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Utility Services Report

To accompany the Stage 1 and 2
Development Application for the
Bonnyrigg Estate Masterplan

Property:

Humphries Road, Bonnyrigg

Applicant:

NSW Land and Housing Corporation

Date:19th October 2020

Project Management • Town Planning • Engineering • Surveying
Visualisation • Social Impact • Urban Planning

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Document Control Sheet

Issue No.	Amendment	Date	Prepared By	Checked By
A	Initial Draft Issue	26 th August 2020	JY	ND
B	Client Comments	19 th October 2020	JY	ND

Limitations Statement

This report has been prepared in accordance with and for the purposes outlined in the scope of services agreed between ADW Johnson Pty Ltd and the Client. It has been prepared based on the information supplied by the Client, as well as investigation undertaken by ADW Johnson and the sub-consultants engaged by the Client for the project.

Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, any such information was, in our opinion, deemed to be current and relevant prior to its use. Whilst all reasonable skill, diligence and care have been taken to provide accurate information and appropriate recommendations, it is not warranted or guaranteed and no responsibility or liability for any information, opinion or commentary contained herein or for any consequences of its use will be accepted by ADW Johnson or by any person involved in the preparation of this assessment and report.

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The Client should be aware that this report does not guarantee the approval of any application by any Council, Government agency or any other regulatory authority.

Executive Summary

ADW Johnson Pty Limited (ADW Johnson) has been commissioned by NSW Land and Housing Corporation to prepare a preliminary utility service designs to determine their ability to service Stage 1 and Stage 2 of the proposed overall development of Humphries Road, Bonnyrigg (the site).

A summary of each service authority's ability to service the overall development has been provided within the *"Bonnyrigg Living Communities – Review of Services Infrastructure"* prepared by Arcadis, Revision B and dated 31st August 2018 (hereafter referred to as: Review of Service Infrastructure Report). This report was completed as part of the Overall Masterplan Development (OMD) and did not involve contacting any of the service authorities, this is expected to be completed as part of the construction certificate documentation.

The purpose of this follow up report is to support a DA for Stage 1 and Stage 2 of the OMD and specifically provide additional details in regards to the provision of services within this stage of the development.

The Stage 1 and Stage 2 DA includes demolition of existing dwellings, services and roads as well as earthworks, service augmentation/installation, road construction and open space construction.

As was outlined within the Review of Service Infrastructure Report that accompanied the OMD, the provision of key services (i.e. potable water, sewer, electricity and telecommunications) does not pose a constraint to the proposed development. Please refer to the Review of Service Infrastructure Report for further information.

In order to provide further details in regards to the internal servicing of Stage 1 and Stage 2, a number of subconsultants were engaged to prepare concept designs of the infrastructure required to be installed. A summary of the works to be undertaken for each service within Stage 1 and Stage 2 appears in **Table A** below.

Table A: Summary of Servicing Infrastructure required for Stage 1 and Stage 2

UTILITY SERVICE	LEAD-IN WORKS	INTERNAL WORKS
Potable Water Supply	No significant lead in works required.	Retention of some existing water mains. Demolition of some existing water mains. Construction of DN100 and DN150 reticulation water mains to service the proposed development.
Sewerage Infrastructure	No significant lead in works required.	Retention of some existing sewer mains. Demolition of some existing sewer mains. Construction of DN150 reticulation sewer mains to service the proposed development.
Electricity Infrastructure	No significant lead in works required.	Retention of some existing pad mounted substations, high and low voltage cables, pillars and street lights. Demolition of some existing pad mounted substations, high and low voltage cables, pillars and street lights. Construction of 4 new pad mounted substations, electrical reticulation, pillars and street lights.
Telecommunications Infrastructure	No significant lead in works required.	Demolition of the majority of the existing Telstra pit and pipe. Construction of new NBN pit and pipe to service the proposed development.

NOTE: All service requirements subject to confirmation with relevant service authorities during the CC phase and therefore, the information contained within Table A may change accordingly.

The provision of key services to Stage 1 and Stage 2 of the OMD is not considered to present a constraint to the development.

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Appendix B	Water and Sewer Concept Plans
Appendix C	Electrical Concept Plans
Appendix D	Telecommunications Concept Plans
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1.0 Introduction

This report supports a Development Application (DA) for Stage 1 and Stage 2 of the Bonnyrigg Estate redevelopment. It has been prepared for NSW Land and Housing Corporation.

This report should be read in conjunction with the *"Bonnyrigg Living Communities – Review of Services Infrastructure"* prepared by Arcadis, Revision B and dated 31st August 2018 (hereafter referred to as: Review of Service Infrastructure Report). This report was completed as part of the Overall Masterplan Development (OMD) and did not involve contacting any of the service authorities, this is expected to be completed as part of the construction certificate documentation.

The purpose of this follow up report is to support a DA for Stage 1 and Stage 2 of the OMD and specifically provide additional details in regards to the provision of services within these stages of the development.

As the purpose of this report is to accompany a DA only, it is high-level in nature. Further details will be prepared in conjunction with a future Construction Certificate (CC) application.

2.0 Site Description

The Bonnyrigg Estate site is located in Bonnyrigg and is generally bounded by Edensor Road to the north, Humphries Road to the east, Cabramatta Road West/ Elizabeth Drive to the south and Bonnyrigg Avenue to the west. Stage 1 and Stage 2 are located at the north eastern end of the site. The development is within the Fairfield City Council Local Government Area (LGA).

The current site contains a mix of privately owned residential dwellings and existing social housing. The current site also has existing roads which are proposed to be removed or modified. **Figure 1.0** below shows the existing site with the proposed site outline for Stage 1 and Stage 2.

Immediately to the west of the site are recently constructed social housing dwellings, a recently constructed park and an area of demolished housing which is DA approved for new social housing dwellings.



Figure 1.0 – Bonnyrigg Estate Site

3.0 Proposed Development

The proposed Stage 1 and Stage 2 Development Application seeks consent for the detailed works and redevelopment within the Bonnyrigg Estate.

The Stage 1 and Stage 2 Development Application seeks approval for:

- Site preparation works, including tree removal, demolition of roads, services and earthworks across the site;
- The provision and augmentation of utilities and services infrastructure across the site;
- The construction of internal roads and internal infrastructure;
- The consolidation of existing lots and subdivision of the site to reflect the revised road layout, open space.

An image of the DA layout and the proposed road reconfiguration is provided at **Figure 2.0** below.



Figure 2.0 – Stage 1 and Stage 2 DA Lot Layout

4.0 Potable Water Supply

4.1 EXISTING INFRASTRUCTURE

A Dial Before You Dig (DB4YD) search was undertaken and it was found that there are trunk and reticulated water mains within Edensor Road, Humphries Road, Newleaf Parade and Bishop Crescent, as well as internal reticulation within the existing site. The internal potable water mains currently service the existing dwellings on site.

It is noted that the existing dwellings which are not privately owned will be demolished by the Land and Housing Corporation (LAHC) prior to the commencement of construction works. The privately owned dwellings will remain and will need to maintain a water service through construction. As such, there will be a staged approach to the removal of existing redundant water mains and the construction of the new water mains.

The sites current water supply is from a DN450 CACL trunk main in Edensor Road, a DN200 DACL in Humphries Road and Bishop Crescent which connects to the DN450 main and a DN150 DACL main which runs along Newleaf Parade.

A visual depiction of the abovementioned trunk and reticulation infrastructure is contained within **300241-ERPT-002** in **Appendix B**.

4.2 PROPOSED INFRASTRUCTURE

Based upon the Review of Service Infrastructure Report it is expected that the proposed development can be serviced off the existing trunk water mains and that no lead in works will be required. It is however expected that the internal water main reticulation sizes may need to increase for the increased yield. This will be able to be confirmed with Sydney Water in conjunction with the preparation of CC documentation.

As mentioned in Section 4.1 of this report, there are existing private dwellings within the proposed development that are to remain and will require a water service to be maintained during construction. The existing social housing dwellings will be demolished prior to the construction works and therefore portions of the existing reticulation water mains will be able to be removed.

The water design proposes a number of internal DN100 and DN150 reticulation water mains to service the proposed development. The design will utilise a large portion of the existing water reticulation network where possible, however the existing network will still require a significant amount of demolition of existing water mains.

An indicative staged internal water reticulation layout and indicative sizing for the site is shown in **300241-ERPT-004** and **300241-ERPT-006** in **Appendix B**.

5.0 Sewerage Infrastructure

5.1 EXISTING INFRASTRUCTURE

A DB4YD search was undertaken and it was found that there is an existing trunk sewer main which runs parallel to Humphries Road, crosses Humphries Road near Newleaf Parade and continues down to Green Valley Creek. There is also existing reticulation sewer throughout the existing site which drains to the existing trunk sewer main.

As previously mentioned, it is noted that the existing dwellings which are not privately owned will be demolished by the Land and Housing Corporation (LAHC) prior to the commencement of construction works. The privately owned dwellings will remain and will need to maintain a sewer service through construction. As such, there will be a staged approach to the removal of the existing redundant sewer mains and the construction of the new sewer mains.

The trunk sewer main is a DN225 VC main. The internal reticulation sewer is DN150 and are also VC mains.

A visual depiction of the abovementioned trunk and reticulation infrastructure is contained within **300241-ERPT-001** in **Appendix B**.

5.2 PROPOSED INFRASTRUCTURE

Based upon the Review of Service Infrastructure Report it is expected that the proposed development can be serviced off the existing trunk sewer main and that no lead in works will be required. It is however expected that the internal sewer main reticulation sizes may need to increase for the increased yield. This will be able to be confirmed with Sydney Water in conjunction with the preparation of CC documentation.

As mentioned in Section 5.1 of this report, there are existing private dwellings within the proposed development that are to remain and will require a sewer service to be maintained during construction. The existing social housing dwellings will be demolished prior to the construction works and therefore portions of the existing reticulation sewer mains will be able to be removed.

The sewer design proposes a number of internal DN150 reticulation sewer mains to service the proposed development. The design will utilise a large portion of the existing sewer reticulation network where possible, however the existing network will still require a significant amount of demolition of existing sewer mains.

An indicative staged internal sewer reticulation layout and indicative sizing for the site is shown in **300241-ERPT-003** and **300241-ERPT-005** in **Appendix B**.

6.0 Electricity Infrastructure

6.1 EXISTING INFRASTRUCTURE

A DB4YD search was undertaken and it was found that both high and low voltage, below ground, infrastructure exists within the existing road reserves adjacent to the site as well as within the existing site.

Based upon review of the DB4YD plans, the site is currently serviced from 3 pad mounted substations located alongside Humphries Road as well as a number of internal pad mounted substations. A number of the existing pad mounted substations are proposed to remain, however 2 pad mounted substations are proposed to be demolished.

Based upon review of the DB4YD plans, the site and surrounding roads also contains low voltage pillars to service existing dwellings as well as street lighting. A number of the existing pillars and street lights are proposed to remain, however a large number of pillars and street lights will need to be demolished due to their location in the vicinity of the new lots and potential driveway locations.

As previously mentioned, it is noted that the existing dwellings which are not privately owned will be demolished by the Land and Housing Corporation (LAHC) prior to the commencement of construction works. The privately owned dwellings will remain and will need to maintain an electrical service through construction. As such, there will be a staged approach to the removal of the existing redundant electrical mains and the construction of the new electrical reticulation.

A visual depiction of the abovementioned infrastructure is contained within **Appendix C**.

6.2 PROPOSED INFRASTRUCTURE

Based upon the Review of Service Infrastructure Report it is expected that the proposed development can be serviced off the existing Bonnyrigg Zone Substation and no upgrades are required to the zone substation. Furthermore, no new 11kV feeders are anticipated and no major works to the existing network are anticipated external to the site.

As mentioned in Section 6.1 of this report, there are existing private dwellings within the proposed development that are to remain and will require an electrical service to be maintained during construction. The existing social housing dwellings will be demolished prior to the construction works and therefore portions of the existing electrical reticulation will be able to be removed.

The electrical design proposes a total of 4 new pad mounted substations, 3 are 500kVA and one is 1000kVA. The design will utilise a portion of the existing high and low voltage network as well as existing street lights where possible, however the existing network will still require a significant amount of demolition of existing electrical services and the construction of high and low voltage cables, electrical pillars and street lights.

An indicative staged electrical design for the site is shown in **Appendix C**.

7.0 Telecommunications Infrastructure

7.1 EXISTING INFRASTRUCTURE

A DB4YD search was undertaken and it was found that telecommunications infrastructure exist within the existing road reserves adjacent to the site as well as within the existing site.

Based upon review of the DB4YD plans, the site is currently serviced via a Telstra and NBN pit and pipe network. A portion of the existing pit and pipe network is proposed to remain to the west of the proposed development. A large portion of the existing network will be required to be demolished or relocated due to the new road alignments. This will require an application to Telstra Network Integrity and NBN co Relocation Works.

As previously mentioned, it is noted that the existing dwellings which are not privately owned will be demolished by the Land and Housing Corporation (LAHC) prior to the commencement of construction works. The privately owned dwellings will remain and will need to maintain a telecommunications service through construction. As a result, it is likely that dwellings being retained will require a temporary solution until the NBN network is live because minimal telecommunications is being retained.

A visual depiction of the abovementioned infrastructure is contained within **Appendix D**.

7.2 PROPOSED INFRASTRUCTURE

Based upon the Review of Service Infrastructure Report it is expected that the proposed development can be serviced from the existing NBN network, however it is noted that as the lot yield has increased since the original correspondence with NBN, it is recommended to re-engage with NBN to confirm there are no servicing issues. Furthermore, it is not expected that there will be any lead in works required for NBN servicing.

As mentioned in Section 7.1 of this report, there are existing private dwellings within the proposed development that are to remain. As the majority of the existing telecommunications network is getting removed or relocated there will be a need to provide a temporary solution until the NBN network is live.

The NBN design proposes to remove the majority of the existing Telstra pit and pipe network and as such a significant quantity of NBN pit and pipe network will be required to be constructed to service the proposed development.

An indicative staged telecommunications design for the site is shown in **Appendix D**.

8.0 Conclusion

The Review of Service Infrastructure Report includes previous correspondence with the relevant authorities responsible for Water, Sewer, Electrical and Telecommunications in relation to the preliminary servicing advice for the OMD.

The purpose of this follow up report is to support a DA for Stage 1 and Stage 2 of the OMD and specifically provide additional details in regards to the provision of services within these stages of the development.

All authorities have advised that they can service the proposed overall development, albeit in some cases, with minor upgrades to the existing network required.

In order to provide further details in regards to the internal servicing of Stage 1 and Stage 2, a number of subconsultants were engaged to prepare concept designs of the infrastructure required to be installed. A summary of the works to be undertaken for each service within Stage 1 and Stage 2 appears in **Table 8.1** below.

Table 8.1: Summary of Existing Utility Services Infrastructure and Upgrades Required

UTILITY SERVICE	LEAD-IN WORKS	INTERNAL WORKS
Potable Water Supply	No significant lead in works required.	Retention of some existing water mains. Demolition of some existing water mains. Construction of DN100 and DN150 reticulation water mains to service the proposed development.
Sewerage Infrastructure	No significant lead in works required.	Retention of some existing sewer mains. Demolition of some existing sewer mains. Construction of DN150 reticulation sewer mains to service the proposed development.
Electricity Infrastructure	No significant lead in works required.	Retention of some existing pad mounted substations, high and low voltage cables, pillars and street lights. Demolition of some existing pad mounted substations, high and low voltage cables, pillars and street lights. Construction of 4 new pad mounted substations, electrical reticulation, pillars and street lights.
Telecommunications Infrastructure	No significant lead in works required.	Demolition of the majority of the existing Telstra pit and pipe. Construction of new NBN pit and pipe to service the proposed development.

NOTE: All service requirements subject to confirmation with relevant service authorities during the CC phase and therefore, the information contained within Table 8.1 may change accordingly.

Overall services plans are shown in **Appendix E**.

More detailed information is expected to be provided in conjunction with Construction Certificate documentation for each proposed stage of the development.

Appendix A

PROPOSED STAGE 1 AND STAGE 2 DEVELOPMENT PLAN



RESIDENTIAL SUBDIVISION STAGES 1 & 2			
LOT TYPE	STAGE 1	STAGE 2	TOTAL
SUPERLOT	1	2	3
≥300m²	83	91	174
≥400m²	13	20	33
≥500m²	4	7	11
≥600m²	-	1	1
TOTAL LOTS	101	121	222

RESIDENTIAL SUBDIVISION STAGE 7B (APPROVED DA)	
LOT TYPE	STAGE 7B
< 300m²	12
≥300m²	7
≥400m²	-
TOTAL LOTS	19

DISCLAIMER:

THIS PLAN WAS PREPARED FOR LAND & HOUSING CORPORATION FOR DEVELOPMENT CONCEPT PURPOSES ONLY.

DIMENSIONS AREAS AND TOTAL NUMBER OF LOTS SHOWN HEREON ARE APPROXIMATE ONLY AND SUBJECT TO FIELD SURVEY AND ALSO TO THE REQUIREMENTS OF COUNCIL AND OTHER AUTHORITIES WHICH MAY HAVE REQUIREMENTS UNDER ANY RELEVANT LEGISLATION.

NO RELIANCE SHOULD BE PLACED ON THE INFORMATION CONTAINED IN THIS PLAN FOR ANY FINANCIAL DEALING INVOLVING THE LAND. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN

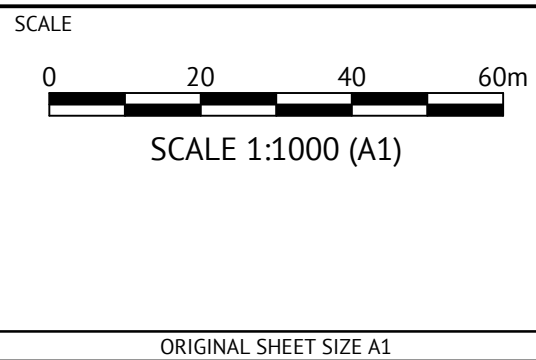
- LEGEND**
- STAGING BOUNDARY
 - PROPOSED LOT (SEE TABLE)
 - EXISTING LOT
 - EXISTING ROAD
 - POSSIBLE ELECTRICAL SUB-STATIONS
 - EXISTING ELECTRICAL SUB-STATIONS
 - EXISTING WATER
 - EXISTING SEWER
 - PROPOSED RMS INTERSECTION

PRELIMINARY					
DATE	REV	DESCRIPTION	REVISIONS	REC	APP
17/08/20	S	ISSUED - REVISED OPEN SPACE LOTS 1001 & 1003, EASEMENTS UPDATED	PS	WRS	
14/08/20	R	ISSUED - REVISED LOTS 45-49, 80, 297-303, 1001, 1003, ADDED LOTS 79 & 81, UPDATED EASEMENT LOT NUMBERS & TABLE	PS	WRS	
12/08/20	Q	ISSUED - REVISED LOTS 6-10, 54-56, 91-99, 1003, UPDATED LOT NUMBERING, DIMENSION AND TABLE	PS	WRS	
11/08/20	P	ISSUED - LOT 139 PRIVATE DWELLING AND REVISED LOTS 2-27, 54-64, 88-98, 1003 AND CORNER LOT 314	PS	WRS	
05/08/20	O	ISSUED - REVISED LOTS 278-279, 307-308, 320-321, 999, 1000, STAGINGS & LOT NUMBERING, EASEMENTS ADDED	PS	WRS	
21/07/20	N	ISSUED FOR APPROVAL - ADJUSTED LOT 278 & REVISED LOTS 273-283, LOT RENUMBERING AND TABLE	PS	WRS	

