

BLUE BARN

C O N S U L T I N G E N G I N E E R S

666 GREAT SOUTH ROAD ELLERSLIE

Engineering Infrastructure Report

Date:

August 28, 2019

Document Number:

LD-1964-RP-2320

Prepared by:

Blue Barn Consulting Limited

Prepared for:

CP Auckland LP

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The following table outlines the revision history of this document:

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Revision 1	28/08/2019	Final Version

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CP Auckland LP

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28/08/2019

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1. INTRODUCTION

1.1 PURPOSE

Blue Barn Consulting Engineers (Blue Barn) have been engaged by CP Auckland LP to provide an infrastructure report for 666 Great South Road, Ellerslie. The report will be used to accompany a private plan change application to rezone the property from its current Business Park Zone to a Business Mixed Use Zone that would allow for intensive residential apartment development.

This Report is based on publicly available information including: Auckland Council's GeoMaps; beforeUdig; NZ Geological Maps and consultation with Tattico.

Based on the above information, the Report provides comment on the existing infrastructure within and adjacent to the site, the likely impact of rezoning the land on infrastructure capacity and identifies any potential issues that may need to be addressed during future development of the site, specifically:

- Storm Water
- Flooding
- Wastewater
- Water Supply
- Vehicle Access, and
- Earthworks

1.2 SITE

Our client's site is located at 666 Great South Road, Ellerslie. The site is subject to a resource consent for subdivision that is currently being considered by Council. The subject site is shown as Lot 15 on a scheme plan for the subdivision application. This subdivision is shown on the Harrison Grierson plan 142506-RC01 Rev G included in Appendix A.

The legal description of the site is Part Lot 1 DP 126867, comprised in RT NA74A/263.

The site is in two levels as shown on the topographical plan included as Appendix B. It is currently largely used as an at grade carpark by the users of the business park and includes a small commercial operation in the middle of the site.

1.3 THE PROPOSAL

The details of the proposed plan change are set out in the application, but basically, a plan change is proposed to rezone the land to Business Mixed Use to enable the development of residential activity on the site with supporting commercial services and retail activities.

Currently there is no definitive proposal for residential development of the site, however some initial masterplanning suggests the site can yield around in excess of 500 residential apartments with a mixture of apartment sizes. Consistent with the Business – Mixed Use Zone, any buildings are likely to be a variety of commercial and amenity activities on the ground floor and residential activities on the upper floors.

2. STORMWATER

2.1 EXISTING STORMWATER

Stormwater from a sizable catchment to the northern side of the SH1 motorway passes underneath the motorway and the main trunk railway line and into an open drain that discharges into a series of three subsurface detention basins line lie beneath the CP Auckland LP property. One of these basins lies beneath the subject site and is shown as Detention Basin 1 on the plan in Appendix D. Although the various detention basins are shown on Auckland Council's GIS as public assets, advice received from Healthy Waters at a pre application meeting on 23 August 2018 was that they are in fact private, with the landowner responsible for maintenance and for the regular removal of silt.

There is an outlet from the third detention basin that passes under the Ellerslie-Panmure highway on/off ramp and under Great South Road where piped drains ultimately discharge to the Manukau Harbour.

There are three public soakholes located on the private roadway that extends from the end of Sultan Street. These are currently maintained by Auckland Transport.

The extent of the Council's public stormwater system is shown on the attached GIS Plan included in Appendix D.

Surface runoff from the existing carpark areas within the site is collected by catchpits that discharge to Detention Basin 1 beneath the upper carpark.

2.2 PROPOSED STORMWATER RETICULATION

It is proposed to maintain the status quo and direct all stormwater from future development on the site via a new piped reticulation system into the open channel that runs along the eastern boundary of the site adjacent to the railway, upstream of Detention Basin 1. As the site is currently 100% impervious there will be no increase in stormwater flows from the site in the post development scenario. An indicative concept sketch of the proposed stormwater reticulation is included in Appendix E.

An Operations and Maintenance Plan for Detention Pond 1 will need to be prepared for the pond which will include provision for the collection and disposal of debris and sediment to maintain the effectiveness off the detention basin. This will be done as part of the overall subdivision of the Central Park Site.

Any reduction in storage volume in the detention basin due to additional piles or piped infrastructure would need to be mitigated by the creation of further storage volume in the basin.

2.3 EXISTING FLOODING

The Council GIS indicates that all of the subject site as being flood prone. Healthy Waters have had a updated flood model prepared by Tonkin and Taylor for the catchment including the subject site. This model allows for the maximum probable development in the catchment (noting that the subject site will create no further impact on the flood model as there is no increase to the impervious area) and has been adjusted for climate change. There are a number of historical overland flowpaths shown on the Council GIS. The topographical plan included in Appendix B clearly shows that a number of these have been superceded by the existing piped and open channels that on and adjacent to the site.

The 100 year ARI model results indicate that the maximum flood depth in the channel along the eastern boundary of the site will be 1.87m.

It also indicates that the maximum flood level will be around 22.67m for the majority of the site with a peak of 24.00 m along the northern boundary with Sultan St. This level is just below the general level of the upper at grade carpark area. Minimum floor levels for any future development will need to be established above the maximum flood level pursuant to the requirements Chapter E36 Natural Hazards and Flooding of the Auckland Unitary Plan.

The Council GIS Flood Hydrology map together with the results of the 2018 Tonkin & Taylor Flood Modelling are included in Appendix F

3. WASTEWATER

3.1 EXISTING WASTEWATER

There is an existing 225mm diameter public wastewater line that crosses the site that serves the adjacent catchment to the northwest. This line enters Lot 15 (the subject site) opposite the common boundary between Lots 13 and 16 and discharges to the Watercare Services Ltd (WSL) transmission manhole 18644 adjacent to the eastern boundary of the site. A DN600 RC transmission line runs from this manhole to the south along the eastern boundary of the site then crosses the Ellerslie-Panmure Highway on/off ramp.

WSL have confirmed that they have not identified any capacity issues with the DN600 transmission line although that have identified that there may be some upstream local capacity issues. These may need to be quantified at resource consent/EPA stage by a detailed catchment analysis which would confirm any upgrading requirements for the local network.

The WSL existing wastewater network is shown in Appendix G.

3.2 PROPOSED WASTEWATER

Future development of the site can be served with local reticulation connected to the local public manhole adjacent to transmission manhole 18644 to minimise the impact of additional wastewater flows on the existing 225mm diameter EW local wastewater line. This will minimise the extent of any local reticulation upgrading works that may be required.

An indicative concept plan for the proposed wastewater reticulation is included as Appendix H.

4. WATER SUPPLY

4.1 EXISTING WATER SUPPLY

An existing 200mm diameter watermain runs along the eastern side of Sultan St and extends southwards along the eastern boundary of the subject site to cross underneath the NIMT railway line and SH1 opposite Cawley St. There is also a 100mm diameter AC watermain that runs parallel to the 200mm main along the lower portion of the site.

Fire hydrants are located on the site on both the 100 and 200 watermains and also in Sultan St in close proximity to the subject site.

The existing water supply reticulation is shown in Appendix I.

WSL have indicated at a meeting on 23 August 2018 that there were no issues with respect to providing an adequate level of water supply service future development of the site. In accordance with WSL's standard requirements, hydrant flow tests would be required as part of a resource consent application

4.2 PROPOSED POTABLE WATER SUPPLY

An extension to the existing public water supply network will be required to serve future development. Any extension to the public reticulation through the private roadways that provide access to the various lots on the Harrison Grierson subdivision plan will require easements in favour of WSL. This will include servicing to Lot 15, the subject site.

Should any extension to the existing water supply network be private then appropriate metering arrangements will need to be made by the respective owners of the lots including Lot 15.

4.3 PROPOSED WATER SUPPLY FIRE FIGHTING

Future development of the site for residential purposes would need to meet the New Zealand Fire Service Firefighting Water Supplies Code of Practice Table 1. The firefighting requirements for residential activity is classified as FW3, requiring three fire hydrants providing a flow of 25 l/s within 135m of each apartment block and an additional flow of 25 l/s within 270m of each apartment block.

As mentioned in Section 4.1 above there are existing hydrants located on the water mains within the site and further hydrants in Sultan St adjacent to the site. The water supply network will be extended into the site as required and hydrants will be installed to meet the requirements of the FW3 fire classification.

5. UTILITIES

5.1 POWER AND TELECOMMUNICATIONS

Power and Telecommunications service are able to be supplied to future development of the site by connecting to the existing infrastructure located within the existing private roading network and the adjacent Sultan St. There is a 11kv underground line the runs to a transformer located opposite the subject site on the future Lot 6 on the subdivision plan.

Both power and telecommunication services can be readily extended through the site to service future development, including residential apartment blocks.

5.2 GAS

Vector Gas have confirmed that there is piped gas reticulation in Great South Road. AMP2 100mmPE line runs up the eastern side of the road with connections to the Central Park Business Centre. We understand that private gas services do exist within the overall site but we have not sighted any As Built plans for these.

The Before-U-Dig gas reticulation plans show a 75mm CI gas main running from Sultan St to the roundabout by the subject site and then crossing the site to the east. We believe this main is redundant as there is no pressure indicated on the As Built plans.

The gas supply can be readily extended to service the proposed development on the subject site.

Before -U -Dig As Built plans for the various utility services are included in Appendix J.

6. ROADING AND ACCESS

Access to the development on what is shown as Lot 15 on the scheme plan of subdivision will be from the existing private roading network that will be retained in private ownership with Rights of Way being created in favour of the various lots that will be created. This roading network links Sultan St with Great South Road with access to Great South Road via signalised intersection.

7. EARTHWORKS

7.1 PROPOSED EARTHWORKS

For any future development of the site, any disturbance to the land will likely be for piling foundation purposes and for the laying of piped reticulation for the various utility services and subject to the land disturbance standards in E11 and E12 of the Auckland Unitary Plan.

7.2 EROSION AND SEDIMENT CONTROL

For any land disturbance works Erosion and Sediment Control measures will be adopted in accordance with Auckland Council Guideline document 2016/05 - *“Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region”* to minimise adverse effects during the construction period.

8. SUMMARY

Following our preliminary infrastructure study, the proposal to rezone the site from Business Park to Business Mixed Use is considered feasible from an engineering perspective through the provision of stormwater, wastewater, utilities, water supply and access in accordance with relevant Unitary Plan requirement, Engineering Standards and Construction Good Practice.

Mitigation of the effects of earthworks, if required and civil construction are able to be practically undertaken. Erosion and sediment control measures in accordance with GD-05 will be implemented if any land disturbance activities are undertaken to mitigate the effects of sediment laden run off from earthworks.

The site currently discharges stormwater to the open channel that runs along the eastern boundary of the site and to the subsurface detention area beneath the high level carpark via catchpits.

This detention area, which is an integral part of a three detention pond system that services a large upstream catchment on the eastern side of the motorway will require an Operation and Maintenance Plan to be prepared for the removal of silt and debris to ensure that it remains effective.

The site is almost all shown as Flood Prone on the Council GIS. Tonkin & Taylor have recently modelled the Flood Hazard Mapping for the catchment including the effects of climate change and these results have confirmed that the maximum flood level in the 100year ARI storm event is below the level of the upper carpark.

An existing WSL 600mm diameter wastewater transmission line runs along the eastern boundary of the site. Any development on the site can be serviced by new gravity reticulation that will ultimately discharge to this transmission line. Depending on the point of connection to the existing local network upstream of the transmission line, some upgrading of the existing reticulation may be required.

Existing public water supply is available on the site that can be readily extended to service any new development on the subject site. These will be extended to provide a potable water supply and to provide a fire-fighting supply to NZ Fire Service requirements.

Power and Telecommunications service are able to be supplied to the development by connecting to the existing infrastructure located within the private road network that currently exists within the Central Park Business Centre.

9. LIMITATIONS

1. Except where required by law, the findings presented as part of this report are for the sole use of our client, as noted above. The findings are not intended for use by other parties and may not contain sufficient information for the purposes of other parties or other uses. No third party (excluding the local authority) may use or rely upon this report unless authorised by Blue Barn in writing.
2. This Report has been prepared solely for CP Auckland LP to support a Private Plan Change and should not be relied upon in any other context or for any other purpose.
3. Blue Barn will not be held liable to any Third Parties.

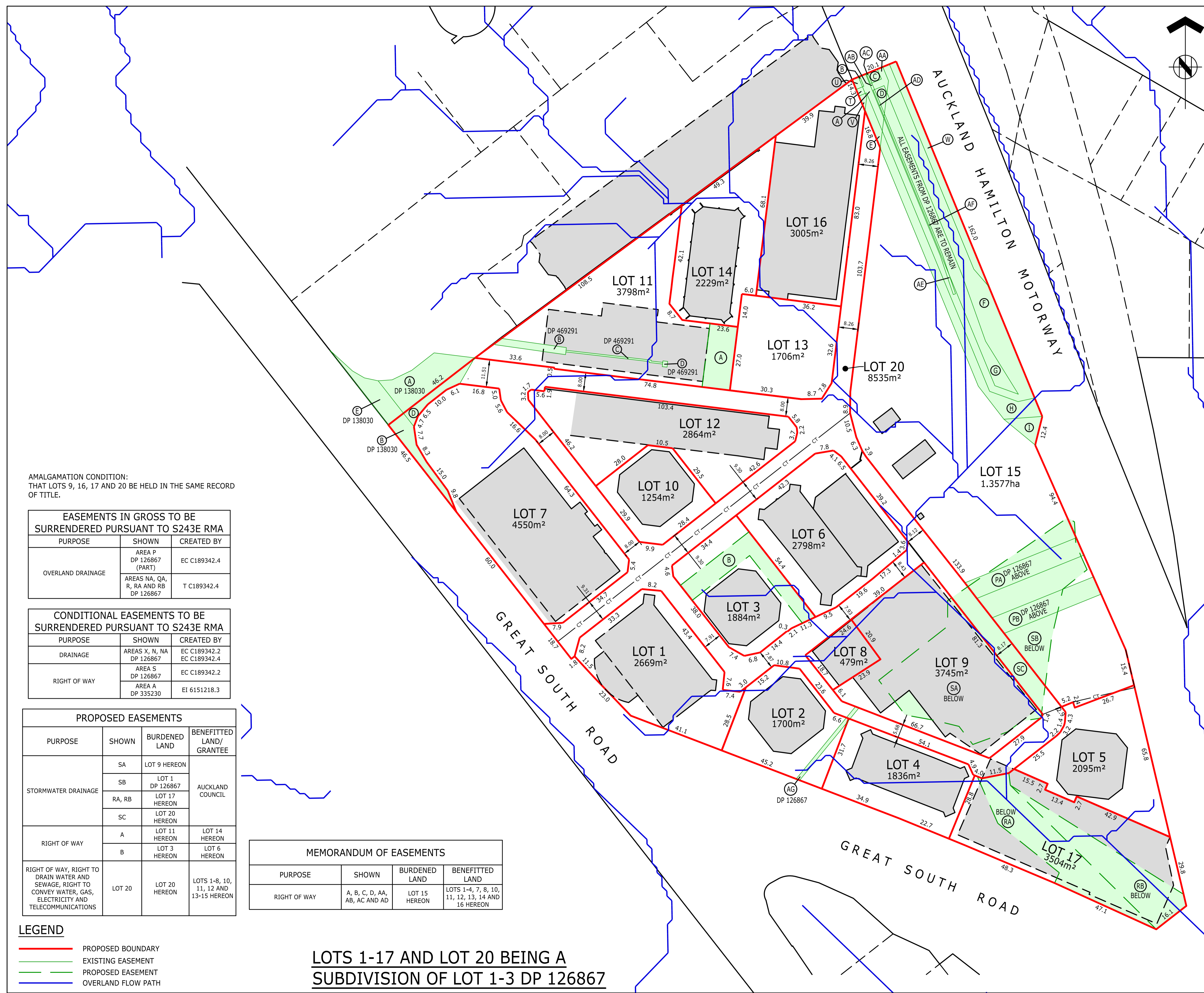
APPENDIX A – CENTRAL BUSINESS PARK SUBDIVISION PLAN

(Refer Harrison Grierson- Subdivision Plan 142506-RC01 Rev G Dated 2 July 2019)

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- BOUNDARIES SHOWN ON THIS PLAN SURVEYED. A BOUNDARY DEFINITION SURVEY SHOULD BE CARRIED OUT TO ESTABLISH EXACT BOUNDARY POSITIONS ON SITE.
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- THIS PLAN HAS BEEN PREPARED FOR RESOURCE CONSENT PURPOSES ONLY. NO DETAILED DESIGN SHOULD BE UNDERTAKEN UTILISING THIS DATA.
- BOUNDARY BEARINGS AND DISTANCES AND AREAS SHOWN ARE SUBJECT TO A FULL LEGAL SURVEY AND APPROVAL BY LAND INFORMATION NZ.
- LEGAL DESCRIPTION
 LOTS 1-3 DP 126867
 COMPRISED IN RT's NA74A/263, NA74A/264 AND NA74A/265
 TOTAL AREA 4.7620ha



AMALGAMATION CONDITION:
 THAT LOTS 9, 16, 17 AND 20 BE HELD IN THE SAME RECORD OF TITLE.

EASEMENTS IN GROSS TO BE SURRENDERED PURSUANT TO S243E RMA		
PURPOSE	SHOWN	CREATED BY
OVERLAND DRAINAGE	AREA P DP 126867 (PART)	EC C189342.4
	AREAS NA, QA, R, RA AND RB DP 126867	T C189342.4

CONDITIONAL EASEMENTS TO BE SURRENDERED PURSUANT TO S243E RMA		
PURPOSE	SHOWN	CREATED BY
DRAINAGE	AREAS X, N, NA DP 126867	EC C189342.2 EC C189342.4
RIGHT OF WAY	AREA S DP 126867	EC C189342.2
	AREA A DP 335230	EI 6151218.3

PROPOSED EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	BENEFITTED LAND/GRANTEE
STORMWATER DRAINAGE	SA	LOT 9 HEREON	AUCKLAND COUNCIL
	SB	LOT 1 DP 126867	
	RA, RB	LOT 17 HEREON	
	SC	LOT 20 HEREON	
RIGHT OF WAY	A	LOT 11 HEREON	LOT 14 HEREON
	B	LOT 3 HEREON	LOT 6 HEREON
RIGHT OF WAY, RIGHT TO DRAIN WATER AND SEWAGE, RIGHT TO CONVEY WATER, GAS, ELECTRICITY AND TELECOMMUNICATIONS	LOT 20	LOT 20 HEREON	LOTS 1-8, 10, 11, 12 AND 13-15 HEREON

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	BENEFITTED LAND
RIGHT OF WAY	A, B, C, D, AA, AB, AC AND AD	LOT 15 HEREON	LOTS 1-4, 7, 8, 10, 11, 12, 13, 14 AND 16 HEREON

LOTS 1-17 AND LOT 20 BEING A SUBDIVISION OF LOT 1-3 DP 126867

- LEGEND**
- PROPOSED BOUNDARY
 - EXISTING EASEMENT
 - PROPOSED EASEMENT
 - OVERLAND FLOW PATH

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 PARNELL AUCKLAND 1052
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REF	REVISIONS	BY	DATE
G	LOT 12 ADDED TO EASEMENT SCHEDULE, FLOODING REMOVED	RBH	02.07.19
F	EASEMENT SCHEDULE AMENDED	RBH	14.06.19
E	FLOOD MAP ADDED	RBH	09.04.19
D	AMALGAMATION CONDITIONS AND EASEMENTS ALTERED	RBH	25.02.19
C	AMALGAMATION CONDITIONS & EASEMENTS ADDED	AJP	18.02.19
B	AREAS FINALISED	RBH	18.01.19
A	RESOURCE CONSENT	RBH	20.12.18

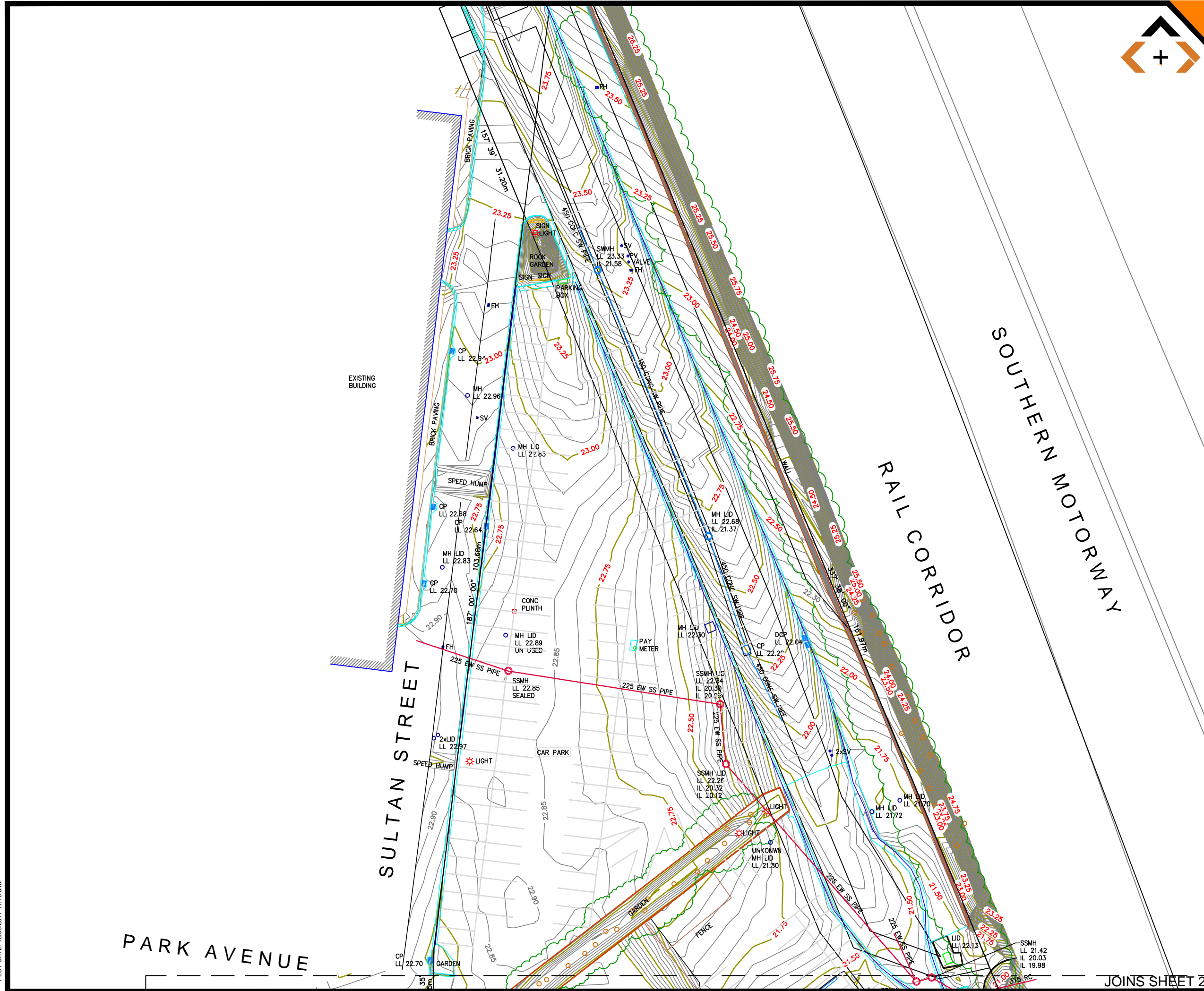
PROJECT:
**CP AUCKLAND LP
 CENTRAL PARK BUSINESS CENTRE
 660-670 GREAT SOUTH RD PENROSE**

TITLE:
PROPOSED SUBDIVISION

ORIGINATOR:	AJP	DATE:	15.08.18	SIGNED:		PLOT BY:	HSJ
DRAWN:	HSJ	DATE:	19.12.18	SIGNED:		PLOT DATE:	02.07.19
CHECKED:	RBH	DATE:	02.07.19	SIGNED:		SURVEY BY:	
APPROVED:	RBH	DATE:	02.07.19	SIGNED:		SURVEY DATE:	

ISSUE STATUS:		
PROJECT No:	SCALES:	
1030-142506-01	1:750-A1 1:1500-A3	A1
DRAWING No:		REV
142506-RC01		G

APPENDIX B – TOPOGRAPHICAL PLAN



SURVEYED	SWX	19.10.2017	APPROVED	DATE
DESIGNED				
DRAWN	MC/LK	26.10.2017		
CHECKED				
APPROVED				
REVISION	CHANGES	CHECKED	DATE	
0	ORIGINAL ISSUE	MC	26.10.17	

NOTES:

BEARING AND COORDINATE DATUM IS GEODETTIC 2000
 ORIGIN IS 16 MT. EDEN 800 000 mN, 400 000 mE
 PROJECTION IS TRANSVERSE MERCATOR TO OBTAIN
 PROJECTION DISTANCES MULTIPLY BY 0.9999

LEVELS ARE IN TERMS OF LANDS AND SURVEY
 DATUM (MSL) AUCKLAND 1946

SURVEY ORIGIN
 RM 7482 (SO54432)
 797534.41mN, 403772.46mE
 RL 27.34m
 (AUCKLAND VERTICAL DATUM 1946)

Trimble

SURVEY EQUIPMENT USED:
 INSTRUMENT: TRIMBLE ROBOTIC S8 1"
 GPS: TRIMBLE R6/R8 SYSTEMS
 PRECISE LEVELLING: TRIMBLE DINi Series 0.3mm DIGITAL
 VERTICAL PLUMMING: FOIF DZJ2 LASER PLUMMIT

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CLIENT

KPMG

PROJECT

660-670 GREAT SOUTH ROAD

TITLE

TOPOGRAPHICAL SITE SURVEY AS 20.10.2017

SCALE	1:250 (A1)	1:500 (A3)
DRAWING No	2274-705-01	REVISION
SHEET	1 of 3	0

PLOT DATE: 10/30/2017 11:16 a.m.

