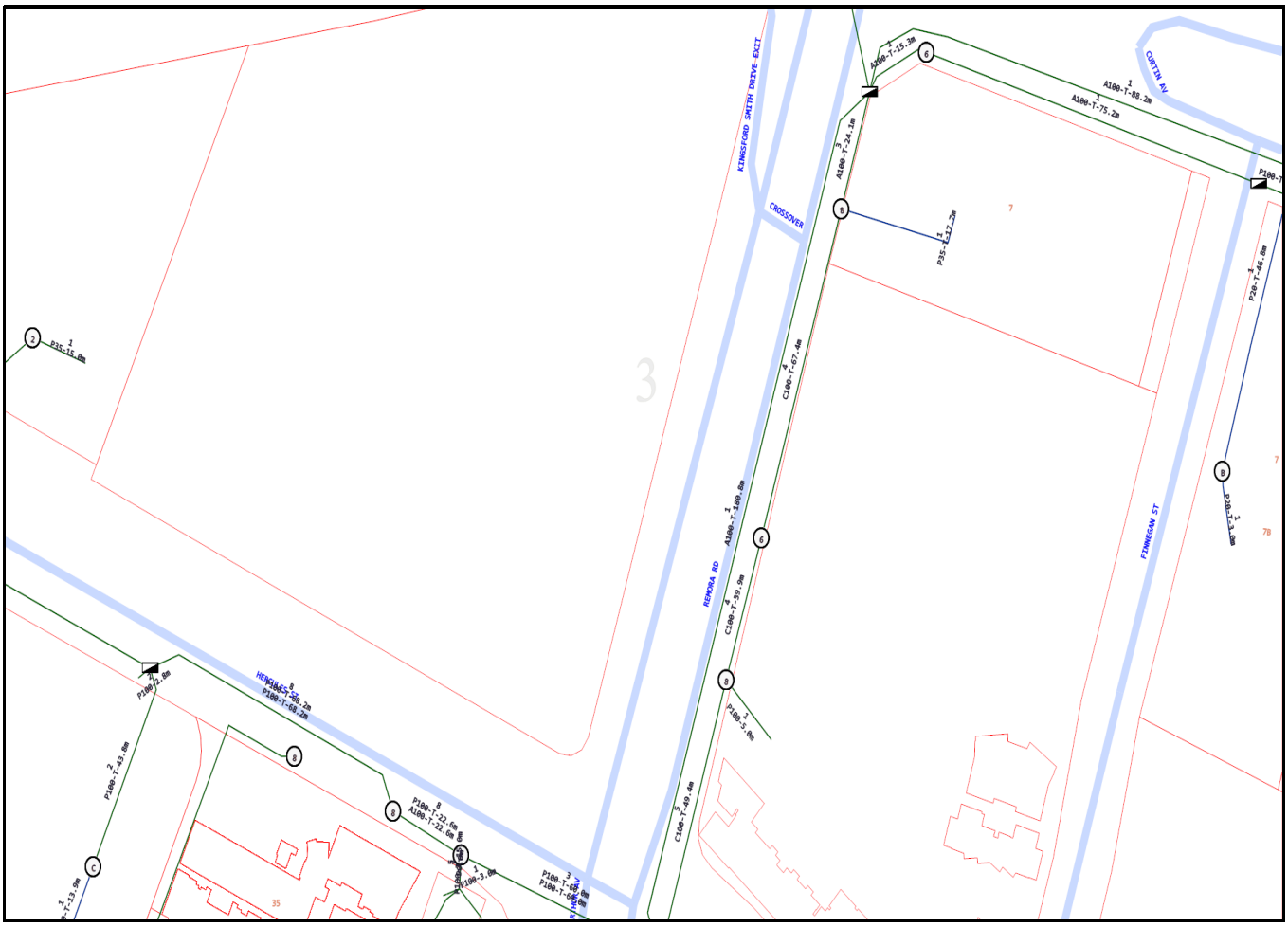


Sequence Number: 103924031

Date Generated: 16/11/2020

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208





Email info@nbn.com.au Web nbn.com.au

TPG Corporation Limited
ABN 46 093 058 069
PO Box 1844 Macquarie Centre
North Ryde NSW 2113
Phone: **1800 786 306** (24hrs)

Date: 16/11/2020

Enquirer Name: Miss Marnie Stollznow
Enquirer Address: Level 4, 67 Astor Terrace
Email: m.stollznow@bornhorstward.com.au
Phone: 0730134699

Dear Miss Marnie Stollznow

The following is our response on behalf of each of the TPG carriers (listed below) to your Dial Before You Dig enquiry – Sequence 103924027 .
It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

Assets Affected:

Carriers (each a "TPG carrier") and assets affected:

PIPE Networks

Location: 19 Hercules Street

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Dial Before You Dig on 1100 or www.1100.com.au to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

DAMAGE

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

DUTY OF CARE

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED**. You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.

- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

  Minimum assets clearance distances.

  - 300mm when laying asset inline, horizontal or vertical.
  - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
  - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
  - 2000mm when performing directional bore in-line, horizontal and vertical.
  - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.

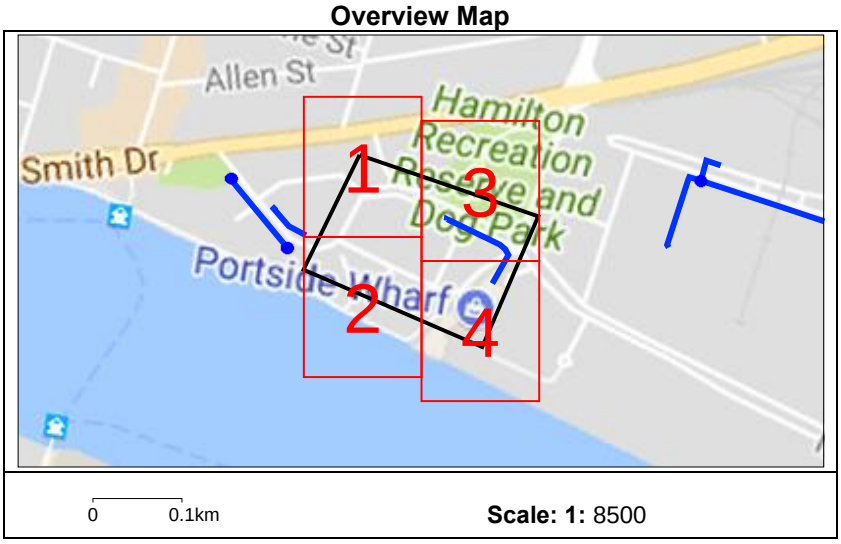
- Reinstate exposed TPG network infrastructure back to original state.