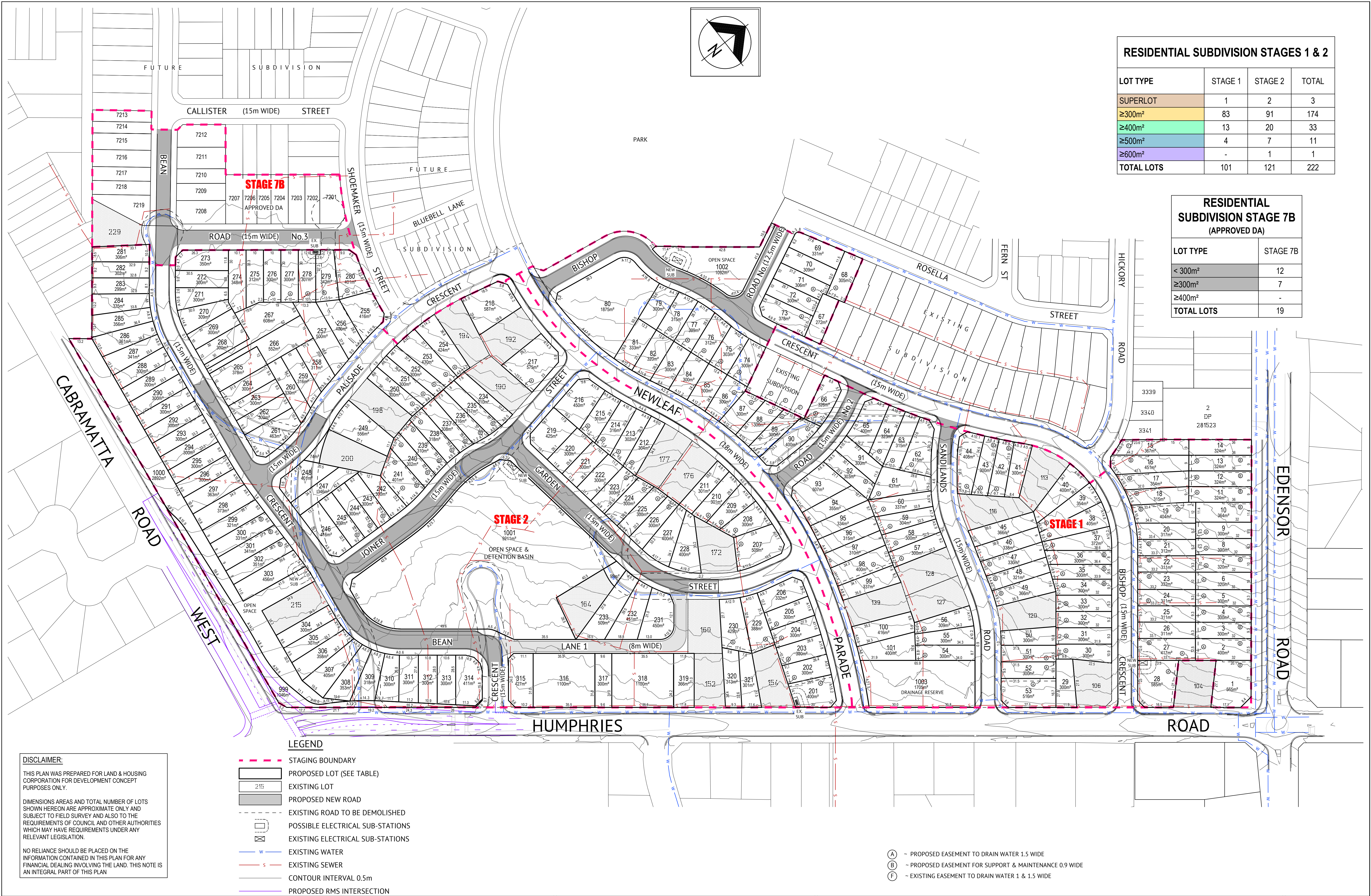


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WARREN SAUNDERS
ENGINEERING CERTIFICATION



CLIENT		LAND & HOUSING CORPORATION		JOB CODE	
PROJECT	PROPOSED SUBDIVISION CONCEPT			320161_01	
LOCATION	HUMPHRIES ROAD BONNYRIGG			SHEET NUMBER	REV
SHEET TITLE	PROPOSED SUBDIVISION CONCEPT - LOT MIX			TP01	S



RESIDENTIAL SUBDIVISION STAGES 1 & 2			
LOT TYPE	STAGE 1	STAGE 2	TOTAL
SUPERLOT	1	2	3
≥300m²	83	91	174
≥400m²	13	20	33
≥500m²	4	7	11
≥600m²	-	1	1
TOTAL LOTS	101	121	222

RESIDENTIAL SUBDIVISION STAGE 7B (APPROVED DA)	
LOT TYPE	STAGE 7B
< 300m²	12
≥300m²	7
≥400m²	-
TOTAL LOTS	19

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- LEGEND**
- STAGING BOUNDARY
 - PROPOSED LOT (SEE TABLE)
 - EXISTING LOT
 - PROPOSED NEW ROAD
 - EXISTING ROAD TO BE DEMOLISHED
 - POSSIBLE ELECTRICAL SUB-STATIONS
 - EXISTING ELECTRICAL SUB-STATIONS
 - EXISTING WATER
 - EXISTING SEWER
 - CONTOUR INTERVAL 0.5m
 - PROPOSED RMS INTERSECTION

- (A) ~ PROPOSED EASEMENT TO DRAIN WATER 1.5 WIDE
- (B) ~ PROPOSED EASEMENT FOR SUPPORT & MAINTENANCE 0.9 WIDE
- (F) ~ EXISTING EASEMENT TO DRAIN WATER 1 & 1.5 WIDE

PRELIMINARY

17/08/20	S	ISSUED - REVISED OPEN SPACE LOTS 1001 & 1003, EASEMENTS UPDATED	PS	WRS
14/08/20	R	ISSUED - REVISED LOTS 45-49, 80, 297-303, 1001, 1003, ADDED LOTS 79 & 81, UPDATED EASEMENT LOT NUMBERS & TABLE	PS	WRS
12/08/20	Q	ISSUED - REVISED LOTS 6-10, 54-56, 91-99, 1003, UPDATED LOT NUMBERING, DIMENSION AND TABLE	PS	WRS
11/08/20	P	ISSUED - LOT 139 PRIVATE DWELLING AND REVISED LOTS 2-27, 54-64, 88-98, 1003 AND CORNER LOT 314	PS	WRS
05/08/20	O	ISSUED - REVISED LOTS 278-279, 307-308, 330-331, 999, 1000, STAGINGS & LOT NUMBERING, EASEMENTS ADDED	PS	WRS
21/07/20	N	ISSUED FOR APPROVAL - ADJUSTED LOT 278 & REVISED LOTS 273-283, LOT RENUMBERING AND TABLE	PS	WRS
DATE	REV	DESCRIPTION	REC	APP

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PHETMALAY
CHECKED
PAUL HUME
PROJECT MANAGER
WARREN SAUNDERS
ENGINEERING CERTIFICATION

SCALE
0 20 40 60m
SCALE 1:1000 (A1)
ORIGINAL SHEET SIZE A1

CLIENT
LAND & HOUSING CORPORATION

PROJECT
PROPOSED SUBDIVISION CONCEPT

LOCATION
HUMPHRIES ROAD BONNYRIGG

SHEET TITLE
PROPOSED SUBDIVISION CONCEPT - LOT LAYOUT PLAN

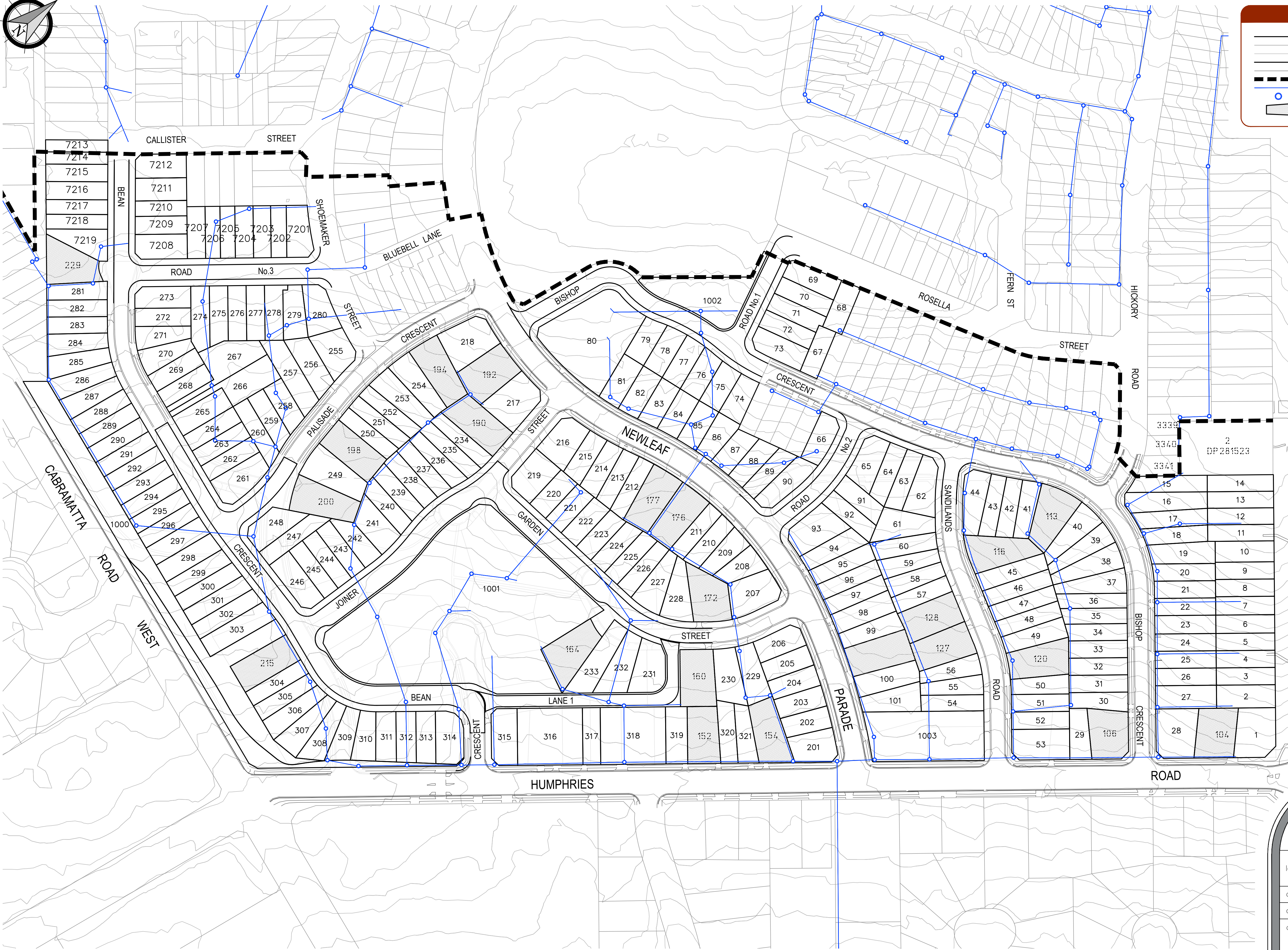
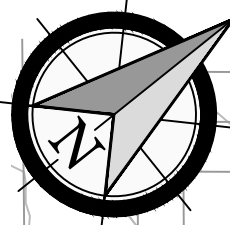
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320161_01

SHEET NUMBER
TP02

REV
S

Appendix B

WATER AND SEWER CONCEPT PLANS



LEGEND

PROPOSED LOT BOUNDARY

EXISTING LOT BOUNDARY

EXISTING CONTOURS

PROPOSED KERB

EXISTING KERB

CATCHMENT BOUNDARY

EXISTING SEWER

EXISTING SEWER MANHOLE

EXISTING LOTS TO REMAIN

ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	A1 1:1000 0 25 50m A3 1:2000	
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design							

drawing title:
**EXISTING
SEWER LAYOUT**

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

dwg ref: 300241-ERPT- 001

client:

NSW

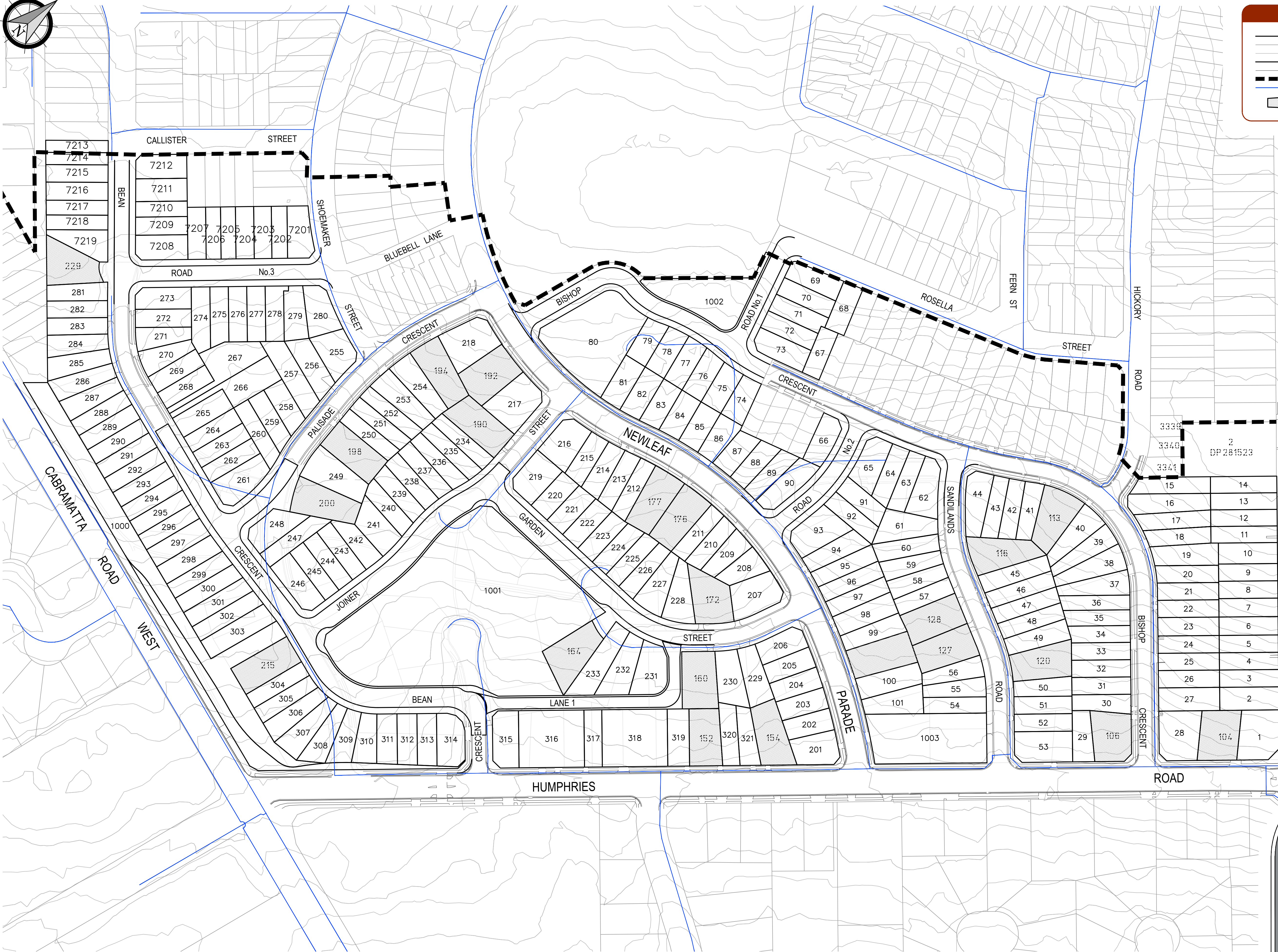
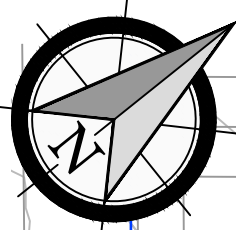
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Corporation

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LEGEND

PROPOSED LOT BOUNDARY

EXISTING LOT BOUNDARY

EXISTING CONTOURS

PROPOSED KERB

EXISTING KERB

CATCHMENT BOUNDARY

EXISTING WATER

EXISTING LOTS TO REMAIN

drawing title:
EXISTING
WATER LAYOUT

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

dwg ref: 300241-ERPT- 002

client:

NSW

Land & Housing
Corporation

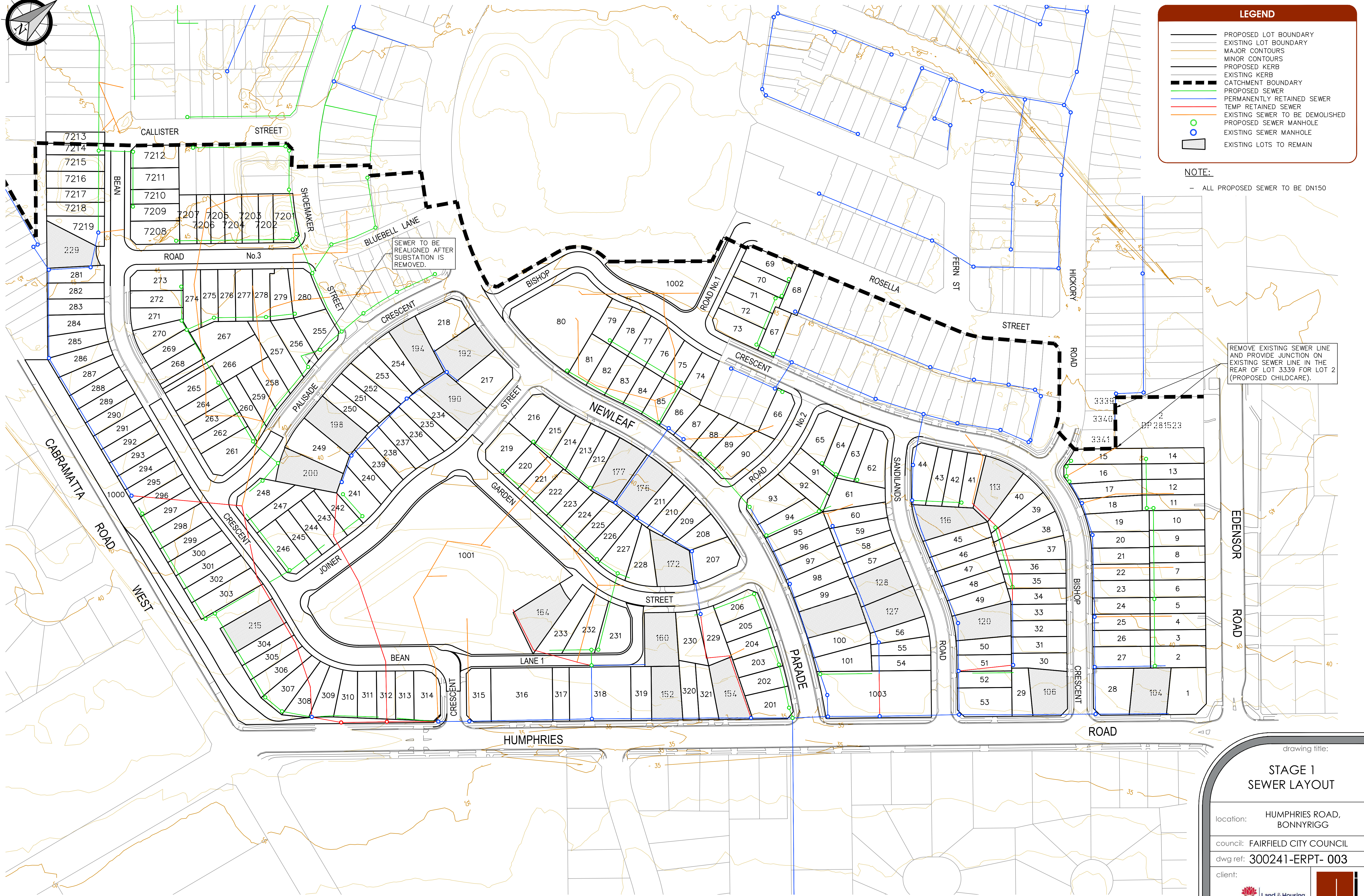
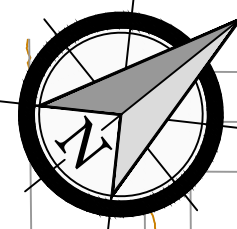
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ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	A1 1:1000 0 25 50m A3 1:2000	
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design							



ver.	date	comment	drawn	pm	level information	scale (A1 original size)
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	 A1 1:1000 25 50m A3 1:2000

- project management
- civil engineering
- infrastructure
- superintendency
- social impact
- town planning
- surveying
- development feasibility
- visualisation
- urban design

Drawing title:

STAGE 1 SEWER LAYOUT

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

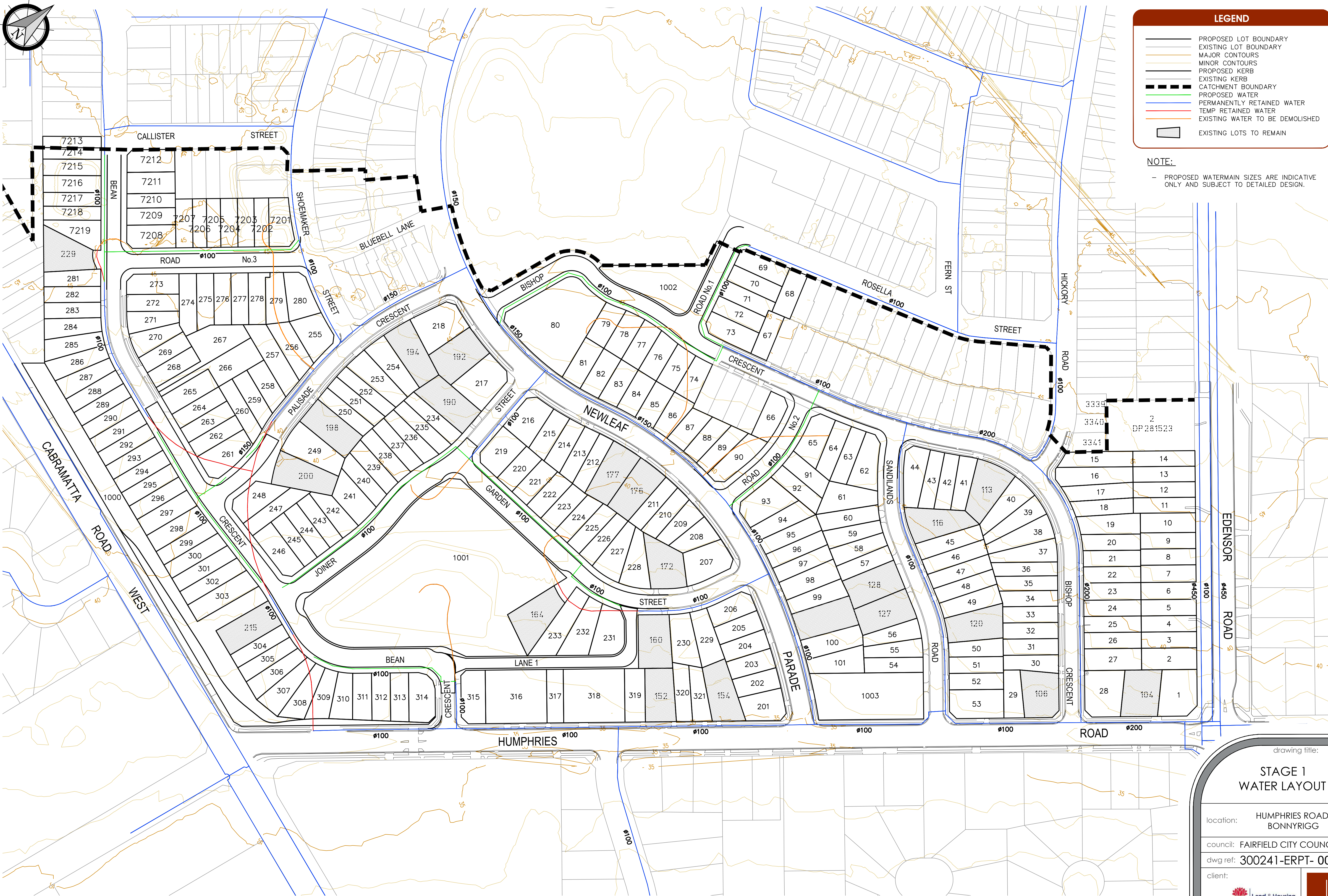
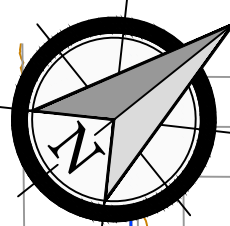
dwg ref: 300241-ERPT- 003

client:



central coast office ph: (02) 4305 4300
hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411

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LEGEND

PROPOSED LOT BOUNDARY

EXISTING LOT BOUNDARY

MAJOR CONTOURS

MINOR CONTOURS

PROPOSED KERB

EXISTING KERB

CATCHMENT BOUNDARY

PROPOSED WATER

PERMANENTLY RETAINED WATER

TEMP RETAINED WATER

EXISTING WATER TO BE DEMOLISHED

EXISTING LOTS TO REMAIN

NOTE:

-

PROPOSED WATERMAIN SIZES ARE INDICATIVE ONLY AND SUBJECT TO DETAILED DESIGN.

ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	A1 1:1000 0 25 50m A3 1:2000	
<div><div>project management</div><div>civil engineering</div><div>infrastructure</div><div>superintendency</div><div>social impact</div><div>town planning</div><div>surveying</div><div>development feasibility</div><div>visualisation</div><div>urban design</div></div>							

drawing title:

STAGE 1
WATER LAYOUT

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

dwg ref: 300241-ERPT- 004

client:

NSW

Land & Housing
Corporation

adw

johnson

central coast office

ph: (02) 4305 4300

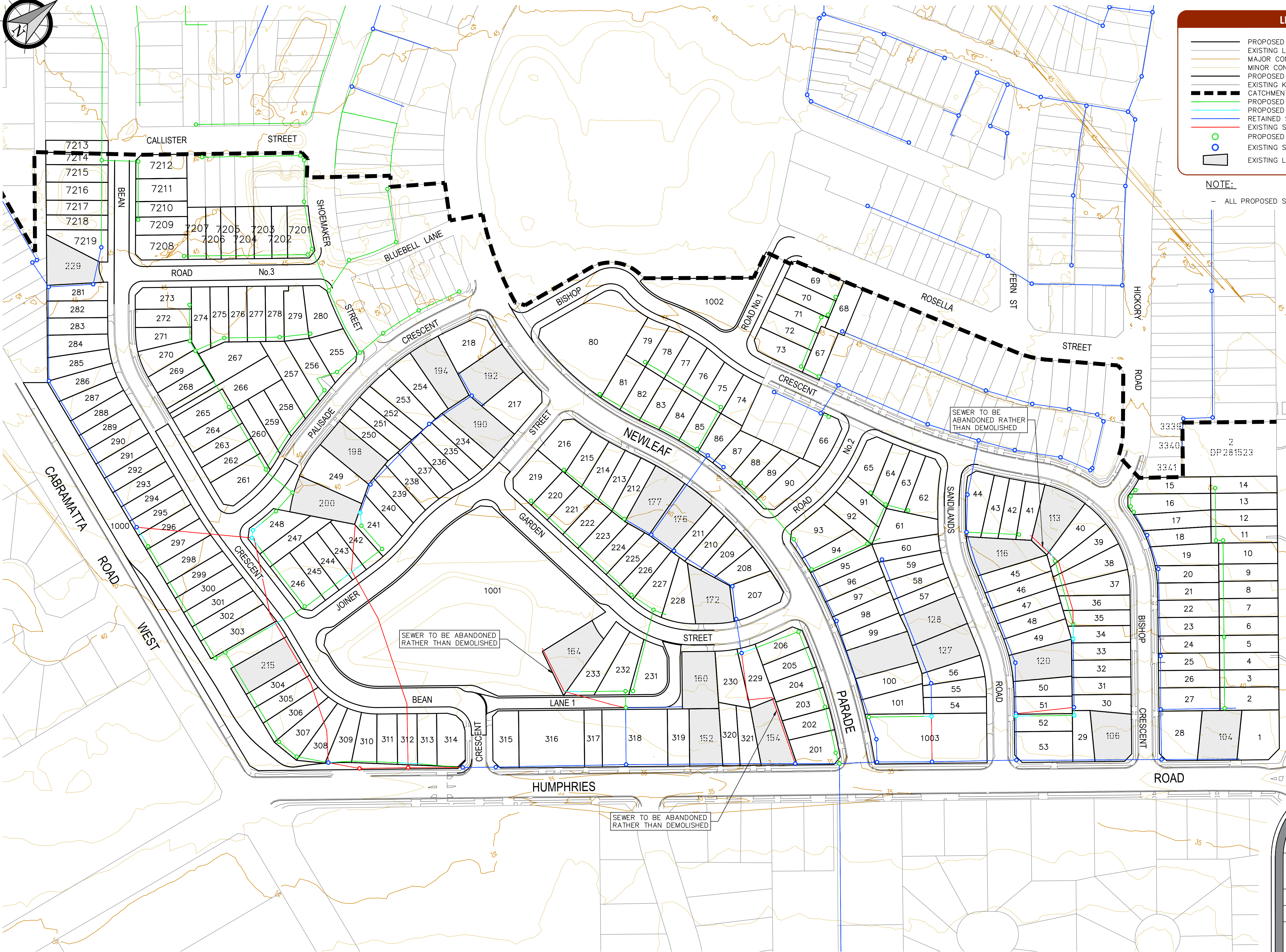
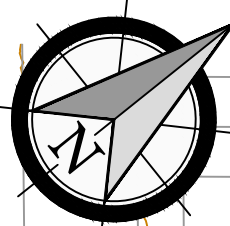
hunter office

ph: (02) 4978 5100

sydney office

ph: (02) 8046 7411

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LEGEND

PROPOSED LOT BOUNDARY

EXISTING LOT BOUNDARY

NOTE:
- ALL PROPOSED SEWER TO BE DN150

drawing title:
**STAGE 2
SEWER LAYOUT**

location: **HUMPHRIES ROAD,
BONNYRIGG**

council: **FAIRFIELD CITY COUNCIL**

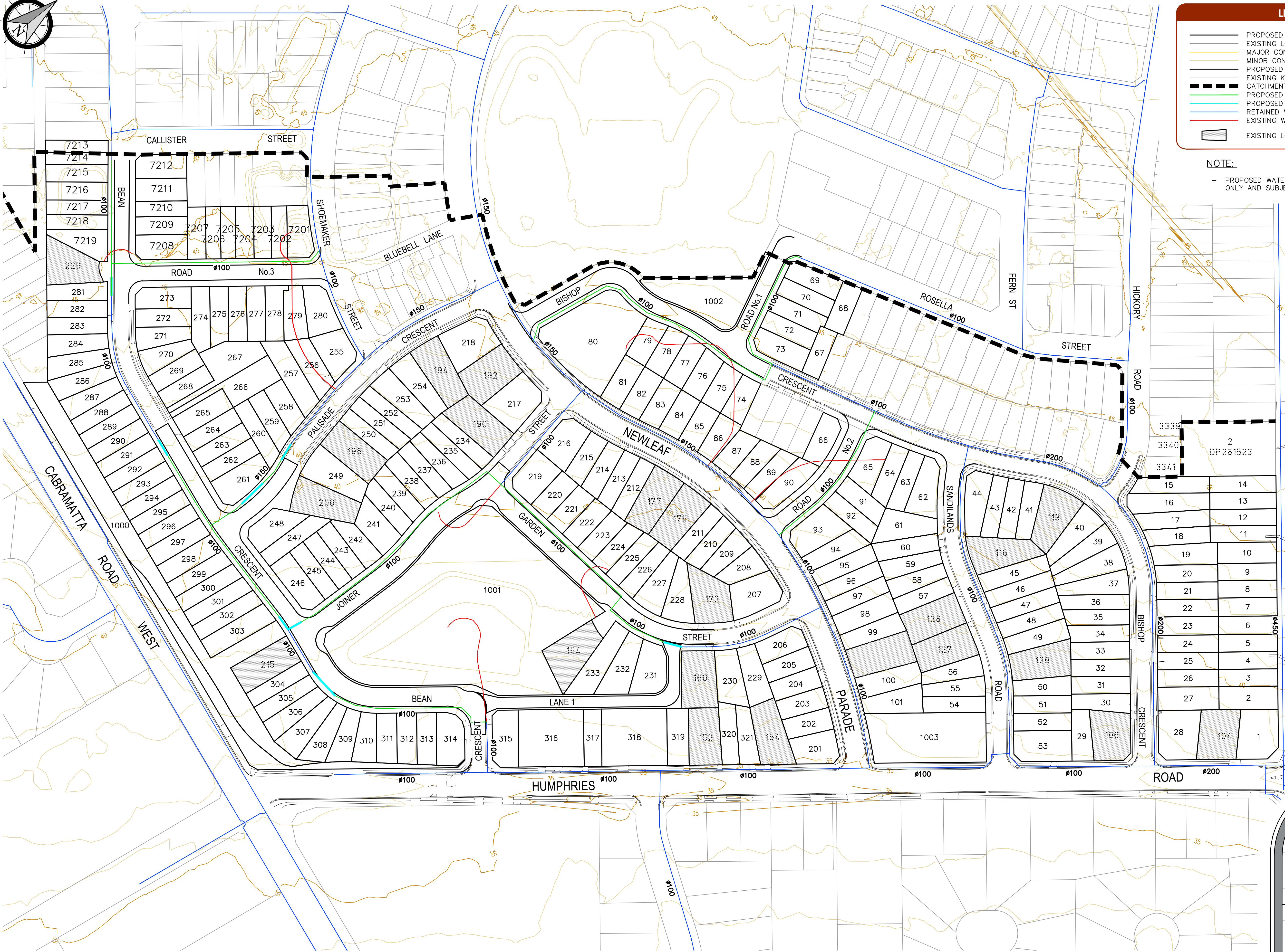
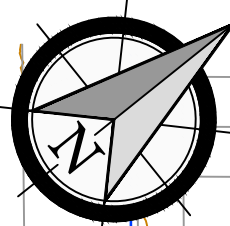
dwg ref: **300241-ERPT- 005**

client:

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ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	A1 1:1000 0 25 50m A3 1:2000	
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design							



LEGEND

- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- CATCHMENT BOUNDARY
- PROPOSED WATER (ALREADY CONSTRUCTED)
- PROPOSED WATER (FINAL CONNECTION)
- RETAINED WATER
- EXISTING WATER TO BE DEMOLISHED
- EXISTING LOTS TO REMAIN

NOTE:

- PROPOSED WATERMAIN SIZES ARE INDICATIVE ONLY AND SUBJECT TO DETAILED DESIGN.

drawing title:

STAGE 2
WATER LAYOUT

location: HUMPHRIES ROAD,
BONNYRIGG
council: FAIRFIELD CITY COUNCIL
dwg ref: 300241-ERPT- 006
client:



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ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
A	27.08.20	INITIAL ISSUE	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	A1 1:1000 A3 1:2000	

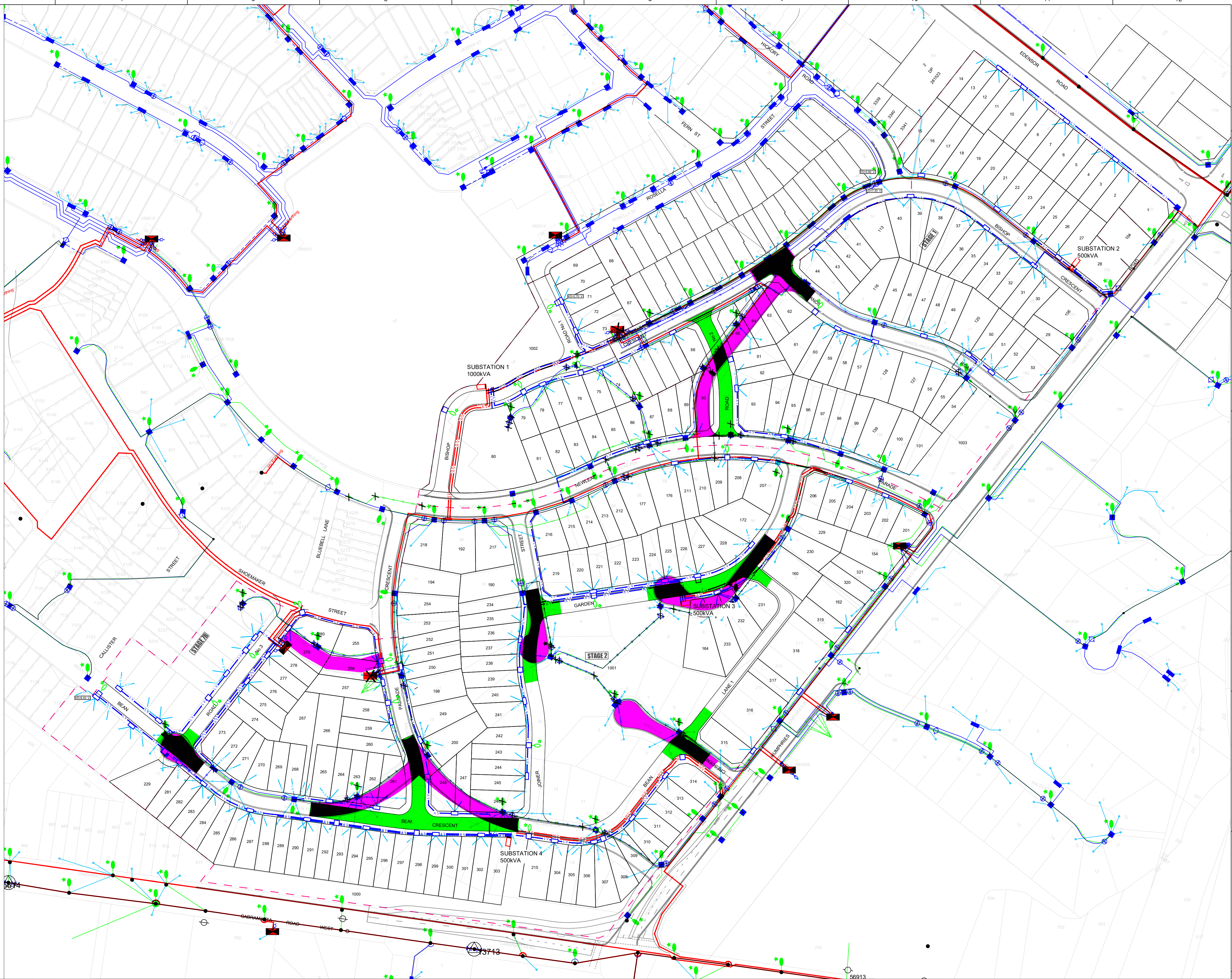
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design

Appendix C

ELECTRICAL CONCEPT PLANS


LEGEND	PROPOSED	EXISTING
HV 11KV UNDERGROUND		
LV UNDERGROUND		
SL UNDERGROUND		
CONDUITS		
PADMOUNT SUBSTATION		
11KV HV CABLE JOINT		
OPEN POINT		
STREETLIGHT PILLAR		
PILLAR (LARGE)		
SWITCH (NORMALLY OPEN)		
SWITCH (NORMALLYCLOSED)		
LV CABLE JOINT		
STREET LIGHT		
CIVIL - ROADWAY		
CIVIL - LOT LAYOUT		

Drawing Number	Number of Sheets	Description
363401	1	OVERVIEW
363402	4	HIGH VOLTAGE NETWORK
363403	4	OVERVIEW OF LOW VOLTAGE
363404	3	FINAL LOW VOLTAGE LAYOUT
363405	3	ASSETS TO BE REMOVED



CONCEPT ONLY

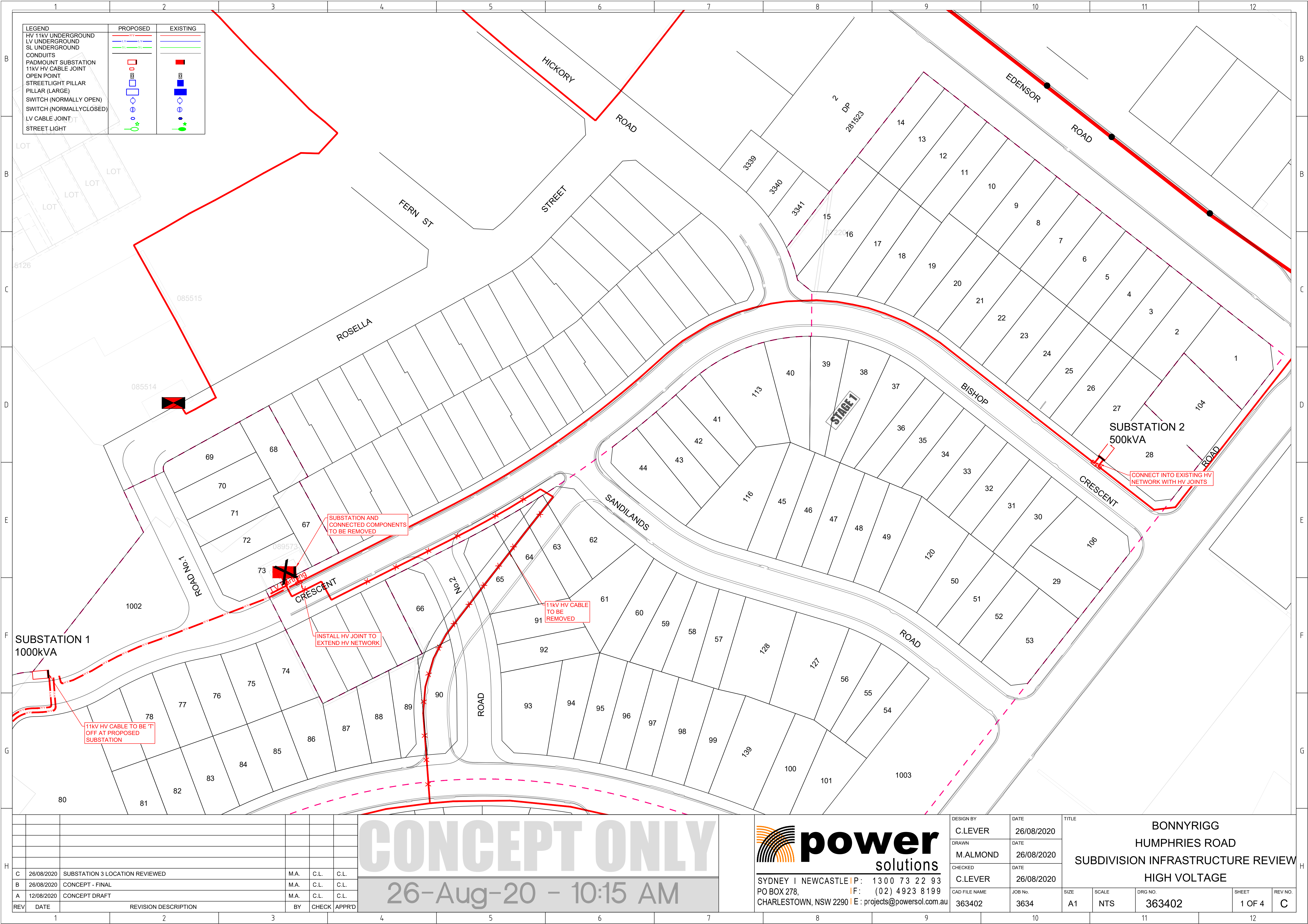
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DESIGN BY	DATE	TITLE <div>BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW INVESTIGATION OVERVIEW</div>					
C.LEVER	26/08/2020						
DRAWN	DATE						
M.ALMOND	26/08/2020						
CHECKED	DATE						
C.LEVER	26/08/2020						
CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.		SHEET	REV NO.
363401	3634	A1	NTS	363401		1 OF 1	C

REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.