JOINS SHEET 2



REFER TO SHEET 3
FOR DETAIL BELOW
GROUND LEVEL

SURVEYED	SWX	19.10.2017	APPROVED	DATE
DESIGNED				
DRAWN	MC/LK	26.10.2017		
CHECKED				
APPROVED				
REVISION	CHANGES	CHECKED	DATE	
0	ORIGINAL ISSUE	MC	26.10.17	

NOTES:

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PROJECTION DISTANCES MULTIPLY BY 0.9999

LEVELS ARE IN TERMS OF LANDS AND SURVEY
DATUM (MSL) AUCKLAND 1946

SURVEY ORIGIN
RM 7482 (SO54432)
797534.41mN, 403772.46mE
RL 27.34m
(AUCKLAND VERTICAL DATUM 1946)

TRIMBLE

SURVEY EQUIPMENT USED:
INSTRUMENT: TRIMBLE ROBOTIC S8 1"
GPS: TRIMBLE R6/R8 SYSTEMS
PRECISE LEVELLING: TRIMBLE DINi Series 0.3mm DIGITAL
VERTICAL PLUMMING: FOIF DZJ2 LASER PLUMMIT

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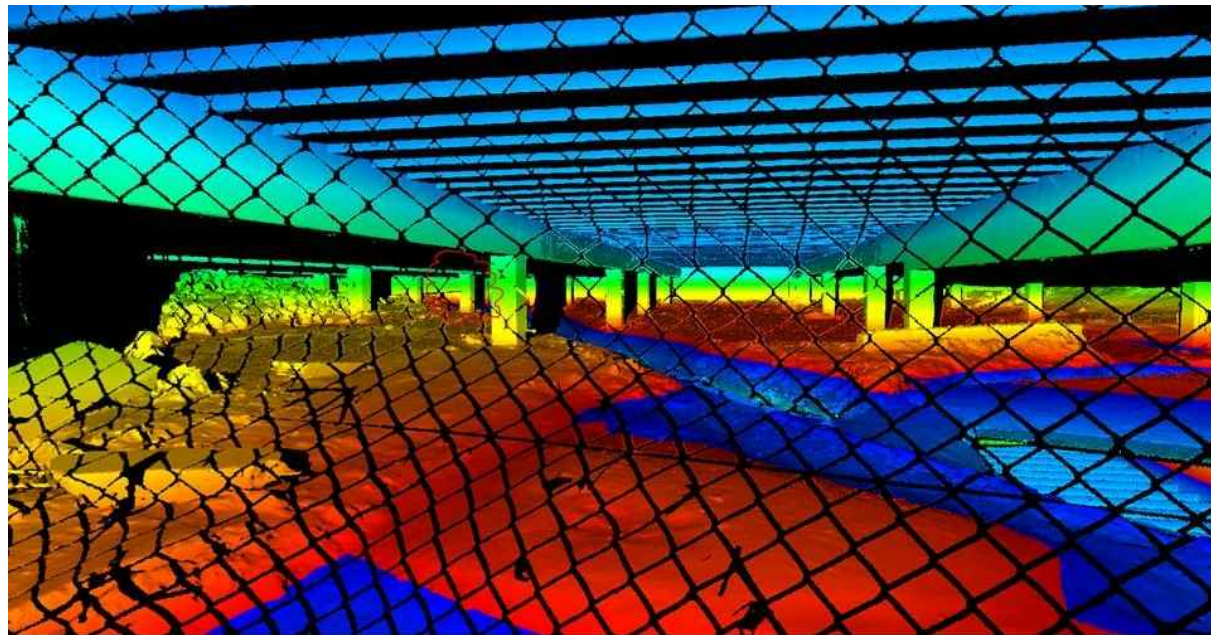
CLIENT
KPMG

PROJECT
660-670 GREAT SOUTH ROAD

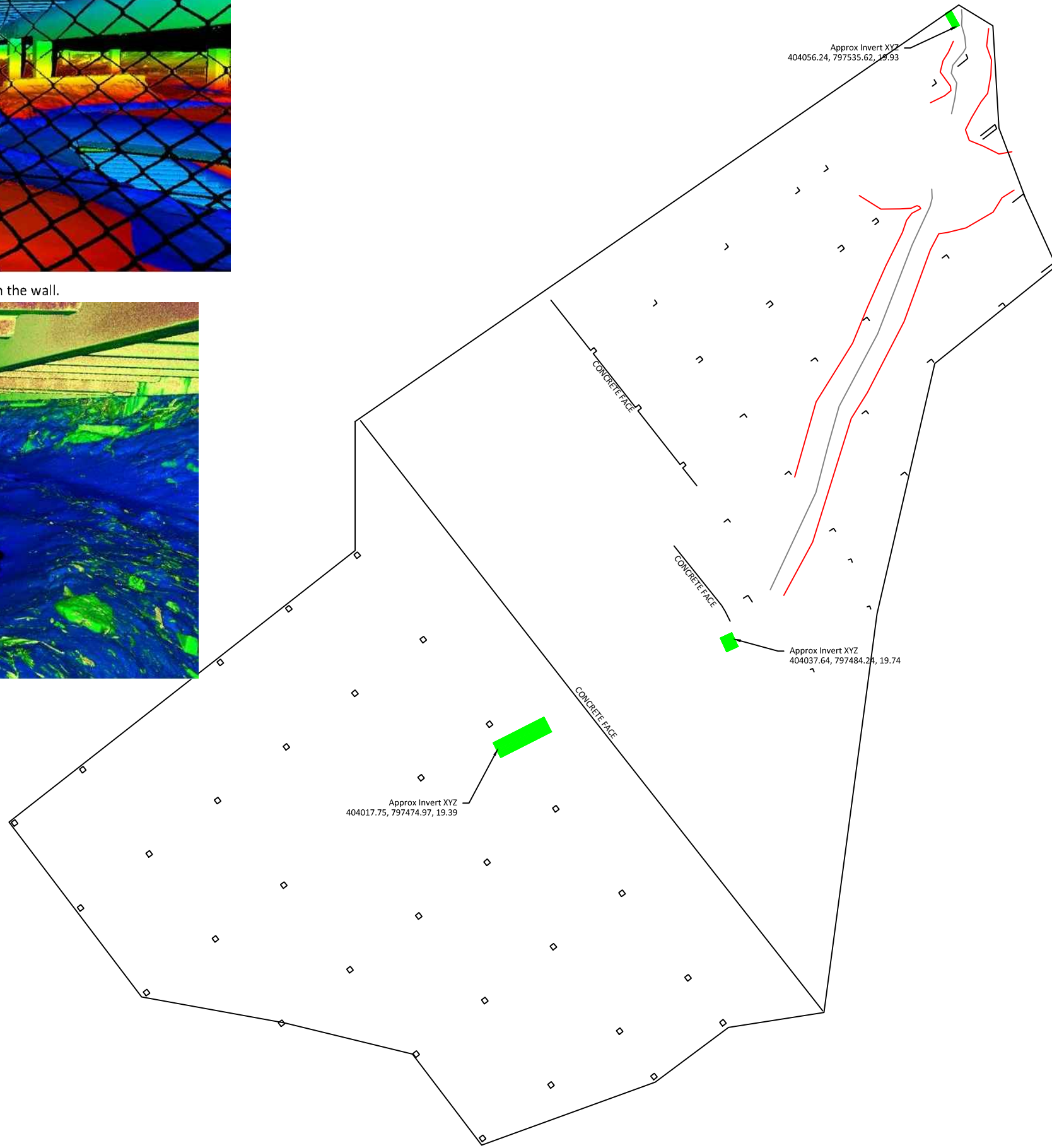
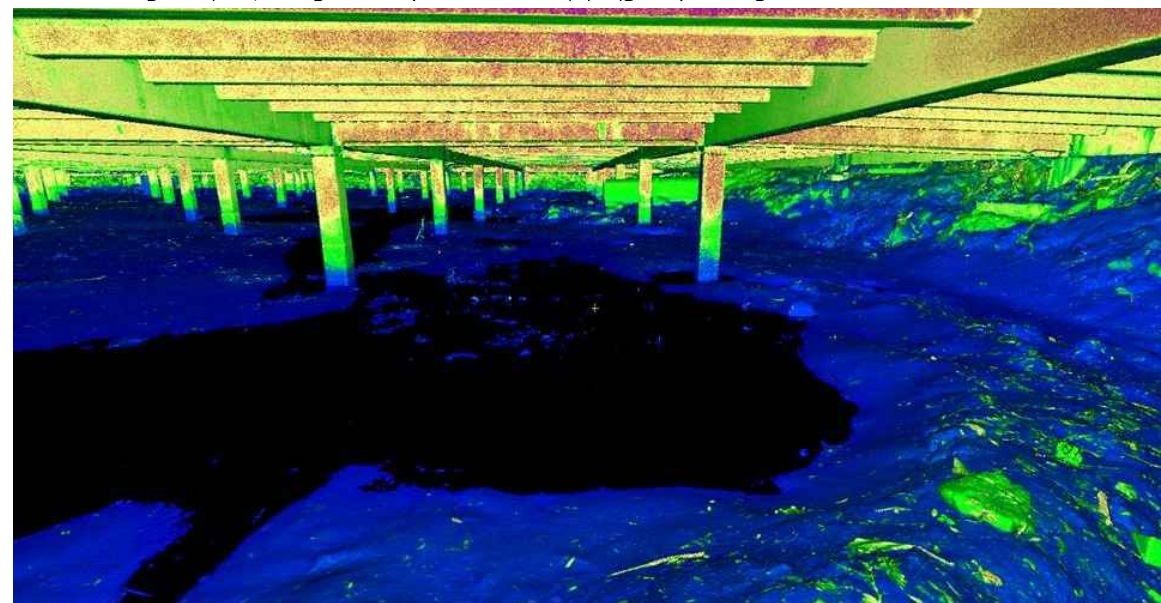
TITLE
TOPOGRAPHICAL SITE SURVEY AS 20.10.2017

SCALE	1:250 (A1)	1:500 (A3)
DRAWING No	2274-705-01	
SHEET	2 of 3	
REVISION		0

The development land carpark, facing West – the outlet is located in the red cloud.



Under building 9 carpark, facing North – you can see the pipe (green) sticking out from the wall.



SURVEYED	RC	19.10.2017	APPROVED	DATE
DESIGNED				
DRAWN	RC	26.10.2017		
CHECKED				
APPROVED				
REVISION	CHANGES		CHECKED	DATE
0	ORIGINAL ISSUE		MC	26.10.17

NOTES:

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PROJECT
660-670 GREAT SOUTH ROAD

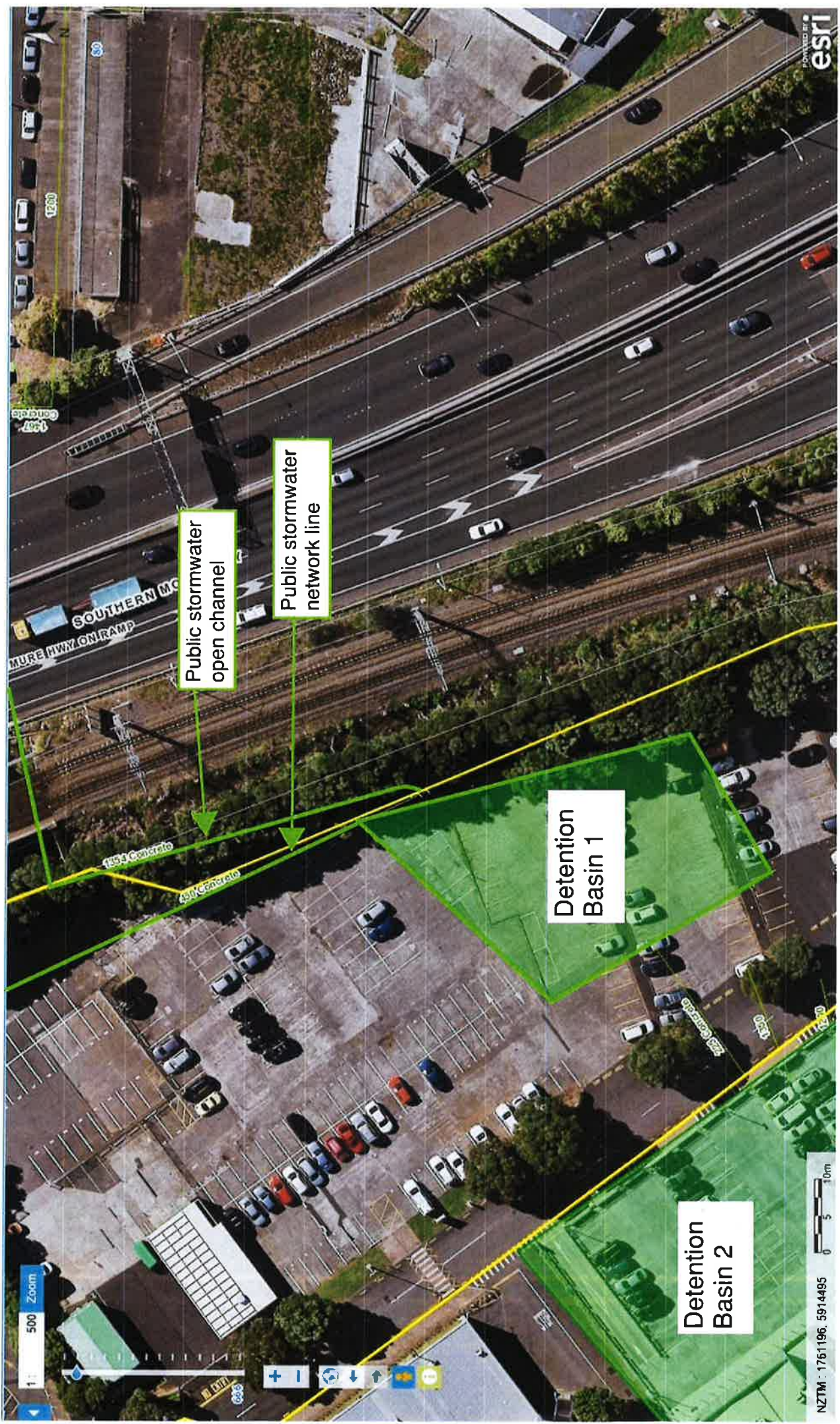
TITLE
TOPOGRAPHICAL SITE SURVEY
AS 20.10.2017
UNDER CARPARK SCAN

SCALE 1:200 (A1) 1:400 (A3)

DRAWING No 2274-705-01 **SHEET** 3 of 3 **REVISION** 0

PLOT DATE: 10/30/2017 10:58 a.m.

APPENDIX C – AUCKLAND COUNCIL STORMWATER GIS



Public stormwater open channel

Public stormwater network line

Detention Basin 1

Detention Basin 2



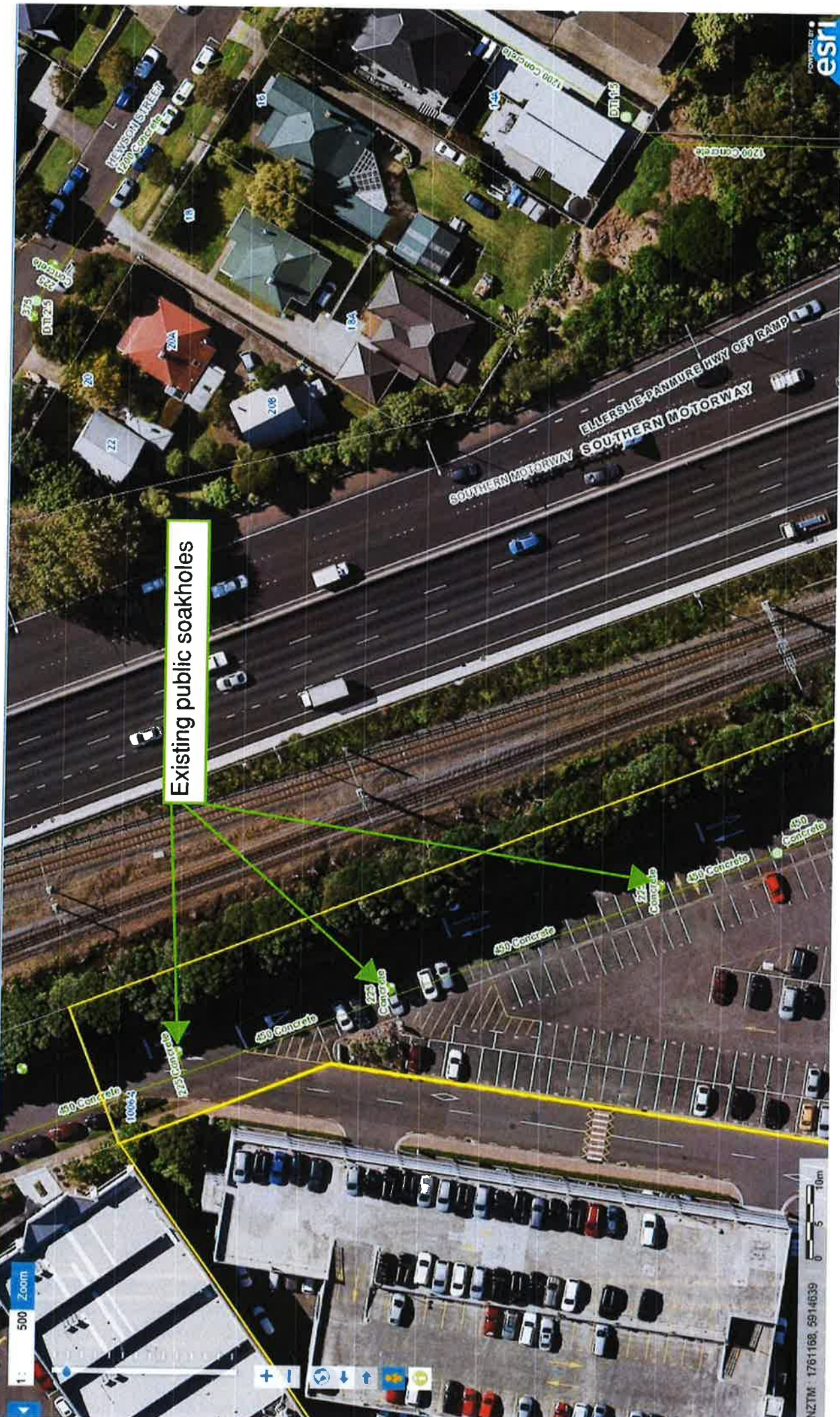
NZTM : 1761196, 5914495

POWERED BY esri

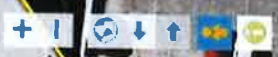
500 Zoom



Existing public soakholes



1: 500 Zoom



0 5 10m

NZTM: 1761168, 5914039

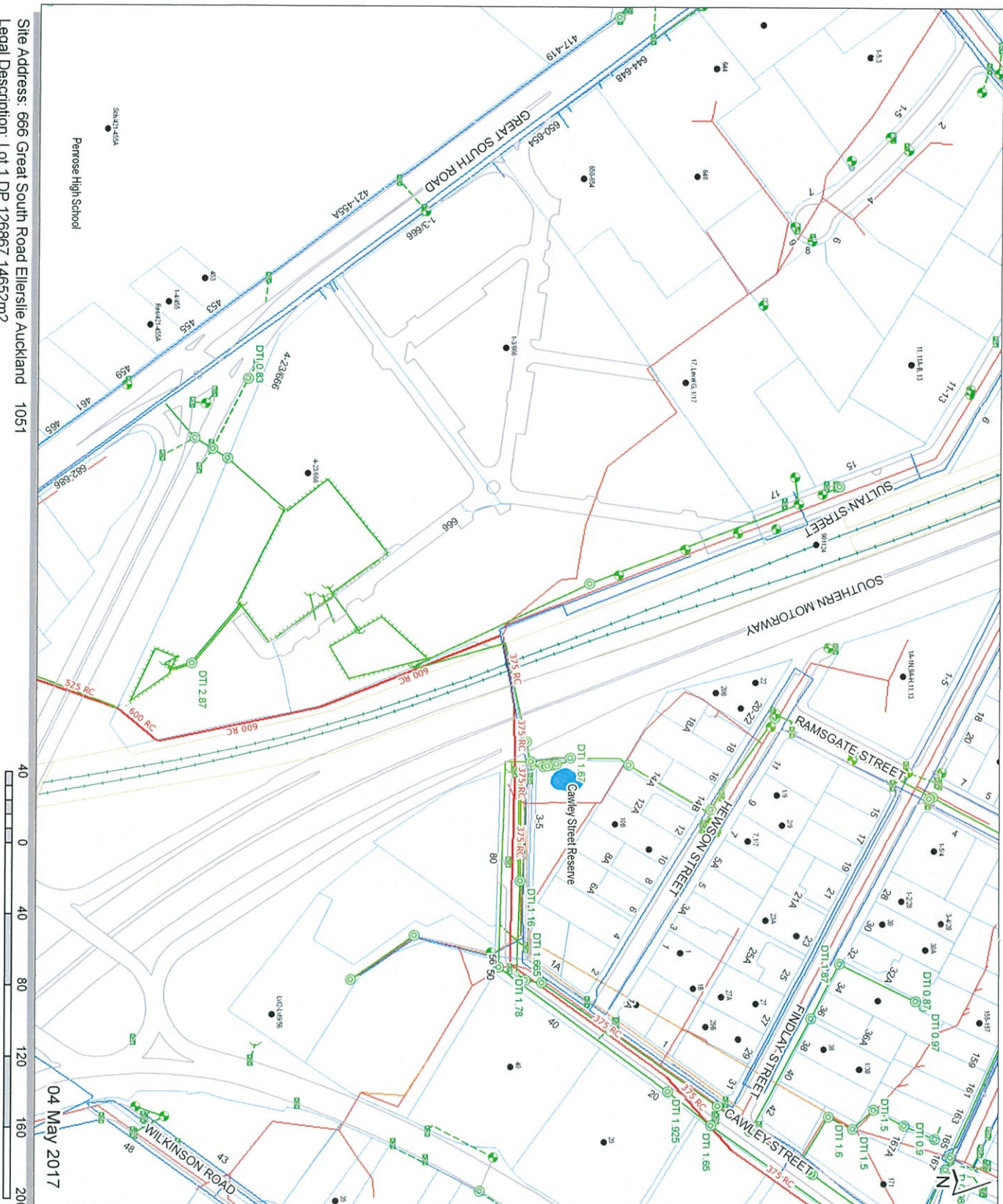
Public Drainages and Water Services Map

DISCLAIMER:

This Plan may contain errors or omissions or may not have the spatial accuracy required for some purposes, while providing an indication of the District Plan provisions in the area shown, it does not constitute the legal District Plan document. Please consult Council if you have any queries.

Legend

- | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|-------------------|------------------------|----------------------|
| Parcel Boundary | Watermain | Watermain - Connection | Watermain - Open | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined |
| Rail Area | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined |
| Parcel Boundary | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined | Watermain - Sewer | Watermain - Stormwater | Watermain - Combined |



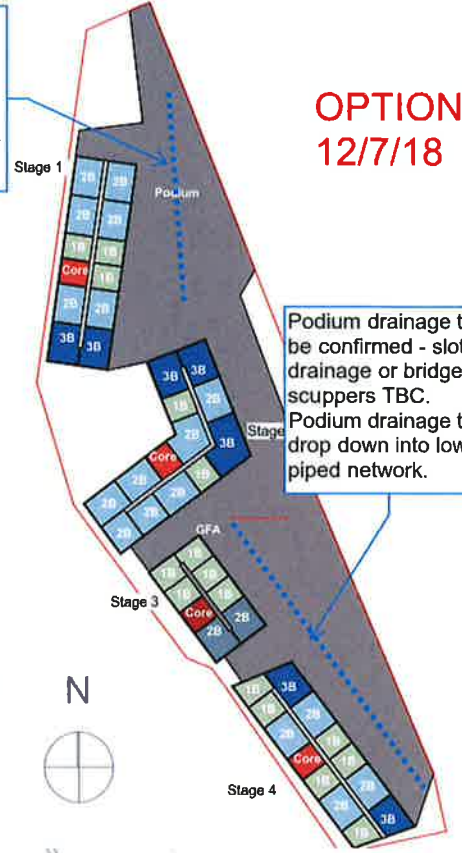
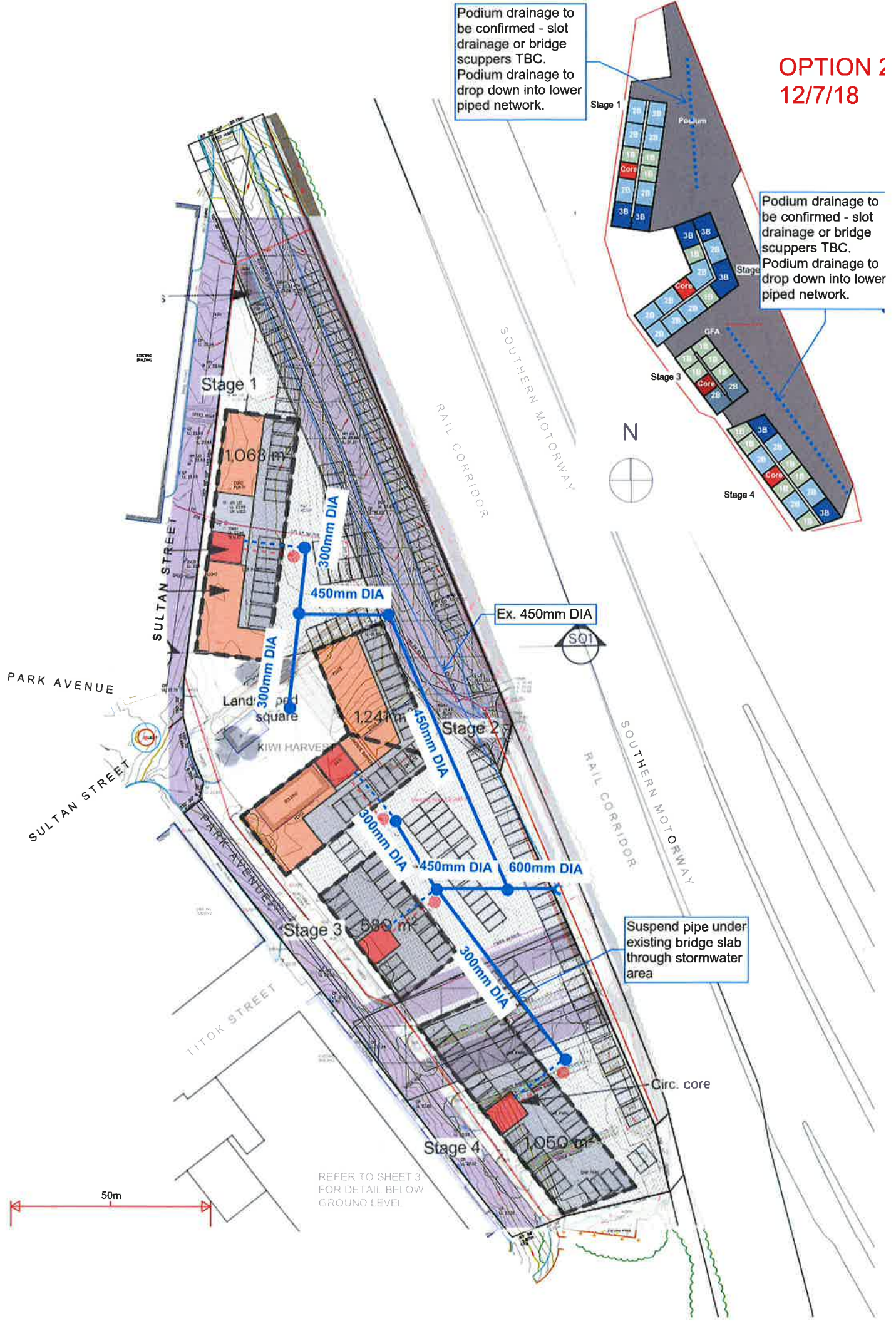
Site Address: 666 Great South Road Ellerslie Auckland 1051
 Legal Description: Lot 1 DP 126987 14652m2
 Title Description: CT-74A/263
 Date Printed: 04 May 2017 9:15 AM

APPENDIX D – PROPOSED STORMWATER RETICULATION

OPTION 2
12/7/18

Podium drainage to be confirmed - slot drainage or bridge scuppers TBC.
Podium drainage to drop down into lower piped network.

Podium drainage to be confirmed - slot drainage or bridge scuppers TBC.
Podium drainage to drop down into lower piped network.



REFER TO SHEET 3 FOR DETAIL BELOW GROUND LEVEL



REFER TO SHEET 3 FOR DETAIL BELOW GROUND LEVEL.