PRIVACY & CONFIDENTIALITY

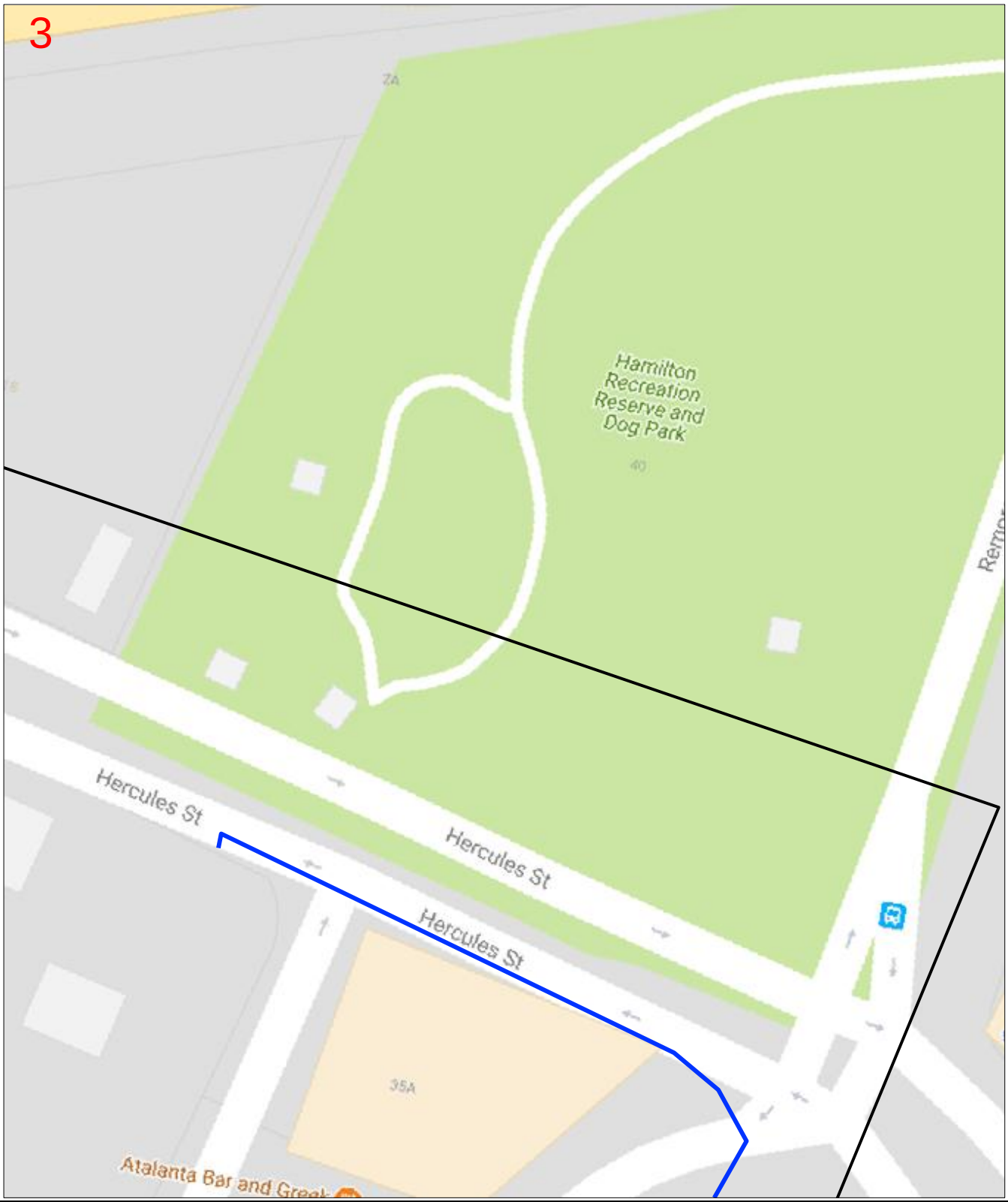
- Privacy Notice – Your information has been provided to us by Dial Before You Dig to respond to your Dial Before You Dig enquiry. We will keep your personal information in accordance with TPG's privacy policy, see www.tpg.com.au/about/privacy.

- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Dial Before You Dig enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.

