

# Appendix A

## **Servicing Opportunities and Constraints Report**

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# lot 55 chapman road, glenfield

opportunities and constraints report

Project No. 16-212

# table of contents

|     |                                   |   |
|-----|-----------------------------------|---|
| 1   | Introduction .....                | 2 |
| 2   | Site Conditions .....             | 3 |
| 2.1 | Geology .....                     | 3 |
| 2.2 | Topography .....                  | 3 |
| 2.3 | Groundwater Levels .....          | 4 |
| 2.4 | Earthworks.....                   | 4 |
| 2.5 | Retaining Walls.....              | 4 |
| 2.6 | UXO Survey .....                  | 4 |
| 2.7 | Other On Site Constraints .....   | 4 |
| 3   | Infrastructure .....              | 5 |
| 3.1 | Stormwater Drainage .....         | 5 |
| 3.2 | Sewerage Reticulation.....        | 6 |
| 3.3 | Water Reticulation .....          | 6 |
| 3.4 | Local Authority Requirements..... | 7 |
| 3.5 | Gas Supply .....                  | 7 |
| 3.6 | Electrical Supply.....            | 7 |
| 3.7 | Communications .....              | 7 |

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| appendix one:   | 3E consulting engineering consultants Pty Ltd servicing report |
| appendix two:   | western power feasibility study                                |
| appendix three: | earthworks                                                     |
| appendix four:  | road upgrades/ extensions                                      |
| appendix five:  | water corporation correspondence                               |
| appendix six:   | atco gas correspondence                                        |

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## 1 Introduction

On behalf of ASDC Pty Ltd, Pritchard Francis has prepared the following report to provide strategic engineering advice on the opportunities and constraints involved with the development of Lot 55 Chapman Road, Glenfield.

The development site is located within the City of Greater Geraldton, and consists of approximately 12.24ha of undeveloped land bound by Chapman Road on the eastern side, Sunset Boulevard on the northern side and Sand Dune Drive on the western side. There are existing residential lots on the opposing side of Chapman Road and an existing Waste Water Treatment Plant directly to the west of the site.