APPENDIX E – AUCKLAND COUNCIL FLOODING MODELS AND GIS

Figure 1: MPD100yr - Maximum Flood Depth (m)

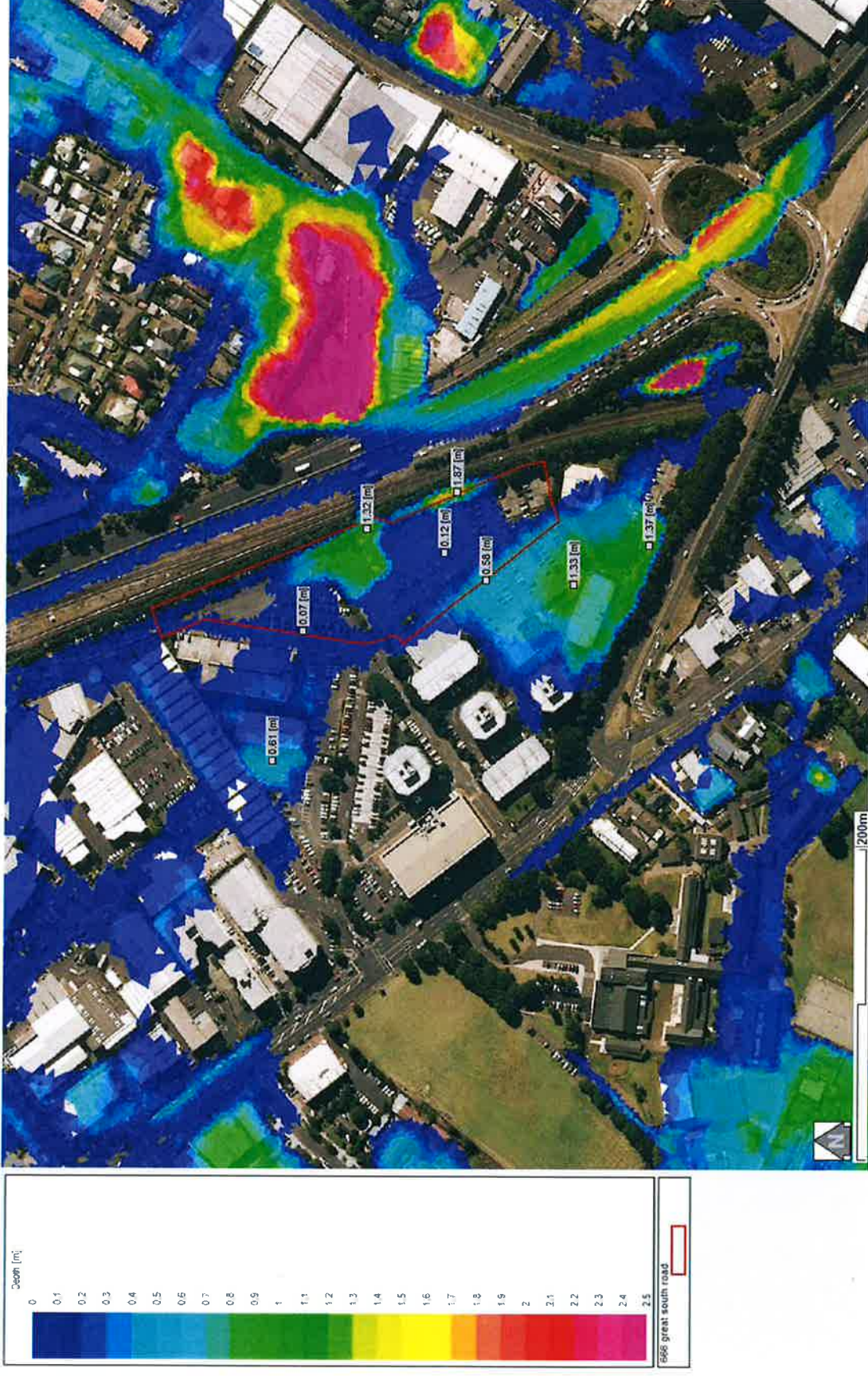
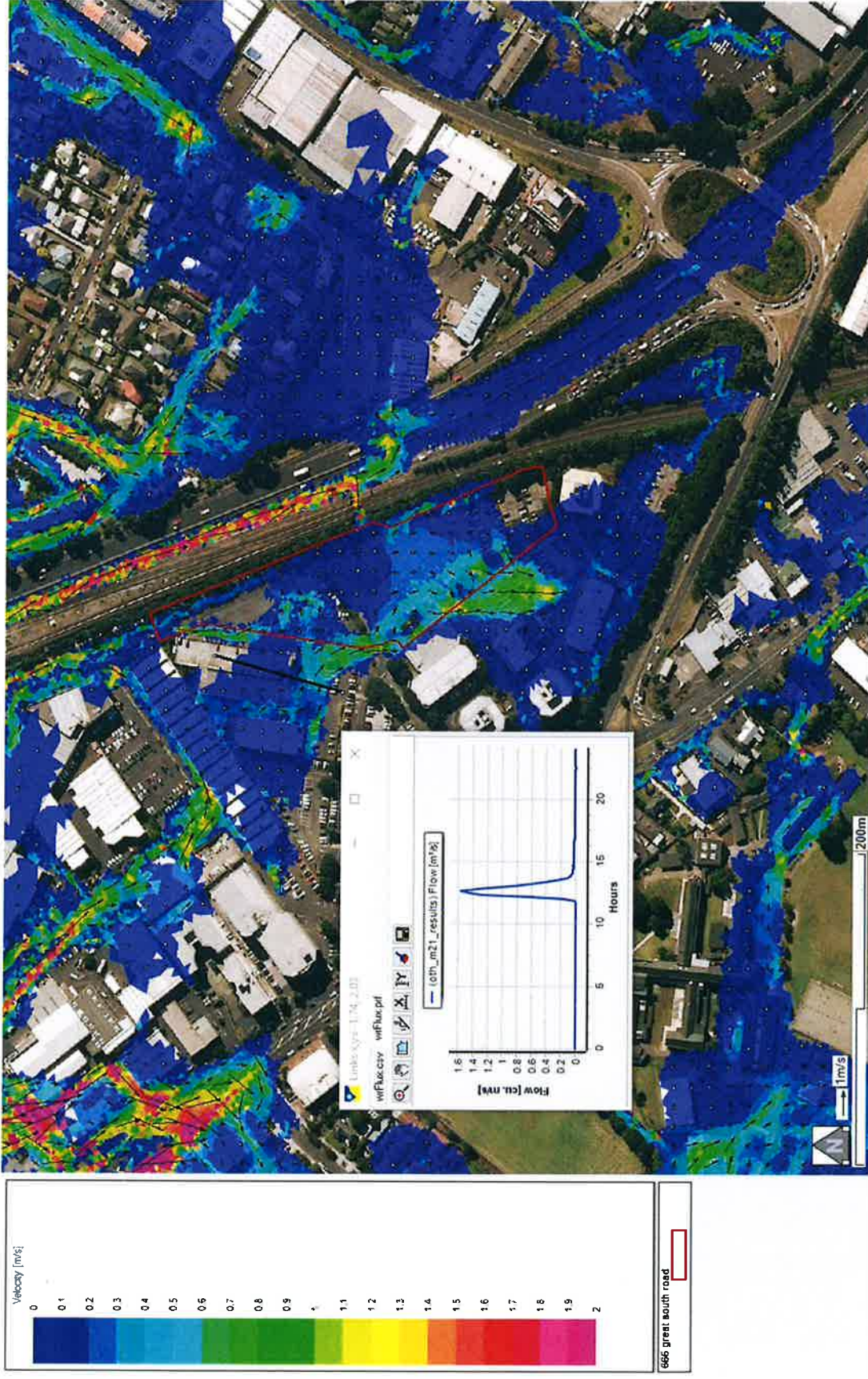
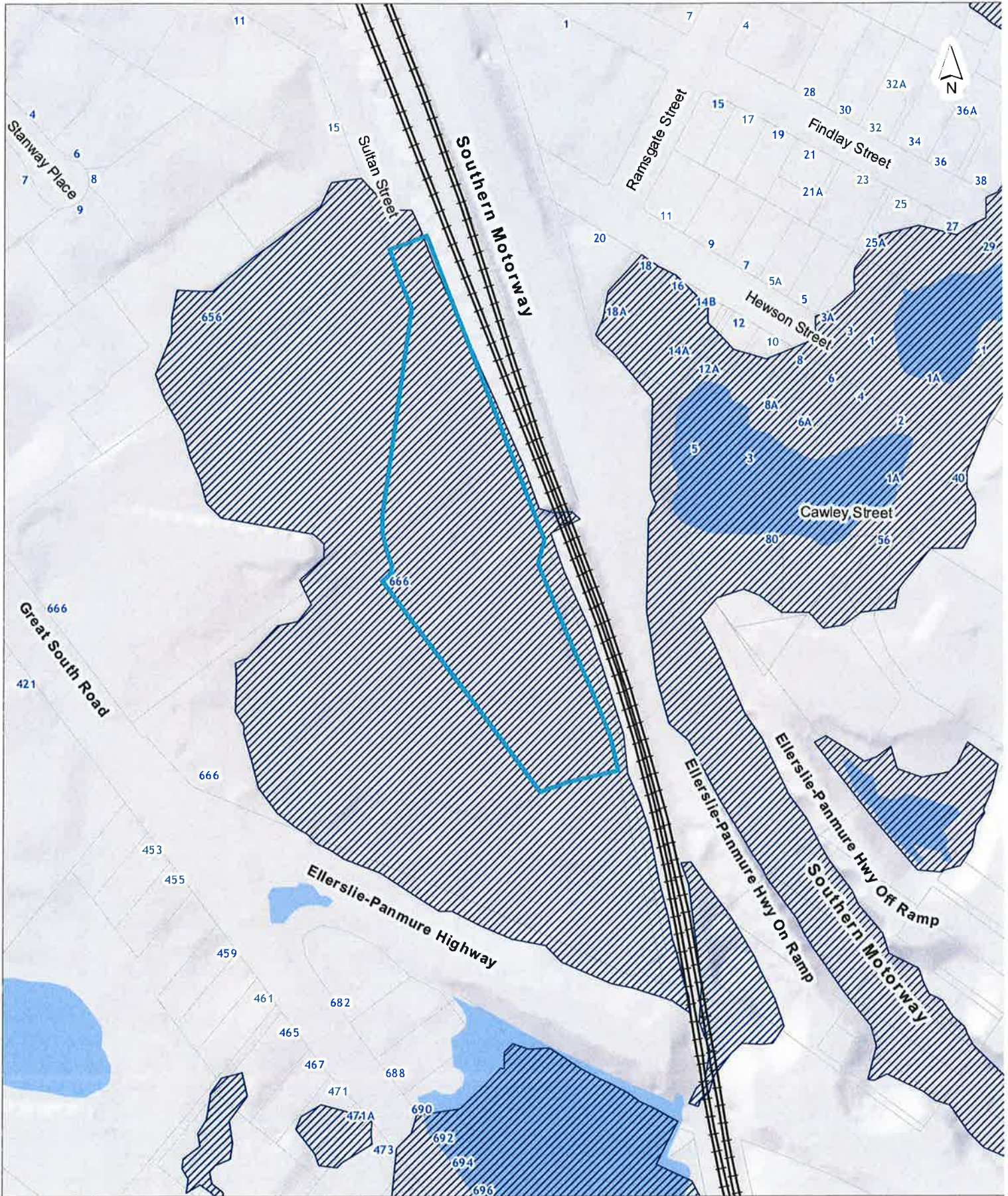


Figure 2: MPD100yr - Maximum Flood Level (m RL)



Figure 3: MPD100yr – Flow (m^3/s) from north west flow path





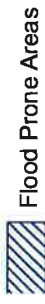
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CP Auckland LP

0 10 20 30
 Meters
 Scale @ A4
 = 1:2,500
 Date Printed:
 23/07/2019

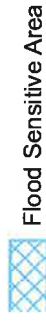


Flood Prone Areas



Flood Prone Areas

Flood Sensitive Area



Flood Sensitive Area

Flood Plains



Flood Plains

Address

Address

Rail Stations (8,000)



Rail Stations (8,000)

Railway (2,500)



Railway (2,500)

Auckland Council Boundary



Auckland Council Boundary

Roads (2,500)

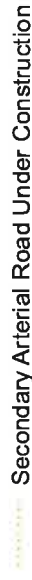
ROADCODE, STATUS

Motorway



Motorway Under Construction

Secondary Arterial Road



Secondary Arterial Road Under Construction

Primary Arterial Road



Primary Arterial Road Under Construction

Collector Road

Collector Road Under Construction

Local Road

Local Road Under Construction

Parcels

Parcels

Base Region (CRS)

Land Outside

Water

Region Cache Public Open Space Extent

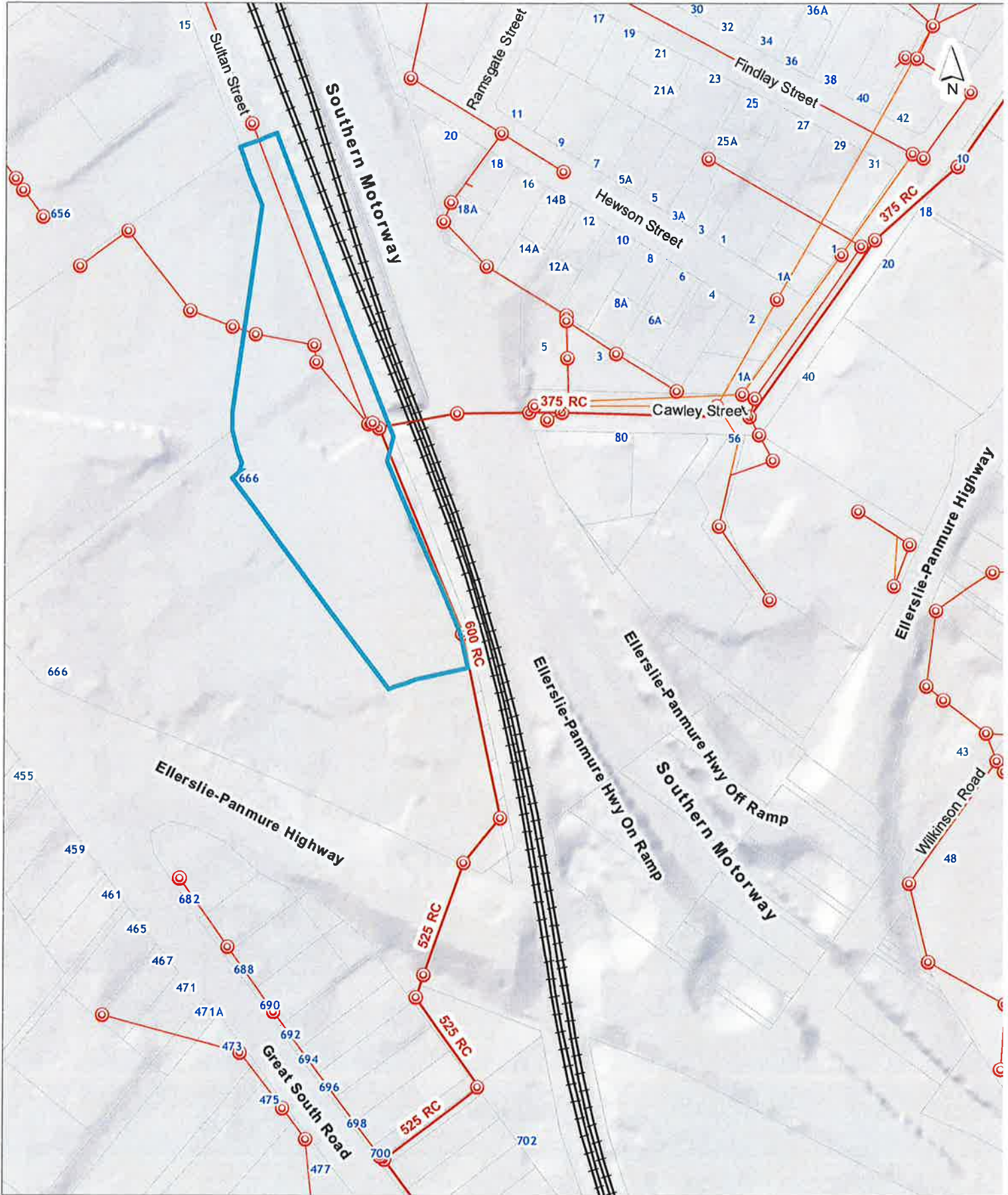
Region Cache Public Open Space Extent

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Legend

Date Printed:
23/07/2019

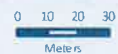
APPENDIX F – EXISTING WASTEWATER RETICULATION



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= 1:2,500

Date Printed:
24/07/2019



Auckland Council
Te Kaitiaki o Tamaki Makaurau

Wastewater Septic (WCC only)

- Septic Tank Hi-Tech
- Septic Tank Standard
- Caravan Dumping Point
- Chemical System
- Composting Toilet
- DEVONBLUE - Treatment Plant
- Recirculation Textile Filter
- Wastewater Disposal Bed or Field

Wastewater Manhole (Local)

- Wastewater Manhole (Local)

Wastewater Pipe (Local)

- In Service
- Abandoned
- Future

Wastewater Other Structure (Local)

- Wastewater Other Structure (Local)

Wastewater Pump Station (Local)

- Wastewater Pump Station (Local)

Wastewater Manhole (Transmission)

- Wastewater Manhole (Transmission)

Wastewater Pipe (Transmission)

- In Service
- Out Of Service

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- Proposed

Address

- Address

Rail Stations (8,000)

- Rail Stations (8,000)

Railway (2,500)

- Railway (2,500)

Auckland Council Boundary

- Auckland Council Boundary

Roads (2,500)

ROADCODE, STATUS

- Motorway
- Motorway Under Construction
- Secondary Arterial Road
- Secondary Arterial Road Under Construction
- Primary Arterial Road
- Primary Arterial Road Under Construction
- Collector Road
- Collector Road Under Construction
- Local Road
- Local Road Under Construction

Parcels

- Parcels

Base Region (CRS)

- Land Outside
- Water

Region Cache Public Open Space Extent

- Region Cache Public Open Space Extent

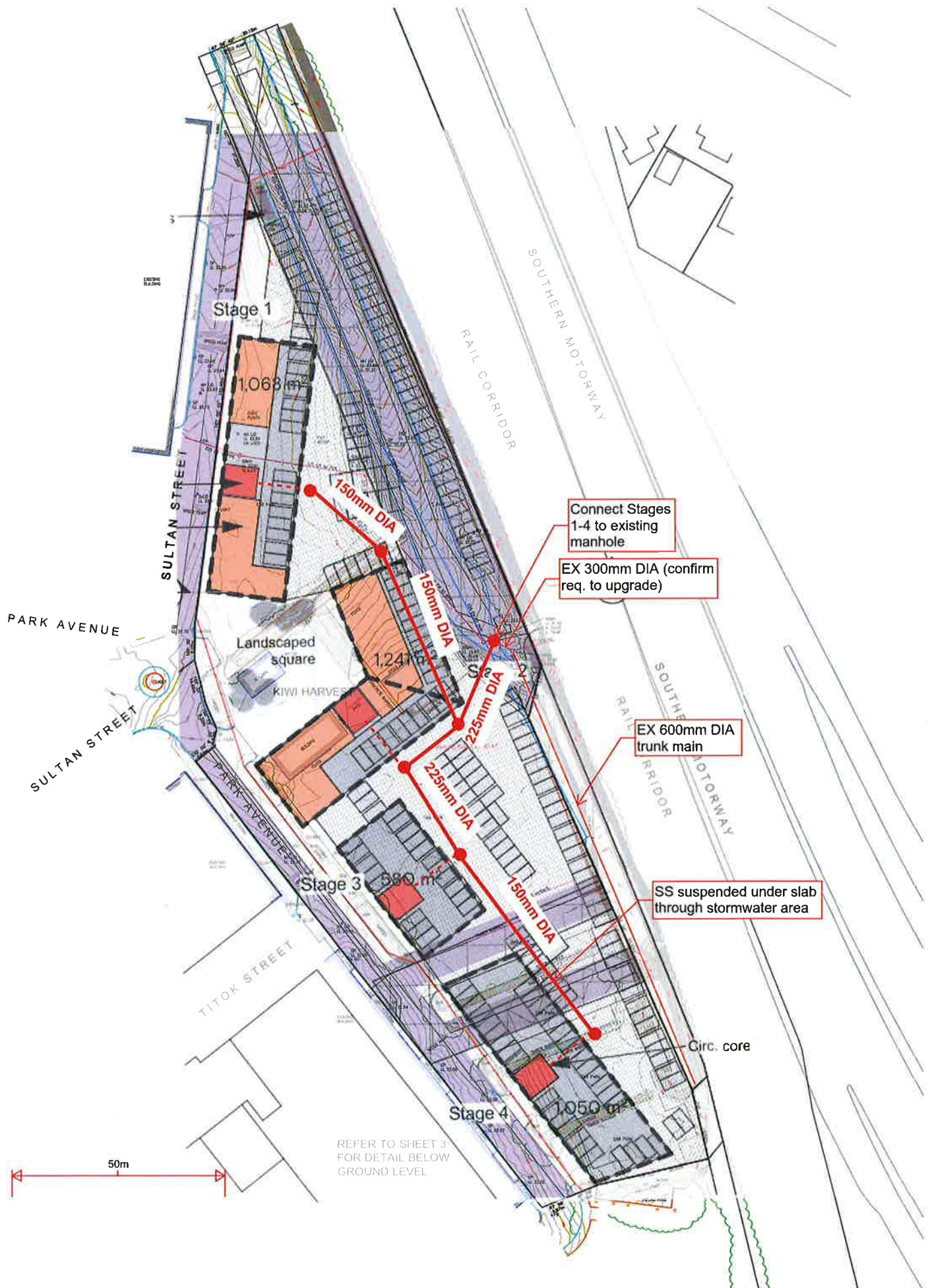
Legend

APPENDIX G – PROPOSED WASTEWATER RETICULATION

Sewer Option 2 (connect Stage 1 building to existing sewer (capacity dependent))



Sewer Option 1 (connect all sewer to local manhole upstream of trunk main - may avoid the need to upgrade existing sewer)



Stage 1

1,068 m²

Landscaped square

1,248 m²

Stage 3

580 m²

Stage 4

1,050 m²

Connect Stages 1-4 to existing manhole

EX 300mm DIA (confirm req. to upgrade)

EX 600mm DIA trunk main

SS suspended under slab through stormwater area

Circ. core

REFER TO SHEET 3 FOR DETAIL BELOW GROUND LEVEL

50m

ENTRANCE

SULTAN STREET

PARK AVENUE

SULTAN STREET

TITOK STREET

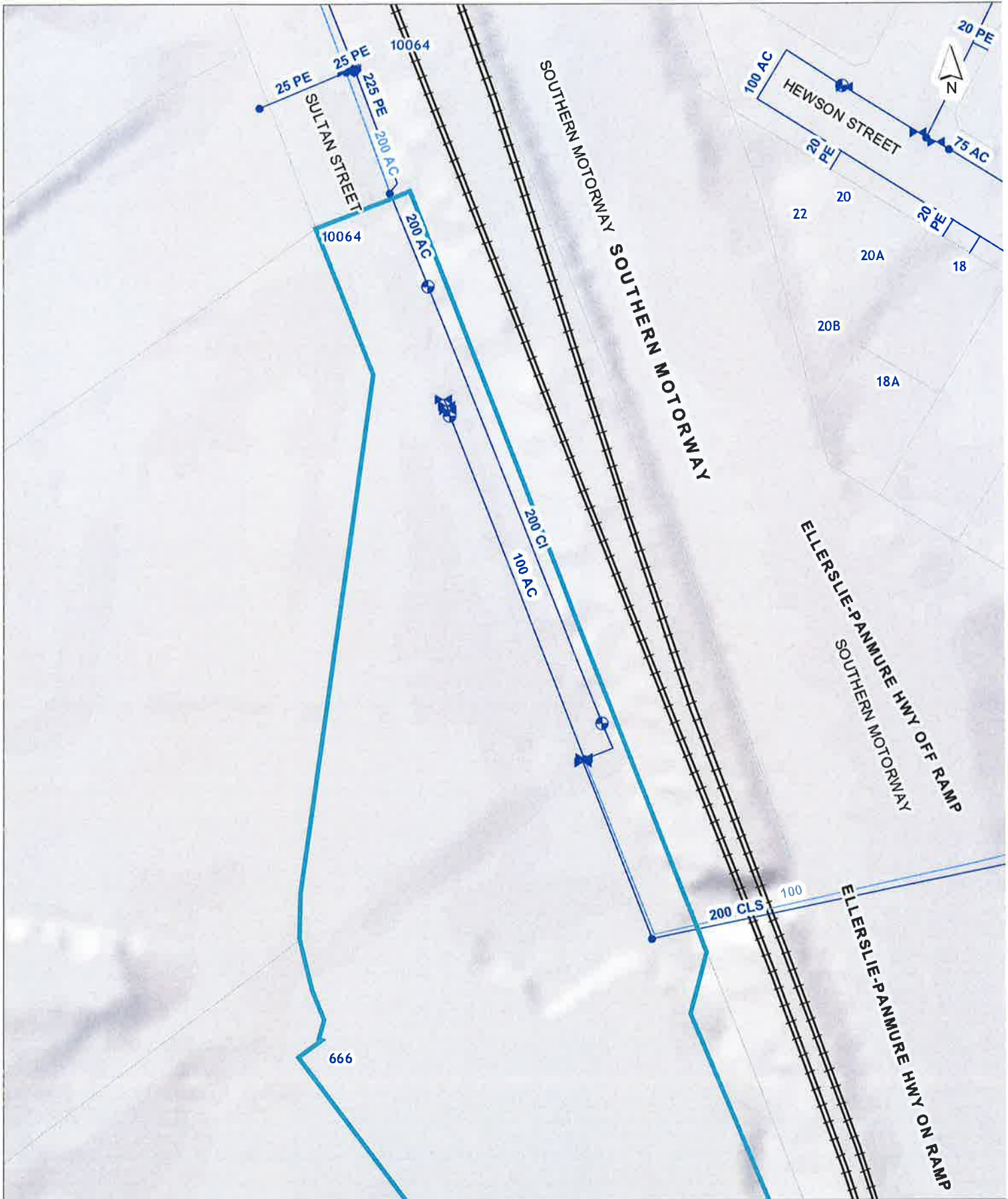
RAIL CORRIDOR

SOUTHERN MOTORWAY

RAIL CORRIDOR

SOUTHERN MOTORWAY

APPENDIX H – EXISTING WATER SUPPLY RETICULATION



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CP Auckland LP


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 Meters
Scale @ A4
 = 1:1,000
Date Printed:
 23/07/2019



Address

Address


Rail Stations (8,000)

 Rail Stations (8,000)

Railway (2,500)


 Railway (2,500)

Auckland Council Boundary


 Auckland Council Boundary

Roads (1,000)


 Motorway

 Motorway Under Construction

 Secondary Arterial Road

 Secondary Arterial Road Under Construction

 Primary Arterial Road

 Primary Arterial Under Construction

 Collector Road

 Collector Road Under Construction

 Local Road

 Local Road Under Construction

Parcels


 Parcels

Base Region (CRS)

 Land Outside

 Water

Region Cache Public Open Space Extent

 Region Cache Public Open Space Extent

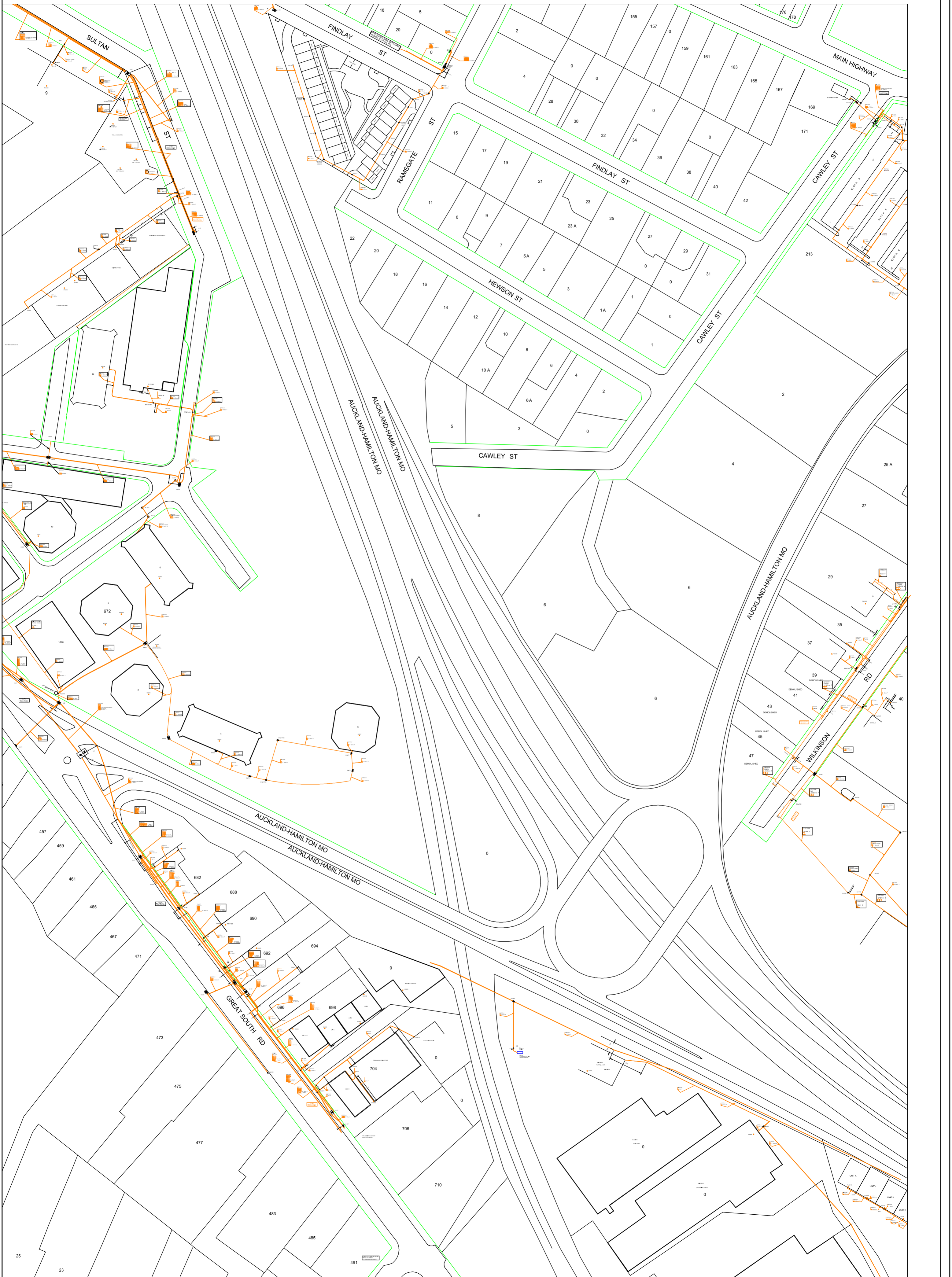
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Legend