CONCEPT ONLY

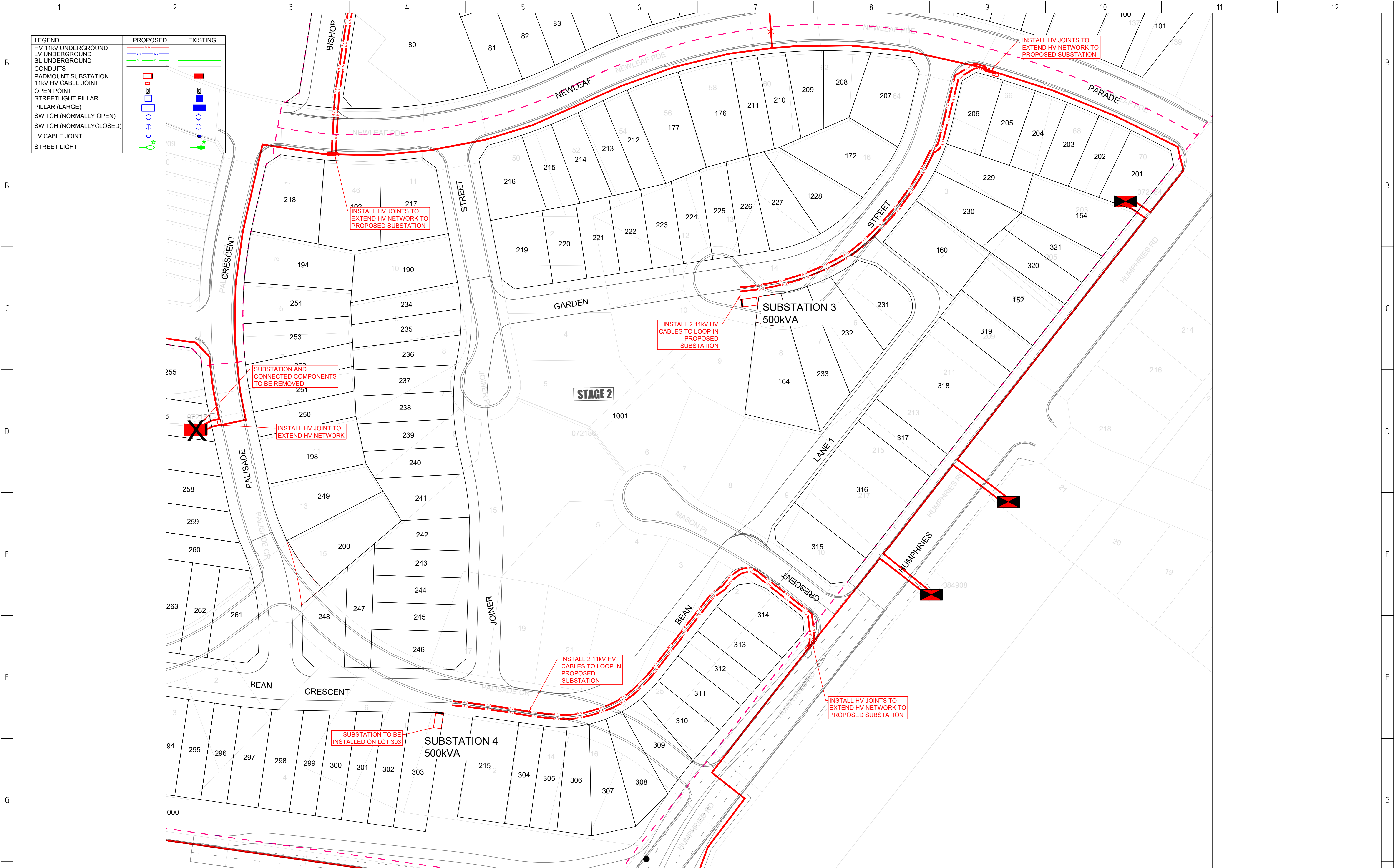
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DESIGN BY C.LEVER	DATE 26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW HIGH VOLTAGE			
DRAWN M.ALMOND	DATE 26/08/2020				
CHECKED C.LEVER	DATE 26/08/2020				
CAD FILE NAME 363402	JOB No. 3634	SIZE A1	SCALE NTS	DRG NO. 363402	SHEET 1 OF 4
				REV NO. C	


REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.



REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.

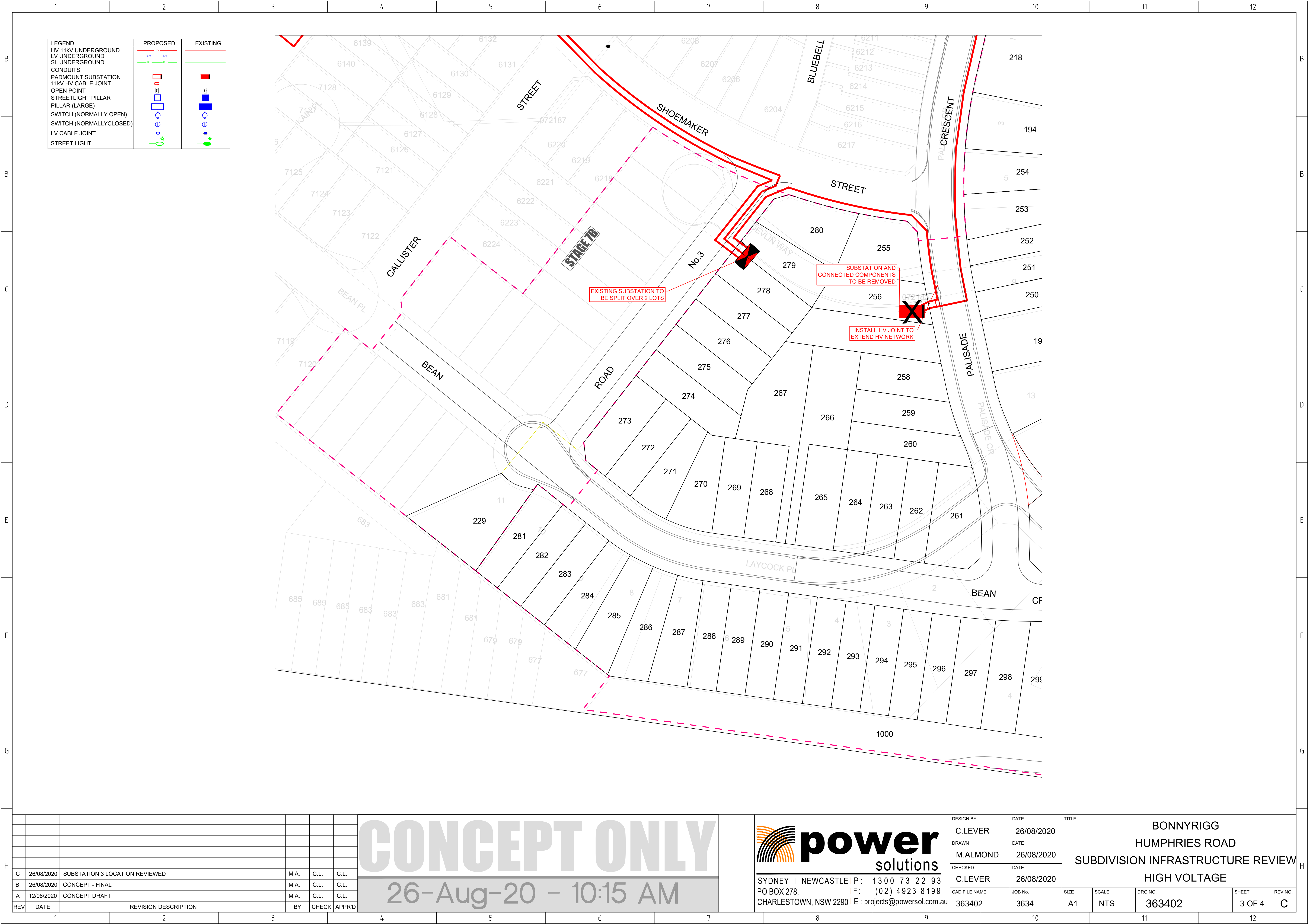
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DRAWN M.ALMOND	DATE 26/08/2020				
CHECKED C.LEVER	DATE 26/08/2020				
CAD FILE NAME 363402	JOB No. 3634	SIZE A1	SCALE NTS	DRG NO. 363402	SHEET 2 OF 4
				REV NO. C	



CONCEPT ONLY

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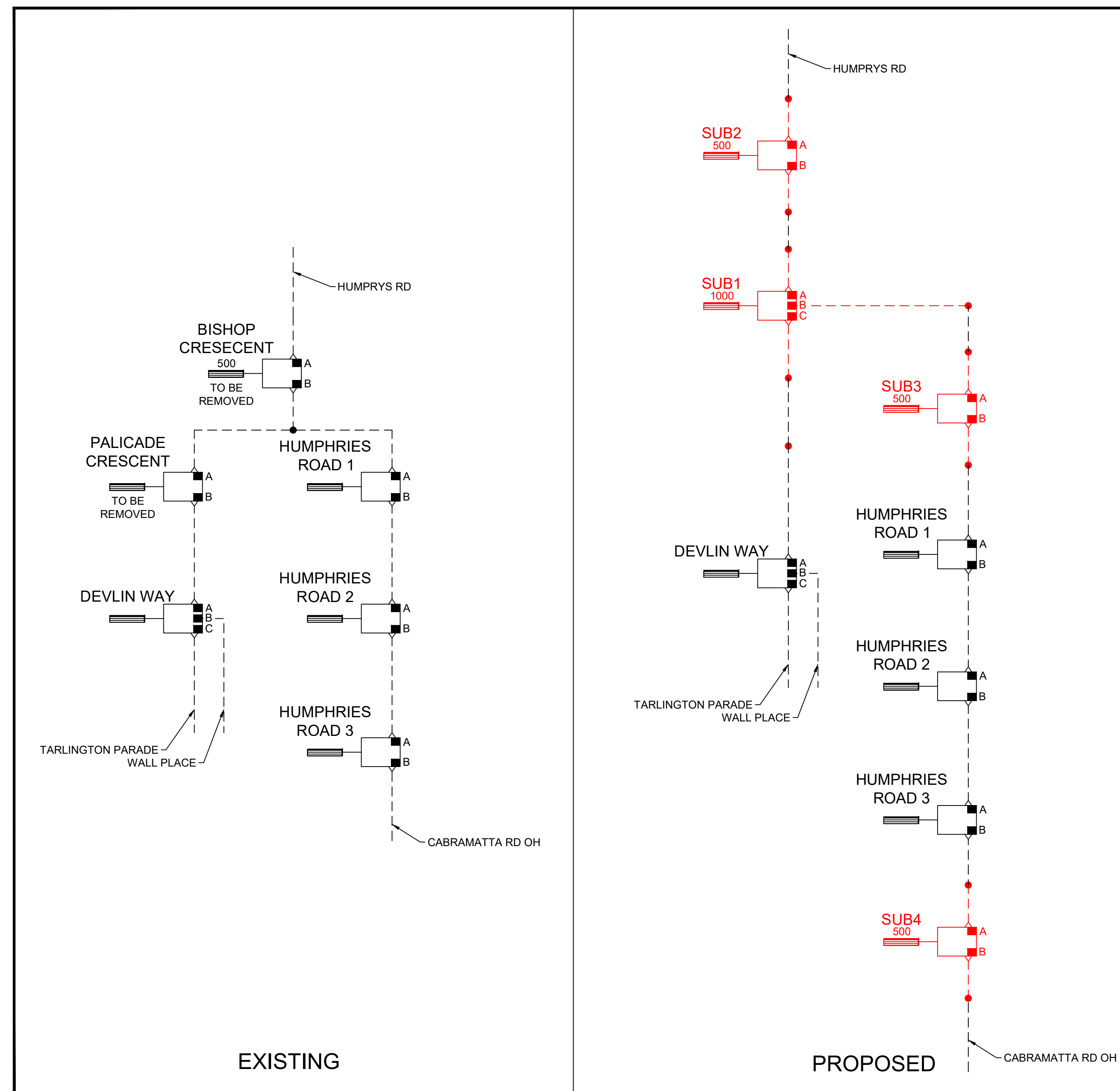
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IF: (02) 4923 8199

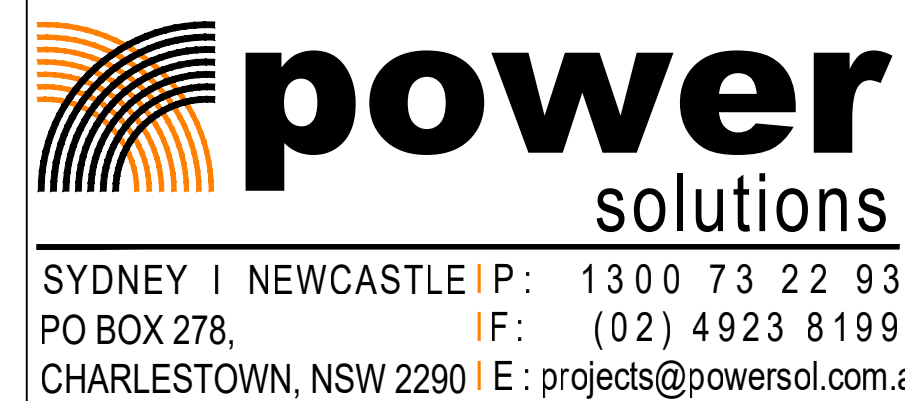
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REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
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A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.

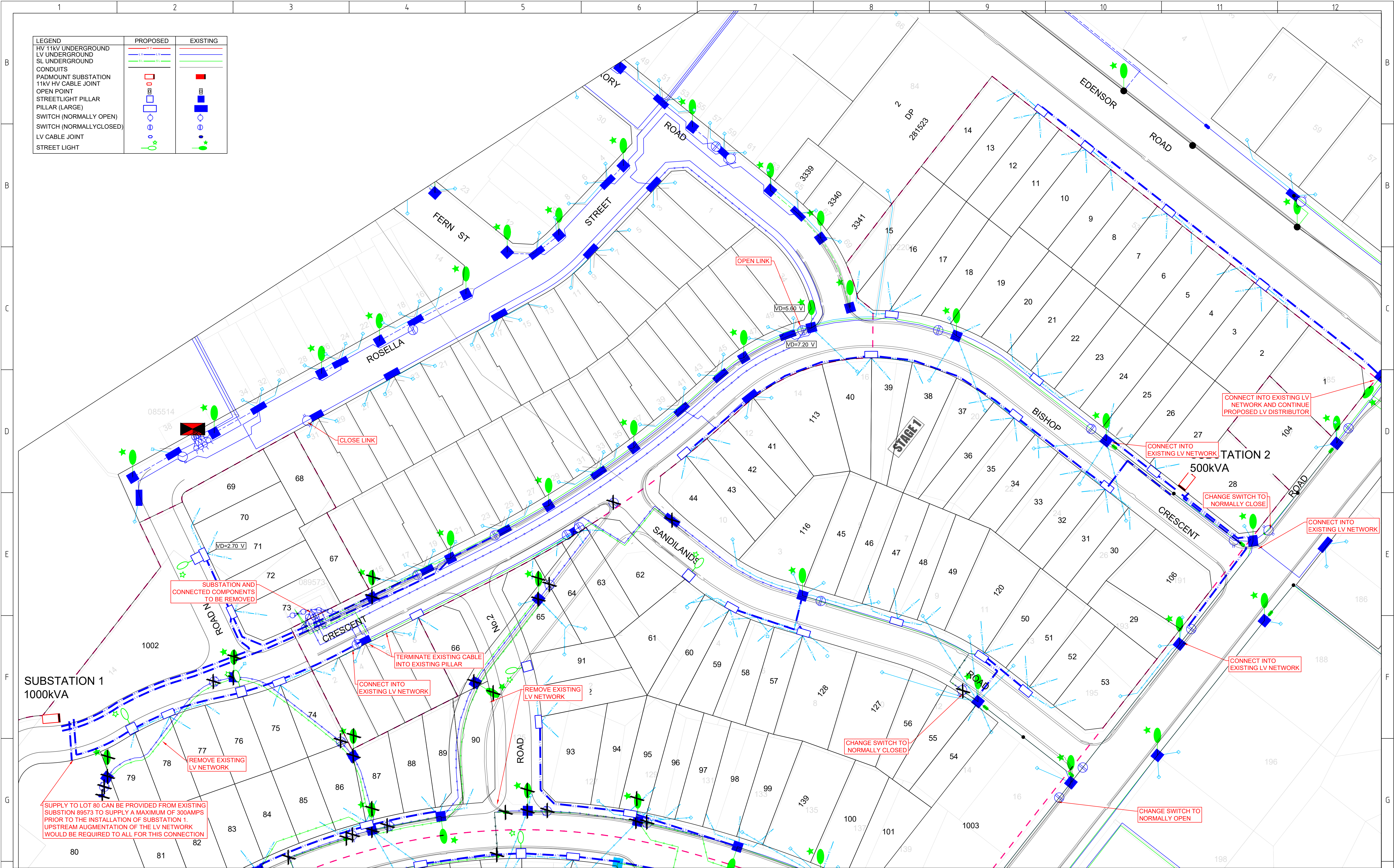


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B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.
REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPROVED

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DESIGN BY	DATE	<div style="text-align: center;"> BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW HIGH VOLTAGE </div>				
C.LEVER	26/08/2020					
DRAWN	DATE					
M.ALMOND	26/08/2020					
CHECKED	DATE					
C.LEVER	26/08/2020					
CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
363402	3634	A1	NTS	363402	4 OF 4	C



REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.