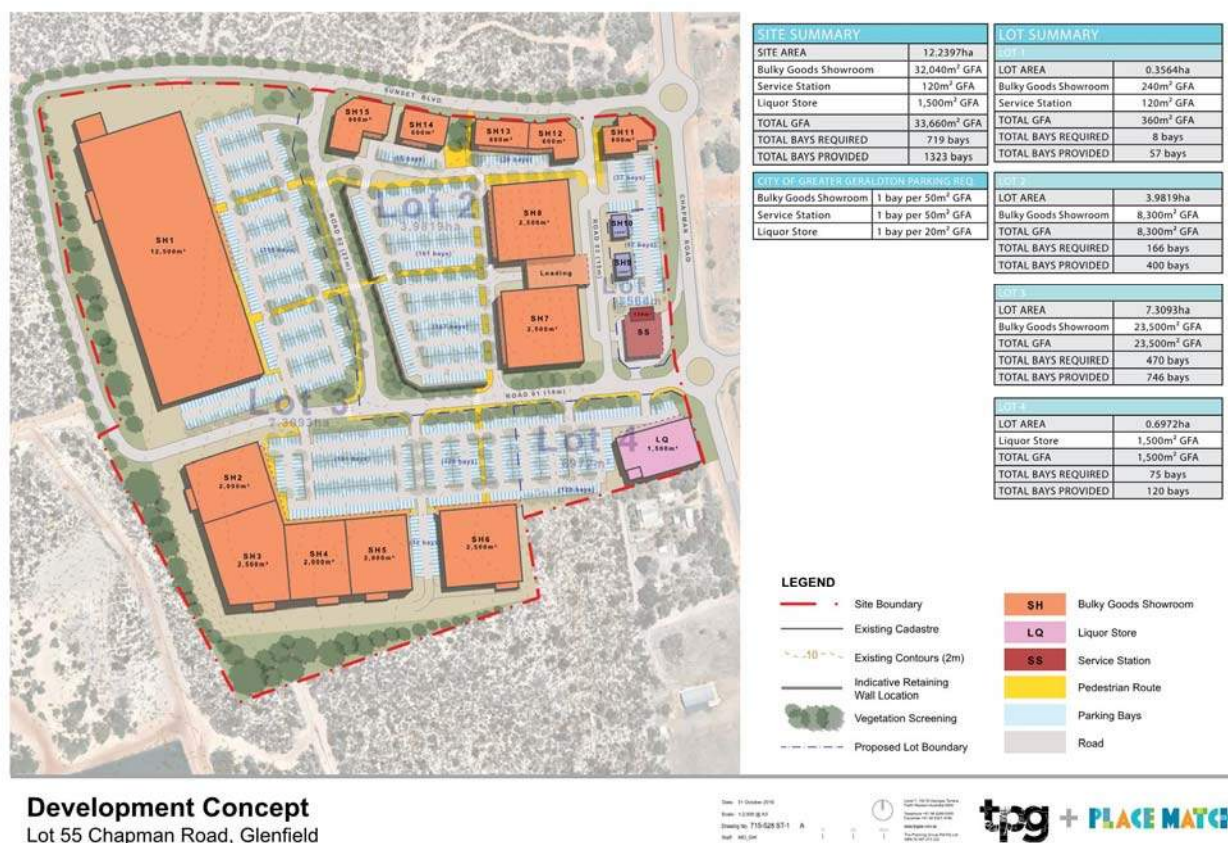


Image 1 Site Layout Plan



## 2 Site Conditions

### 2.1 Geology

Based on Pritchard Francis' knowledge of the area in the vicinity of the site as well as typical dunal regions the Site is expected to contain dune sand, limestone and sandy clays with the exception of the area adjacent to Chapman Road where some silty sands and clays are likely to be encountered.

There should be no issues preventing the site from being developed however a suitably qualified Geotechnical Engineer should be engaged to complete the investigation.

### 2.2 Topography

Landgate contours were obtained from Water Corporation ESInet and can be seen in the Site Constraints Plan below. It is noted that the ridge running north south through the middle of the site at approximately RL 22m. Levels fall sharply to the east towards Chapman Road to an approximate level of RL 4.0m the western portion of the site varies in level from RL 4.0m in the north west corner to RL 14.0m in the south western corner of the site.

The site is predominantly covered by various grasses and shrubs that are typical to the dunal regions.



Image 2 Site Constraints Plan



## 2.3 Groundwater Levels

No regional groundwater contours are available for the site to indicate the depth to groundwater. It should be noted that the groundwater is expected to have high salinity given its proximity to the ocean and as such it would likely be unsuitable for use as a landscaping/ irrigation bore.

## 2.4 Earthworks

Significant earthworks will be required on site to prepare it for commercial development. Sketches showing existing site levels and cross sections in critical areas of the site are shown in appendix three. Two main earthworks methodologies were considered; one being the creation of flat pads at each of the building sites and the other the use of structural built forms using suspended slabs.

The current approved structure plan that incorporates Sunset Boulevard indicates that Sunset Boulevard rises at a grade of 7% from RL 4.0m AHD from Chapman Road to a height of RL 12.0m AHD before falling again at 7% to RL 4.0m AHD flattening out through to the north west corner of the site. Given the steepness of the grade and the size of the proposed showrooms, tying into Sunset Boulevard levels and achieving flat pads without the use of large retaining walls will be difficult. To reduce the amount of retaining required structural built form solutions may be advantageous if not unachievable to account for the level difference. Based on the location and cost of these works as well as the restrictions that it would place upon the development of the land and conditions of sale it is not recommended to proceed with this option. The City of Greater Geraldton has confirmed that although the Structure Plan has been approved, the levels are not set and can be subject to change. They also noted that the levels would need to integrate with the expected levels for the development to the north.