Overview Map



TPG Corporation Limited



Enquiry Number: 103924027

Map Sheet: 3

Scale: 1: 750

N

0 0.008km

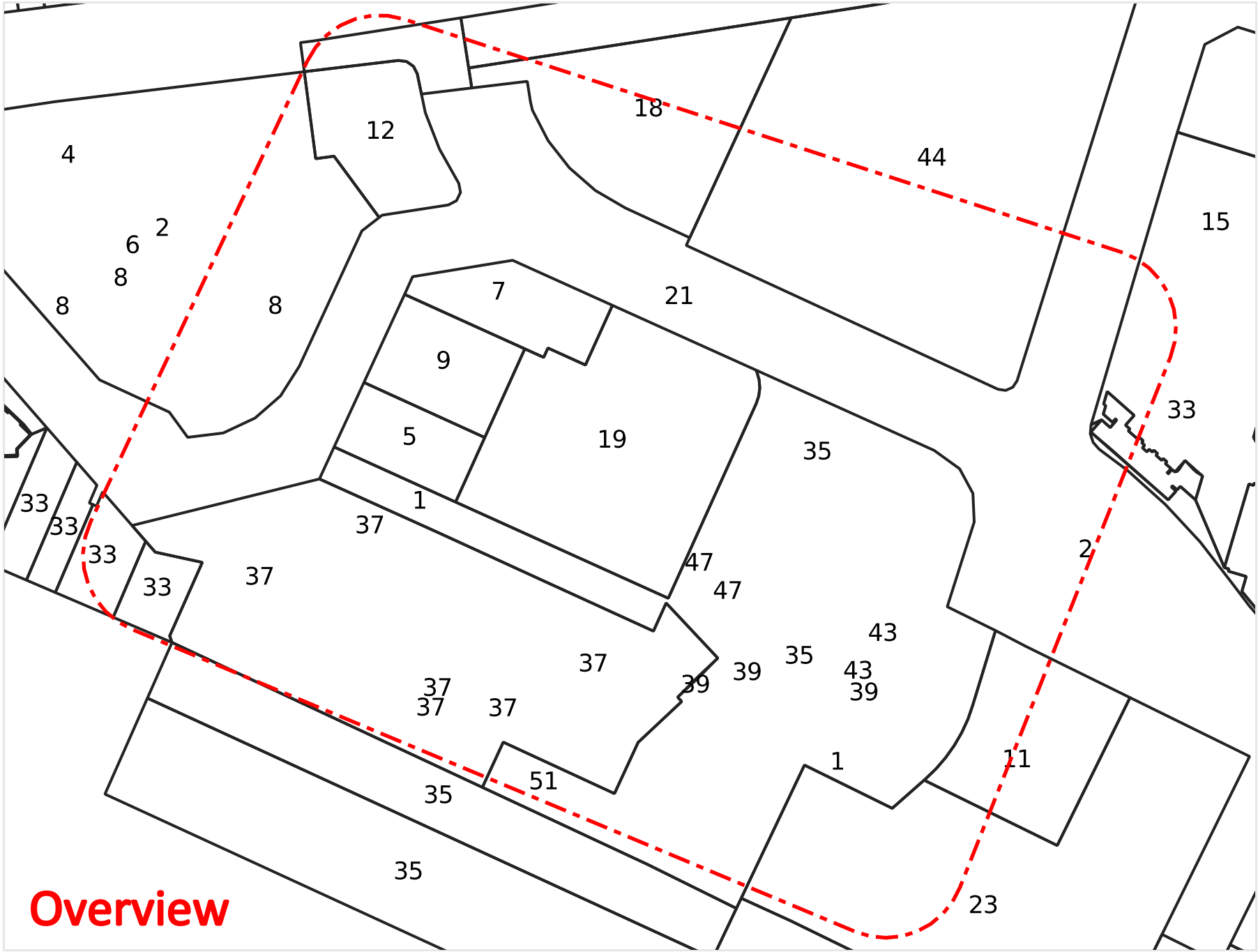
LEGEND

DBYD Work Area	◇		
AAPT/PowerTel Pit	●	TransACT Pit	●
AAPT/PowerTel Duct	／	TransACT Duct	／
DDA Pit	●	SOUL Pattinson Telecoms Pit	●
DDA Duct	／	SOUL Pattinson Telecoms Duct	／
Agile/Adam Pit	●	PIPE Networks Pit	●
Agile/Adam Duct	／	PIPE Networks Duct	／

OptiComm
National Broadband Fibre

Sequence No: 103924037
Job No: 20618040
Location: 19 Hercules Street, Hamilton, QLD 4007