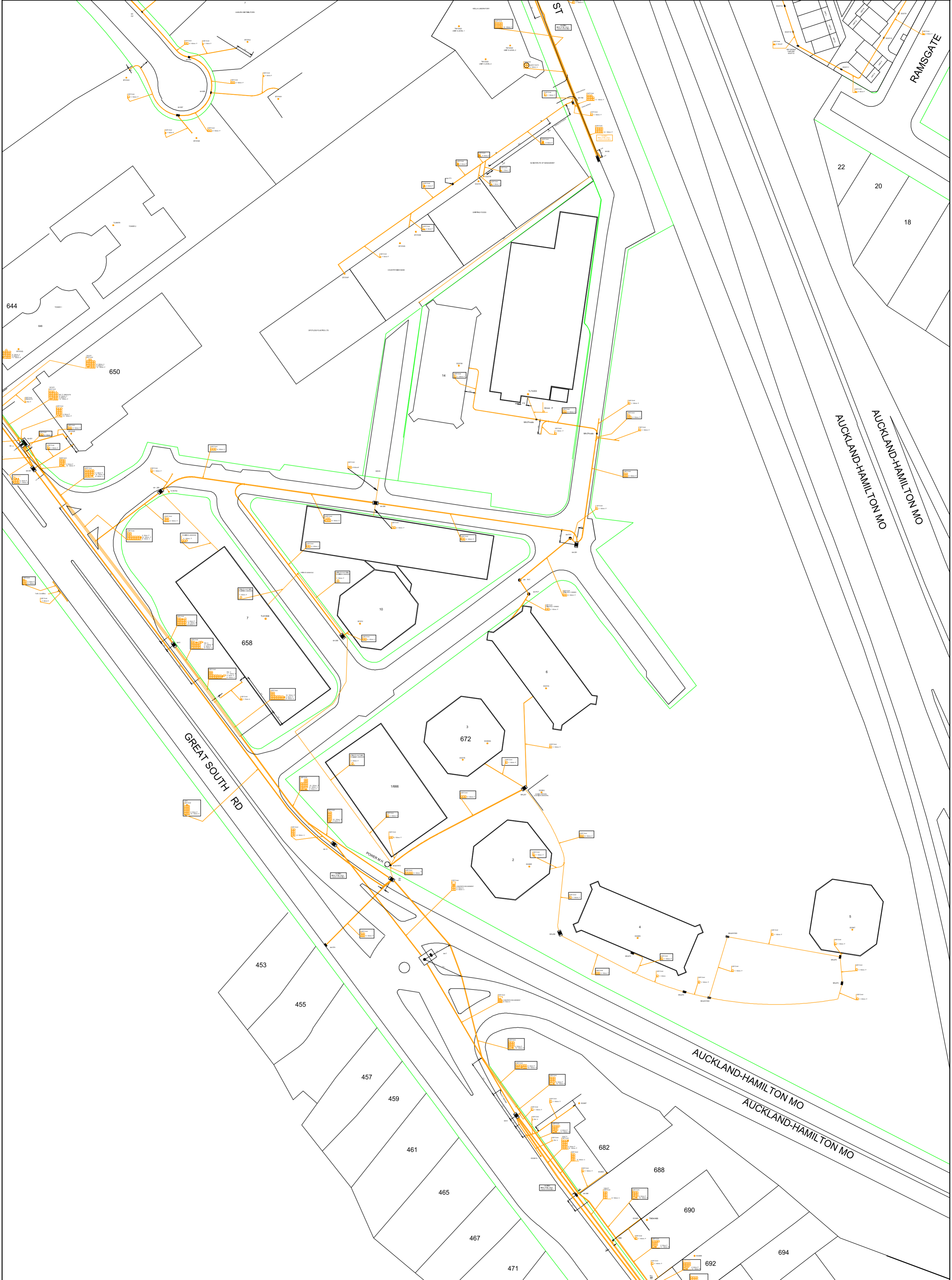
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23/07/2019

APPENDIX I – BEFORE U-DIG AS BUILT PLANS

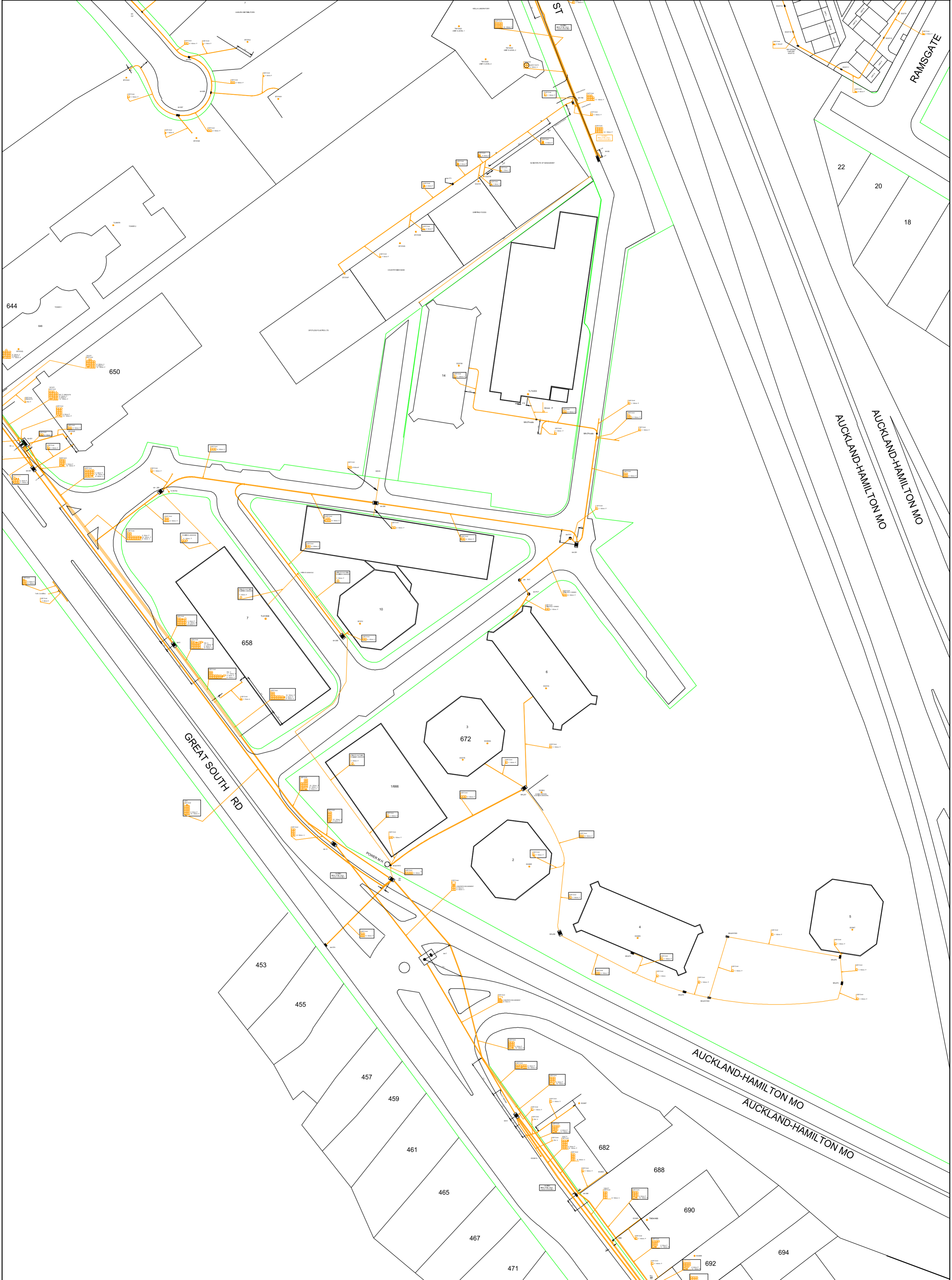
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Plan ID	264552
Version	ME
Current at	23/07/2019



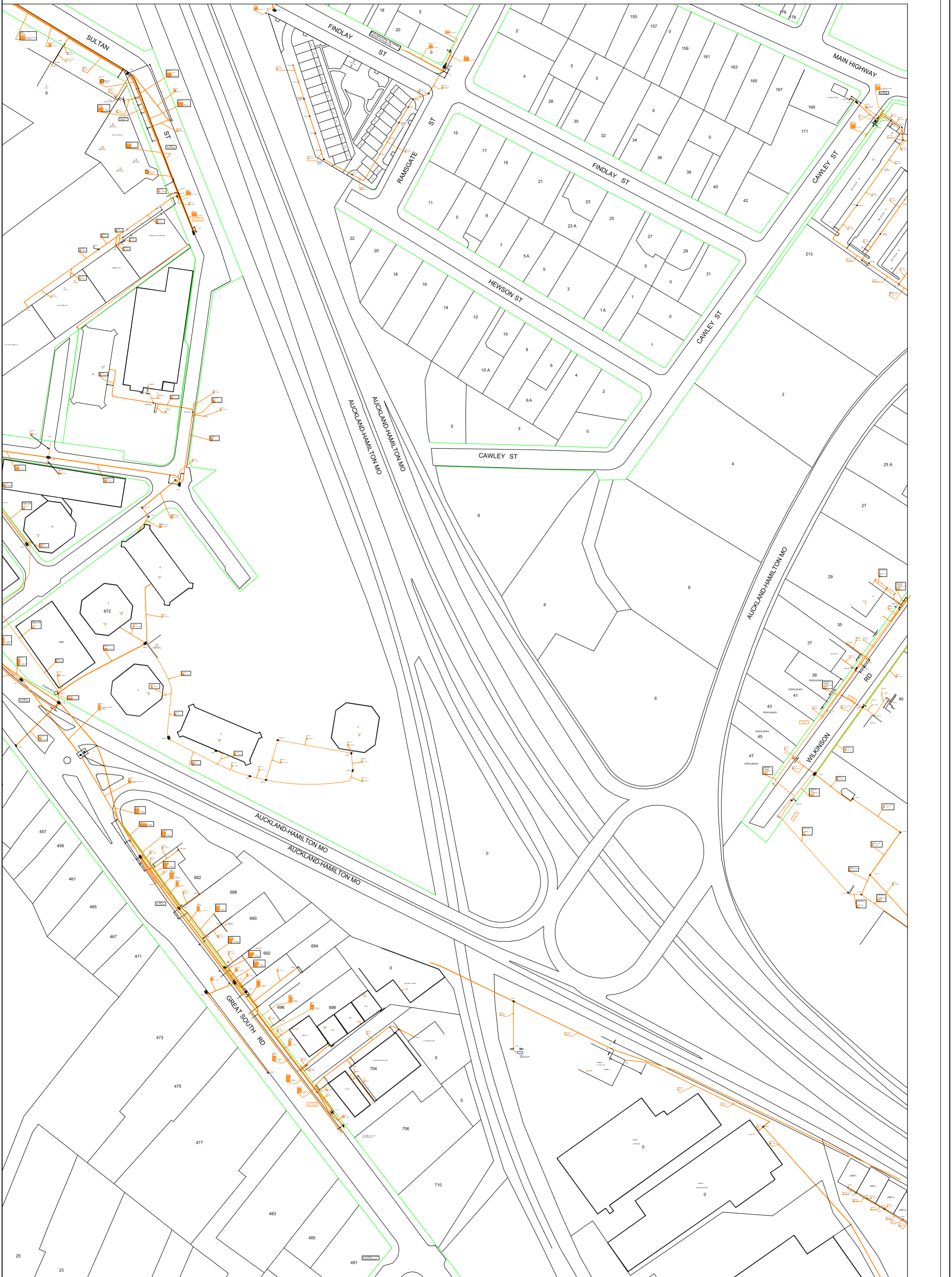
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Plan ID	605501
Version	GA
Current at	25/07/2019

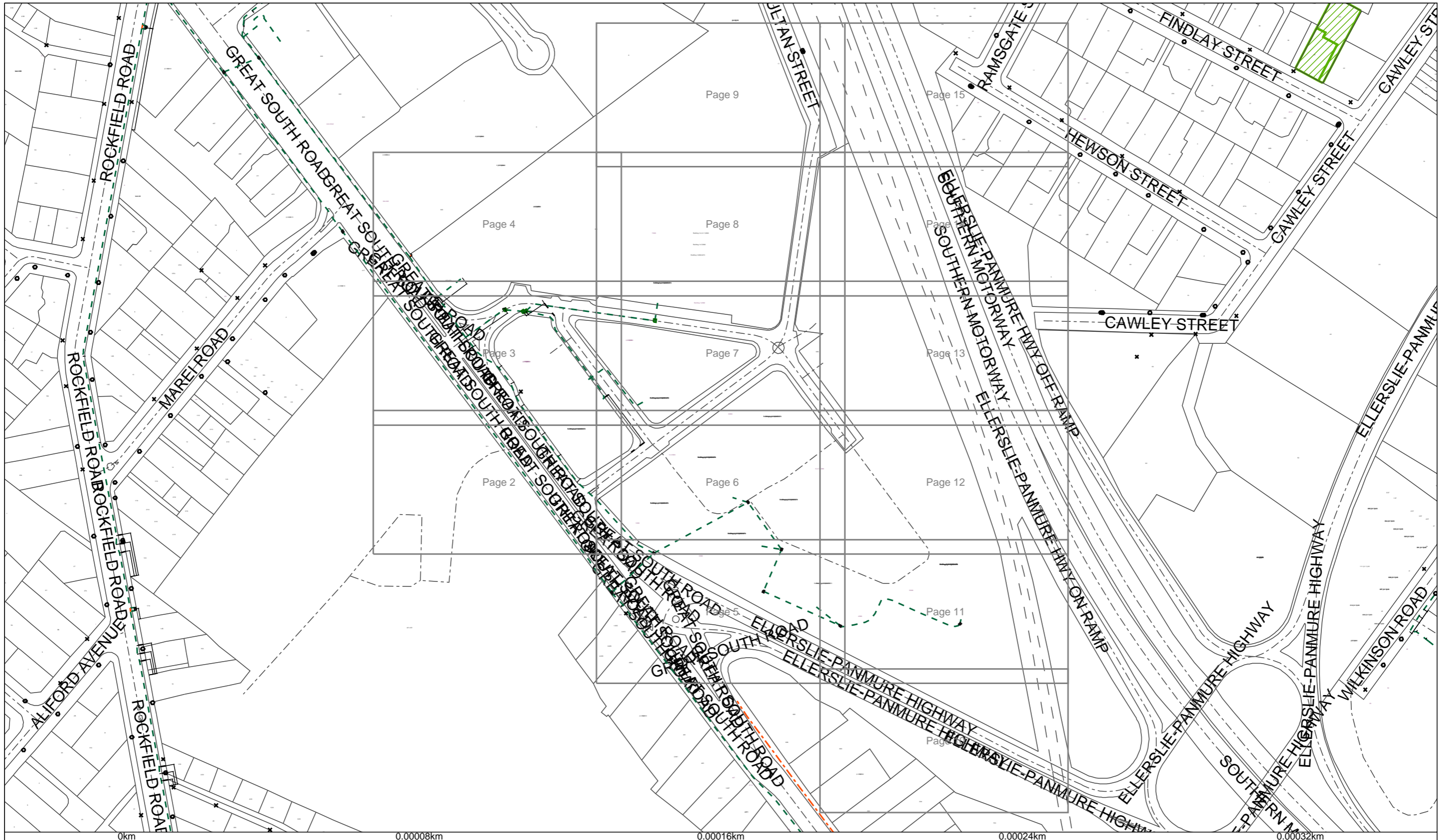


Plan Name	DC53
Plan ID	605501
Version	GA
Current at	25/07/2019



Plan Name	EE37
Plan ID	264552
Version	ME
Current at	23/07/2019





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Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

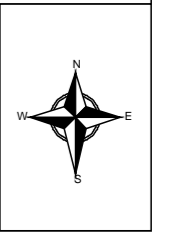
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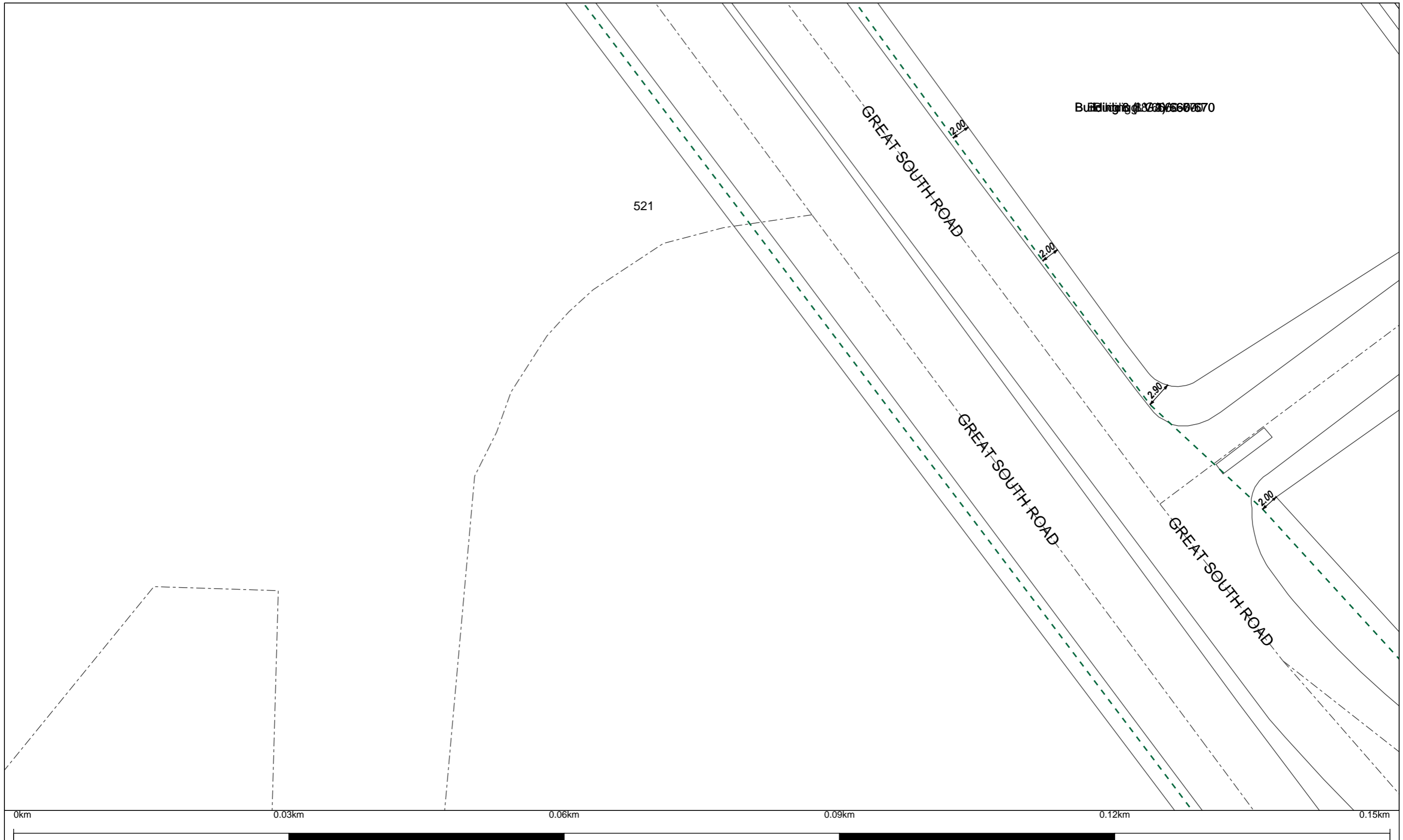
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Company Name:	
Customer Contact:	
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Legend

Strand & Structure [Gis]

- Pole.Location Inactive Concrete
- Pole.Location Inactive Power
- Underground Route.Route Active
- Underground Route.Route Inactive - Installed In-Place
- Underground Utility Box.Location Active Manhole
- Underground Utility Box.Location Active Vault





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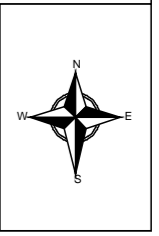
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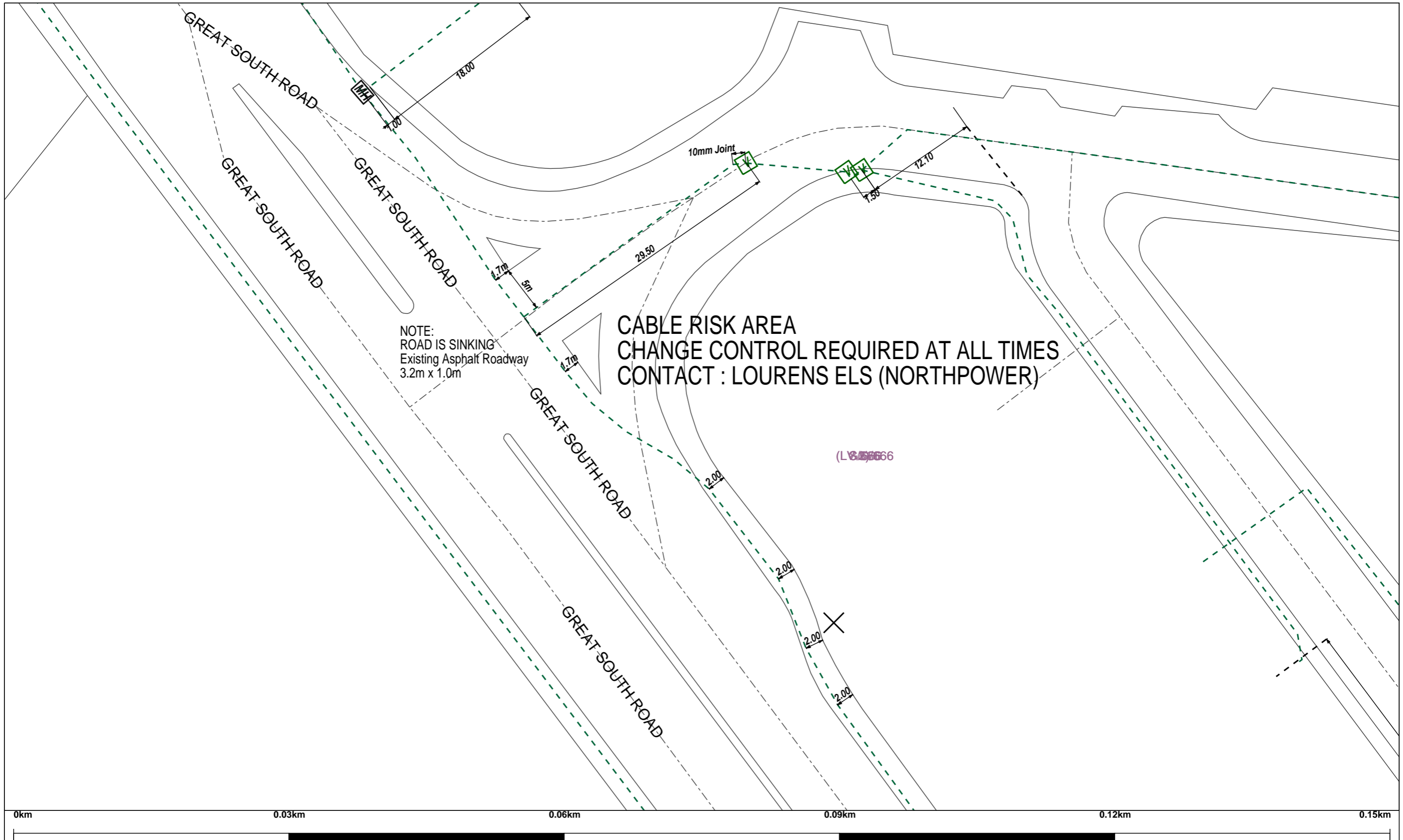
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Company Name:	
Customer Contact:	
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Printed by: swadmin	Date printed: 22/07/2019

Strand & Structure [Gis]

Legend

--- Underground Route.Route Active





**CABLE RISK AREA
CHANGE CONTROL REQUIRED AT ALL TIMES
CONTACT : LOURENS ELS (NORTHPOWER)**

NOTE:
ROAD IS SINKING
Existing Asphalt Roadway
3.2m x 1.0m

(L 845666)

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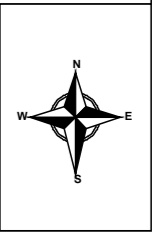
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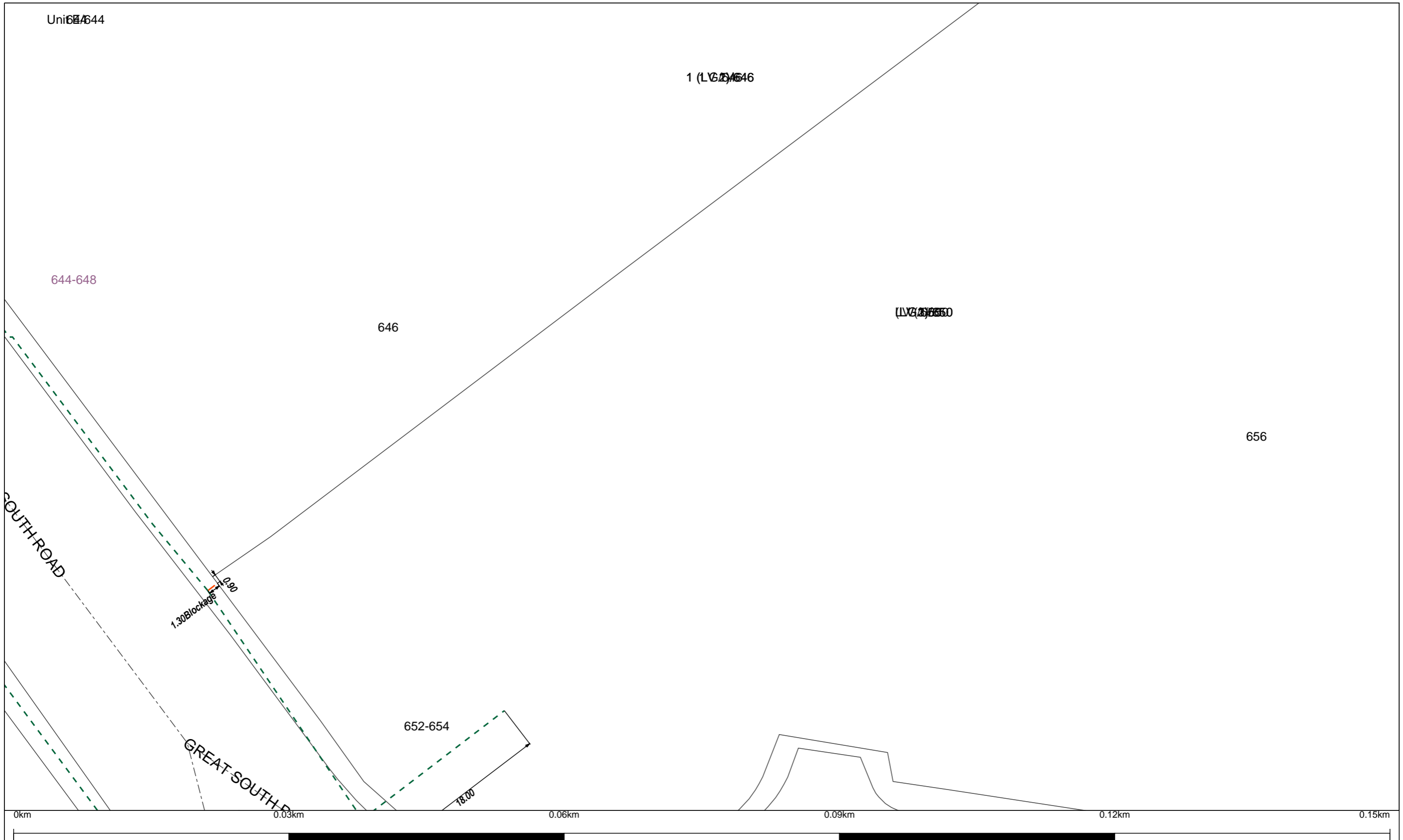
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Customer Contact:	
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Legend

Strand & Structure [Gis]

- Pole.Location Inactive Power
- Underground Route.Route Active
- Underground Utility Box.Location Active Manhole
- Underground Utility Box.Location Active Vault





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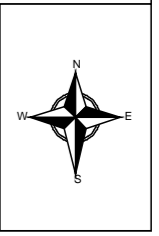
Communication Cable - 0800 826 436

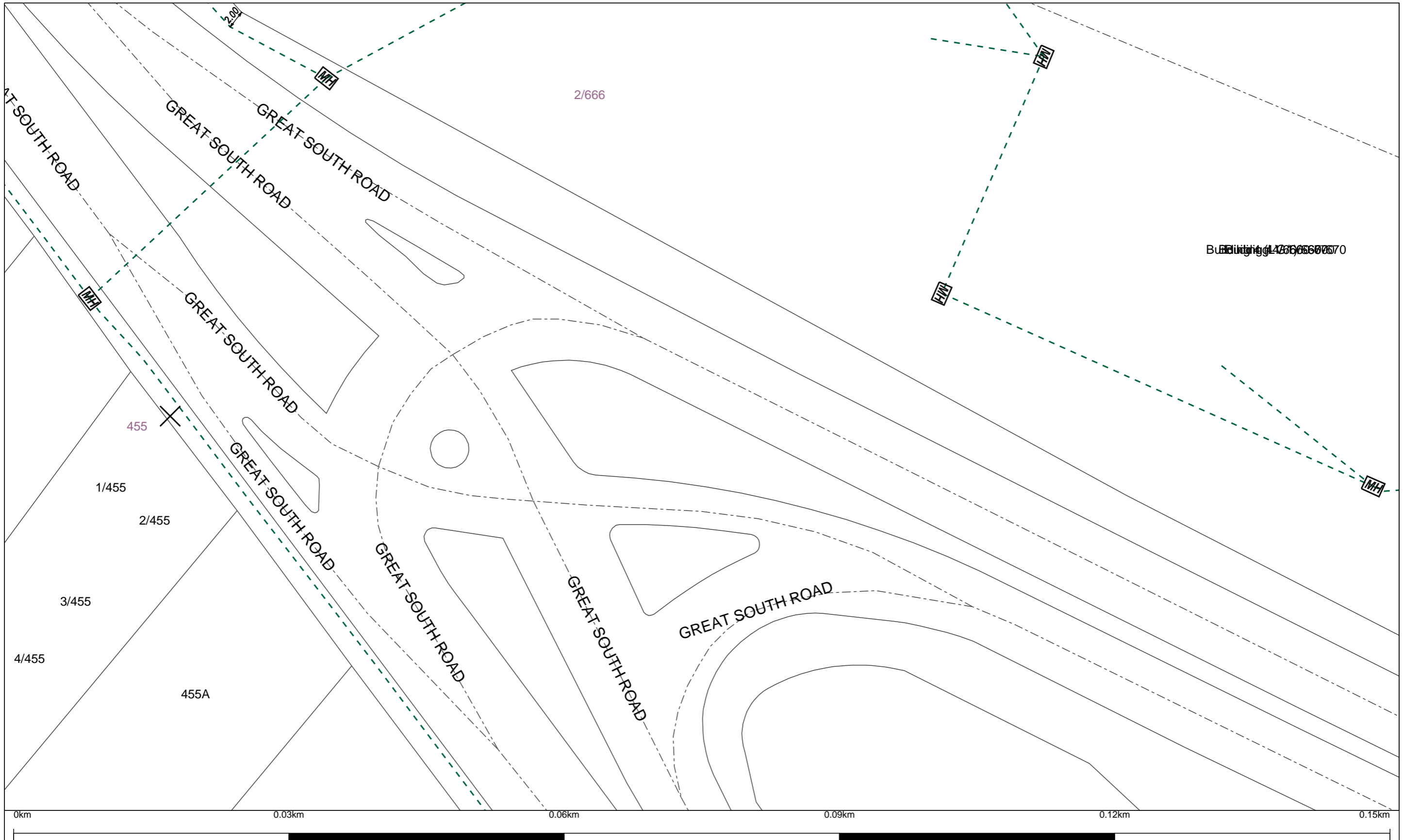
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Company Name:	
Customer Contact:	
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Legend