It is recommended that an alternate level design for Sunset Boulevard is created similar to that shown in appendix three. This option proposes grading up from Chapman Road at 6% before softening the grade and pushing the high point of RL 12.0m AHD further west before grading back toward natural surface. The north-western corner will be raised to a level of RL 7.0m AHD which will allow Sunset Boulevard to tie into the existing lot to the west better. 1 in 3 batters into the adjacent Lots to the north, south and west will be required however should batters into adjoining properties not be possible then the batter would be required internally resulting in a loss of land as shown in appendix three.

Across the site small amounts of clearing will be required to remove existing trees and shrubbery typical to the dunal regions, the majority of which will be given low retention value. Topsoil will then need to be stripped, some of which can be reused on site with a portion likely requiring to be disposed offsite due to less options for disposal onsite.

Cut to fill on site will be extensive and it is recommended that a bulking factor for the site be determined in order to determine an optimal earthworks solution.

## 2.5 Retaining Walls

Retaining walls have been costed based on the current site plan and contours. This also includes retaining to drainage areas. The grading across site will require retaining walls at regular intervals to create flat pads for buildings as shown in appendix two as well as battering into the adjoining lots to the natural surface level. Should batters into adjoining properties not be possible then the batter would be required internally resulting in a loss of land.

## 2.6 UXO Survey

Based on our knowledge of the site and surrounding area it is likely that there may be UXO's across this site and it is recommended that a specialist consultant is employed to investigate this further should development proceed.

## 2.7 Other On Site Constraints

The Australian Heritage Database indicates there are no heritage claims affecting the proposed site.

The Department of Environment Regulation public contaminated sites database does not indicate any recorded contamination or suspicion of contamination for the site or nearby landholdings.



## 3 Infrastructure

### 3.1 Stormwater Drainage

It is our understanding that after numerous and detailed liaison / correspondence between the developer, Strategen, the Department of Water and the City of Greater Geraldton, a Local Water Management Strategy (LWMS) is unlikely to be required as part of the development of the site.

A LWMS prepared by AECOM in 2014 for the development directly to the north of the site has already been approved by the City of Greater Geraldton, and the City has confirmed that the same principals to on site stormwater management will apply to Lot 55 Chapman Road (in accordance with WSUD principals that the City of Greater Geraldton has implemented throughout the area). The specific principles in the AECOM (2014) LWMS for the 1 year, 5 year and 100 year ARI events are outlined below.

#### 1 Year ARI

- To retain and treat on site the 1 hour duration 1 year ARI event, rooves to be connected to soak wells and where appropriate, to rainwater tanks.
- All stormwater will be contained within each lot prior to discharge/ infiltration to groundwater.
- Road runoff will be infiltrated as close to source as practical using water sensitive urban design (WSUD) measures including roadside swales.

#### 5 Year ARI

- Road runoff will be infiltrated as close to source as practical using water sensitive urban design (WSUD) measures including roadside swales/ bioretention structures draining into flood storage areas adjacent to public open space (POS).
- Bioretention structures will treat and infiltrate stormwater using vegetation and biofiltration media to improve water quality prior to release to the environment.
- Flood storage will be within unfenced landscaped shallow sized basins with sand filters.

#### 100 Year ARI

- Provide via overland flow paths to enable conveyance of runoff to infiltration basins.
- Flood storage areas (infiltration basins) will be unfenced, landscaped, shallow sided basins with sand filters.

The AECOM (2014) LWMS indicated that a conservative infiltration rate for the site to the north was 15m/ day and given the topography and geology of Lot 55 Chapman Road is similar this rate of infiltration could be assumed to apply. However, this should be confirmed by a suitably qualified consultant as a part of the LWMS and UWMP works for Lot 55 Chapman Road.

The City of Greater Geraldton has confirmed that for commercial and industrial developments, the minor storms are required to be stored and infiltrated on site with the major events to overland flow into the council system.