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



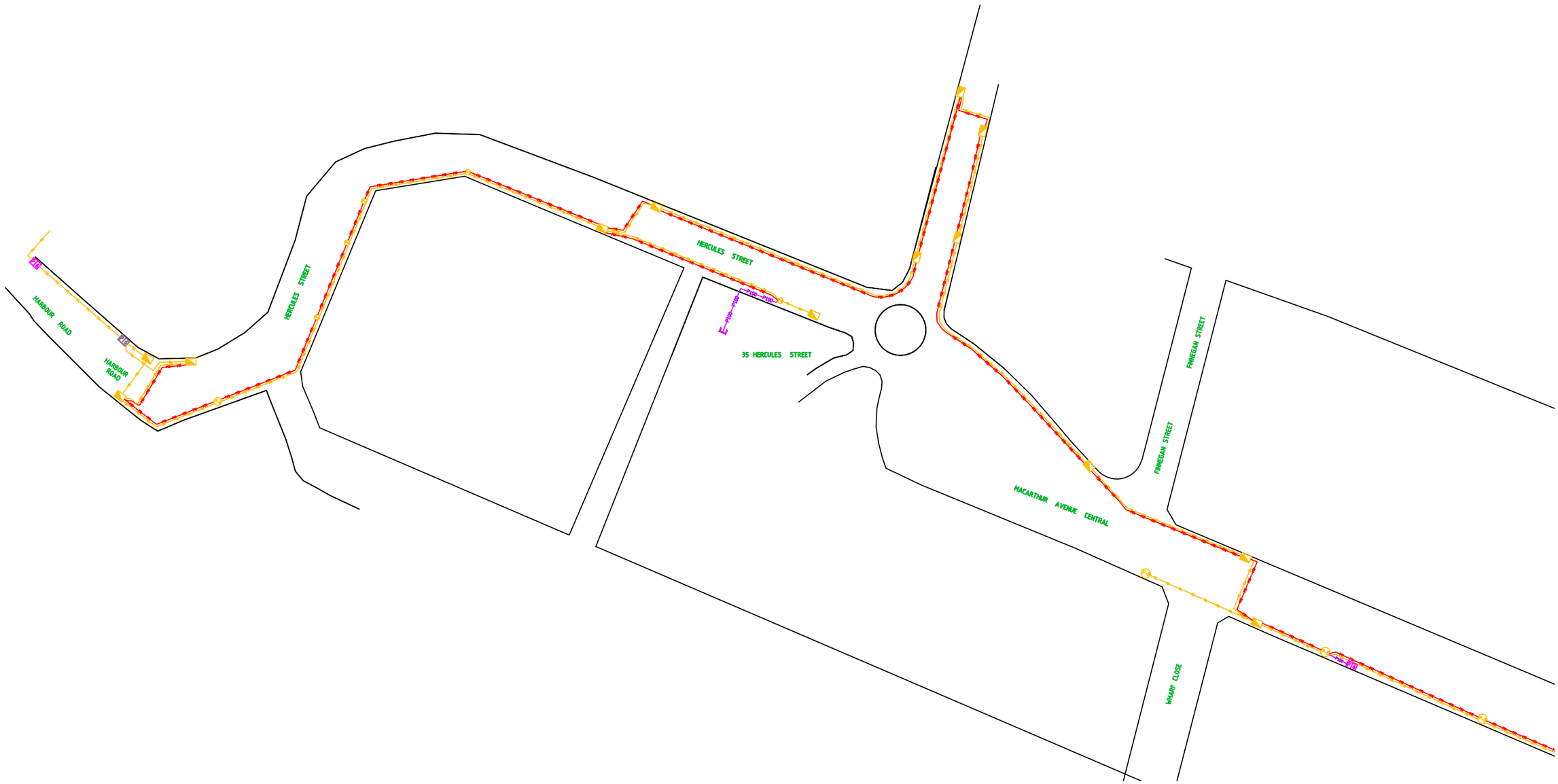
Legend

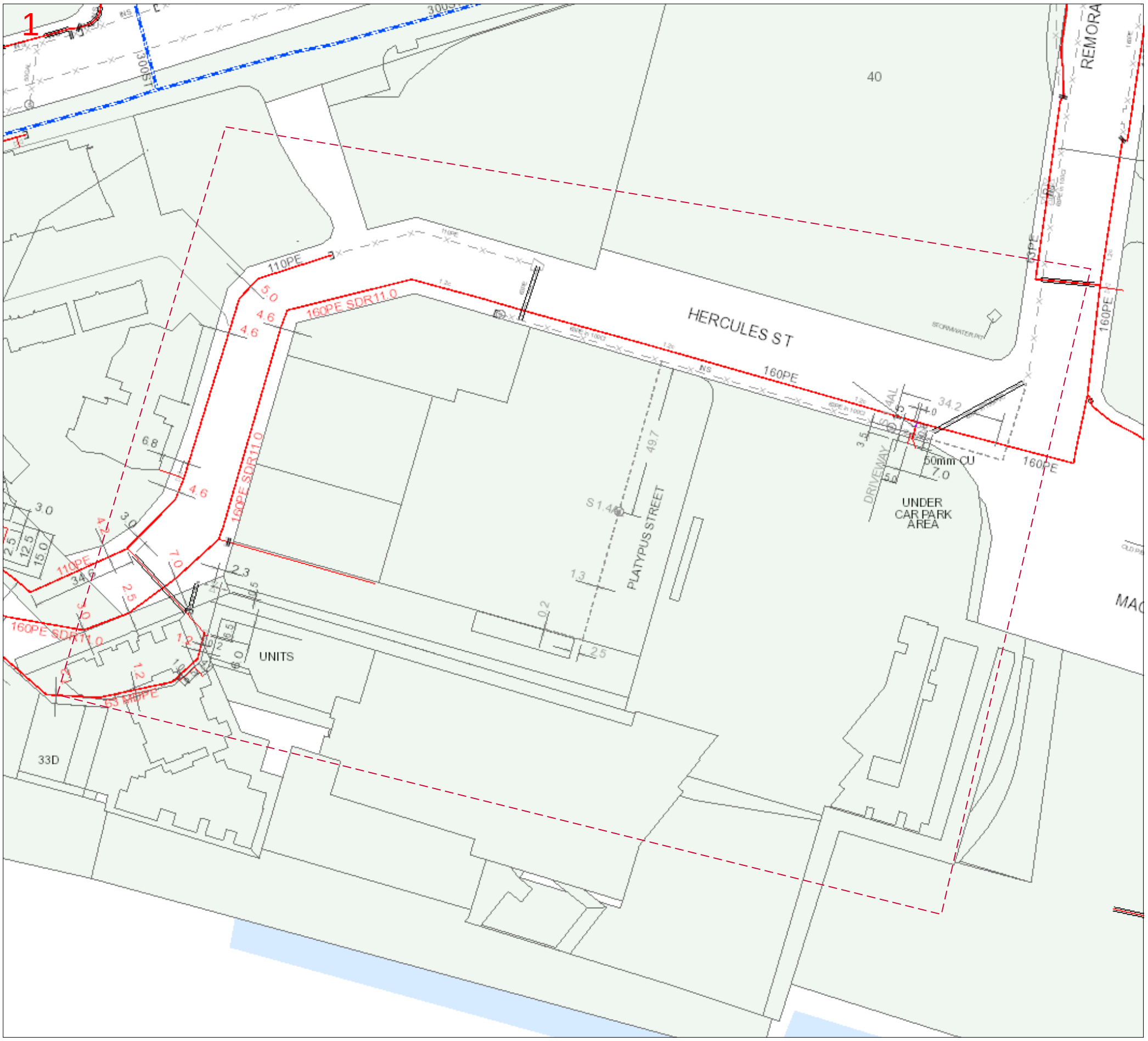
Pipes
Pits

N

Scale: 1:1986
Expires: 14 Dec 2020

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither OptiComm nor PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.


HARBOUR ROAD
HARBOUR ROAD
HERCULES STREET
HERCULES STREET
35 HERCULES STREET
FINNEGAN STREET
FINNEGAN STREET
MACARTHUR AVENUE CENTRAL
WHARF CLOSE



103924032 Map Sheet: 1

Scale: 1: 1000

0 0.01km

NORTH

Map Key:

1

This maps is created in colour and shall be printed in colour

Legend

Distribution Main

- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500 (1)
- Medium Pressure PE/ Nylon
- Medium Pressure (Allgas)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

(1) Medium Pressure in AGN/ Nylon in Allgas

Gas Assets and Fittings

- Gate Station
- R Regulator Station
- V Block/ Emergency Valve
- V Isolation Valve
- OP T Test Point
- S Syphon
- A Anode
- M Pipeline Marker
- W Trace Wire Point
- Reducer
- T Pipe Connector/ Tee
- = Pipe Connector
- End Cap

Pipe Materials

CI	Cast Iron
CU	Copper