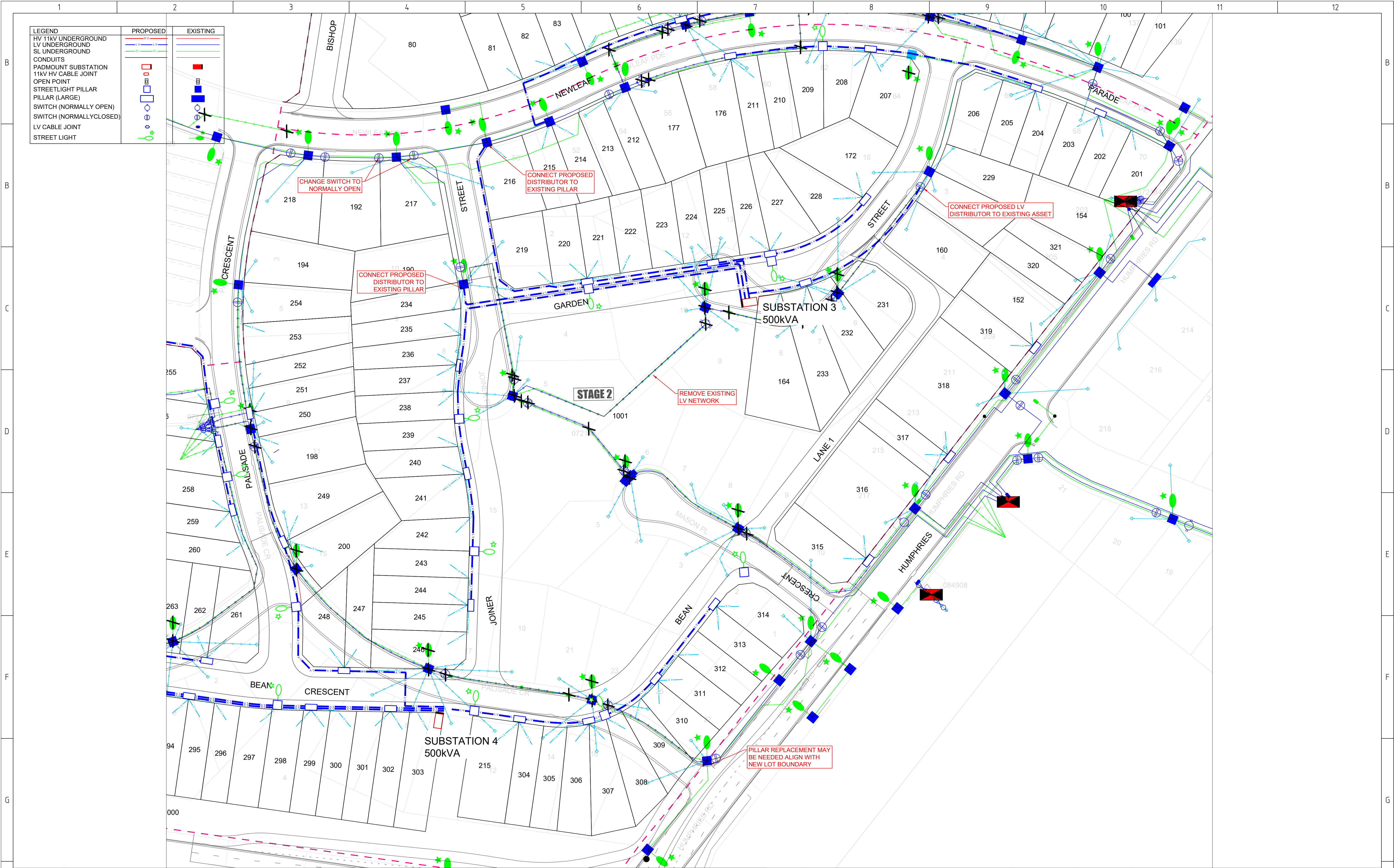
CONCEPT ONLY

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DESIGN BY C.LEVER	DATE 26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - OVERVIEW				
DRAWN M.ALMOND	DATE 26/08/2020					
CHECKED C.LEVER	DATE 26/08/2020					
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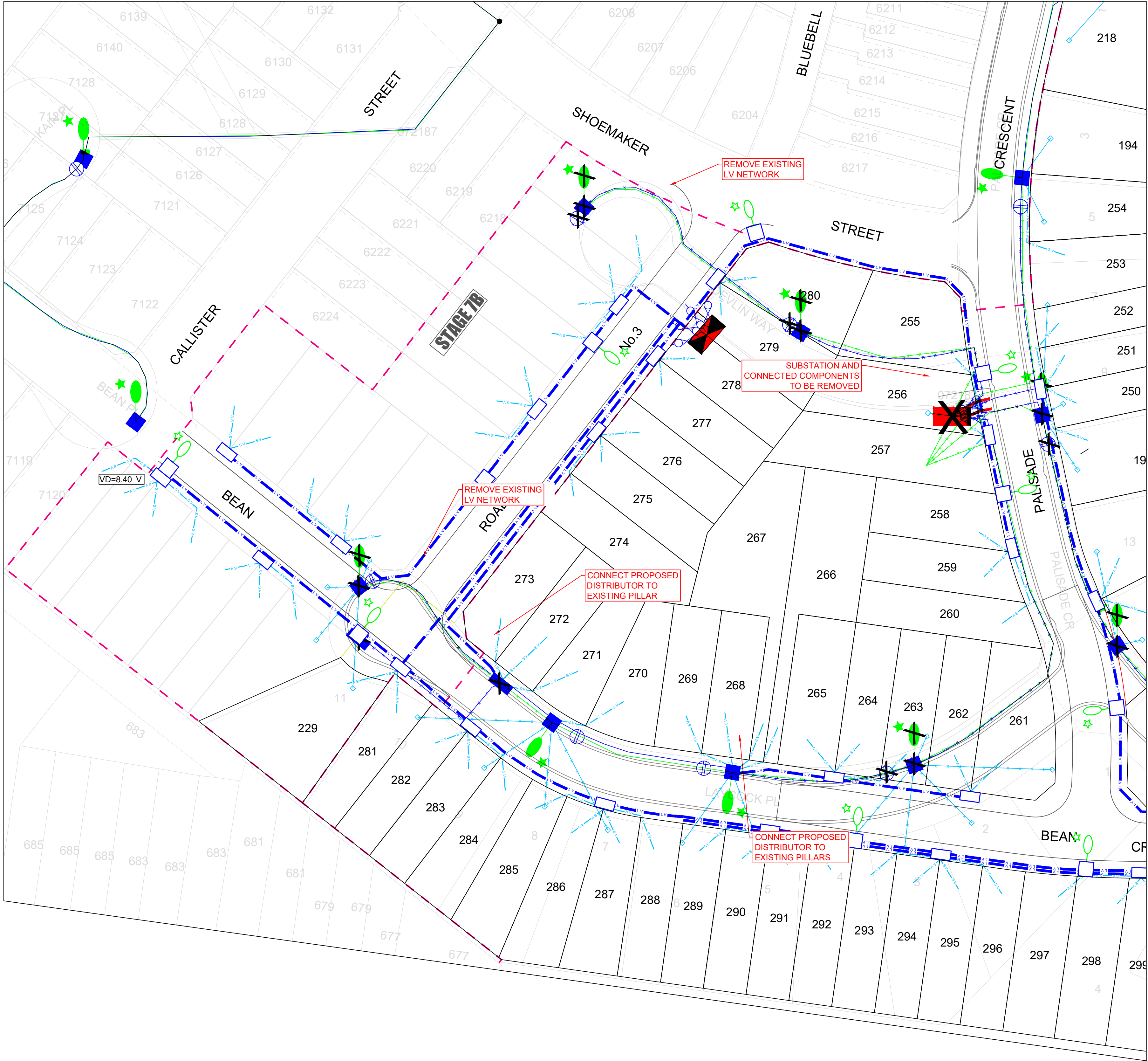
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DESIGN BY C.LEVER	DATE 26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - OVERVIEW				
DRAWN M.ALMOND	DATE 26/08/2020					
CHECKED C.LEVER	DATE 26/08/2020					
CAD FILE NAME 363403	JOB No. 3634	SIZE A1	SCALE NTS	DRG NO. 363403	SHEET 2 OF 4	REV NO. C

REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.

LEGEND	PROPOSED	EXISTING
HV 11kV UNDERGROUND		
LV UNDERGROUND		
SL UNDERGROUND		
CONDUITS		
PADMOUNT SUBSTATION		
11kV HV CABLE JOINT		
OPEN POINT		
STREETLIGHT PILLAR		
PILLAR (LARGE)		
SWITCH (NORMALLY OPEN)		
SWITCH (NORMALLY CLOSED)		
LV CABLE JOINT		
STREET LIGHT		

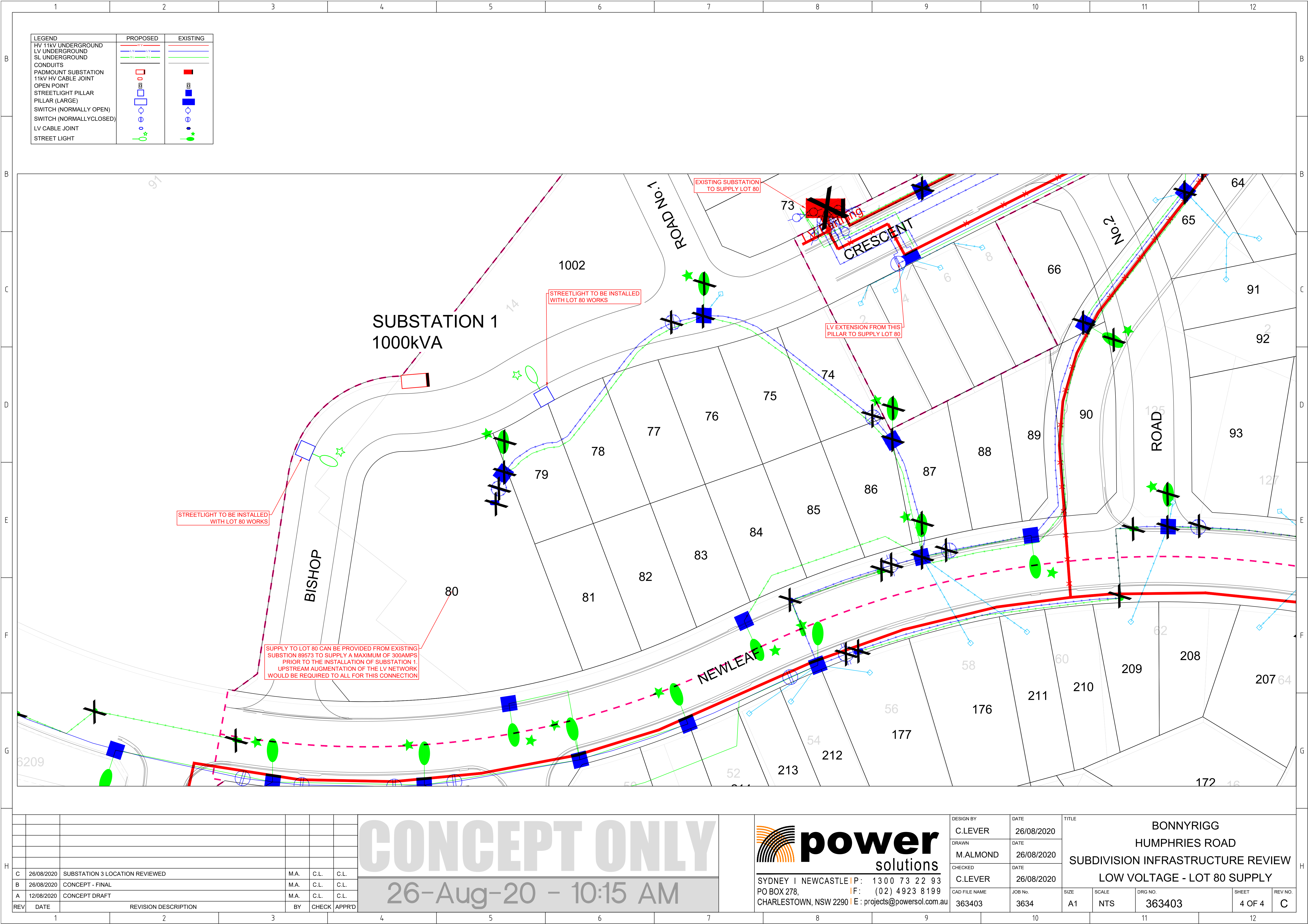


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DESIGN BY	C.LEVER	DATE	26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - OVERVIEW									
DRAWN	M.ALMOND	DATE	26/08/2020										
CHECKED	C.LEVER	DATE	26/08/2020										
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REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.

CONCEPT ONLY

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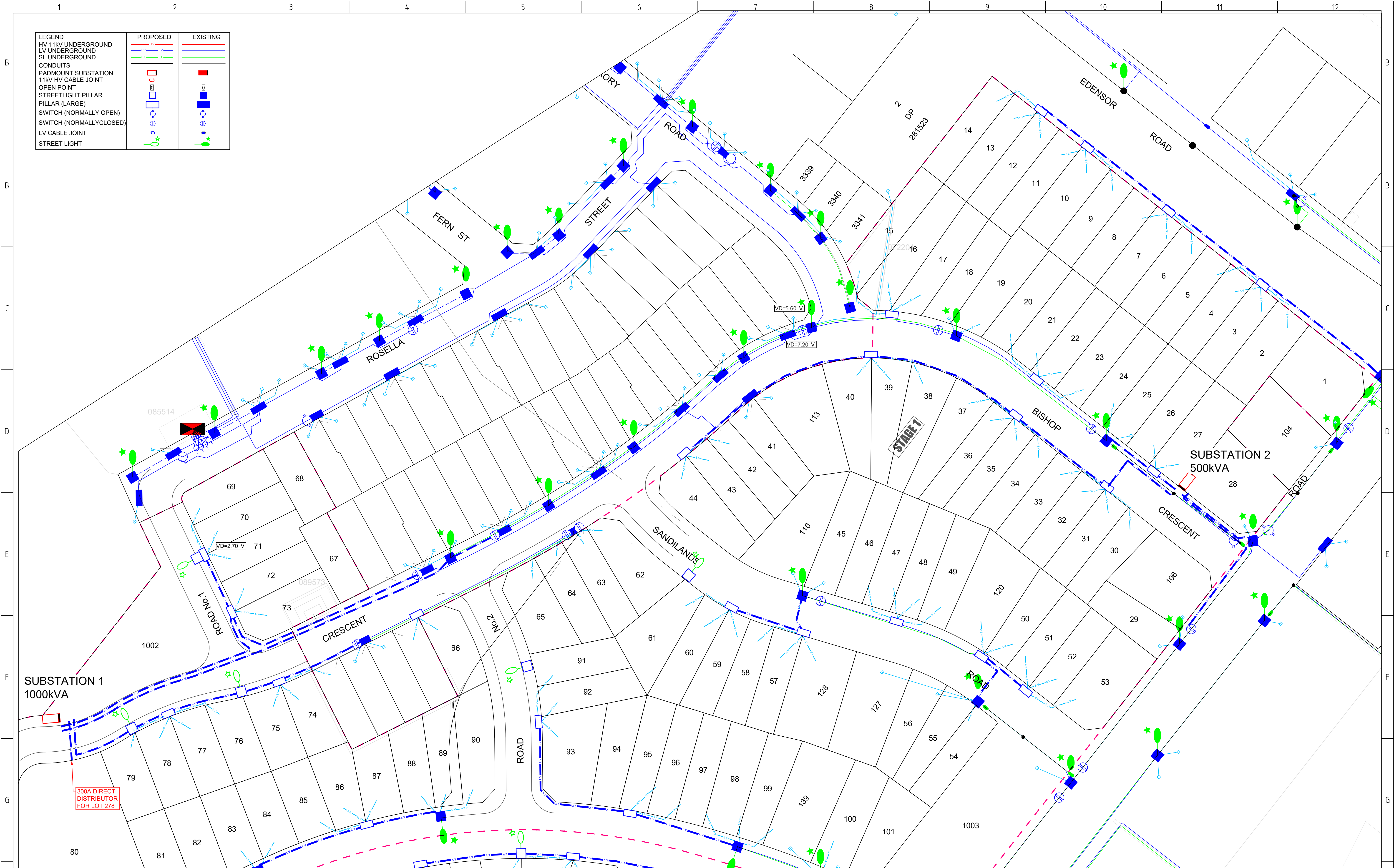
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IF: (02) 4923 8199

DESIGN BY	DATE	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - LOT 80 SUPPLY					
C.LEVER	26/08/2020						
DRAWN	DATE						
M.ALMOND	26/08/2020						
CHECKED	DATE						
C.LEVER	26/08/2020						
CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.		SHEET	REV NO.
363403	3634	A1	NTS	363403		4 OF 4	C



LEGEND	PROPOSED	EXISTING
HV 11kV UNDERGROUND		
LV UNDERGROUND		
SL UNDERGROUND		
CONDUITS		
PADMOUNT SUBSTATION		
11kV HV CABLE JOINT		
OPEN POINT		
STREETLIGHT PILLAR		
PILLAR (LARGE)		
SWITCH (NORMALLY OPEN)		
SWITCH (NORMALLYCLOSED)		
LV CABLE JOINT		
STREET LIGHT		

CONCEPT ONLY

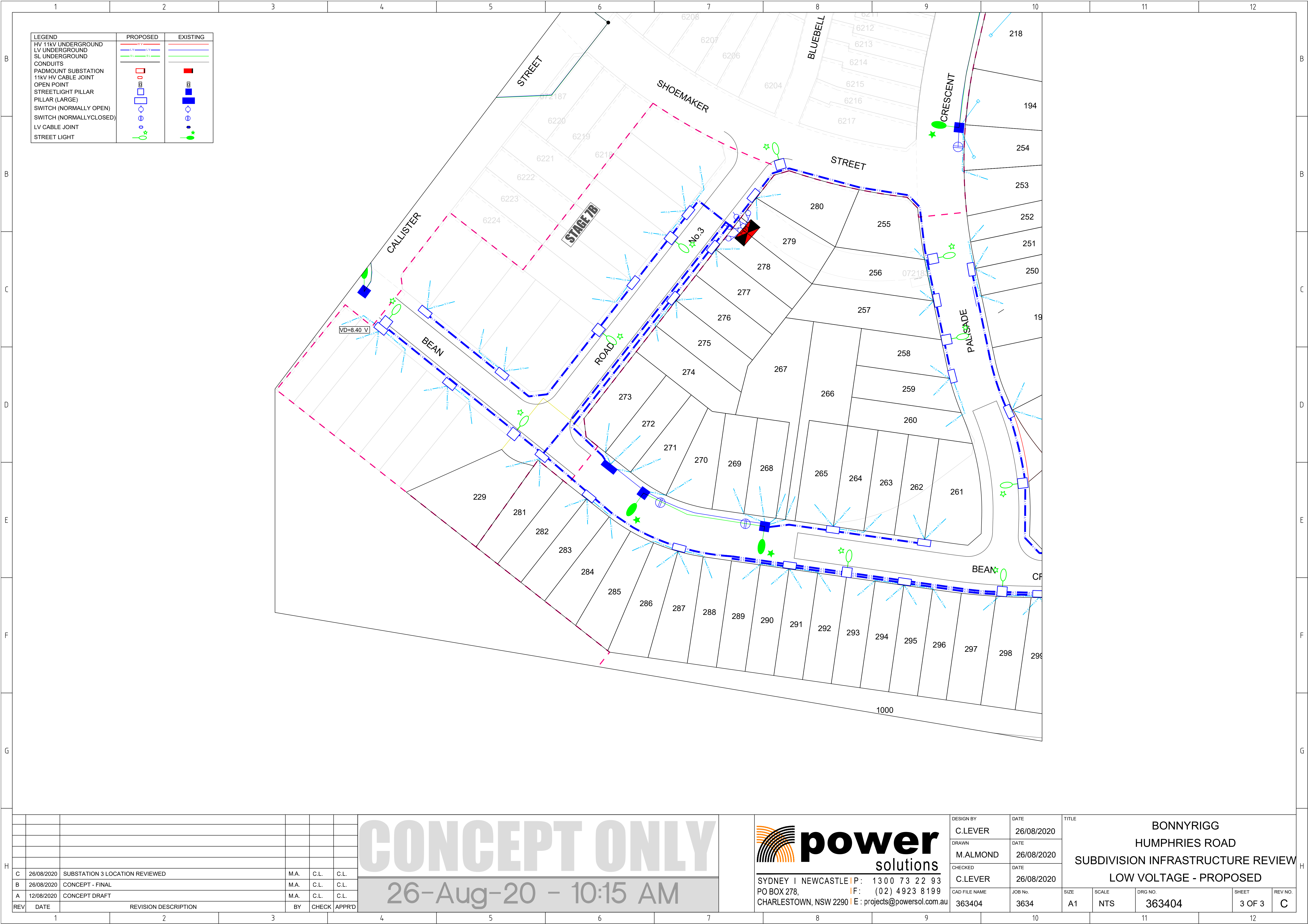
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DESIGN BY C.LEVER	DATE 26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - PROPOSED			
DRAWN M.ALMOND	DATE 26/08/2020				
CHECKED C.LEVER	DATE 26/08/2020				
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REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.



REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D
C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
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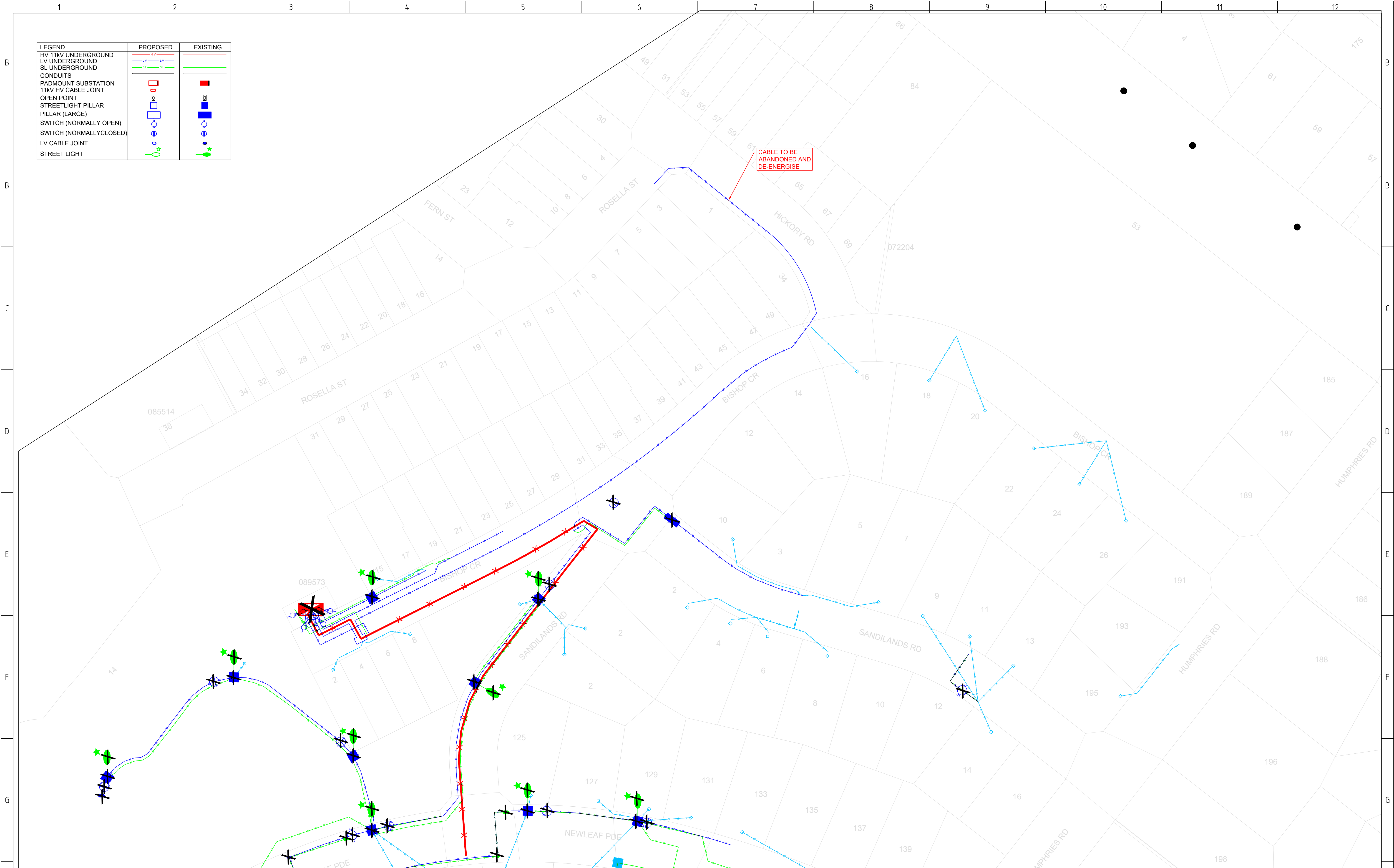
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DESIGN BY C.LEVER	DATE 26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - PROPOSED			
DRAWN M.ALMOND	DATE 26/08/2020				
CHECKED C.LEVER	DATE 26/08/2020				
CAD FILE NAME 363404	JOB No. 3634	SIZE A1	SCALE NTS	DRG NO. 363404	SHEET 3 OF 3
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LEGEND	PROPOSED	EXISTING
HV 11kV UNDERGROUND		
LV UNDERGROUND		
SL UNDERGROUND		
CONDUITS		
PADMOUNT SUBSTATION		
11kV HV CABLE JOINT		
OPEN POINT		
STREETLIGHT PILLAR		
PILLAR (LARGE)		
SWITCH (NORMALLY OPEN)		
SWITCH (NORMALLYCLOSED)		
LV CABLE JOINT		
STREET LIGHT		