An Urban Water Management Plan (UWMP) is likely to be required at the Development Application Stage to meet the requirements of the City of Greater Geraldton and the 'Better Urban Water Management (2008)' process. The development of these plans may delay overall site development if adequate groundwater monitoring cannot be sourced for the area. The collection of at least 6 months (potentially up to 12 months) of groundwater monitoring data including a winter peak as well as an Acid Sulfate Soils investigation will be required to support the UWMP.



### 3.2 Sewerage Reticulation

There is no existing sewer reticulation gravity main fronting the site. There is an existing dia 200mm sewer pressure main that runs up Chapman Road and then follows Sunset Boulevard around the edge of the site before heading into the Water Corporations existing Geraldton North Wastewater Treatment Plant to the west of the Site.

Water Corporation catchment planning (refer Appendix Three) shows the Site falls within the far southern end of the Waggrakine Sewer District in the catchment of a future Wastewater Pumping Station (WWPS) 'C' which is a long term Type 180 WWPS. Currently there is no plans or need to construct this WWPS and substantial development in the vicinity of this WWPS would be required before it's construction is triggered.

The site is expected to be serviced via a dia 225mm service from the future development to the north of the site for the western half of the site and a dia 150mm main that is expected to run down Chapman Road. Both of these future mains are to gravitate to the proposed WWPS 'C' according to the Water Corporation Planning Waggrakine Long Term Scheme.

Based on the current development option of subdividing the Site as well as current and planned Water Corporation assets servicing each lot can be achieved a number of different ways.

- A Private WWPS and pressure main discharging into the existing Wastewater Treatment Plant to the west of the Site for each proposed lot (or a variation of this arrangement).
- A temporary WWPS built to Water Corporation Standards.
- On site treatment and disposal of wastewater through the use of ATU's.
- Septic tanks.

Each servicing option could be considered however a final determination for servicing each lot would be based on the individual costs and constraints for each proposed lot.

Refer to appendix five for sewer servicing information and Water Corporation correspondence.

### 3.3 Water Reticulation

The site is currently serviced with a dia 100mm main which is unlikely to provide adequate flows and pressures for the size of the proposed development.

Discussions with Water Corporation indicated that currently there is a dia 300mm distribution main at the intersection of Chapman Road and Chapman Valley Road that is expected to be extended up past the development in mid to late 2020 which would be able to provide a suitable service to the site. The early extension of this main would be at the developer's expense. As such an alternative to this option should the development proceed prior to the installation the distribution main is to extend a dia 150mm main 2.5km from the south of the Site from the existing dia 150mm main in Moorings Loop with a cross connection into the existing dia 100mm main in Corallina Quays up to the Site. Water Corporation have confirmed the extension of a dia 150mm main is an acceptable option in lieu of extending the dia 300mm distribution main.

It should be noted that should the proposed development of the site be staged then there may be the possibility of delaying the extension of the dia 150mm water main and servicing the initial stage from the existing dia 100mm water main in Chapman Road. As the existing capacity of the dia 100m water main in Chapman Road is not known, this will need to be confirmed by the Water Corporation including the point where the demand of the proposed development exceeds the existing capacity and forces the dia 150mm water main extension. An alternative solution to provide a fire service to the site will also need to be determined.

Refer to appendix five for water servicing information and upgrade requirements.



### 3.4 Local Authority Requirements

After consultation with the City of Greater Geraldton it was confirmed that the construction of Sunset Boulevard will be required to loop around the western edge of the site and connect into the proposed Road 1 through to Hagen Road. The construction of Sunset Boulevard is to be in accordance with Liveable Neighbourhoods standards and will be wholly at the developer's expense should they be the first to proceed with the development. However, the initial developer may be able to claim shared costs from the later developer through the Section 159 of the Act at a time in the future.