GAL	Wrought Galvanised Iron
PGAL	Poly Coated Wrought Galvanised Iron
ST	Steel
NY/ NY11	Nylon
PE	Polyethylene
MDPE	Medium Density Polyethylene
HDPE	High Density Polyethylene
DN	Nominal Diameter
OD	Outside Diameter

Examples: 40PE in DN80 CI — 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve

63PE INS — 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

operated by apa

APPENDIX D

BCC POTENTIAL AND ACTUAL ACID SULPHATE SOIL OVERLAY MAP

Map Tools +

Legend −

City Plan 2014 — Potential and actual acid sulfate soils
Potential and actual acid sulfate soils

City Plan 2014 — Potential and actual acid sulfate soils - land at or below 5m AHD
Land at or below 5m AHD

City Plan 2014 — Potential and actual acid sulfate soils - land above 5m AHD and below 20m AHD
Land above 5m AHD and below 20m AHD

Local Government Authorities
LGA boundary

property_boundaries_holding
Property Holding

BORNHORST +WARD
+61 (7) 3013 4699 www.bornhorstward.com.au

PROJECT
19 Hercules Street, Hamilton

SUBJECT
BCC Potential and Actual Acid Sulfate Soil Overlay Map

PROJECT No.
20376

DRAWING No. REVISION

0 10 20 30 40 50

ORIGINAL SIZE A3