Strand & Structure [Gis]

- - - Underground Route.Route Active
- . - . Underground Route.Route Inactive - Installed In-Place





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In the event of damage to equipment please remain clear of the area and immediately phone:

Electricity - 0508 VECTOR (0508 832 867)

Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
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Printed by: swadmin	Date printed: 22/07/2019

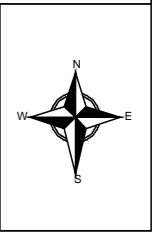
Strand & Structure [Gis]

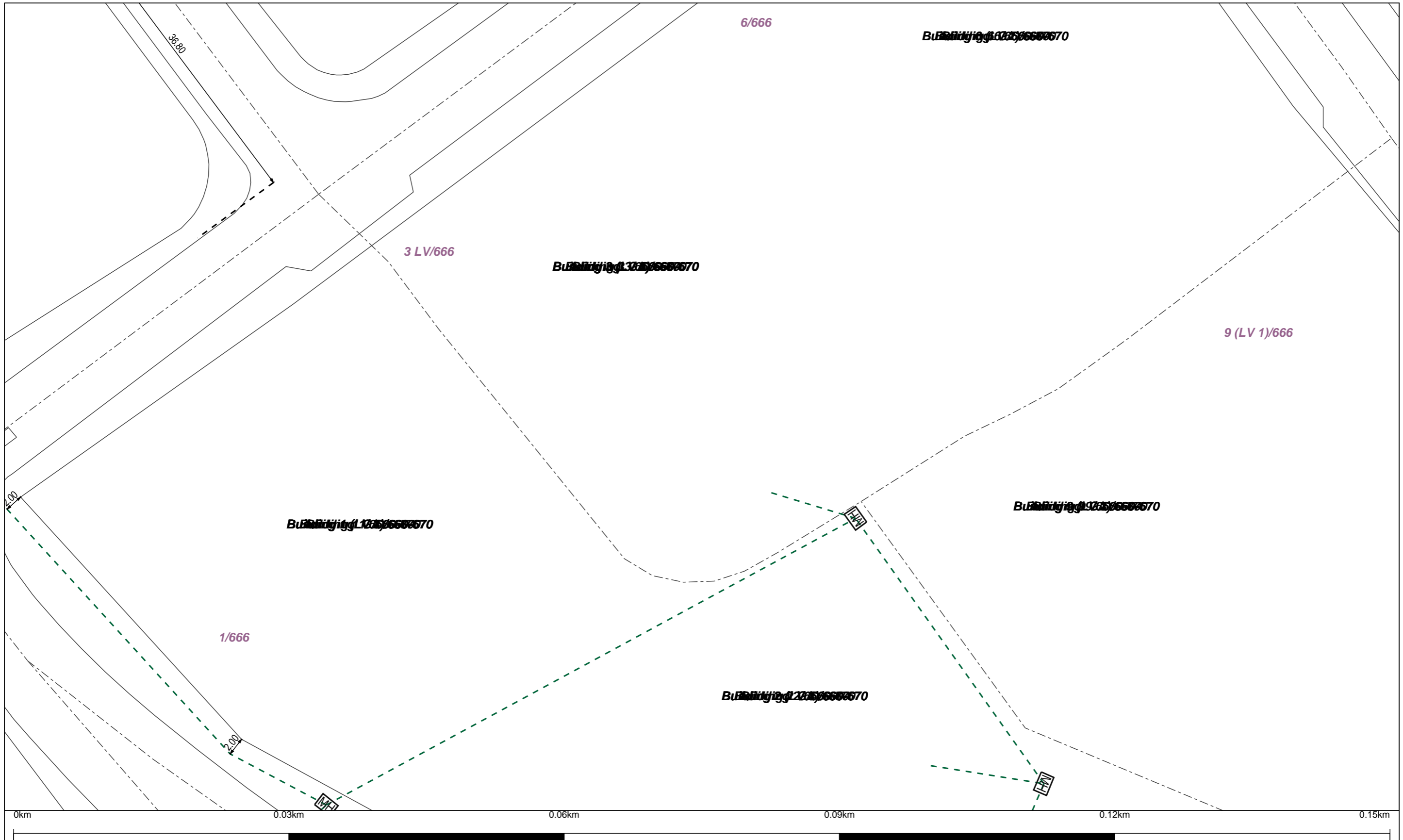
X Pole.Location Inactive Power

Legend

--- Underground Route.Route Active

MHA Underground Utility Box.Location Active Manhole





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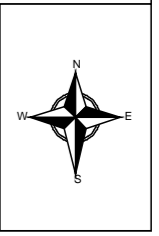
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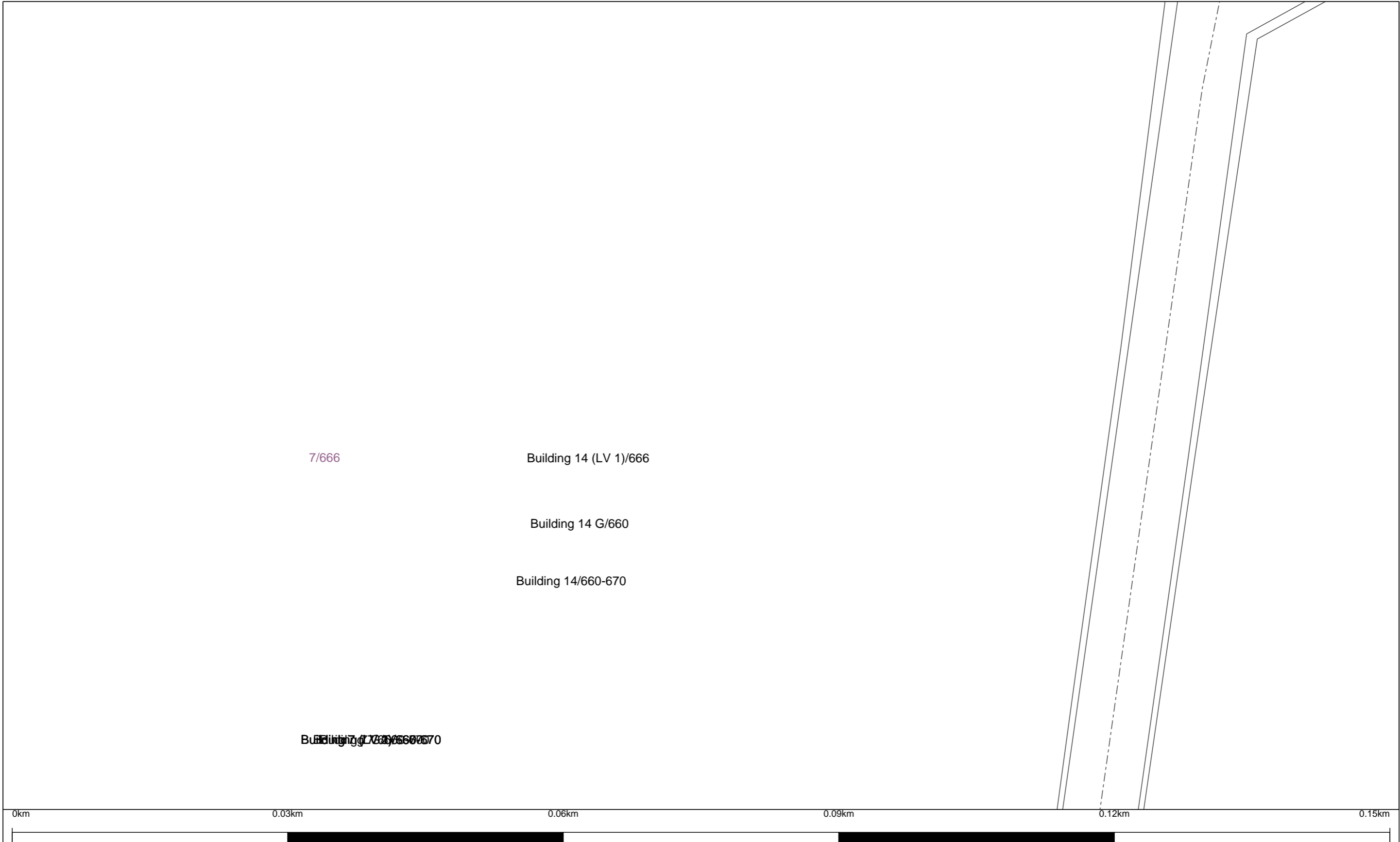
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Company Name:	
Customer Contact:	
Output: Page 6	Scale: 1:400
Printed by: swadmin	Date printed: 22/07/2019

Legend

Strand & Structure [Gis]

- Underground Route.Route Active
- Underground Utility Box.Location Active Manhole





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Communication Cable - 0800 826 436

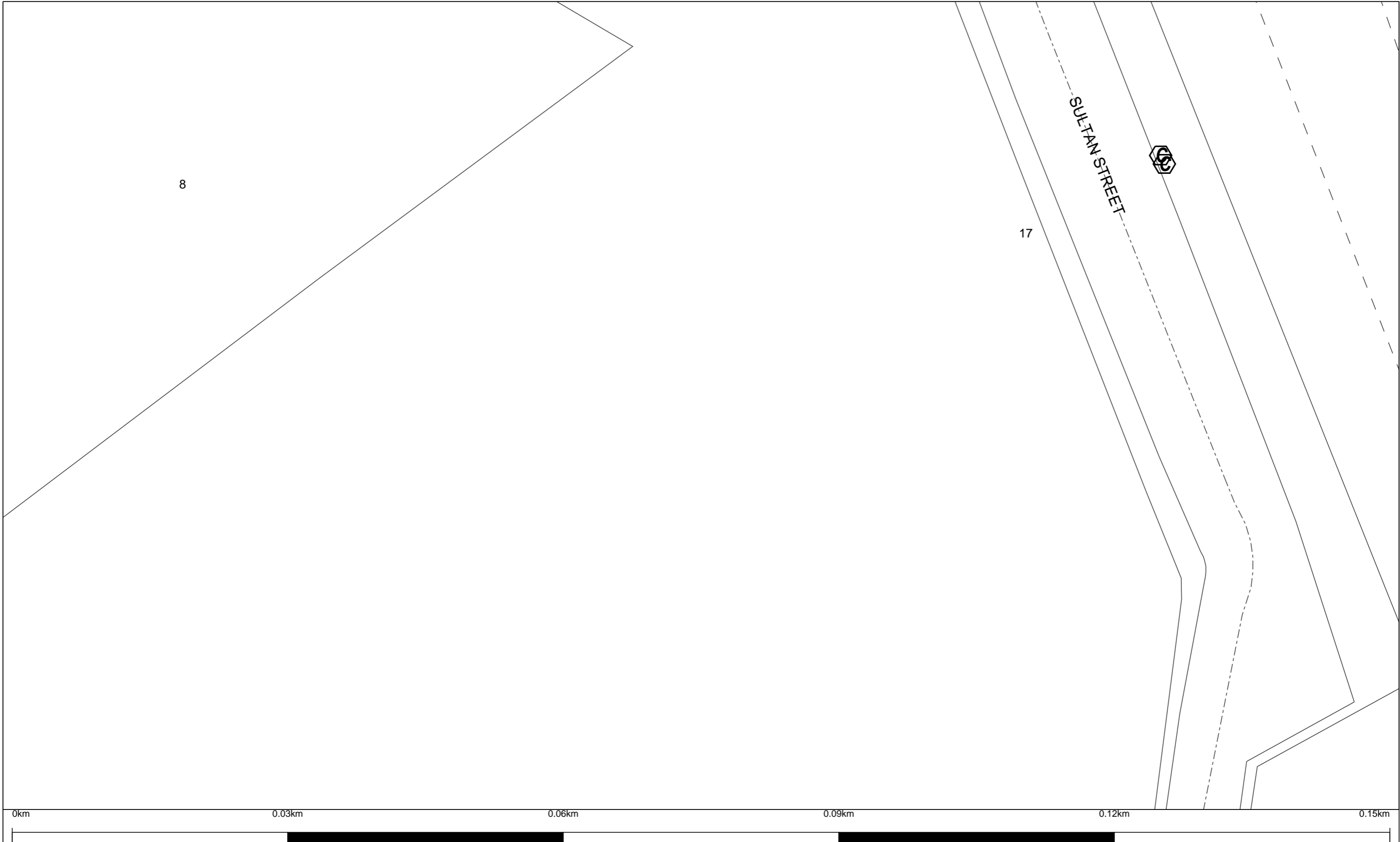
Title:	
Company Name:	
Customer Contact:	
Output: Page 8	Scale: 1:400
Printed by: swadmin	Date printed: 22/07/2019

Strand & Structure [Gis]

Legend

--- · Underground Route.Active





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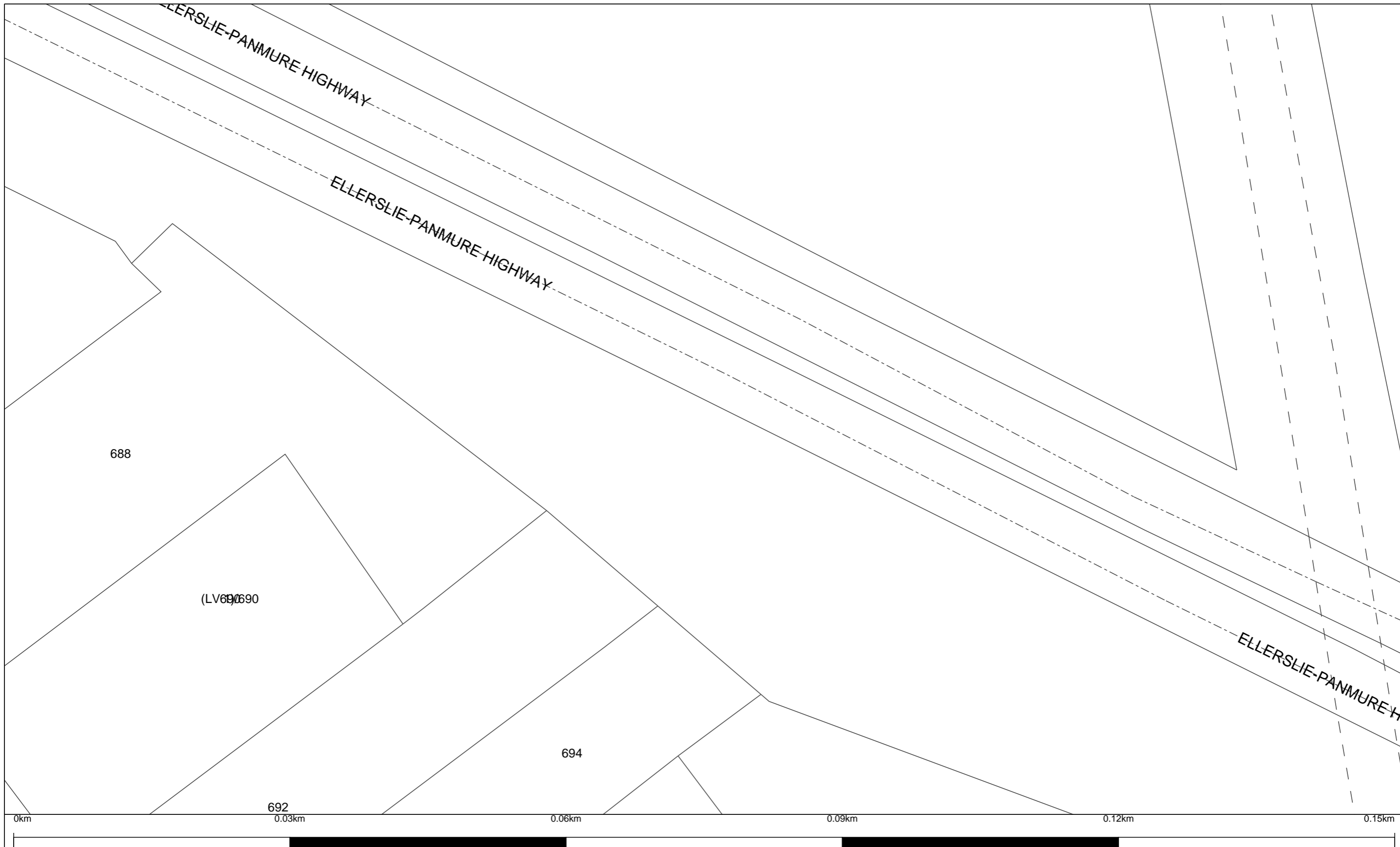
Title:	
Company Name:	
Customer Contact:	
Output: Page 9	Scale: 1:400
Printed by: swadmin	Date printed: 22/07/2019

Strand & Structure [Gis]

Legend

Pole.Location Inactive Concrete





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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
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Printed by: swadmin	Date printed: 22/07/2019

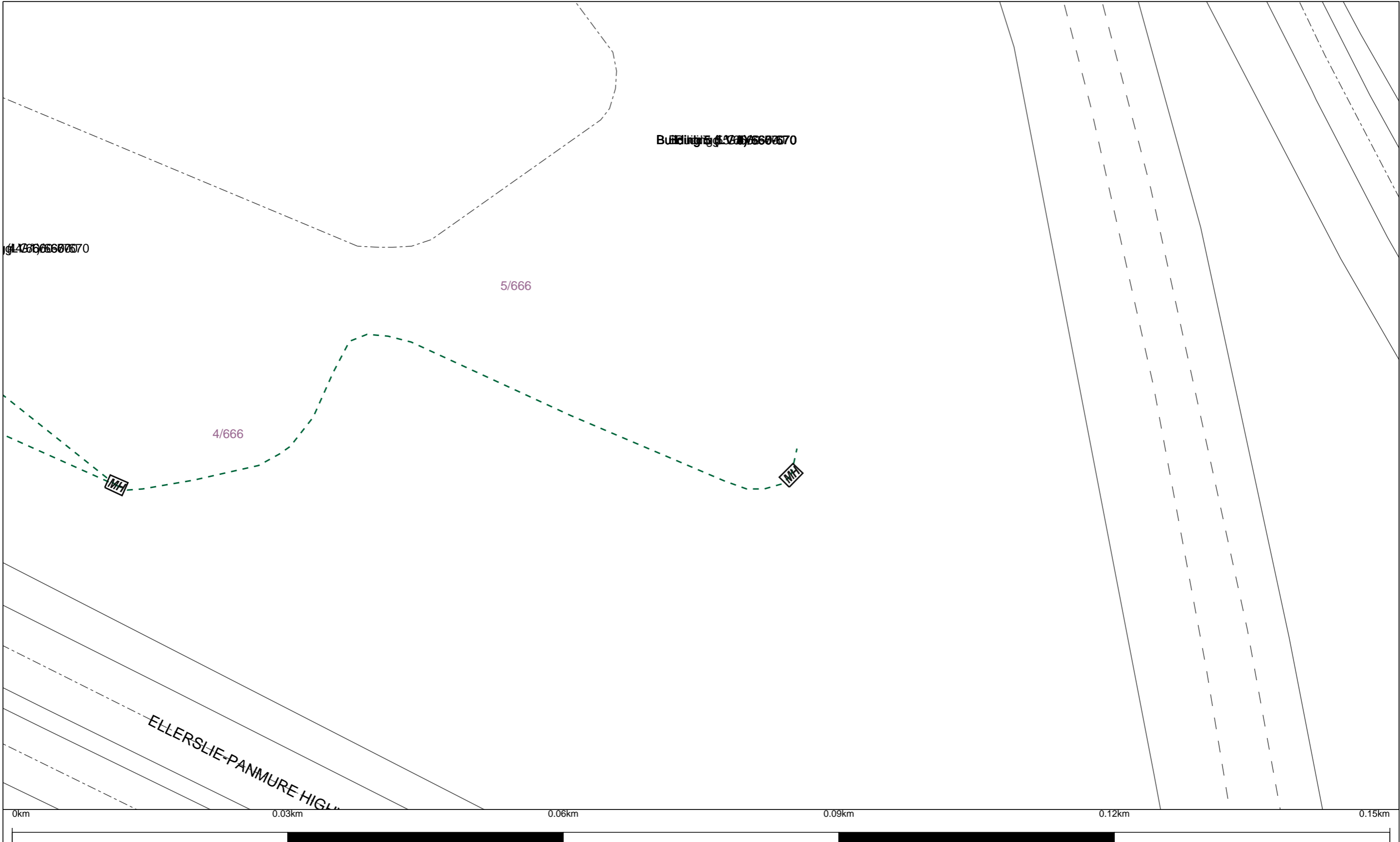
Legend

Strand & Structure [Gis]

--- Underground Route.Route Active

- - - Underground Route.Route Inactive - Installed In-Place





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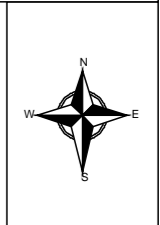
Communication Cable - 0800 826 436

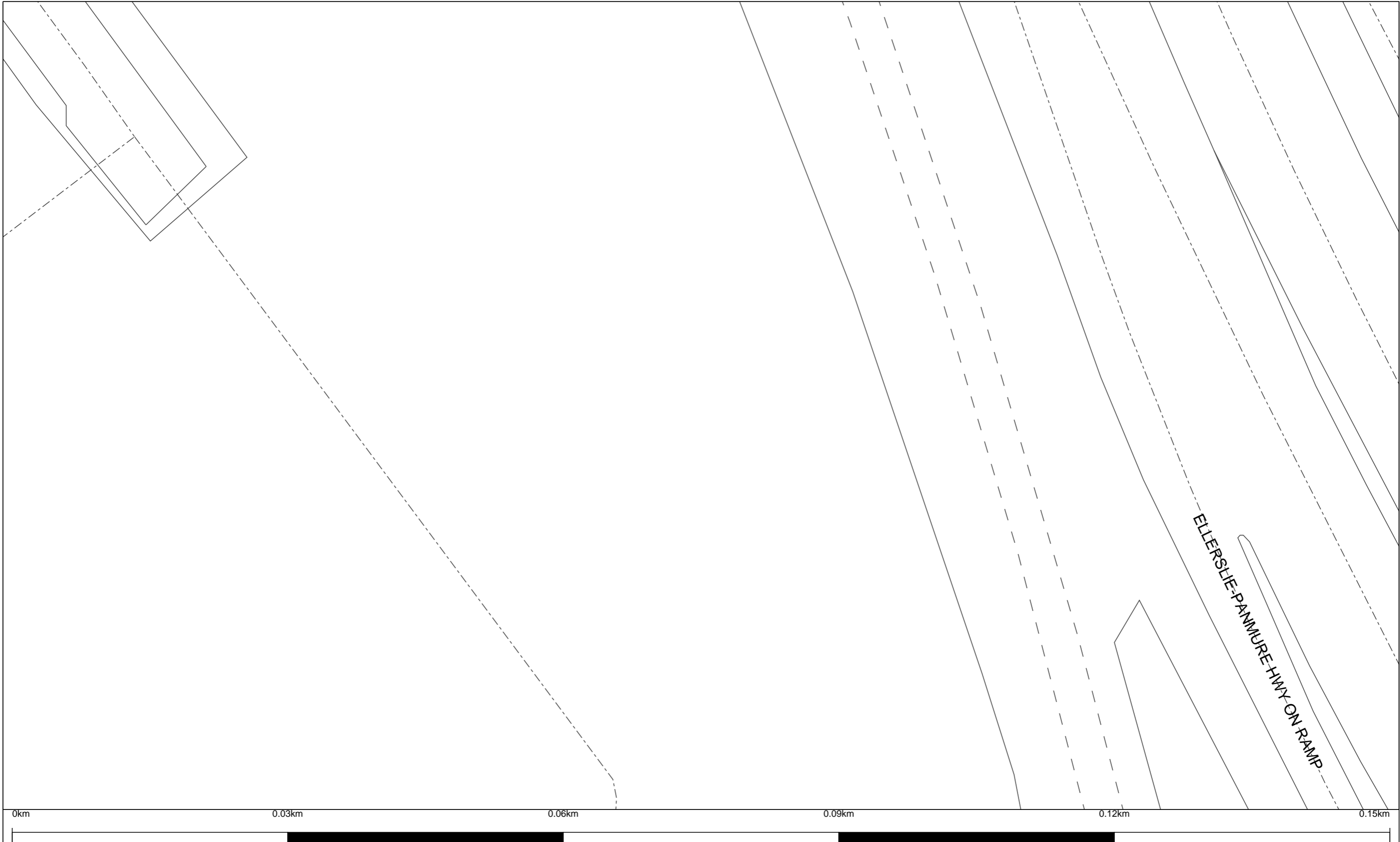
Title:	
Company Name:	
Customer Contact:	
Output: Page 11	Scale: 1:400
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Legend

Strand & Structure [Gis]

- Underground Route.Route Active
- Underground Utility Box.Location Active Manhole





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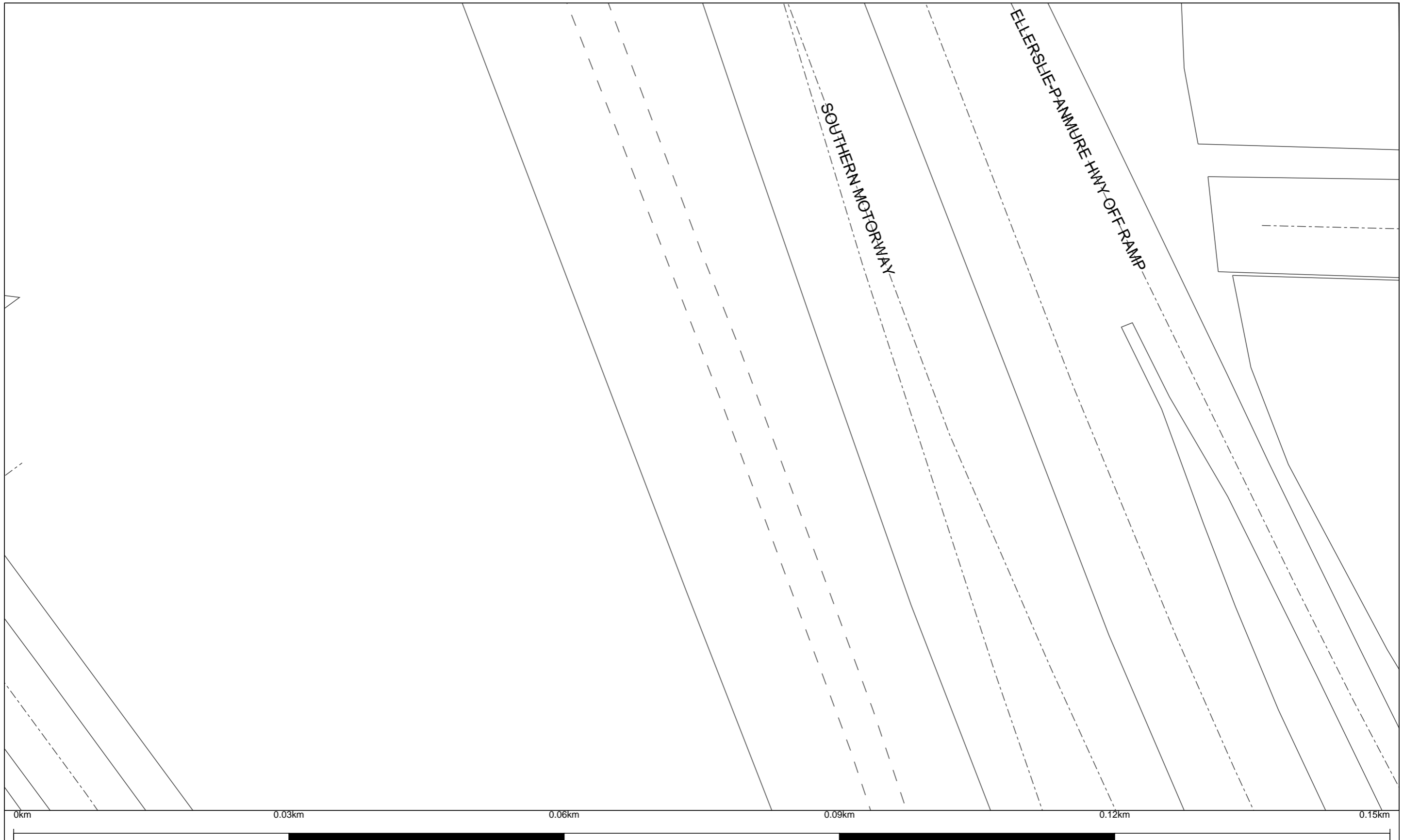
Gas - Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567

Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
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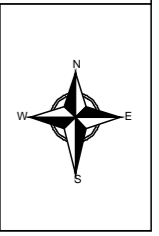
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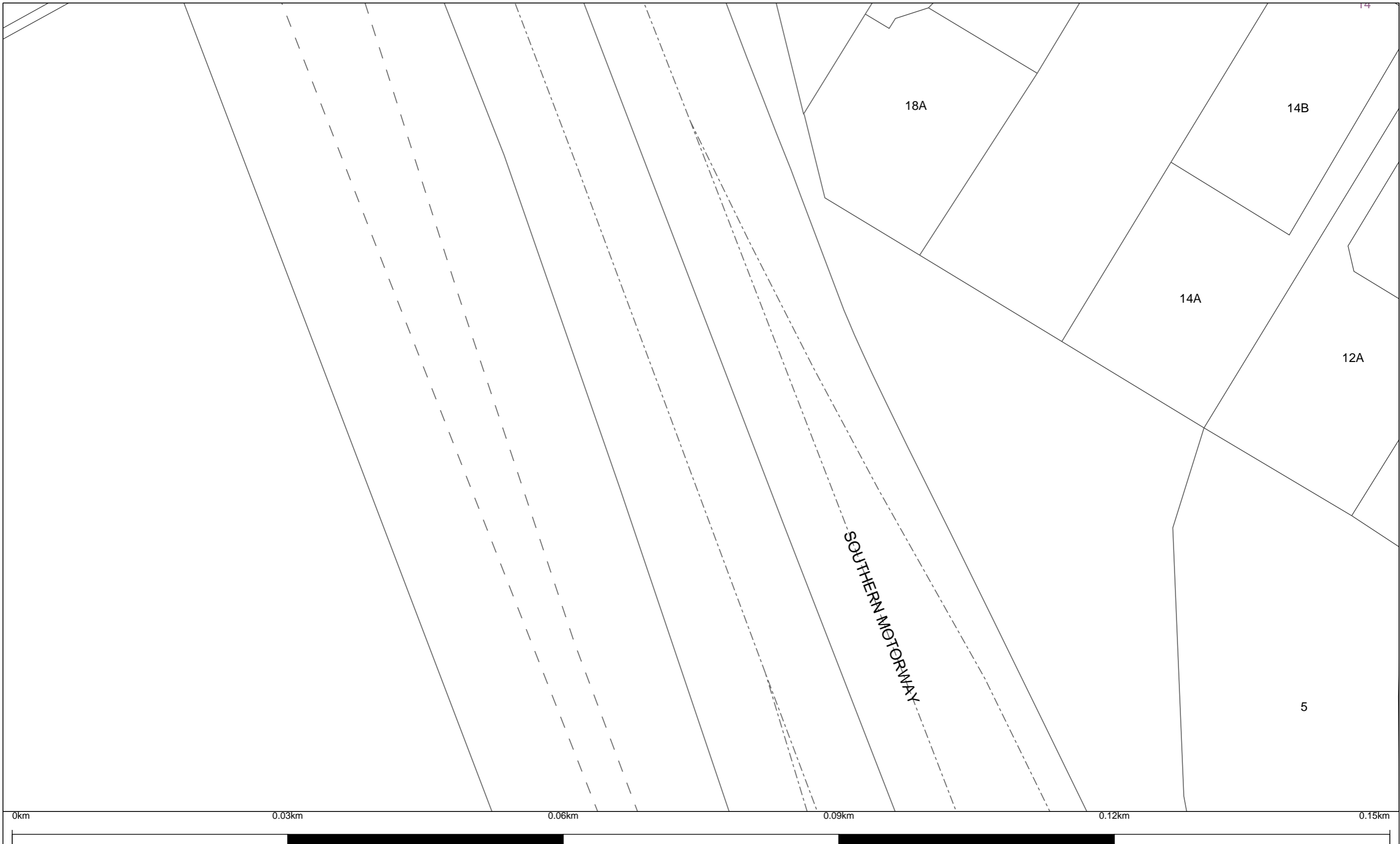
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Communication Cable - 0800 826 436

Title:	
Company Name:	
Customer Contact:	
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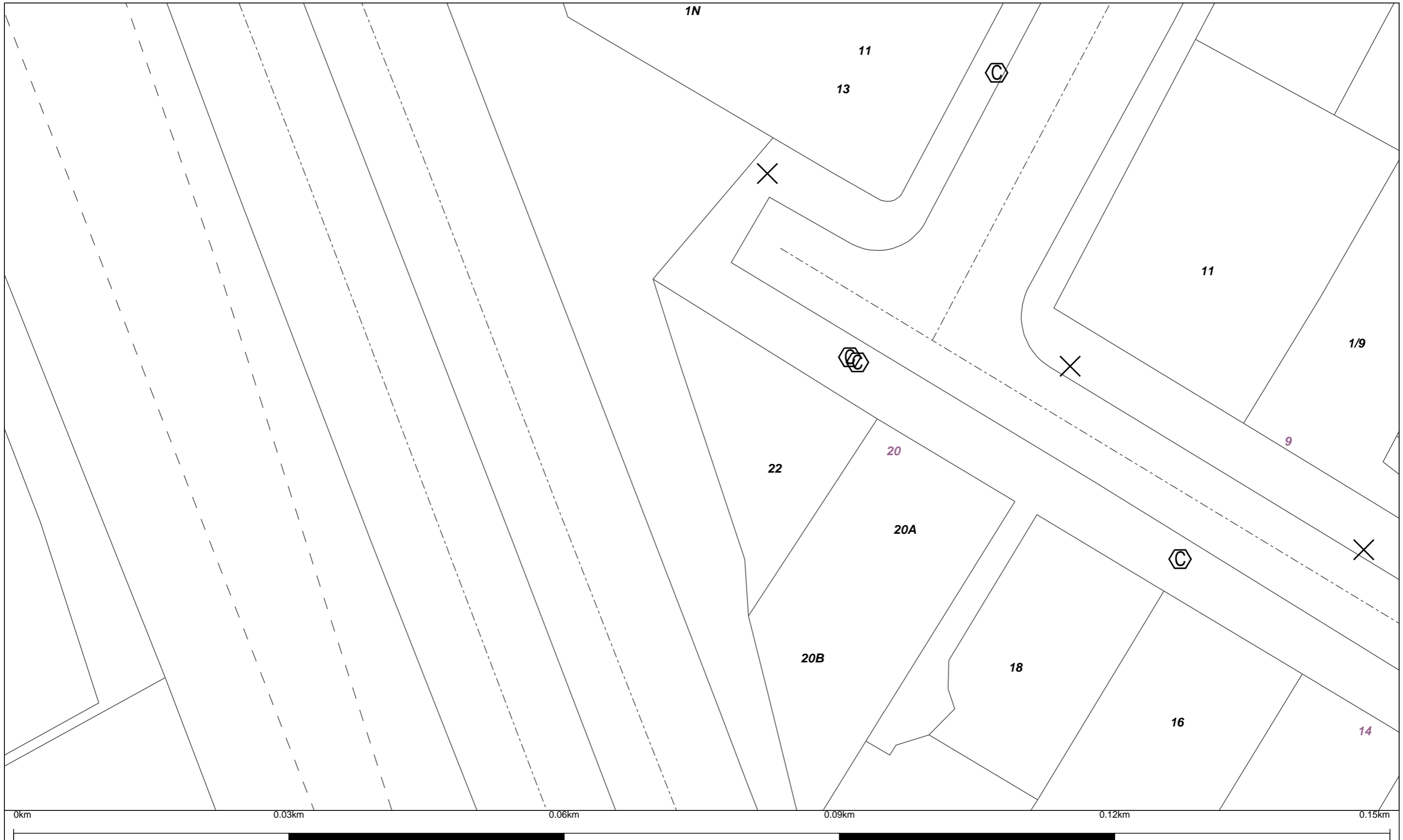
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Title:	
Company Name:	
Customer Contact:	
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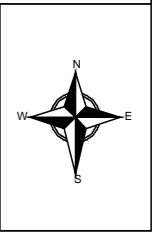
Communication Cable - 0800 826 436

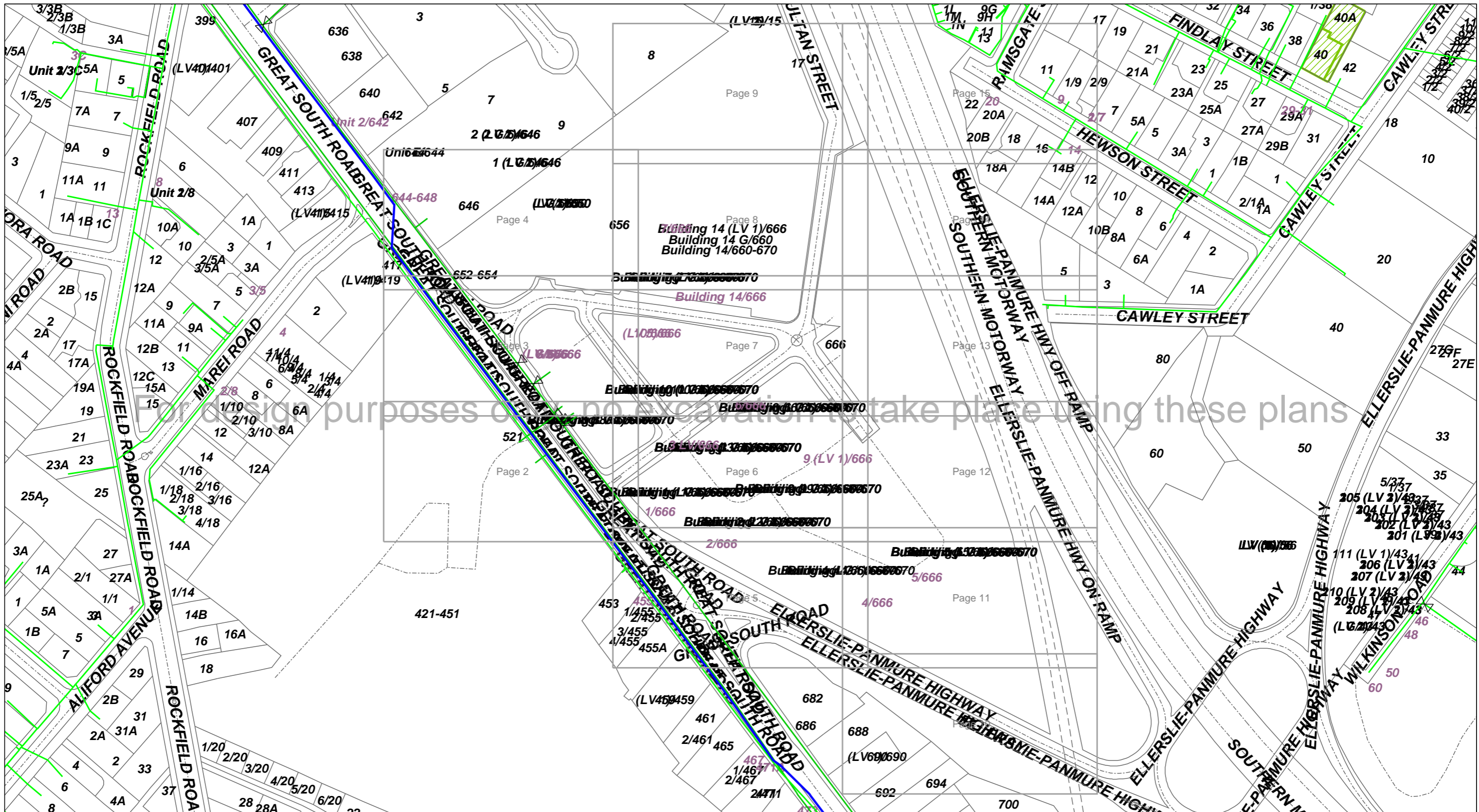
Title:	
Company Name:	
Customer Contact:	
Output: Page 15	Scale: 1:400
Printed by: swadmin	Date printed: 22/07/2019

Legend

Strand & Structure [Gis]

- Pole.Location Inactive Concrete
- Pole.Location Inactive Power





WARNING! Special conditions apply for high pressure gas pipelines (HP Pipe, IP20, IP10, MP7)

A permit/consent is required for any excavation within 2 metres of this pipeline. A MINIMUM of 3 working days notice is required when applying for a permit/consent. Refer to attached covering letter for additional information.

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293932
Request for:	No associated viewport
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 1 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT

- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

OTHER GAS FEATURES

- Fibre Optic
- Closed Valve
- Gate
- Riser
- Open Valve
- PRS
- Service Regulator
- Reducer

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For design purposes only, no excavation to take place using these plans



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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 3 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

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- On Hold
- Planned

WARNING! Indication only additional data is required

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 4 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

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- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

OTHER GAS FEATURES

- Fibre Optic
- Gate
- Riser
- PRS
- Service Regulator
- Closed Valve
- Open Valve
- Reducer

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2/666

Building 42666670

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WARNING! Special conditions apply for high pressure gas pipelines (HP Pipe, IP20, IP10, MP7)
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Request Title:	
Company Name:	
Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 5 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING!
 Live service within this property.

WORK MANAGEMENT

- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

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OTHER GAS FEATURES

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- Riser
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- Open Valve
- PRS
- Service Regulator
- Reducer





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Customer Contact:	Printed by:
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PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT


- In Progress
- On Hold
- Planned

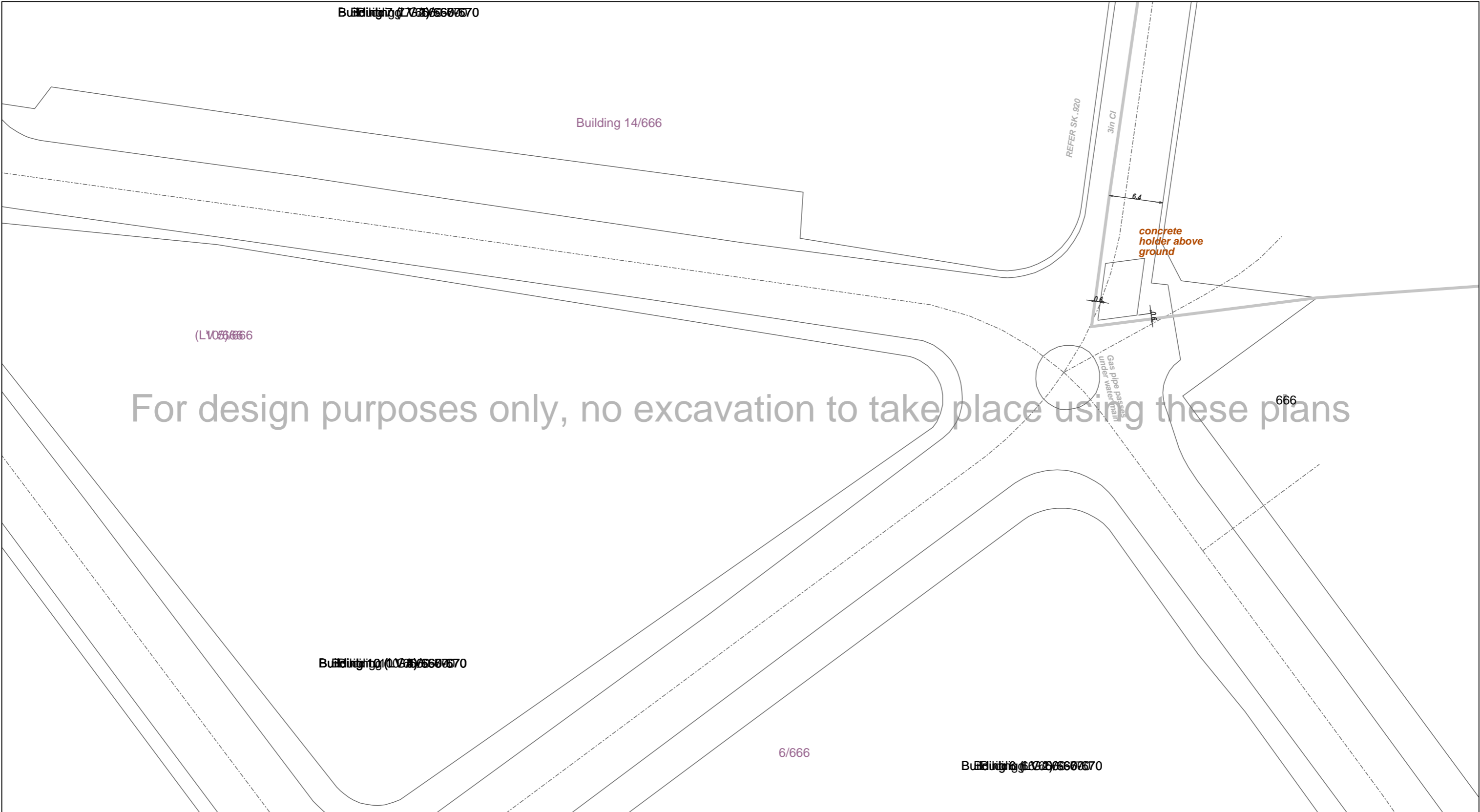
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OTHER GAS FEATURES

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PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT

- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

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OTHER GAS FEATURES

- Fibre Optic
- Gate
- Riser
- PRS
- Service Regulator
- Closed Valve
- Open Valve
- Reducer

For design purposes only, no excavation to take place using these plans

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7/666

Building 14 (LV 1)/666

Building 14 G/660

Building 14/660-670

Building 14/660-670

3/16 CI



WARNING! Special conditions apply for high pressure gas pipelines (HP Pipe, IP20, IP10, MP7)
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Client Reference:	Page: 8 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT

- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

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OTHER GAS FEATURES

- Fibre Optic
- Gate
- Riser
- PRS
- Service Regulator
- Closed Valve
- Open Valve
- Reducer



8

17

SULTAN STREET

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Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
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PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING!
Live service within this property.

WORK MANAGEMENT


- In Progress
- On Hold
- Planned

WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
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OTHER GAS FEATURES

- Fibre Optic
- Gate
- Riser
- PRS
- Service Regulator
- Closed Valve
- Open Valve
- Reducer



For design purposes only, no excavation to take place using these plans

688

(LV69)690

694

692



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Company Name:	
Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
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PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING!
 Live service within this property.

WORK MANAGEMENT	
	In Progress
	On Hold
	Planned

WARNING! Indication only additional data is required
 Transmission Pipeline (ex - NGC)
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OTHER GAS FEATURES			
	Fibre Optic		Closed Valve
	Gate		Riser
	PRS		Service Regulator
	Open Valve		Reducer



Building 4/666

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For design purposes only, no excavation to take place using these plans

4/666

ELLERSLIE-PANMURE HIGHWAY



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Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 11 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING!
 Live service within this property.

WARNING! Indication only additional data is required
 Transmission Pipeline (ex - NGC)
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WORK MANAGEMENT	
	In Progress
	On Hold
	Planned

OTHER GAS FEATURES	
	Fibre Optic
	Gate
	Riser
	PRS
	Service Regulator
	Closed Valve
	Open Valve
	Reducer



For design purposes only, no excavation to take place using these plans

ELLERSLIE-PANMURE HWY-ON-RAMP



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Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 12 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING!
 Live service within this property.

WORK MANAGEMENT

- In Progress
- On Hold
- Planned

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OTHER GAS FEATURES

- Fibre Optic
- Gate
- PRS
- Riser
- Service Regulator
- Closed Valve
- Open Valve
- Reducer



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PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT	
	In Progress
	On Hold
	Planned

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OTHER GAS FEATURES			
	Fibre Optic		Closed Valve
	Gate		Riser
	PRS		Service Regulator
	Open Valve		Reducer



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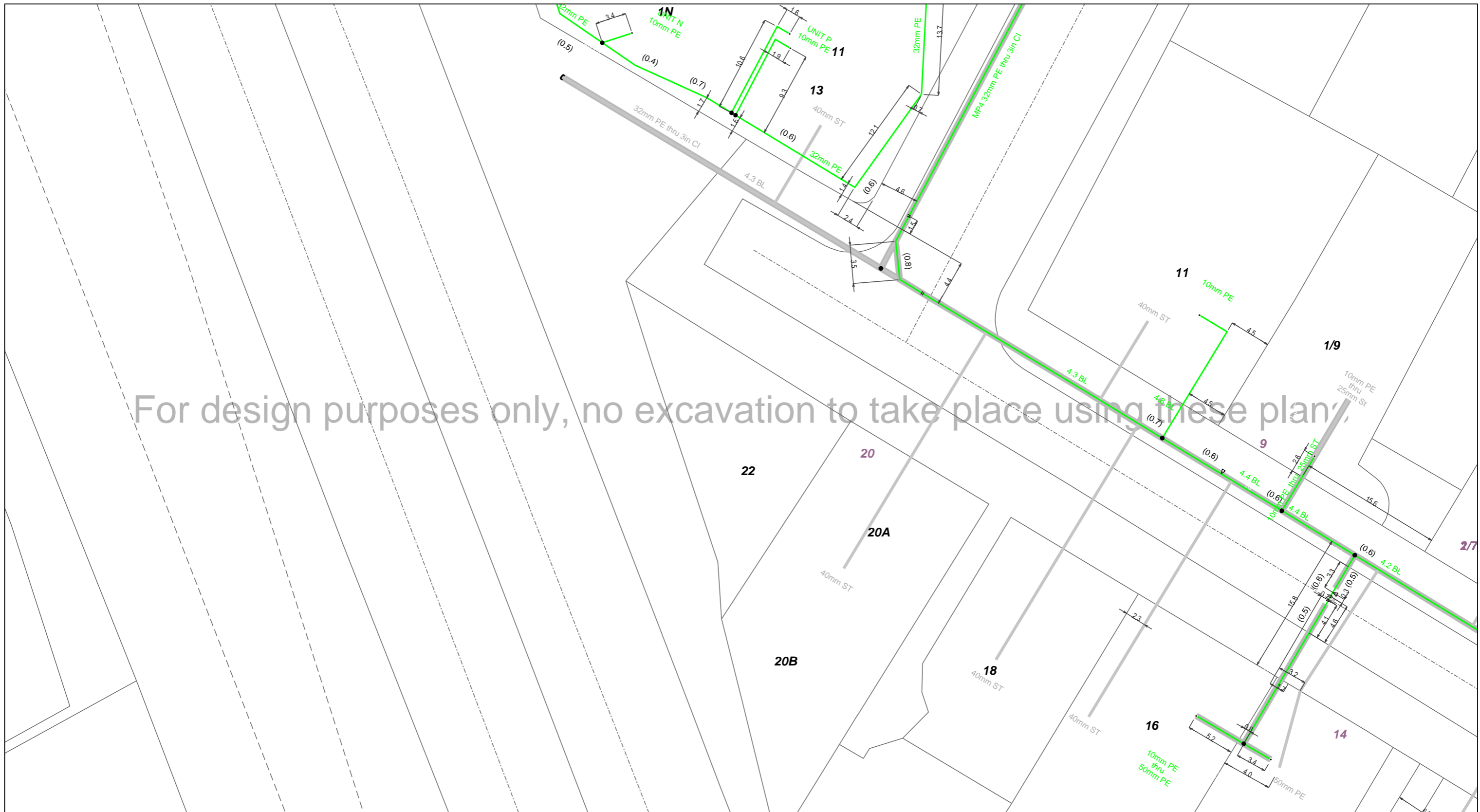
PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

	WARNING! Live service within this property.
WORK MANAGEMENT	
	In Progress
	On Hold
	Planned

WARNING! Indication only additional data is required			
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OTHER GAS FEATURES			
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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293932
Request for:	Scale: 1:400
Customer Contact:	Printed by:
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 15 of 15

PIPE COLOUR BY PRESSURE	
	LP Pipe
	LPG Pipe
	MP1 Pipe
	MP2 Pipe
	MP4 Pipe
	MP7 Pipe
	IP10 Pipe
	IP20 Pipe
	HP Pipe
	0 kPa

WARNING! Live service within this property.

WORK MANAGEMENT


- In Progress
- On Hold
- Planned

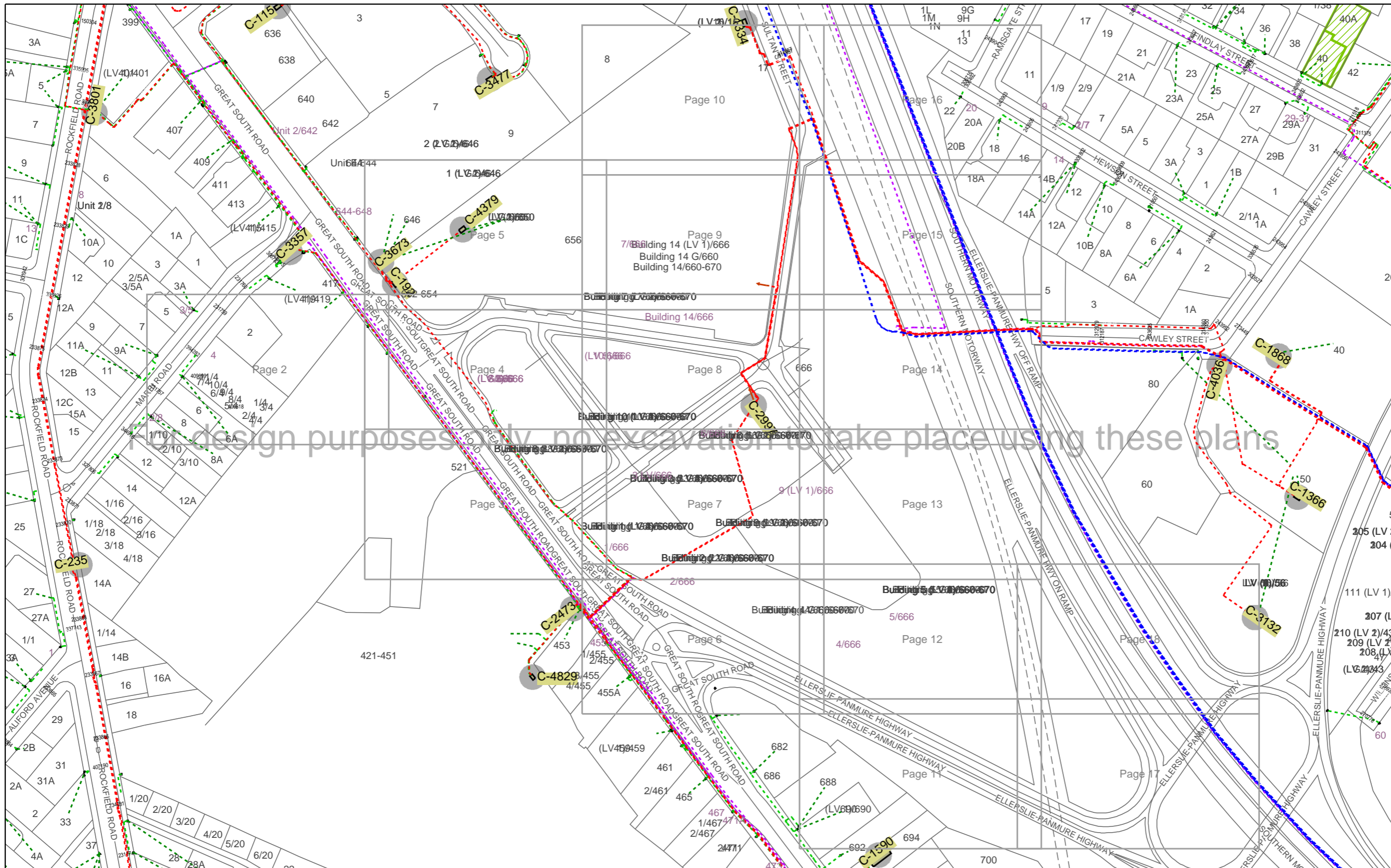
WARNING! Indication only additional data is required

Transmission Pipeline (ex - NGC)
 Please contact Vector - New Plymouth on 0800 734 567 for On-Site Location and Work Permits. A minimum of 48 hours notice is required.