The City has also noted that the developer will be required to upgrade Chapman Road completely as shown in appendix four though they have yet to confirm the exact requirements for the upgrade and will be confirmed as a part of the detailed design. It will be fully developer funded as the City does not accept partial upgrading of roads due to the fact that the adjacent land may not be developed for several years if at all. The roads are to be constructed in accordance with Liveable Neighbourhoods and the hierarchy shown in appendix four.

### 3.5 Gas Supply

The existing gas reticulation consists of a medium pressure main (225mm, 70kPa) which runs on the west side of Chapman Road from which a connection can be extended into the site. ATCO Gas has confirmed this main would support the proposed commercial development however the maximum pressure available to the site is 10kPa.

Refer to appendix six for Existing ATCO Gas network and correspondence with ATCO Gas.

### 3.6 Electrical Supply

The Network Capacity Mapping Tool indicates that the available capacity is currently between 15-20MVA, with an expectation that it will diminish below 15MVA by 2026. The estimated demand for the site is 3.45MVA and will impact on the remaining capacity in the network. The exact capacity in the adjacent HV aerial and underground network is unknown and can be confirmed via a Western Power Feasibility Report.

Based on the estimated load for the site, the proposed development will require WP infrastructure to be installed as the existing transformers in the vicinity of the site will not have the capacity to service the estimated load. Western Power's Feasibility Study Reports there is adequate spare capacity available on the two adjacent HV feeders to supply the proposed loads. This is however subject to detailed study at the design phase. To service the proposed development, Western Power requires the site power load to be distributed between the two HV feeders for network reliability purposes. Western Power owned substation will need to be installed at the common boundaries and the building and carpark layouts will need to be amended to cater for these transformer sites.

Internal roadway and carpark lighting is required to comply with road lighting standards (AS1158) as well as City of Greater Geraldton standards however will be privately owned and managed and will be the responsibility of the individual lot owners.

Refer to appendix one 3E Consulting Engineers Pty Ltd Servicing Report for more information.

### 3.7 Communications

The NBN Co brownfields rollout has occurred in the area of the site and assuming NBN Co assessed the site to be within its Fixed Line Footprint, then NBN CO would accept the development for infrastructure. It is possible that NBN Co would provide a Fibre to the Premises for the site rather than Fibre to the Node. It should be noted that as the NBN Co rollout has occurred in the area they are the Infrastructure Provider of Last Resort for all voice and broadband services within the Fixed Line Footprint.

Refer to appendix one 3E Consulting Engineers Pty Ltd Servicing Report for more information.



# appendices

|                 |                                                                |
|-----------------|----------------------------------------------------------------|
| appendix one:   | 3E consulting engineering consultants Pty Ltd servicing report |
| appendix two:   | western power feasibility study                                |
| appendix three: | earthworks                                                     |
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appendix one: 3E consulting  
engineering  
consultants pty ltd  
servicing report



PROJECT:

**LOT 55 CHAPMAN ROAD, GLENFIELD  
COMMERCIAL STRATA TITLE DEVELOPMENT**

SERVICING REPORT FOR:

**SITE ELECTRICAL AND COMMUNICATION SERVICES**

DOCUMENT NO: **3E16072-R-01**

CIVIL ENGINEERS:

**PRITCHARD FRANCIS**

DOCUMENT PREPARED BY:

**3E Consulting Engineers Pty Ltd**

Tel: +61 8 6314 9000

Fax: +61 8 9325 3351

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## **SECTION 1 INTRODUCTION**

### **1.1 SCOPE, BASIS OF SERVICING ESTIMATES AND ASSUMPTIONS**

We understand that it is proposed to develop the subject site into four freehold green title commercial lots with the lots comprising of a mixture of large, medium and small showrooms expected to house tenants such as Bunnings, City Farmers, BBQ's Galore and other smaller format bulky goods retailers.

This report shall provide information on the existing electrical and communications networks adjacent to the site, including estimations of their capacity. It shall provide estimates of the power load and communication service demand required for the proposed development. It shall then provide analysis of the effects of the proposed development on the networks, in terms of capacity and any new infrastructure that may be required, as well as any asset relocations that may be applicable. Lastly, it will provide order of cost estimates for the required works.