CONCEPT ONLY

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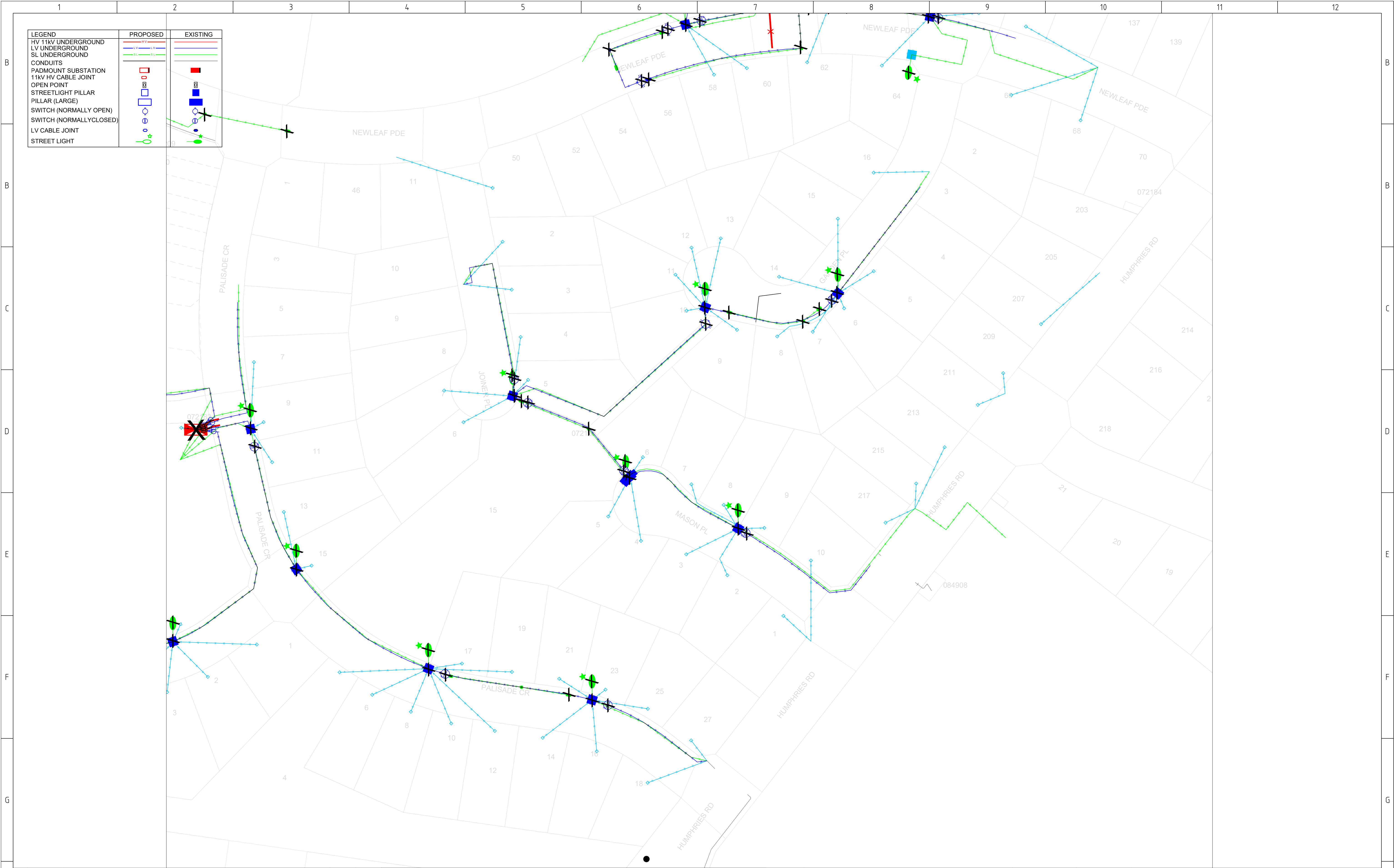
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DESIGN BY	C.LEVER	DATE	26/08/2020	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - REMOVAL OF ASSETS									
DRAWN	M.ALMOND	DATE	26/08/2020										
CHECKED	C.LEVER	DATE	26/08/2020										
CAD FILE NAME	363405	JOB No.	3634	SIZE	A1	SCALE	NTS	DRG NO.	363405	SHEET	1 OF 3	REV NO.	C



C	26/08/2020	SUBSTATION 3 LOCATION REVIEWED	M.A.	C.L.	C.L.
B	26/08/2020	CONCEPT - FINAL	M.A.	C.L.	C.L.
A	12/08/2020	CONCEPT DRAFT	M.A.	C.L.	C.L.
REV	DATE	REVISION DESCRIPTION	BY	CHECK	APPR'D

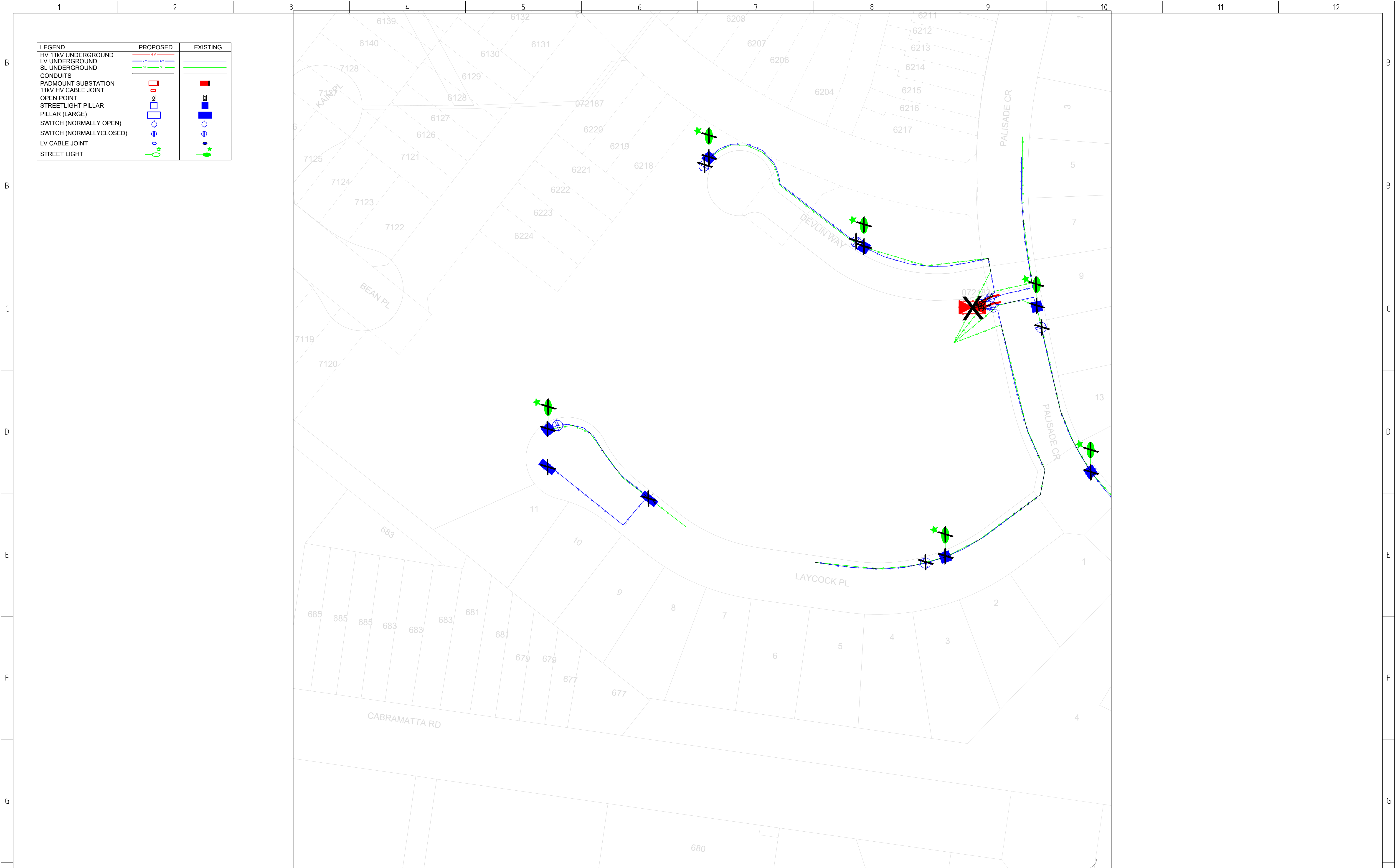
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DESIGN BY		DATE	TITLE BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - REMOVAL OF ASSETS				
C.LEVER		26/08/2020					
DRAWN		DATE					
M.ALMOND		26/08/2020					
CHECKED		DATE					
C.LEVER		26/08/2020					
CAD FILE NAME		JOB No.	SIZE	SCALE	DRG NO.	SHEET	REV NO.
363405		3634	A1	NTS	363405	2 OF 3	C
10			11			12	



LEGEND	PROPOSED	EXISTING
HV 11kV UNDERGROUND	—	—
LV UNDERGROUND	—	—
SL UNDERGROUND	—	—
CONDUITS	—	—
PADMOUNT SUBSTATION	■	■
11kV HV CABLE JOINT	■	■
OPEN POINT	■	■
STREETLIGHT PILLAR	■	■
PILLAR (LARGE)	■	■
SWITCH (NORMALLY OPEN)	○	○
SWITCH (NORMALLY CLOSED)	○	○
LV CABLE JOINT	○	○
STREET LIGHT	★	★

CONCEPT ONLY

26-Aug-20 - 10:15 AM

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CHARLESTOWN, NSW 2290 | E: projects@powersol.com.au

DESIGN BY	DATE	TITLE <div>BONNYRIGG HUMPHRIES ROAD SUBDIVISION INFRASTRUCTURE REVIEW LOW VOLTAGE - REMOVAL OF ASSETS</div>						
C.LEVER	26/08/2020							
DRAWN	DATE							
M.ALMOND	26/08/2020							
CHECKED	DATE							
C.LEVER	26/08/2020							
CAD FILE NAME	JOB No.	SIZE	SCALE	DRG NO.		SHEET		REV NO.
363405	3634	A1	NTS	363405		3 OF 3		C

Appendix D

TELECOMMUNICATIONS CONCEPT PLANS

POP

PRIVATELY OPERATED PAYPHONES

APS

ASSISTANCE TELEPHONES (EG ELEVATOR AND ROADSIDE PHONES)

MET

APPLY TO OTHER TYPE OF METERING POINT (any service)

ATM

ATM

PRK

BANDSTAND / ROTUNDA / SPORTS FIELD STANDS / OTHER PARK BUILDING

PSD

POINT OF SALE DEVICE (vending machine, ticket machine)

TRF

Traffic Lights / Traffic Light Controller / Variable Speed Sign / Traffic Signal

PBT

Public Transport (bus stop, tram stop, railway station, taxi rank, ferry wharf)

SWT

Links / Link Pole / MV / HV Links / ABC Links / Dynamic Switch / Airbrake Switch / Isolator

WAT

Water Infrastructure (storage, pumps, valves water supply, waste water, sewerage stations)

GAS

Natural Gas Infrastructure

CAM

Camera (security / traffic)

CTL

Bridge control, swing bridge, traffic control gates, railway boom gates)

MOB

Mobile Phone Tower / radio antenna

LIT

Street Lighting Pole / street light controller

CAR

Unmanned (council) car park

PWR

Transformer / Kiosk / Pad Mount Sub-station / Pole Mount Transformer

NAP-ID

N

Network Access Point (NAP)

MPT-ID

N

Multiport (MPT)
n is the number of ports (eg 4,6,8,12)

Penetration

CABLE TRAY:

TJL-ID

Splice Joint on a Transit Cable (TJL)

DJL-ID

Splice Joint on a Distribution Cable (DJL)

LJL-ID

Splice Joint on a Local Cable (LJL)

MJL-ID

Splice Joint on a Tether Cable (MJL)

AJL-ID

Zone Terminal / Splice Joint (AJL)

FDH-ID

Fibre Distribution Hub-FDH Cabinet with Cabinet ID shown

PIT-ID

2

Service Drop Access Pit
(650mmX280mmX565mm)

PIT-ID

5

Network Boundary/Local Network Pit (Single Lid)
(700mmX450mmX650mm)

PIT-ID

6

Distribution/Local Network Connection Pit (Dual Lid)
(1360mmX555mmX650mm)

PIT-ID

8

Distribution/Local Network Connection Pit
(1360mmX555mmX860mm)

PIT-ID

9

Fibre Distribution Hub (FDH) Pit
(2000mmX555mmX900mm)

Shared Trench

NTD

nbn NTD

OBBU

NBN Optional Battery Backup Unit

PDH

nbn Premises Distribution Hub

CTL

nbn Cable Transition Location

FDT

nbn Fibre Distribution Terminal

FIP

nbn NTD Fire Indicator Panel

Riser

Riser

LIFT

nbn NTD LIFT

AP

Access Panel

SEC

nbn NTD Security

CET

nbn Communications Earth Terminal

DES QTY

Example of descriptor box that will show the type of work and the quantity involved

nbn manhole

Existing Telstra manhole

FAN AAAA

Fan Access Node site (FAN)

138A^{RX}_{CX}

Multi Dwelling Unit (MDU)

DEPTH--
ALIGN--

DEPTH OVER ALIGNMENT SYMBOL TO BE USED WITH EVERY MARKER POST

Symbol to be used when replacing/removing existing network

PCD

Premise Connection Device (PCD)

POLE-ID

Pole (showing pole identity)

5

Existing Telstra Pit (2,3,4,5,6,7,8,9)
Telstra exchange

Example of Telstra Major Conduit Layout with Proposed duct marked to be used by NBN

M < -- >

NBN MARKER POST
MARKER POST TO BE NUMBERED

CONDUIT CONFIGURATION

CONDUITS AND DUCTS ARE IN LAYER :
< L460 NBN Support - Underground >
AND TERMINOLOGY CATEGORIZED INTO TWO GROUPS IN THE DRAWING AS PER BELOW:
1- DUCT USED WITH LOCAL NETWORK
2-CONDUIT USED WITH LEAD-IN DROPS
ATTRIBUTES ATTACHED ARE AS SHOWN

CONDUIT SIZE

CONDUIT LENGHT

PIT-ID 9 P100 26.5 PIT-ID 5

CABLE CONFIGURATION

CABLE TYPE:
CABLES DIVIDE INTO FOLLOWING CATEGORIES AND ARE COLOUR CODED:
TRANSIT CABLES COLOUR NO: 1 312F
DISTRIBUTION CABLES COLOUR NO: 190 288F
LOCAL CABLES COLOUR NO: 4 144F
TETHER CABLES COLOUR NO: 3 12F
LEAD IN (DROP) CABLES COLOUR NO: 5 1F

CABLE LOCATION:
CABLE LOCATION DETERMINES WHERE THE CABLE IS USED AS PER BELOW:
IN-CONDUIT 288F
AERIAL 144F
BURIED 96F

CABLE SIZE:
CABLE SIZE IS THE TOTAL NUMBER OF OPTIC FIBRES IN THE CABLE AND IS DETERMINED BY A NUMBER FOLLOWED BY F (FIBRE) OR R (RIBBON) IN THE MIDDLE OF THE LINE TYPE
576F

LINE TYPES ARE CATEGORIZED INTO 3 TYPES:
1- IN-CONDUIT: (XXXXF) 312F , ...
2- AERIAL: (XXXXF_A) 144_A , ...
3- BURIED: (XXXXF_B) 12_B , ...

FSA Boundary
FSAM Boundary
FDA Boundary

EXAMPLE:
144 FIBRE AERIAL LOCAL CABLE 144F
1 FIBRE BURIED DROP CABLE 1F
432 FIBRE IN-CONDUIT TRANSIT CABLE 48F

STAFF WORKING ON THIS ESTIMATE PLEASE
NOTE: The location of other authorities services which may affect this work have not been obtained by the estimator. Constructor to obtain service information before commencing.

DANGER
LASER BEAM
EYE PROTECTION MUST BE WORN

SAFETY FIRST
SAFETY STARTS WITH YOU

-					
-					
-					
-					
-					
-					
.B.01	20/08/2020	CIPRIAN PASCU	PRELIMINARY - PIT MOVED AWAY FROM SUBSTATION	NAME	
.A.01	12/08/2020	CIPRIAN PASCU	PRELIMINARY	NAME	
REV	DATE	DRAFTER	DESCRIPTION	APPROVED	

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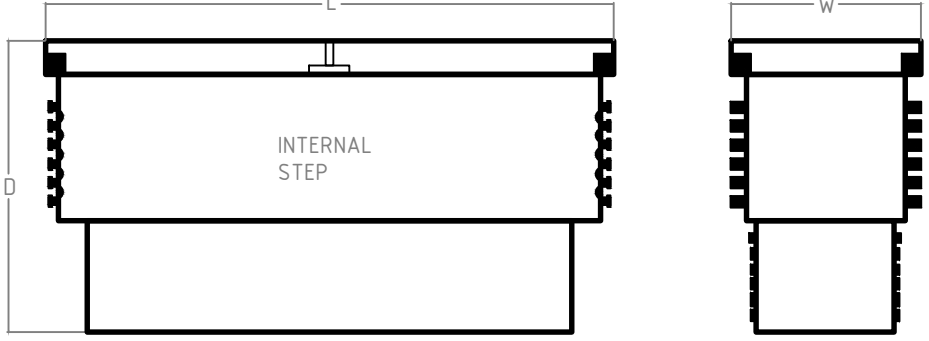
Australia's broadband network

DESIGN IT TELCO
PTY . LTD

DRAWING TITLE: 256 LOTS SUBDIVISION - PIT & PIPE PROJECT HUMPHRIES ROAD, BONNYRIGG CONCEPT DESIGN ONLY STAGE 1, 2 & 7B		
ENABLE#:		
STATE: NSW	REGION:	
FSA:	SAM:	ADA:
PROJECT No: STG-W000???		
CADREF No: PN 35577		
SCALE N/A	SHEET No. OF	REV. B

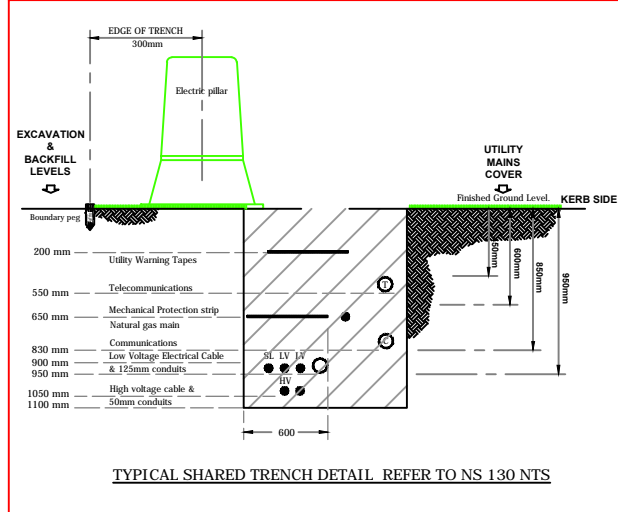
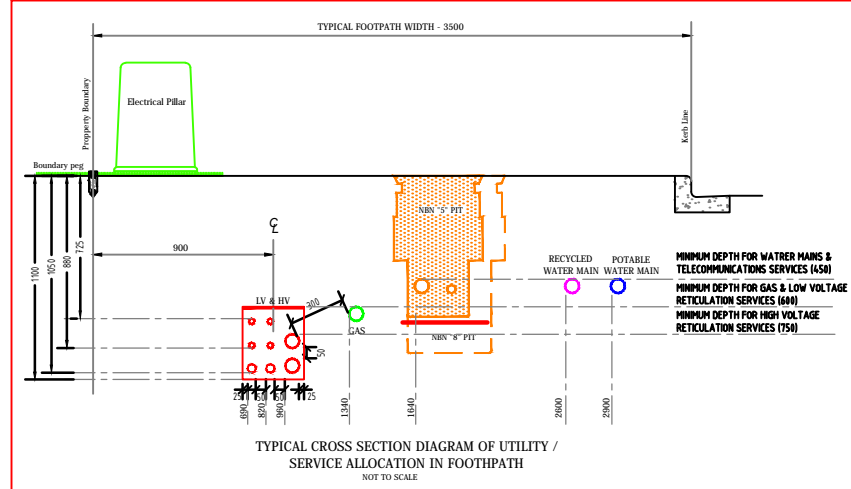
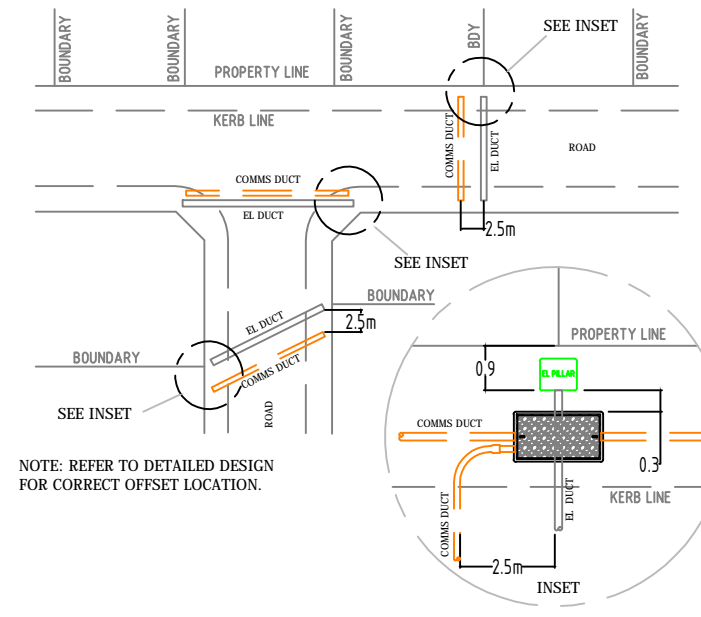
NOTES:

1. ALL PIT & PIPE INFRASTRUCTURE IS TO BE INSTALLED ACCORDING TO NBN Co's CONDUIT AND PIT NETWORK GUIDELINES (DOCUMENT NUMBER NBN-TE-CTO-194 VERSION 7.0 OR LATER).
2.  DENOTES SHARED TRENCHES
3. CONDUITS TO BE INSTALLED IN SHARED TRENCHES, BUT NOT VERTICALLY ABOVE OR BELOW OTHER UTILITIES. CONDUITS MAY BE INSTALLED WITHIN THE ENDEAVOUR ENERGY ASSET ALLOCATION SPACE IF MANDATORY RADIAL SEPARATION FROM OTHER SERVICES IS MAINTAINED AT ALL TIMES. MINIMUM SEPARATIONS ARE:
- GAS MAIN (±Ø75mm) - 150mm
- GAS MAIN (±Ø110mm) - 300mm
- LV CABLES - 100mm
- HV CABLES - 300mm
REFER TYPICAL CROSS SECTION DIAGRAM.
4. NO PITS TO BE INSTALLED WITHIN 15m FROM ANY PAD MOUNTED TRANSFORMER, i.e. NO PITS TO BE INSTALLED WITHIN THE EPR (Earth Potential Rise) ZONE.
5. PITS TO BE INSTALLED CLEAR OF PROPOSED DRIVEWAYS
6. EXCLUSIVE ROAD CROSSING
7. FOR REMOVAL/RELOCATION OF EXISTING COMMS POLES & OVERHEAD NETWORK - DEVELOPER AND/OR PROJECT MANAGER IS TO LIAISE WITH:
* TELSTRA - NETWORK INTEGRITY SERVICES
PH: 1800 810 443 - NetworkIntegrity@team.telstra.com
* NBN RELOCATION WORKS GROUP
RelocationWorks@nbnco.com.au



NBN NOMINAL DIMENSIONS mm			
PIT TYPE	L	W	D
Lo: N: or: P: N: or: B: d: r: P:	700	450	650
Lo: N: or: Co: d: d: B: P:	1360	555	860
D: d: d: P:	1360	555	860
FDH PIT	2000	555	900

TYPICAL ROAD CROSSING CONFIGURATION
OFFSET FROM ELECTRICAL DUCTS TO ALLOW FOR SIDE ENTRY INTO PIT & CORRECT PIT PLACEMENT ON BOUNDARY.