OTHER GAS FEATURES

- Fibre Optic
- Gate
- Riser
- PRS
- Service Regulator
- Closed Valve
- Open Valve
- Reducer





CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

22kv, 33kv, 110kv SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

Vector Limited provides a free standover service that requires 2 working days notice. Hand digging is required when excavating within 1 metre of the cable. Replacement trench backfill material must be the same as that removed and it must be replaced to the same level of compaction. Refer to attached covering letter for additional information.

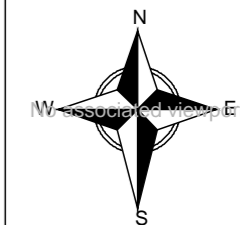
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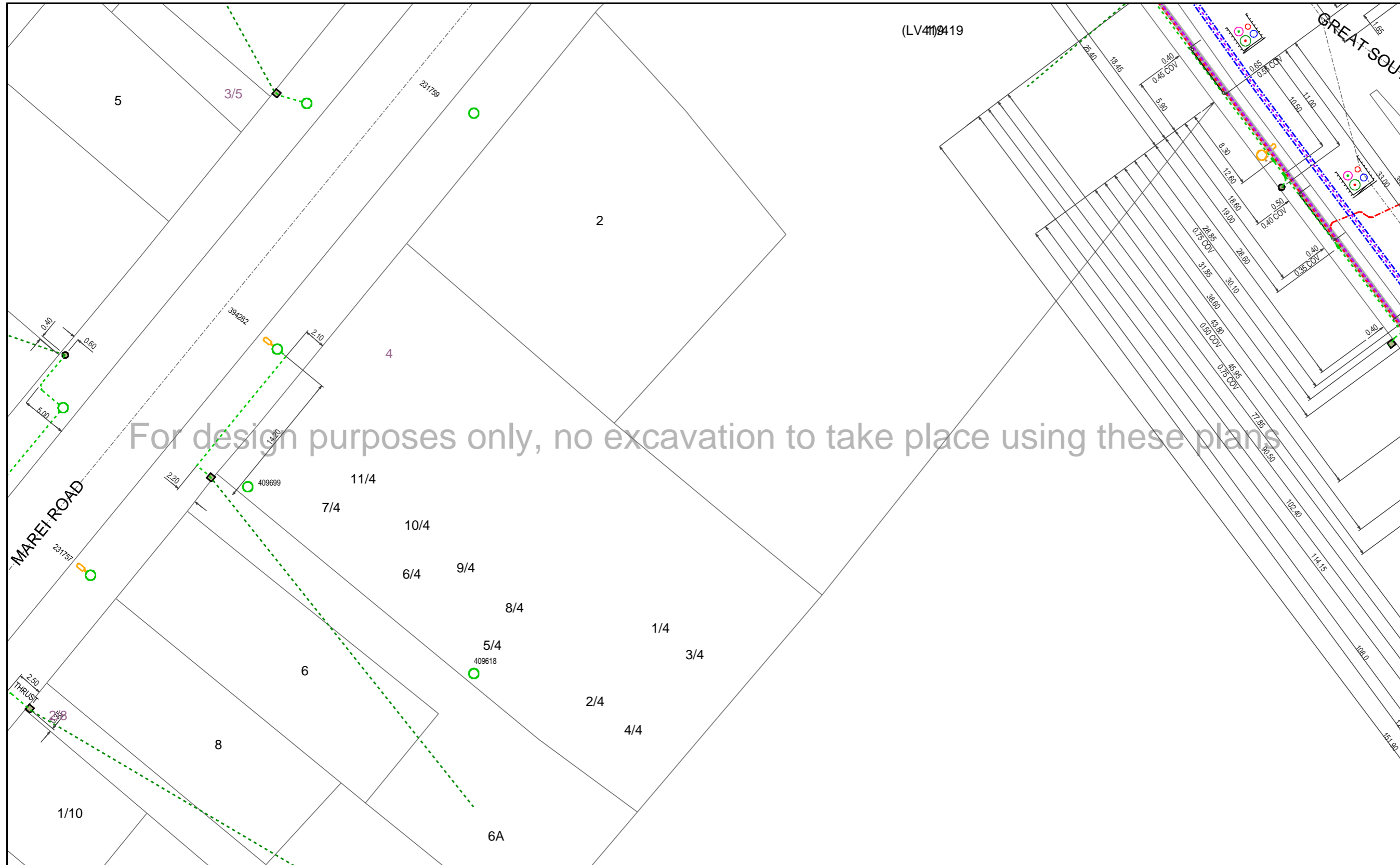
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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	No associated viewport
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 1 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



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For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED



22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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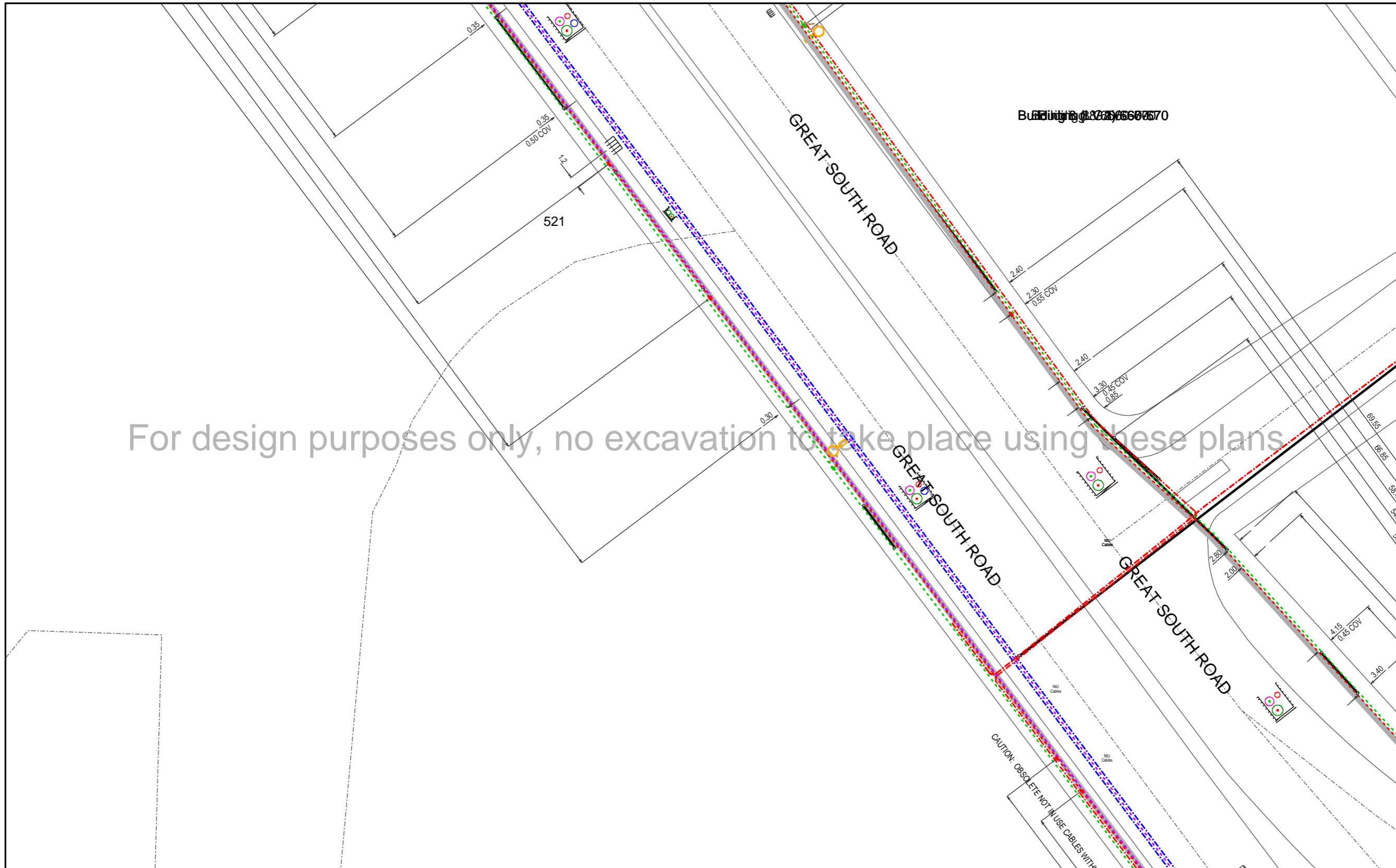
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Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 2 of 18

A3 ELECTRICITY OBSTRUCTION PLAN





CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

For design purposes only, no excavation to take place using these plans



22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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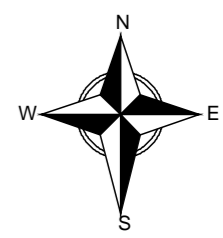
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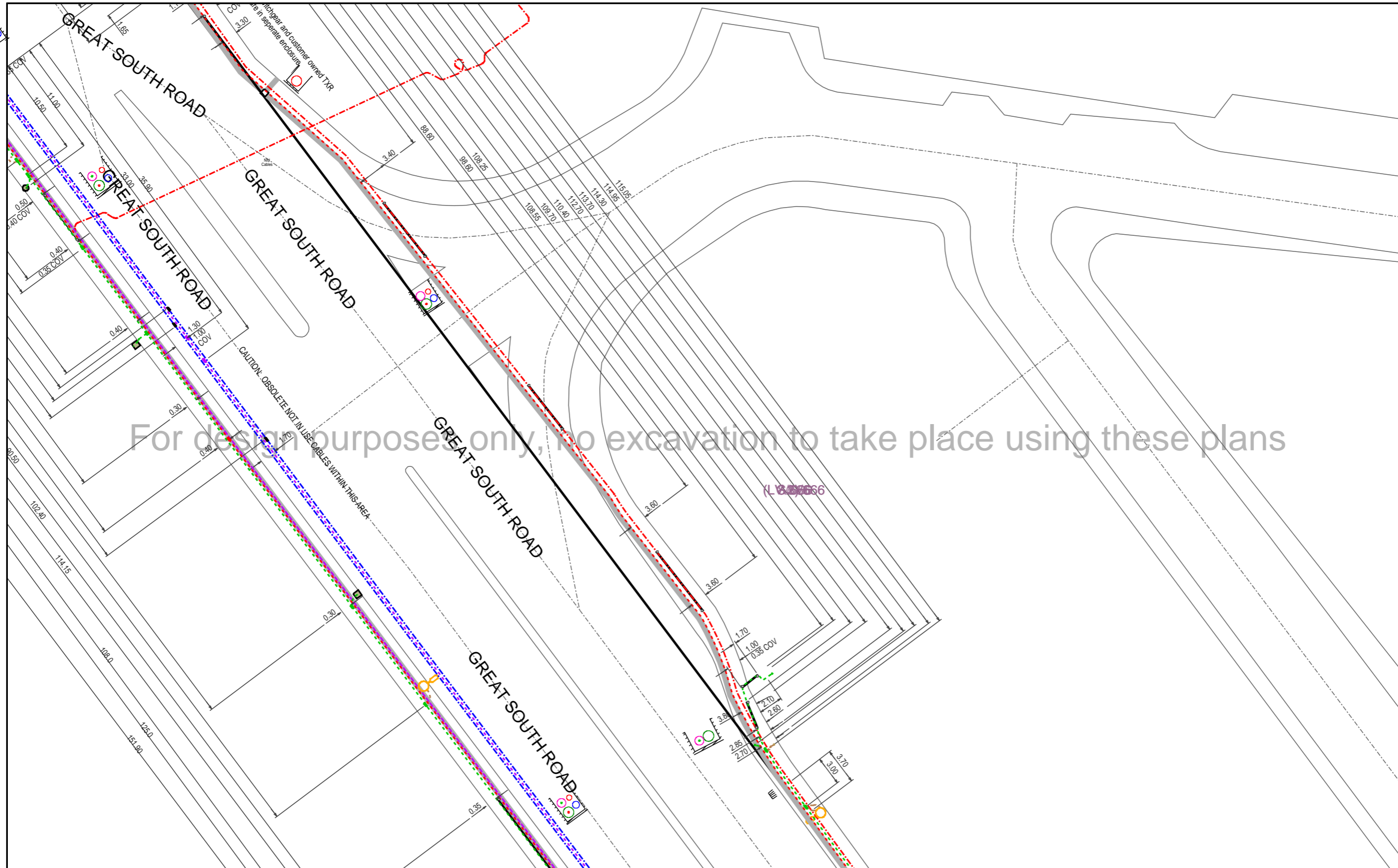
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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 3 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



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CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

Vector

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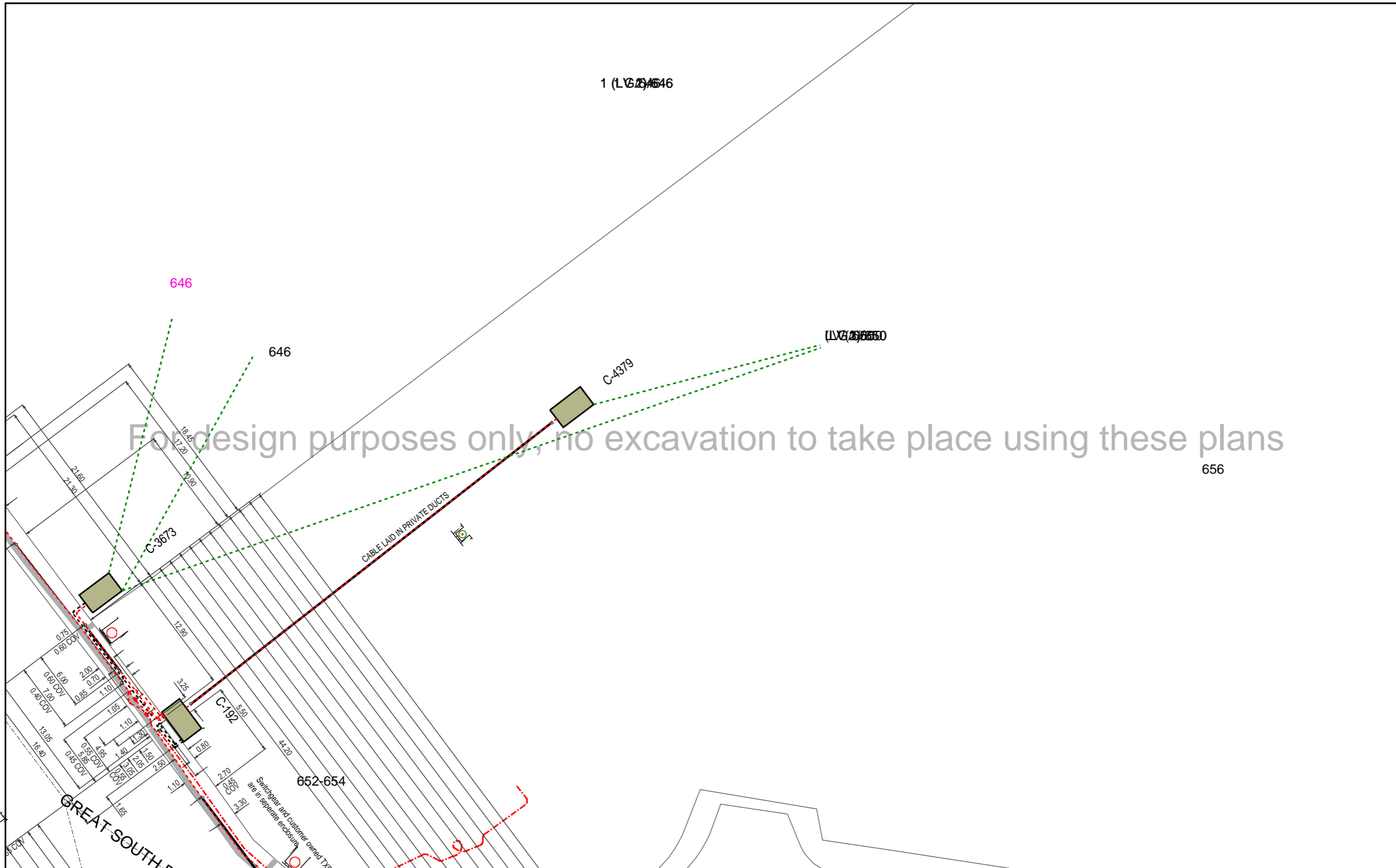
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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 4 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

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- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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A3 ELECTRICITY OBSTRUCTION PLAN

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CABLE COLOUR CODE

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- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

For design purposes only, no excavation to take place using these plans

Vector

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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 6 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
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CABLES NOT IN USE

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- 22,000 volt
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- Streetlight
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- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
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- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

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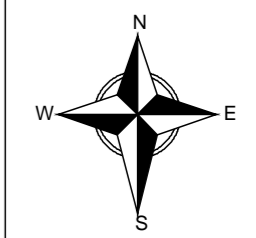
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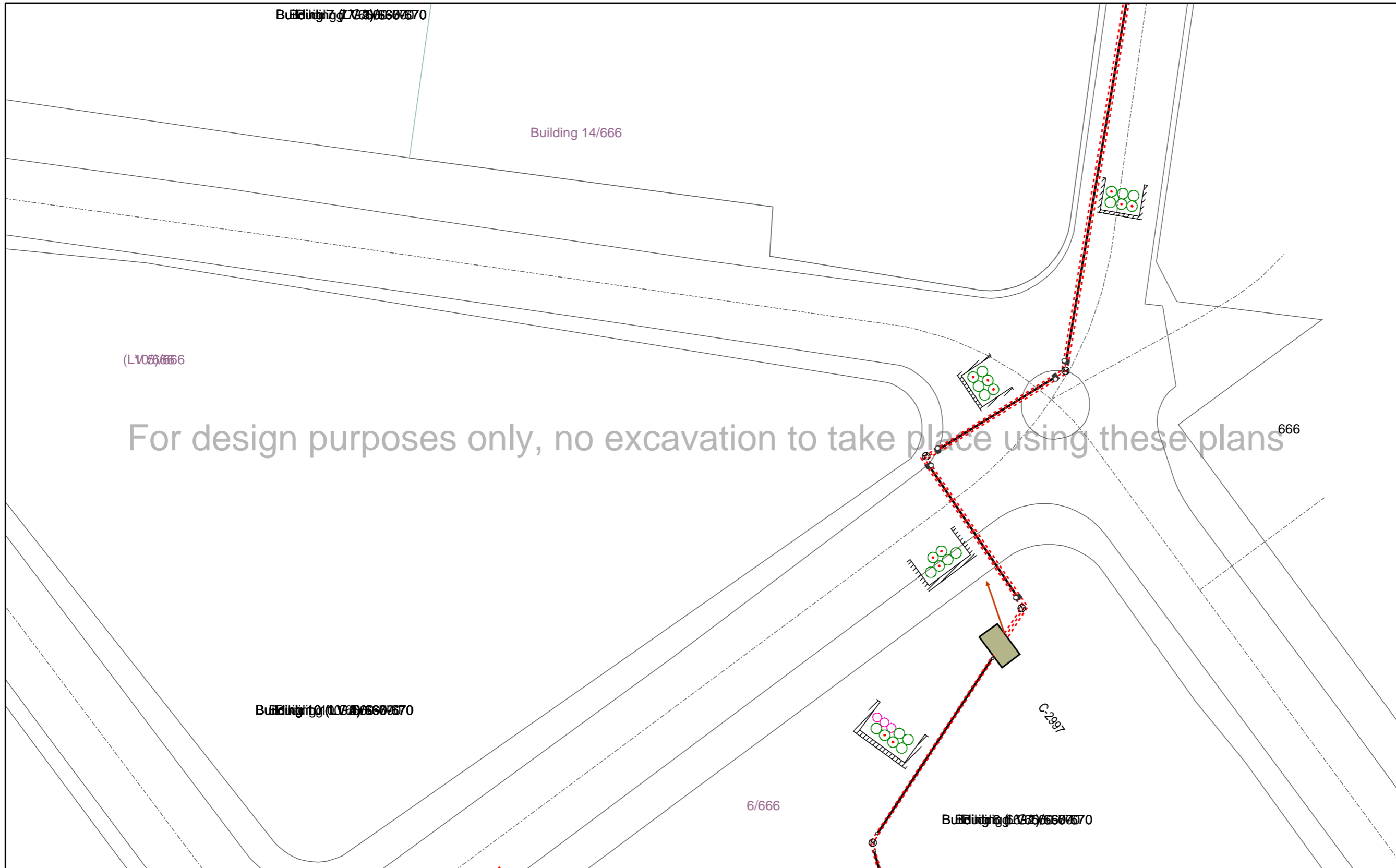
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Title:	
Request Title:	
Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 7 of 18

A3 ELECTRICITY OBSTRUCTION PLAN





CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
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JOINTS & SEALING ENDS

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- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
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- DISTRIBUTION SUBSTATION
- POLES
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- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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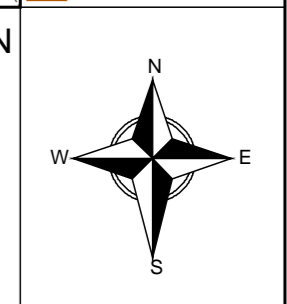
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Request Title:	
Company Name:	
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Client Reference:	Page: 8 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



For design purposes only, no excavation to take place using these plans

7/666

Building 14 (LV 1)/666

Building 14 G/660

Building 14/660-670

Building 14/660-670

PRIVATE MV CABLE TO CUSTOMER SUBSTATION

CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

- 25 50 80 100 150
- 200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED



22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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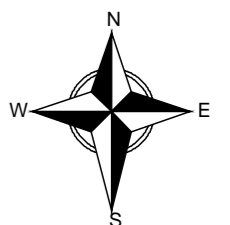
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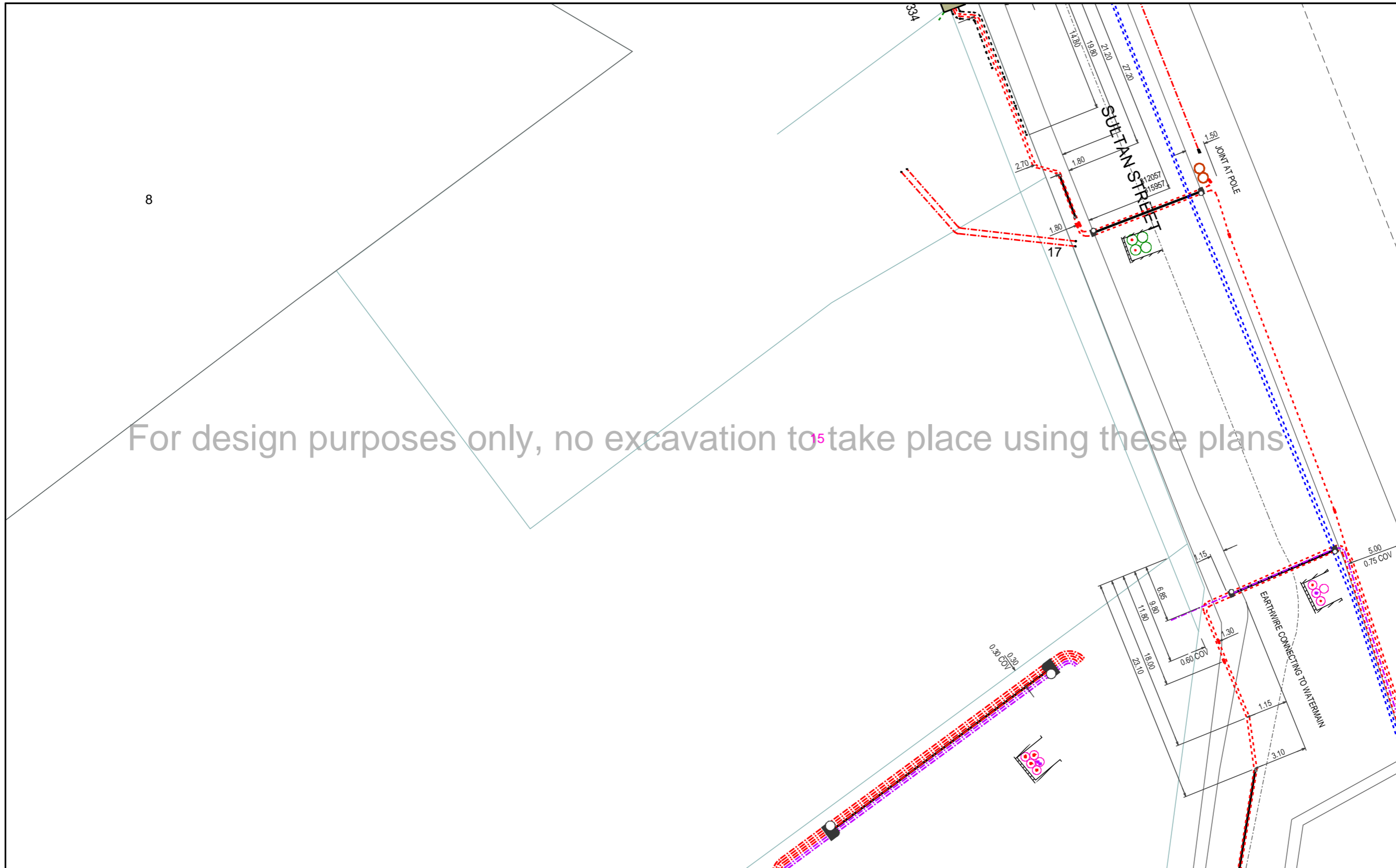
Title:	
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Company Name:	
Usage:	Request ID: 7293931
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Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 9 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



8

For design purposes only, no excavation to take place using these plans



CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED



22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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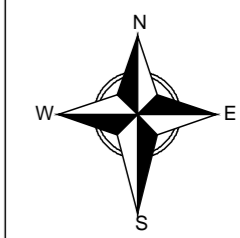
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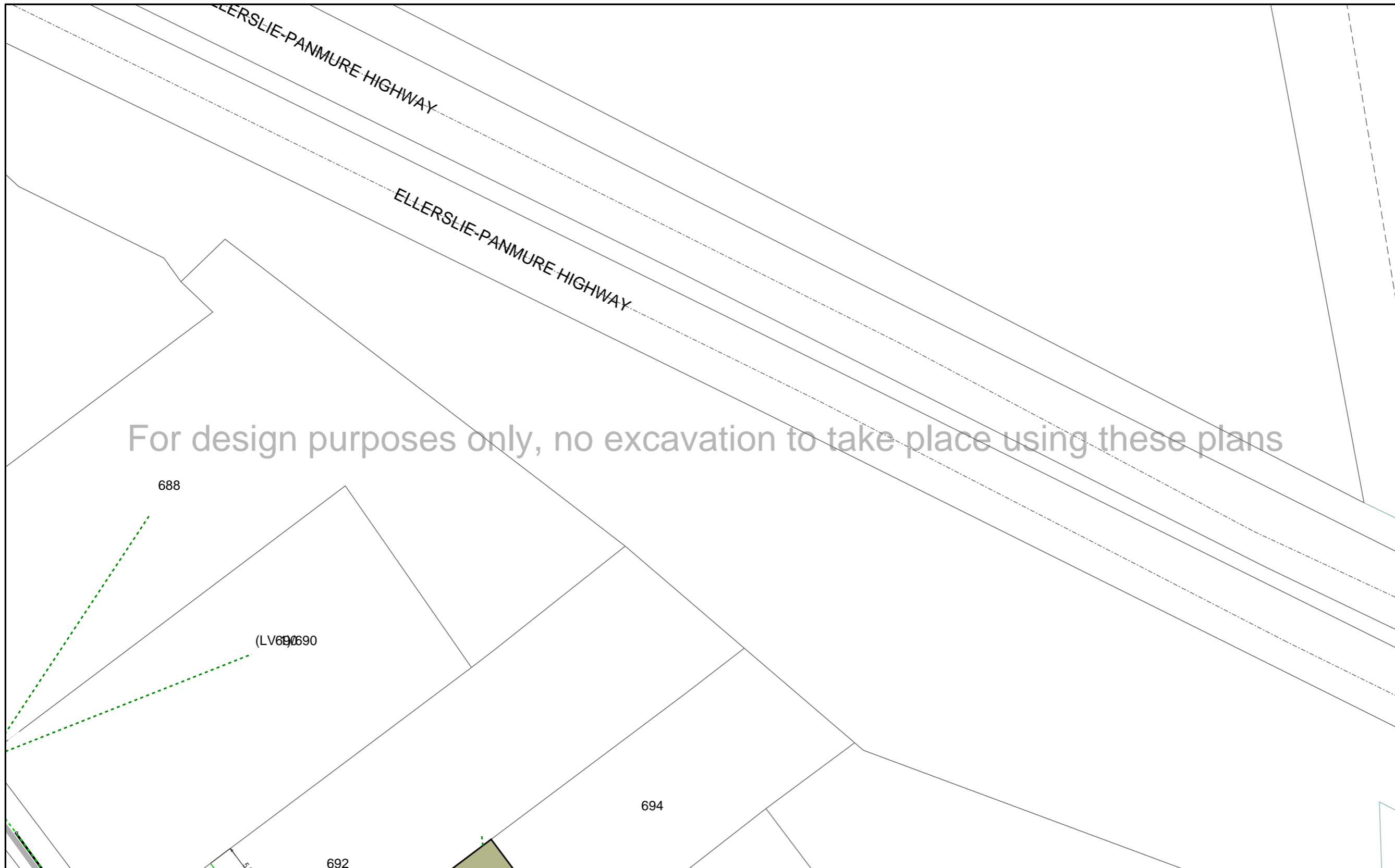
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Request Title:	
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Usage:	Request ID: 7293931
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A3 ELECTRICITY OBSTRUCTION PLAN