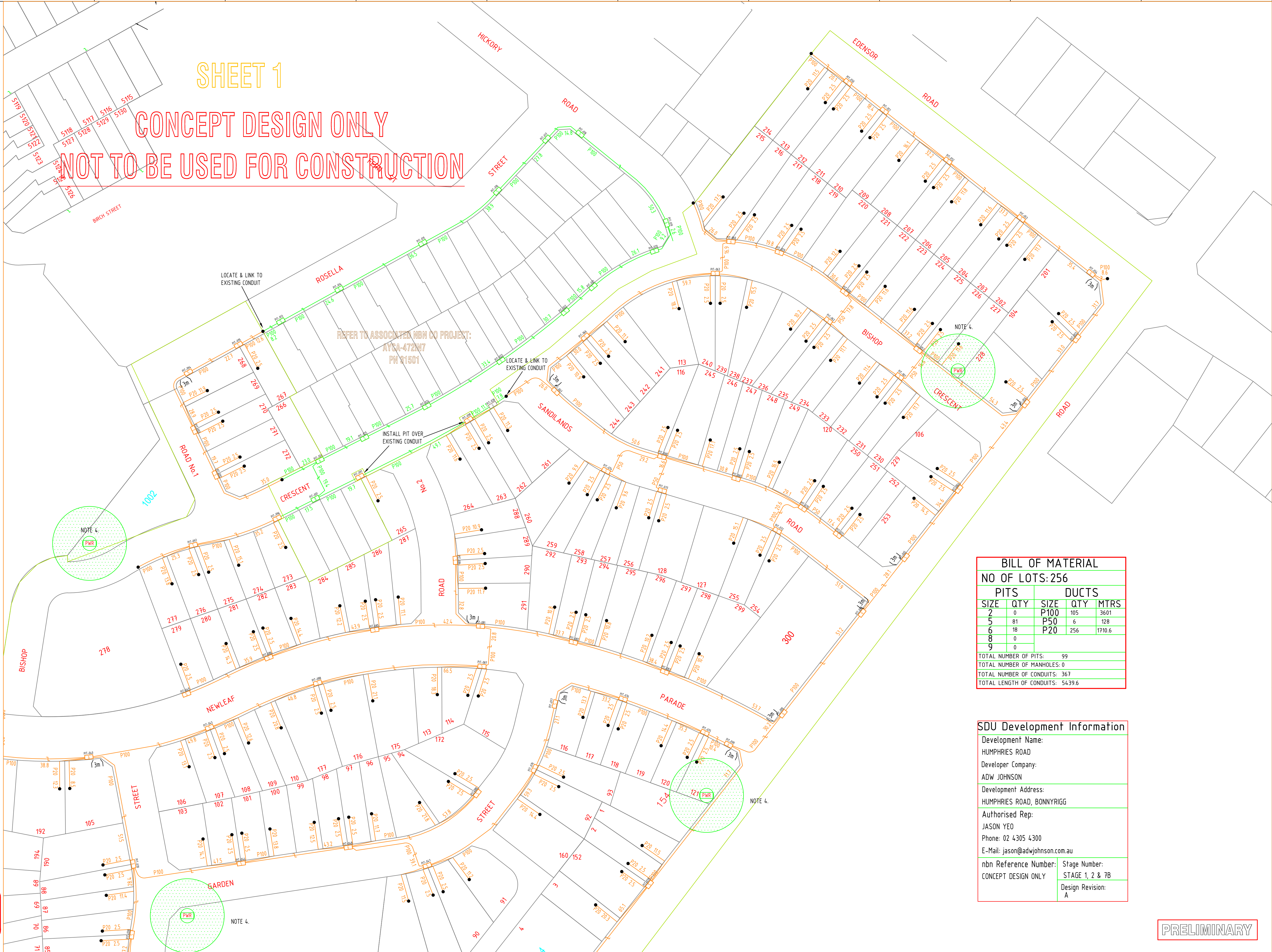


DESIGN & CONSTRUCTION AS PER NBN GUIDELINES DOCUMENT.
* INSTALLING PIT AND CONDUIT INFRASTRUCTURE - GUIDELINES FOR DEVELOPERS * - 08/07/2013

CIVIL CONTRACTORS ARE NOT TO LINK INTO EXISTING TELSTRA OR OTHER SERVICE PROVIDER NETWORK. NEW NETWORK WILL BE LINKED UNDER FUTURE PROJECT.
PIT AND PIPE ONLY WITHIN THE DEVELOPMENT

SHEET 1

CONCEPT DESIGN ONLY
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BILL OF MATERIAL				
NO OF LOTS: 256				
PITS		DUCTS		
SIZE	QTY	SIZE	QTY	MTRS
2	0	P100	105	3601
5	81	P50	6	128
6	18	P20	256	1710.6
8	0			
9	0			
TOTAL NUMBER OF PITS:		99		
TOTAL NUMBER OF MANHOLES:		0		
TOTAL NUMBER OF CONDUITS:		367		
TOTAL LENGTH OF CONDUITS:		5439.6		

SDU Development Information	
Development Name:	HUMPHRIES ROAD
Developer Company:	ADW JOHNSON
Development Address:	HUMPHRIES ROAD, BONNYRIGG
Authorised Rep:	JASON YEO
Phone:	02 4305 4300
E-Mail:	jason@adwjohnson.com.au
nbn Reference Number:	STAGE 1, 2 & 7B
CONCEPT DESIGN ONLY	Design Revision: A

PRELIMINARY



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	SIGNATURE	DATE		
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	<input type="checkbox"/> WD			
	<input type="checkbox"/> AB			
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B.01	20/08/2020	CIPRIAN PASCU	PRELIMINARY - PIT MOVED AWAY FROM SUBSTATION	NAME
A.01	12/08/2020	CIPRIAN PASCU	PRELIMINARY	NAME
REV	DATE	DRAFTER	DESCRIPTION	APPROVED



DRAWING TITLE: 256 LOTS SUBDIVISION - PIT & PIPE PROJECT HUMPHRIES ROAD, BONNYRIGG CONCEPT DESIGN ONLY STAGE 1, 2 & 7B		
ENABLE#:		
STATE:	NSW	REGION:
FSA:	SAM:	ADA:
PROJECT No:	STG-W000???	
CADREF No:	PN 35577-C	
SCALE	SHEET No.	REV.
N/A	1 OF 2	B

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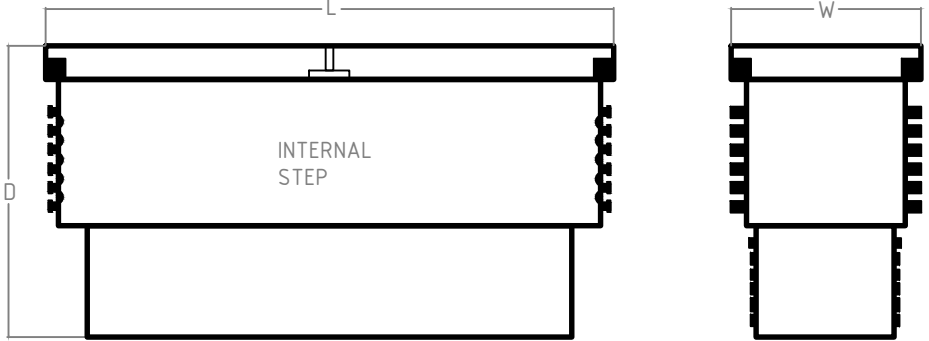
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6. EXCLUSIVE ROAD CROSSING

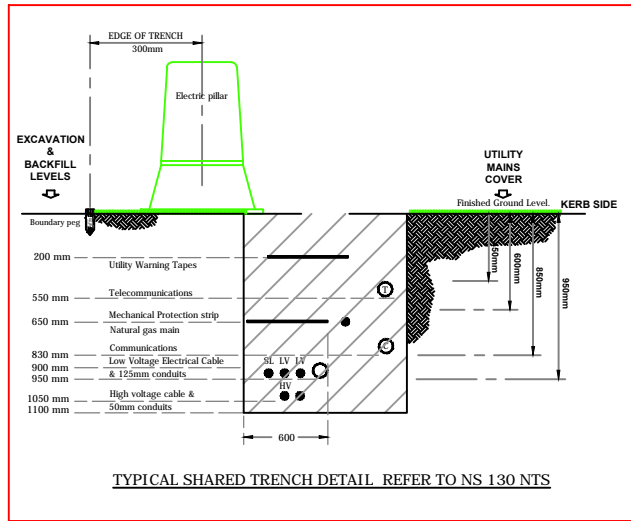
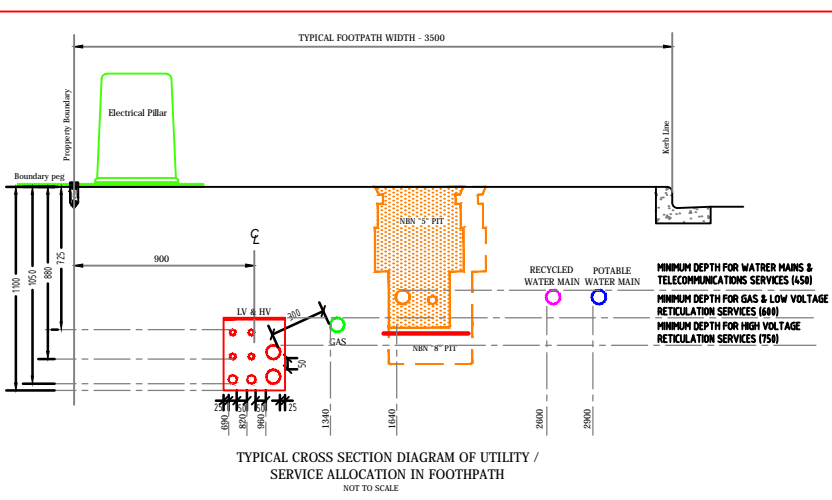
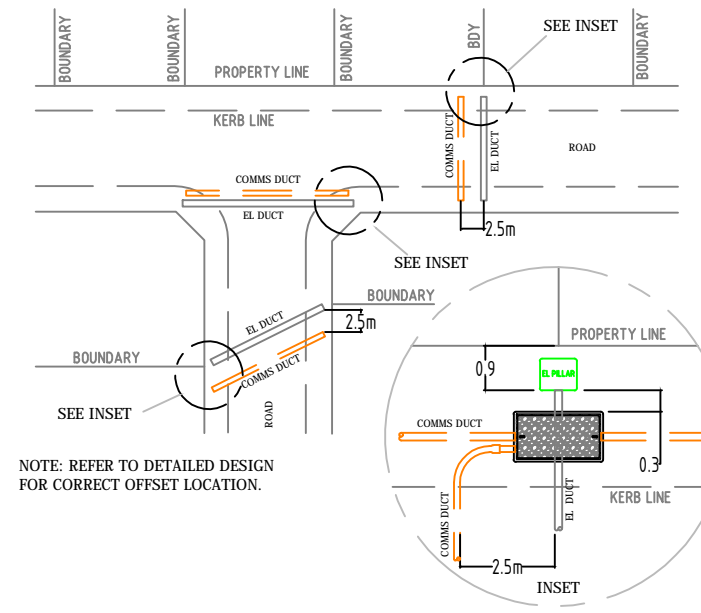
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RelocationWorks@nbnco.com.au



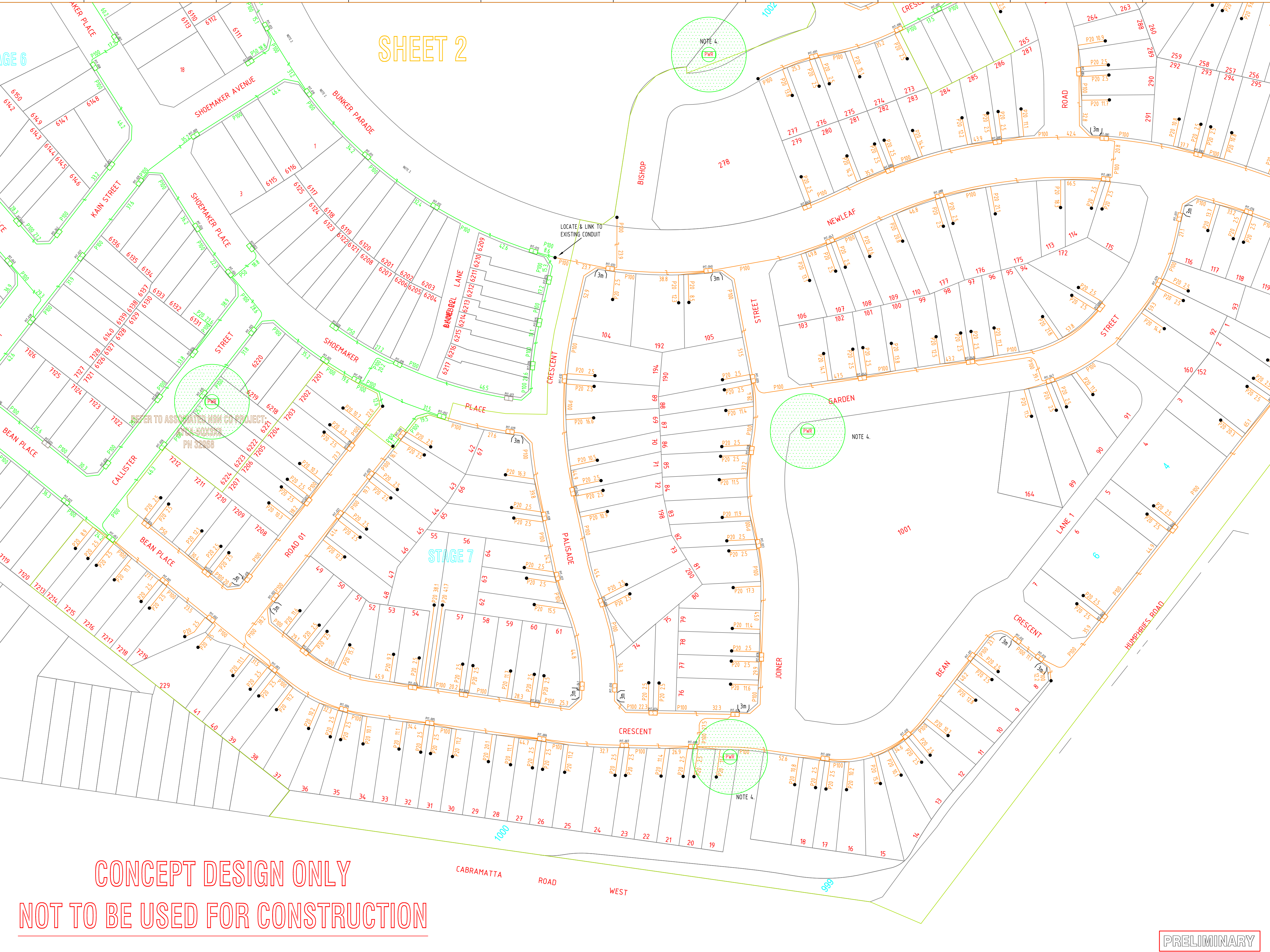
NBN NOMINAL DIMENSIONS (mm)			
PIT TYPE	L	W	D
Loose Pit Bottom Pit	700	450	650
Loose Pit Concrete Pit	1360	555	860
Concrete Pit	1360	555	860
FDH PIT	2000	555	900

TYPICAL ROAD CROSSING CONFIGURATION
OFFSET FROM ELECTRICAL DUCTS TO ALLOW FOR SIDE ENTRY INTO PIT & CORRECT PIT PLACEMENT ON BOUNDARY.



DESIGN & CONSTRUCTION AS PER NBN GUIDELINES DOCUMENT.
* INSTALLING PIT AND CONDUIT INFRASTRUCTURE - GUIDELINES FOR DEVELOPERS - 08/07/2013

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REV	DATE	DRAFTER	DESCRIPTION	APPROVED
B.01	20/08/2020	CIPRIAN PASCU	PRELIMINARY - PIT MOVED AWAY FROM SUBSTATION	NAME
A.01	12/08/2020	CIPRIAN PASCU	PRELIMINARY	NAME

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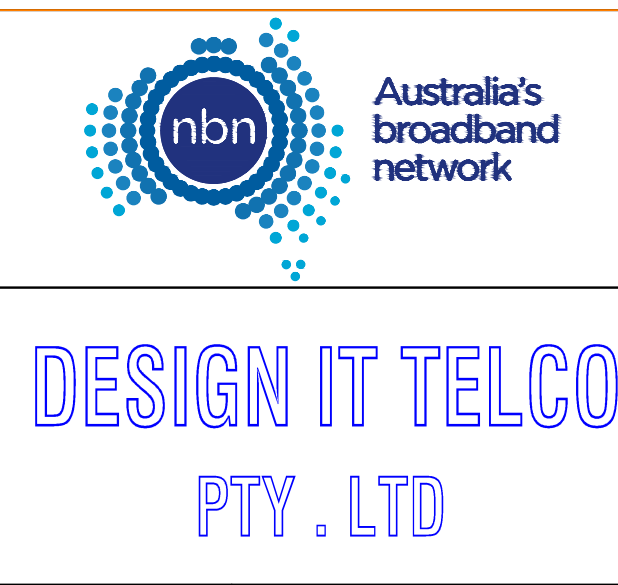
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<input type="checkbox"/> WD	_____
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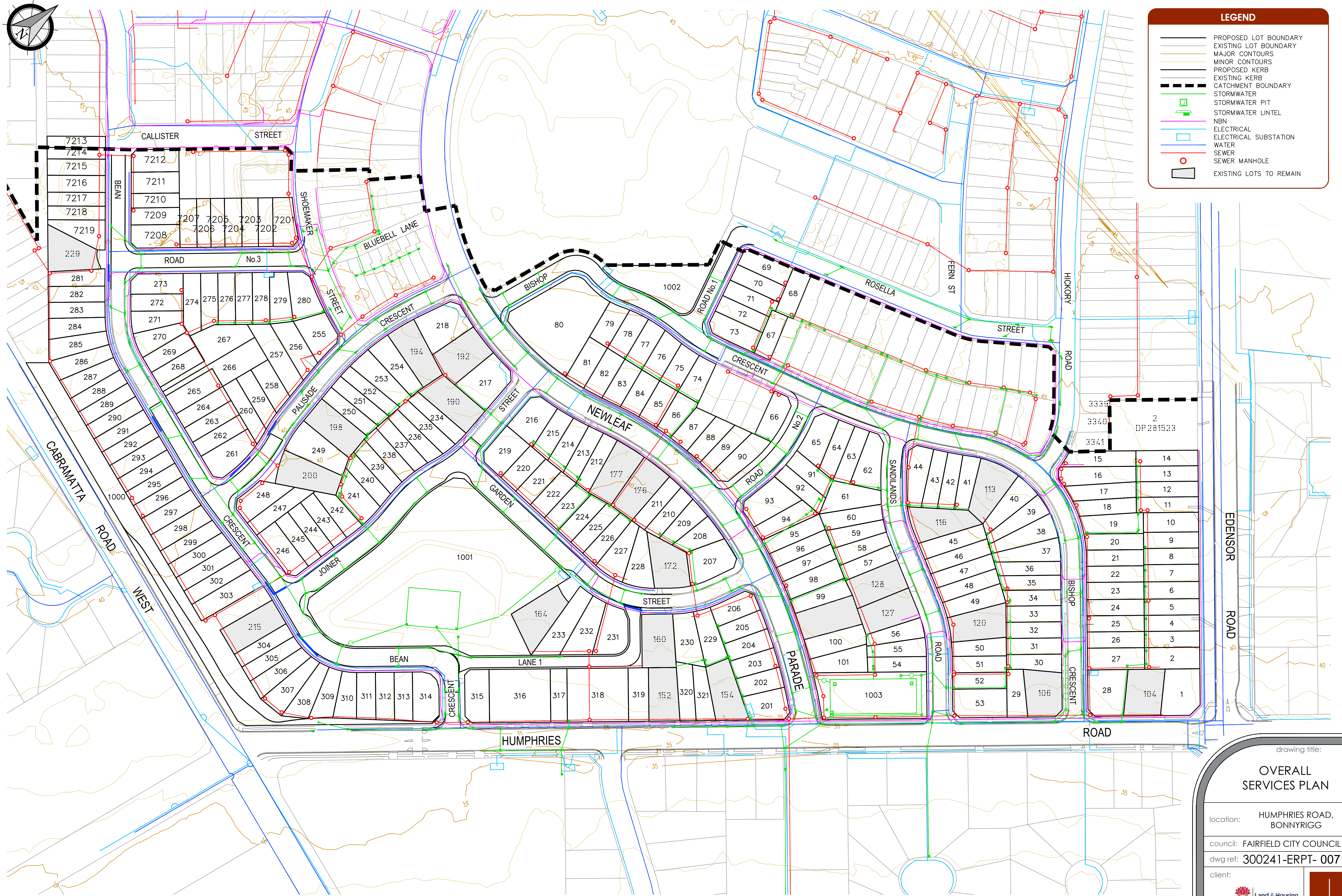
DRAWING TITLE:
256 LOTS SUBDIVISION - PIT & PIPE PROJECT
HUMPHRIES ROAD, BONNYRIGG
CONCEPT DESIGN ONLY
STAGE 1, 2 & 7B

ENABLED:

STATE: NSW	REGION:	
FSA:	SAM:	ADA:
PROJECT No:	STG-W000???	
CADREF No:	PN 35577-C	
SCALE N/A	SHEET No. 2 OF 2	REV. B

Appendix E

COMBINED SITE SERVICES PLANS



ver.	date	comment	drawn	pm	level information	scale (A1 original size)
B	20.10.20	CLIENT COMMENTS	MH	JY	DATUM: N/A CONTOUR INTERVAL: 1.0m	<div> <div>0</div> <div>25</div> <div>50m</div> </div> <div> <div>A1</div> <div>1:1000</div> <div>A3</div> <div>1:2000</div> </div>

● project management ● civil engineering ● infrastructure ● superintendency ● social impact ● town planning ● surveying ● development feasibility ● visualisation ● urban design

drawing title:

OVERALL SERVICES PLAN

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

dwg ref: 300241-ERPT- 007

client:

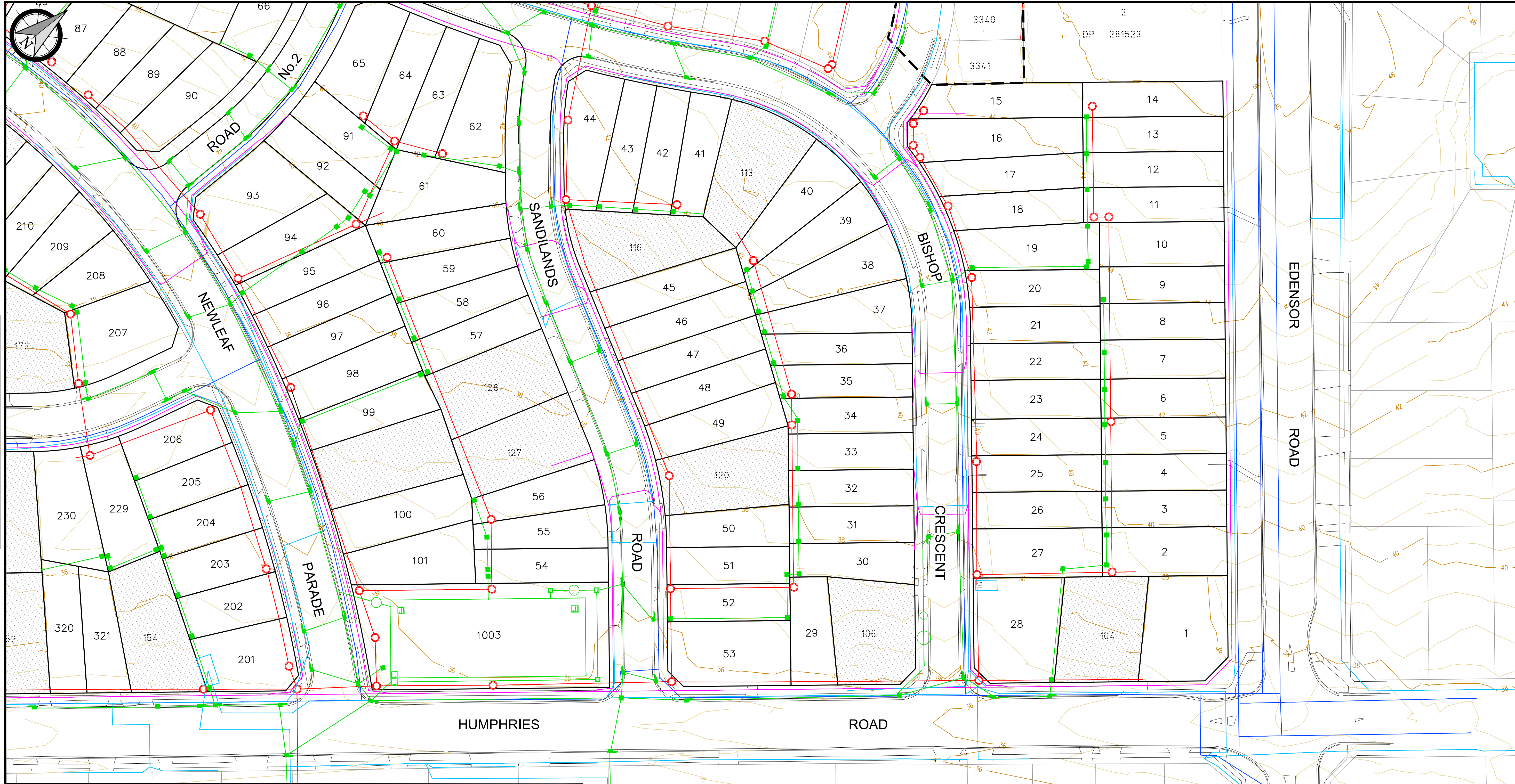


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hunter office ph: (02) 4978 5100
sydney office ph: (02) 8046 7411

www.adwjohnson.com.au

REFER TO SHEET 009 FOR CONTINUATION OF PLAN

REFER TO SHEET 010 FOR CONTINUATION OF PLAN



LEGEND

- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- CATCHMENT BOUNDARY
- STORMWATER
- STORMWATER PIT
- STORMWATER LINEL
- NBN
- ELECTRICAL
- ELECTRICAL SUBSTATION
- WATER
- SEWER
- SEWER MANHOLE
- EXISTING LOTS TO REMAIN



ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
B	20.10.20	CLIENT COMMENTS	MH	JY	DATUM: N/A CONTOUR INTERVAL: 0.5	A1 1:500 0 12.5 25.0 A3 1:1000	
• project management • civil engineering • infrastructure • superintendency • social impact • town planning • surveying • development feasibility • visualisation • urban design							

drawing title:

PROPOSED SERVICES PLAN

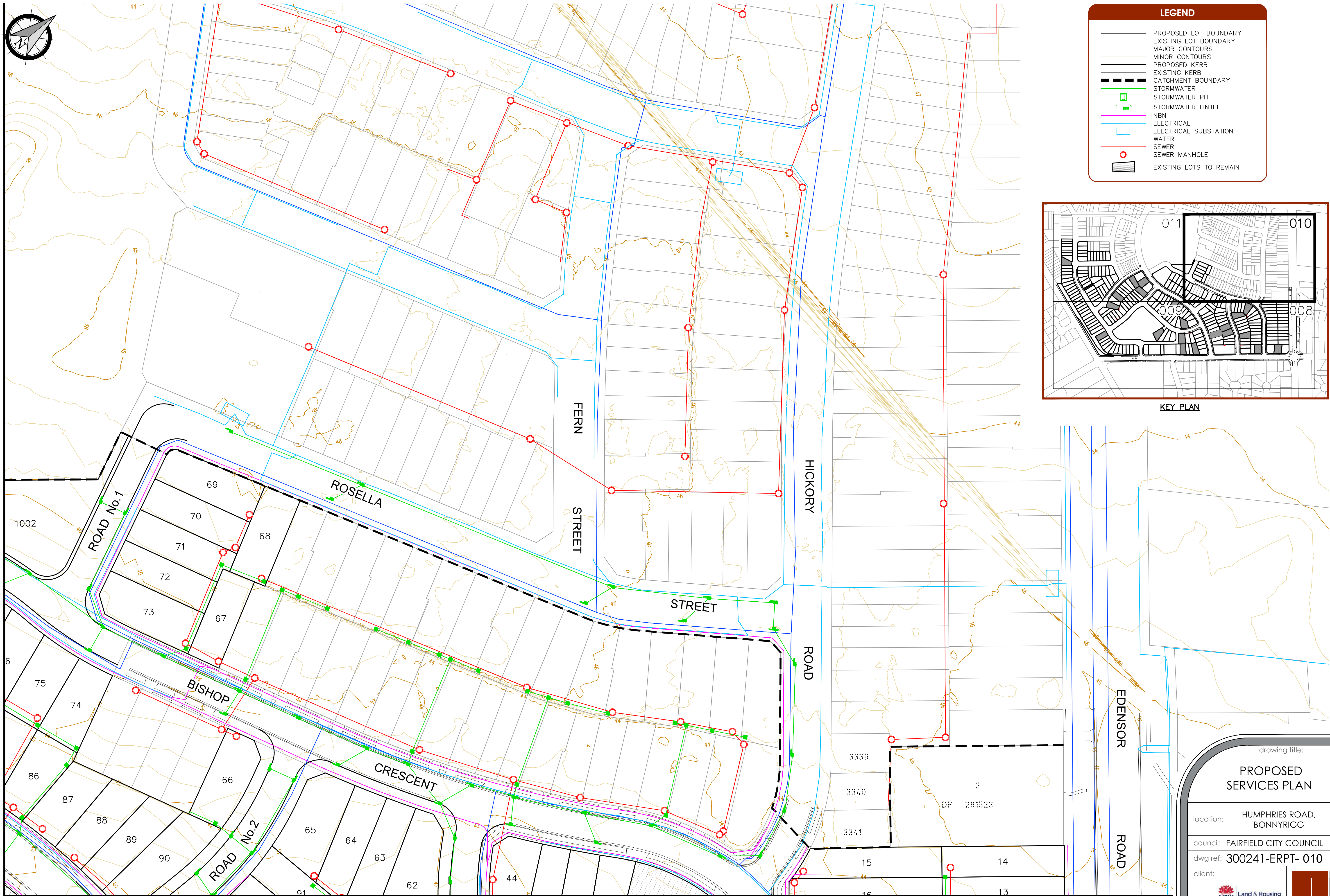
location: HUMPHRIES ROAD, BONNYRIGG

council: FAIRFIELD CITY COUNCIL

dwg ref: 300241-ERPT- 008

client:

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ver.	date	comment	drawn	pn	level information	scale (A1 original size)
B	20.10.20	CLIENT COMMENTS	MH	JY	DATUM: N/A CONTOUR INTERVAL: 0.5	<div> <div>0</div> <div>12.5</div> <div>25.0m</div> <div>A1 1:500</div> <div>A3 1:1000</div> </div>

REFER TO SHEET 008 FOR CONTINUATION OF PLAN

- project management
- civil engineering
- infrastructure
- superintendency
- social impact
- town planning
- surveying
- development feasibility
- visualisation
- urban design

rawing title:

PROPOSED SERVICES PLAN

location: HUMPHRIES ROAD,
BONNYRIGG

council: FAIRFIELD CITY COUNCIL

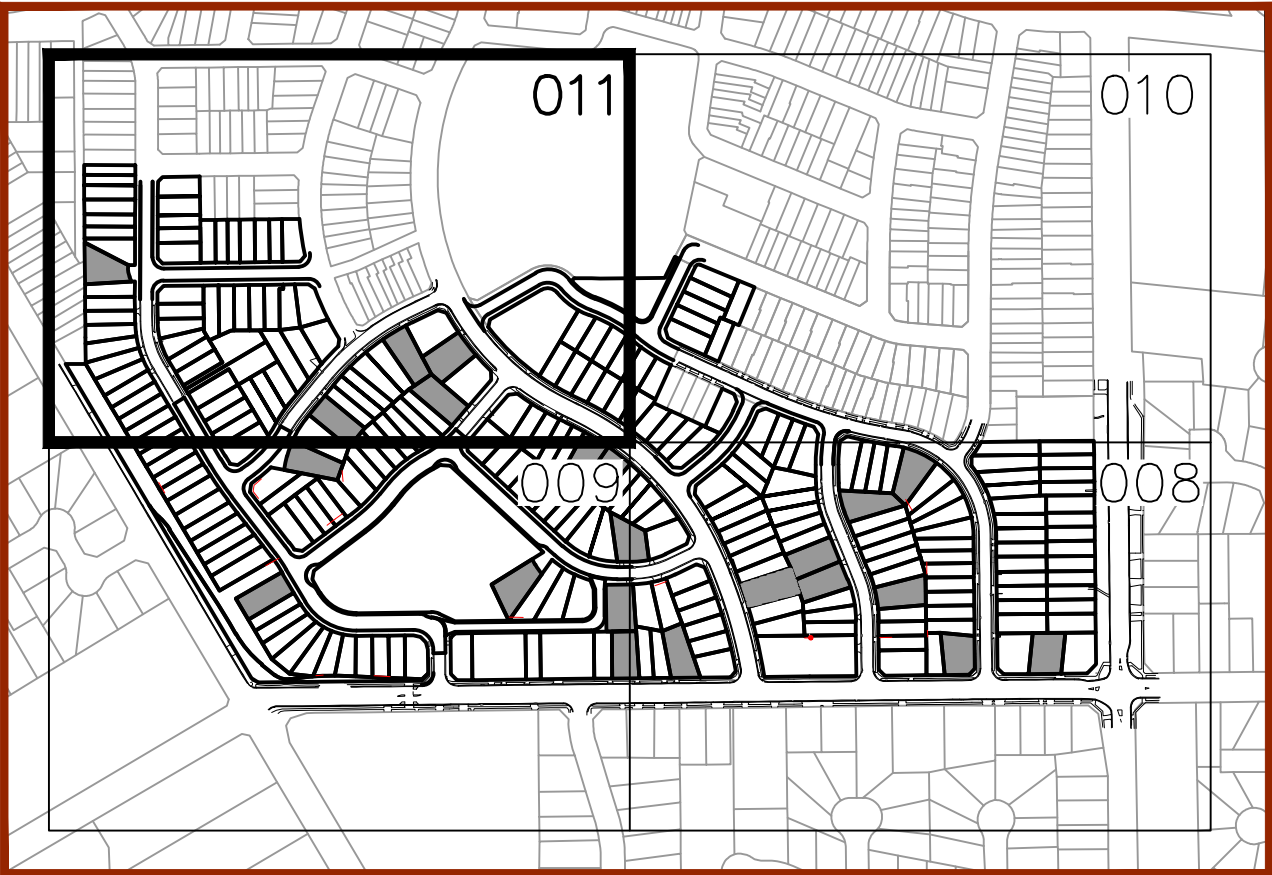
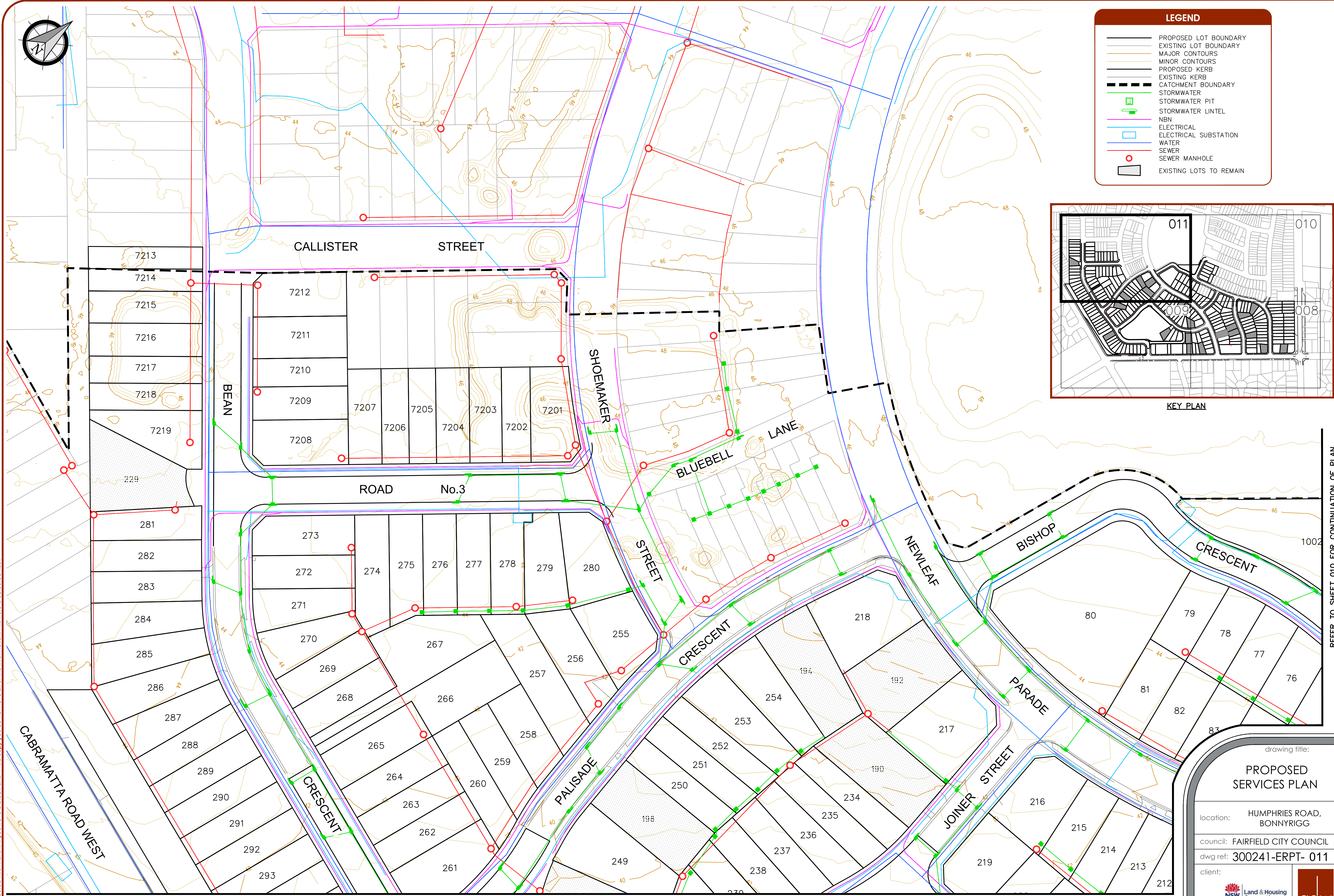
dwg ref: 300241-ERPT- 010

client:



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KEY PLAN

REFER TO SHEET 009 FOR CONTINUATION OF PLAN

REFER TO SHEET 010 FOR CONTINUATION OF PLAN

ver.	date	comment	drawn	pm	level information	scale (A1 original size)	notes
B	20.10.20	CLIENT COMMENTS	MH	JY	DATUM: N/A CONTOUR INTERVAL: 0.5	A1 1:500 0 12.5 25.0m A3 1:1000	

- project management
- civil engineering
- infrastructure
- superintendency
- social impact
- town planning
- surveying
- development feasibility
- visualisation
- urban design

drawing title:

PROPOSED SERVICES PLAN

location: HUMPHRIES ROAD, BONNYRIGG
council: FAIRFIELD CITY COUNCIL
dwg ref: 300241-ERPT- 011
client:



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