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CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

For design purposes only, no excavation to take place using these plans



22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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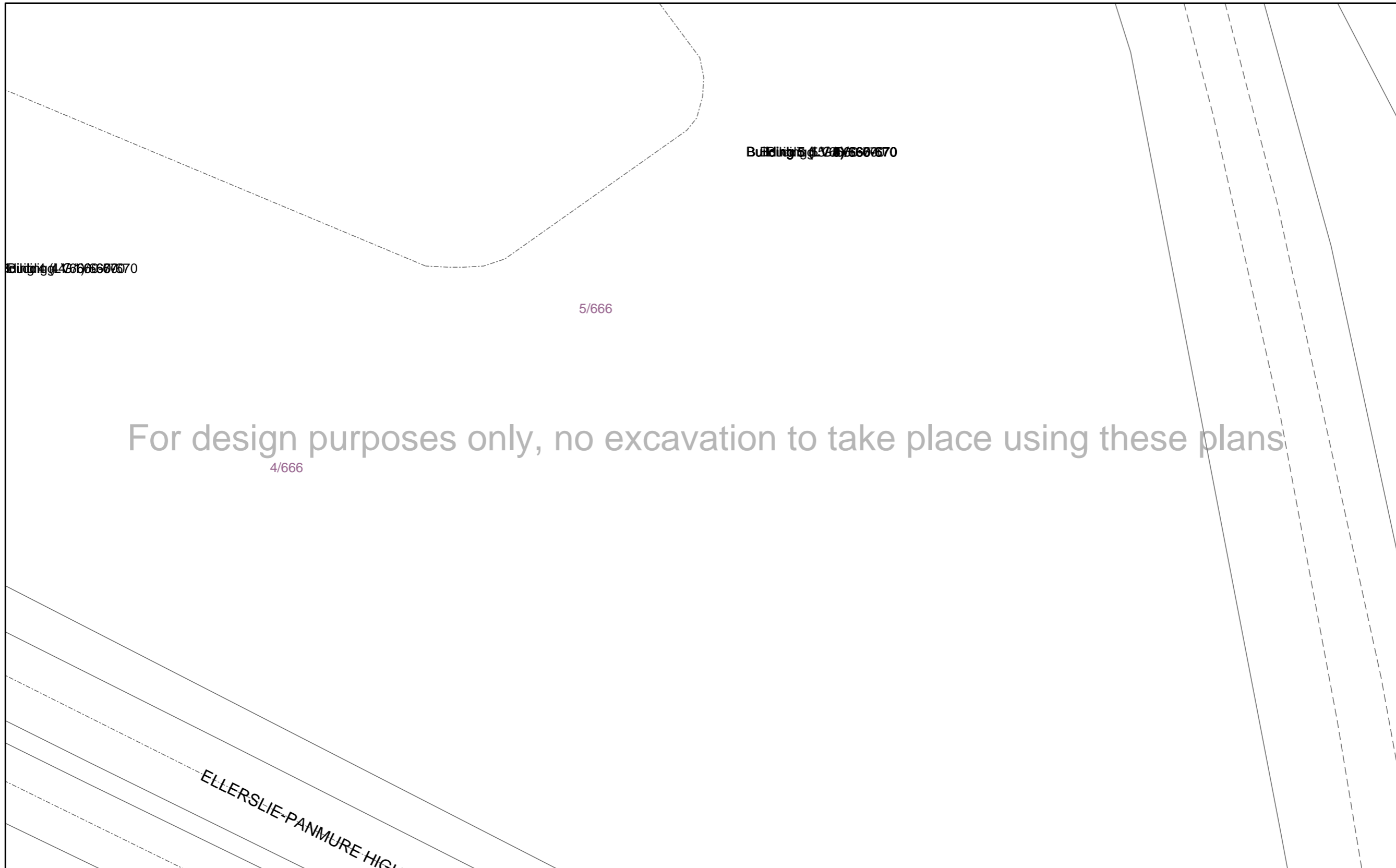
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Request Title:	
Company Name:	
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A3 ELECTRICITY OBSTRUCTION PLAN



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CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

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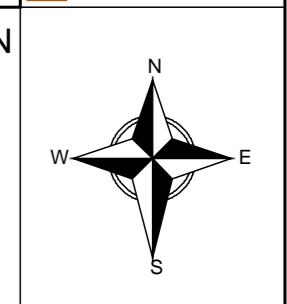
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Client Reference:	Page: 12 of 18

A3 ELECTRICITY OBSTRUCTION PLAN





9 (LV 1)/666

For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED



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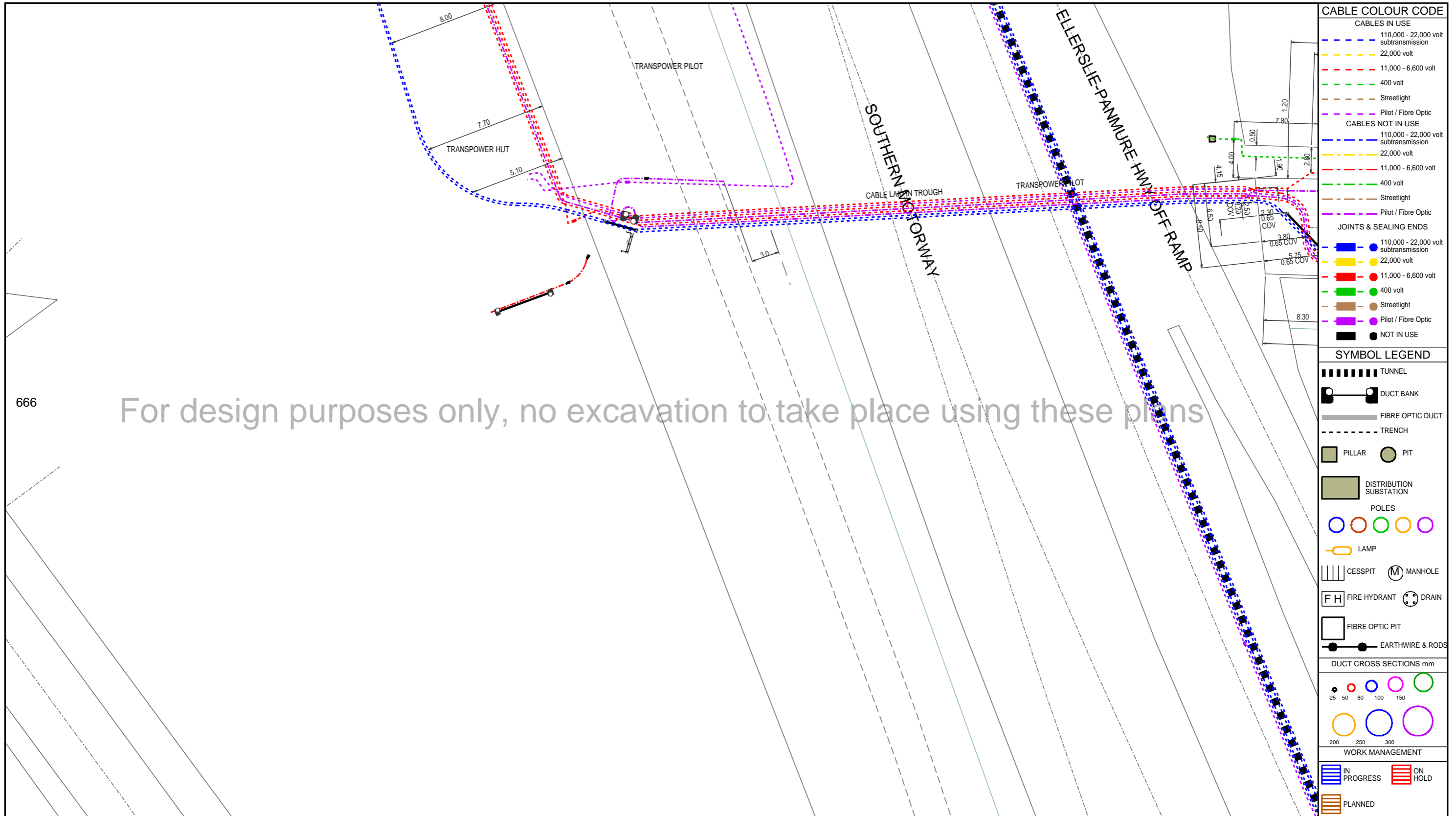
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A3 ELECTRICITY OBSTRUCTION PLAN

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666

CABLE COLOUR CODE

CABLES IN USE

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- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

Vector

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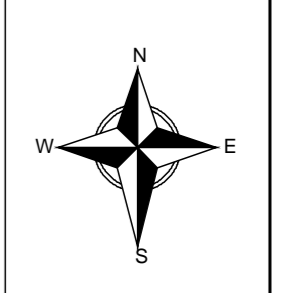
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Client Reference:	Page: 14 of 18

A3 ELECTRICITY OBSTRUCTION PLAN





For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150

200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

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Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 15 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission (Blue dashed line)
- 22,000 volt (Yellow dashed line)
- 11,000 - 6,600 volt (Red dashed line)
- 400 volt (Green dashed line)
- Streetlight (Brown dashed line)
- Pilot / Fibre Optic (Purple dashed line)

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission (Blue dashed line)
- 22,000 volt (Yellow dashed line)
- 11,000 - 6,600 volt (Red dashed line)
- 400 volt (Green dashed line)
- Streetlight (Brown dashed line)
- Pilot / Fibre Optic (Purple dashed line)

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission (Blue circle)
- 22,000 volt (Yellow circle)
- 11,000 - 6,600 volt (Red circle)
- 400 volt (Green circle)
- Streetlight (Brown circle)
- Pilot / Fibre Optic (Purple circle)
- NOT IN USE (Black circle)

SYMBOL LEGEND

- TUNNEL (Thick black line)
- DUCT BANK (Black line with circles)
- FIBRE OPTIC DUCT (Grey line)
- TRENCH (Dashed line)
- PILLAR (Grey rectangle)
- PIT (Grey circle)
- DISTRIBUTION SUBSTATION (Grey rectangle)
- POLES (Colored circles)
- LAMP (Yellow rectangle)
- CESSPIT (Vertical lines)
- MANHOLE (Circle with 'M')
- FIRE HYDRANT (Square with 'FH')
- DRAIN (Circle with 'D')
- FIBRE OPTIC PIT (Square with 'F')
- EARTHWIRE & RODS (Black line with dots)

DUCT CROSS SECTIONS mm

- 25, 50, 80, 100, 150 (Small circles)
- 200, 250, 300 (Large circles)

WORK MANAGEMENT

- IN PROGRESS (Blue hatched box)
- ON HOLD (Red hatched box)
- PLANNED (Orange hatched box)

22kv, 33kv, 110kv SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:

Vector Limited provides a free standover service that requires 2 working days notice. Hand digging is required when excavating within 1 metre of the cable. Replacement trench backfill material must be the same as that removed and it must be replaced to the same level of compaction. Refer to attached covering letter for additional information.

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Vector reminds you of your responsibilities under the Health and Safety at Work Act 2015, whereby you must establish the location of underground services before commencing excavation.

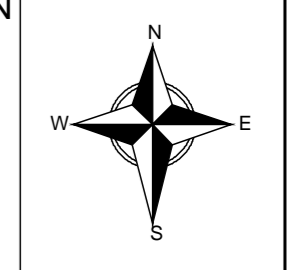
If you hit an electricity cable or overhead line please call us immediately on 0508 VECTOR (0508 832 867). If you hit any gas pipeline call the Fire Service first on 111. If you hit a gas distribution pipe in the Auckland area call us on 0800 764 764. If you hit a gas pipeline in the rest of the North Island call FIRST GAS on 0800 800 393. If you hit a gas transmission pipeline call FIRST GAS on 0800 734 567. If you hit a communications cable (all areas) call us immediately on 0800 826 436 (select option 1).

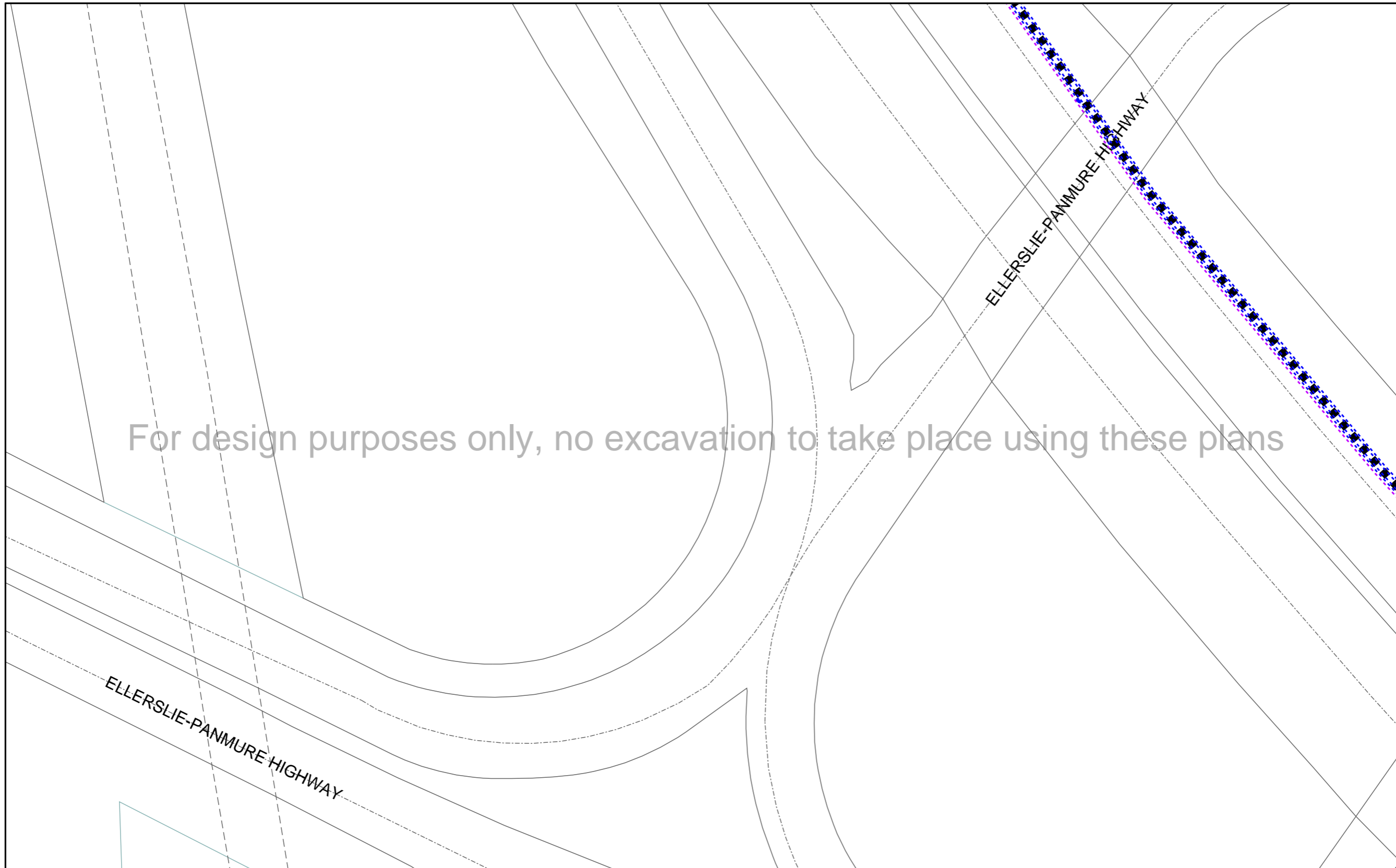
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Company Name:	
Usage:	Request ID: 7293931
Request for:	Scale: 1:400
Customer Contact:	Printed by: swadmin
Phone:	Date printed: 22. July 2019
Client Reference:	Page: 16 of 18

A3 ELECTRICITY OBSTRUCTION PLAN



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CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

- IN PROGRESS
- ON HOLD
- PLANNED

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Vector

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22kV, 33kV, 110kV SUB TRANSMISSION CABLES-SPECIAL CONDITIONS APPLY:
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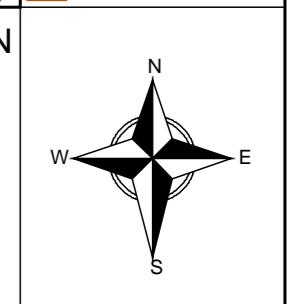
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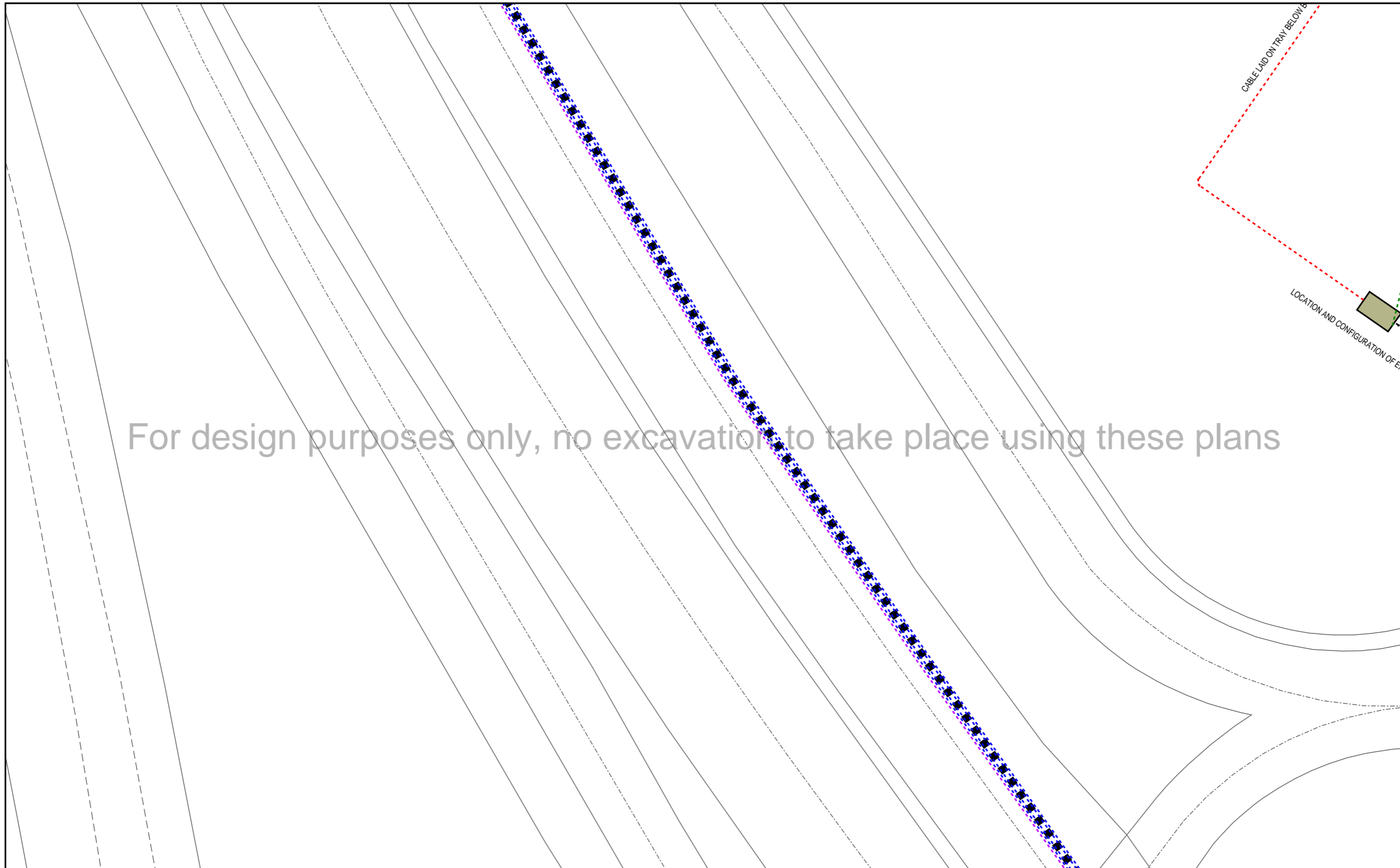
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Client Reference:	Page: 17 of 18

A3 ELECTRICITY OBSTRUCTION PLAN





For design purposes only, no excavation to take place using these plans

CABLE COLOUR CODE

CABLES IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

CABLES NOT IN USE

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic

JOINTS & SEALING ENDS

- 110,000 - 22,000 volt subtransmission
- 22,000 volt
- 11,000 - 6,600 volt
- 400 volt
- Streetlight
- Pilot / Fibre Optic
- NOT IN USE

SYMBOL LEGEND

- TUNNEL
- DUCT BANK
- FIBRE OPTIC DUCT
- TRENCH
- PILLAR
- PIT
- DISTRIBUTION SUBSTATION
- POLES
- LAMP
- CESSPIT
- MANHOLE
- FIRE HYDRANT
- DRAIN
- FIBRE OPTIC PIT
- EARTHWIRE & RODS

DUCT CROSS SECTIONS mm

25 50 80 100 150
200 250 300

WORK MANAGEMENT

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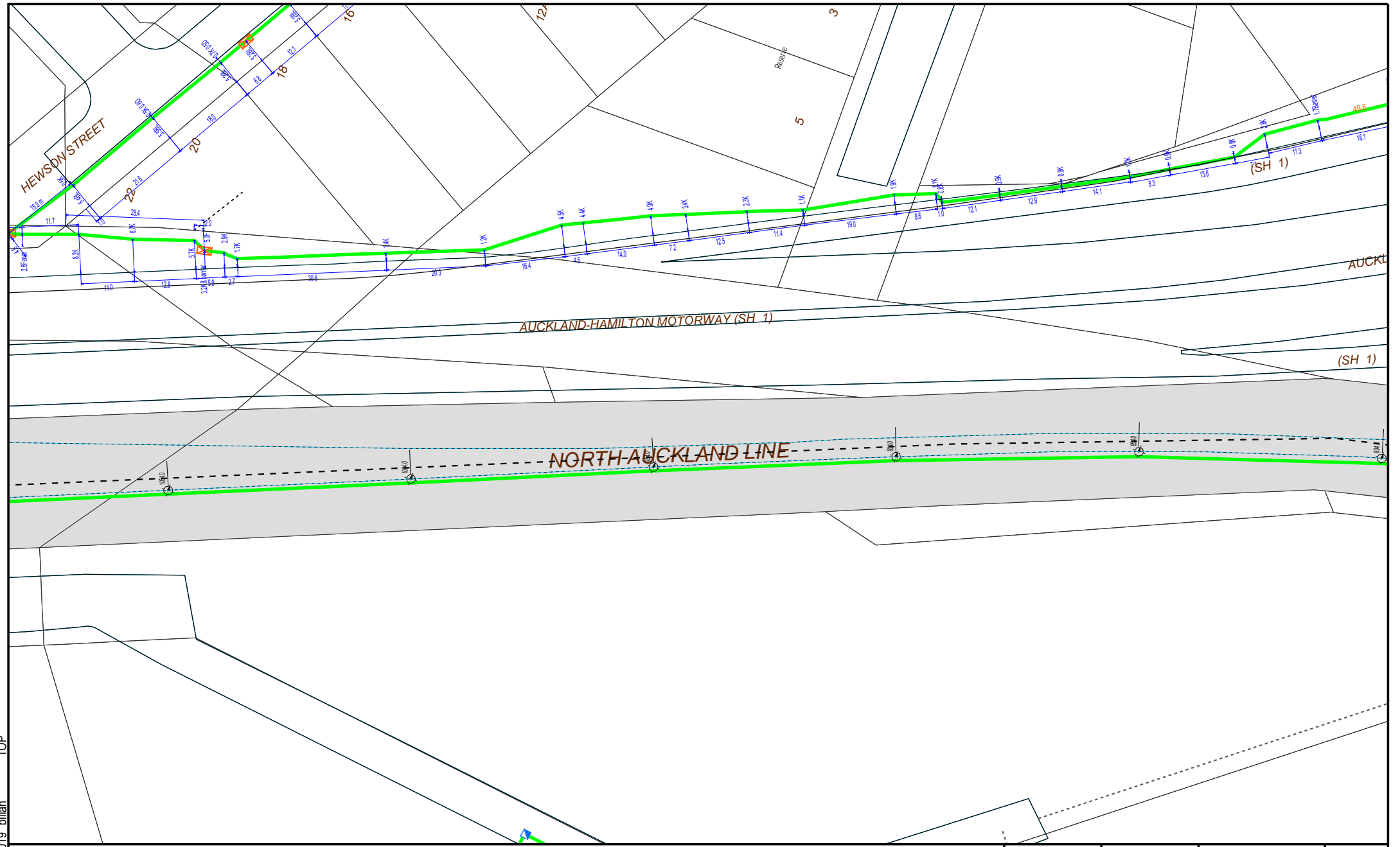
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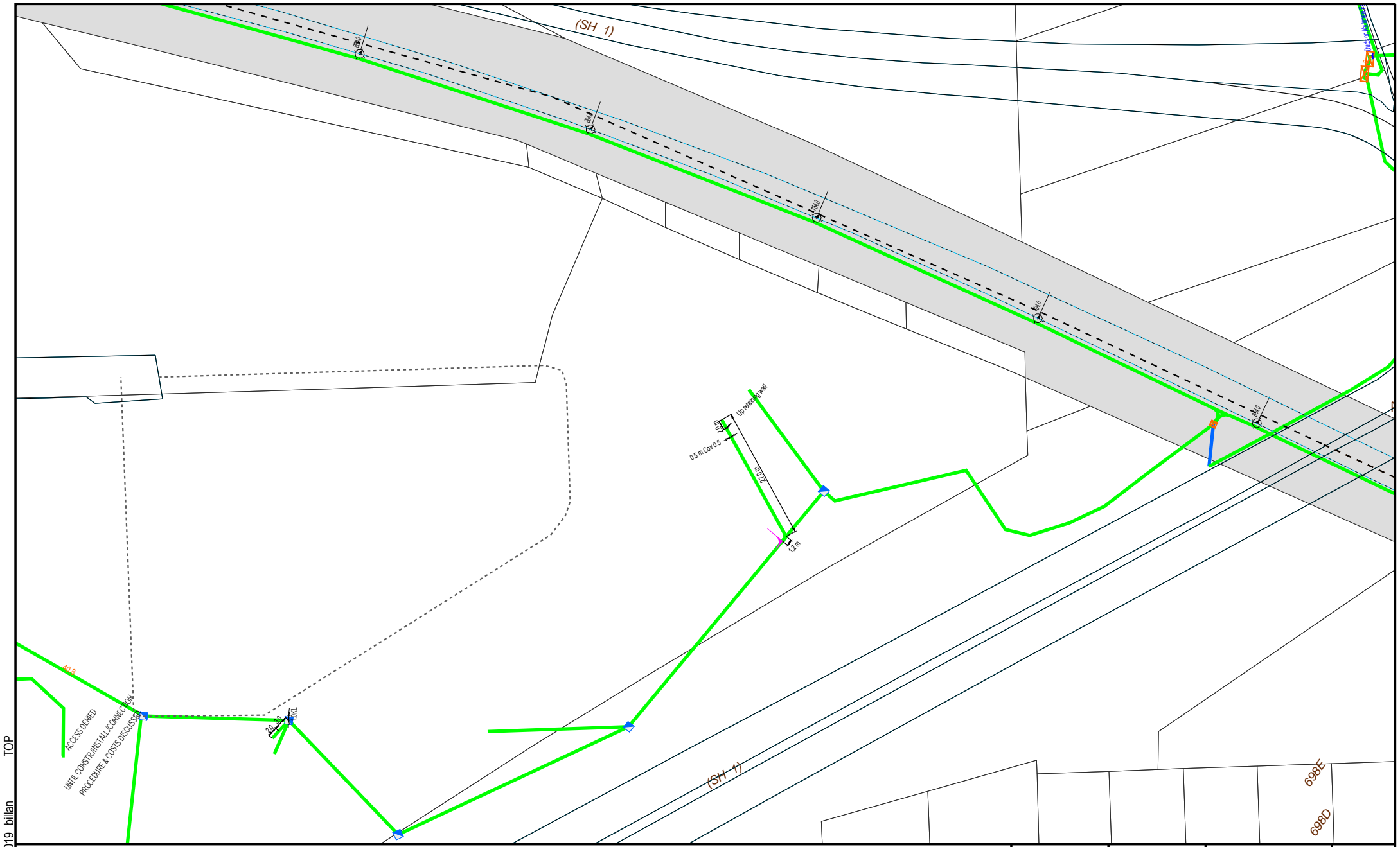
A3 ELECTRICITY OBSTRUCTION PLAN



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24/7/2019 billan





24/7/2019 billan

24/7/2019 billan TOP



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