## **SECTION 2 ELECTRICAL SERVICES**

### **2.1 EXISTING POWER DISTRIBUTION NETWORK**

The existing Western Power (WP) distribution infrastructure in the vicinity of the site comprises of 11kV three phase aerial and underground High Voltage (HV) and aerial three phase Low Voltage (LV) network.

HV aerials and underground cables are along the eastern side of Chapman Road from south to north. LV aerial conductors which originate from two 63kVA pole top transformers are located north and south of the proposed development site and runs both north and south on Chapman Road parallel to the site.

Information on the capacity of the local zone substation can be determined from Western Power's public Network Capacity Mapping Tool (NCMT). The substation that appears to supply the HV network adjacent to the subject site is the Chapman zone substation, which is located near the intersection of Chapman Valley Road and North West Coastal Highway. The location is approximately 3km south east as the crow flies from the development site. Currently there is in excess of 15-20MVA capacity in the zone substation. Within the next ten years, this is expected to diminish to less than 15MVA, suggesting that there is some growth in the area.

### **2.2 LIKELY LOAD**

The proposed development consists of seventeen sites which consist of a large showroom, twelve medium showrooms, two small showrooms, one service station and a liquor store. It is assumed that each building will be air-conditioned. Allocating the appropriate AS3000 load allocations, we estimate the approximate load as follows:

| <u>Lot</u> | <u>Estimated Power Allocation</u> |
|------------|-----------------------------------|
| 1          | 400 kVA                           |
| 2          | 950 kVA                           |
| 3          | 1900 kVA                          |
| 4          | 200 kVA                           |
| <hr/>      |                                   |
| Total      | 3450kVA                           |
| <hr/>      |                                   |

More accurate load requirements can be determined once information of confirmed tenants is available.

## **2.3 LIKELY POWER SUPPLY SCENARIO**

### **2.3.1 SITE SUPPLY INFRASTRUCTURE**

WP requires that all new developments are to be serviced by underground three phase power. WP also require any existing HV and LV aerials adjacent to the land being subdivided to be undergrounded and any existing consumers affected will have to have their consumer mains reconnected to the network.

In an commercial development, this is implemented by WP owned and maintained URD 3-phase direct buried underground cabling from a spare way at the transformer LV frame to uni-pillars serving each site on the general basis of one uni-pillar per commercial lot. Where loads exceed 250A/phase, the customer's main switchboard has to be contiguous to the substation.

Based on the estimated load for the site, the proposed development will require new WP infrastructure to be installed. The existing pole top transformers in the vicinity of the development will not have the capacity to service the estimated load. Western Power's Feasibility study reports there is adequate spare capacity available on the two adjacent HV feeders to supply the proposed loads. This is however subject to detailed study to check whether there are any power quality issues which will be conducted once a formal request for connection is applied for.

To service the proposed development, Western Power's requires the site power load to be distributed between the two HV feeders for network reliability purposes. A new Western Power owned substation will need to be installed at the common lot boundaries of Lots 1 & 2 and Lots 2 & 3 due to the requirements of contiguous switchboard supply arrangement to Lots 1, 2 & 3. The substation site at Lot 1 & 2 shall consist of a HV switchgear unit (2+2) and two new 1000kVA transformers, providing a capacity of 2000kVA. The substation site at Lot 2 & 3 shall also consist of a HV switchgear unit (2+2) and two new 1000kVA transformers, providing a capacity of 2000kVA. Building and car park layouts are to be amended to cater for these sites. The substation on Lot 1/2 will need to be connected in line with the adjacent HV overhead aerial lines and as such two HV cables will emanate from the substation to the HV overhead aerial poles on the east side of Chapman Road. Two additional HV cables will emanate from Lot 2/3 substation site to the HV underground feeder cable located on the east side of Chapman Road.

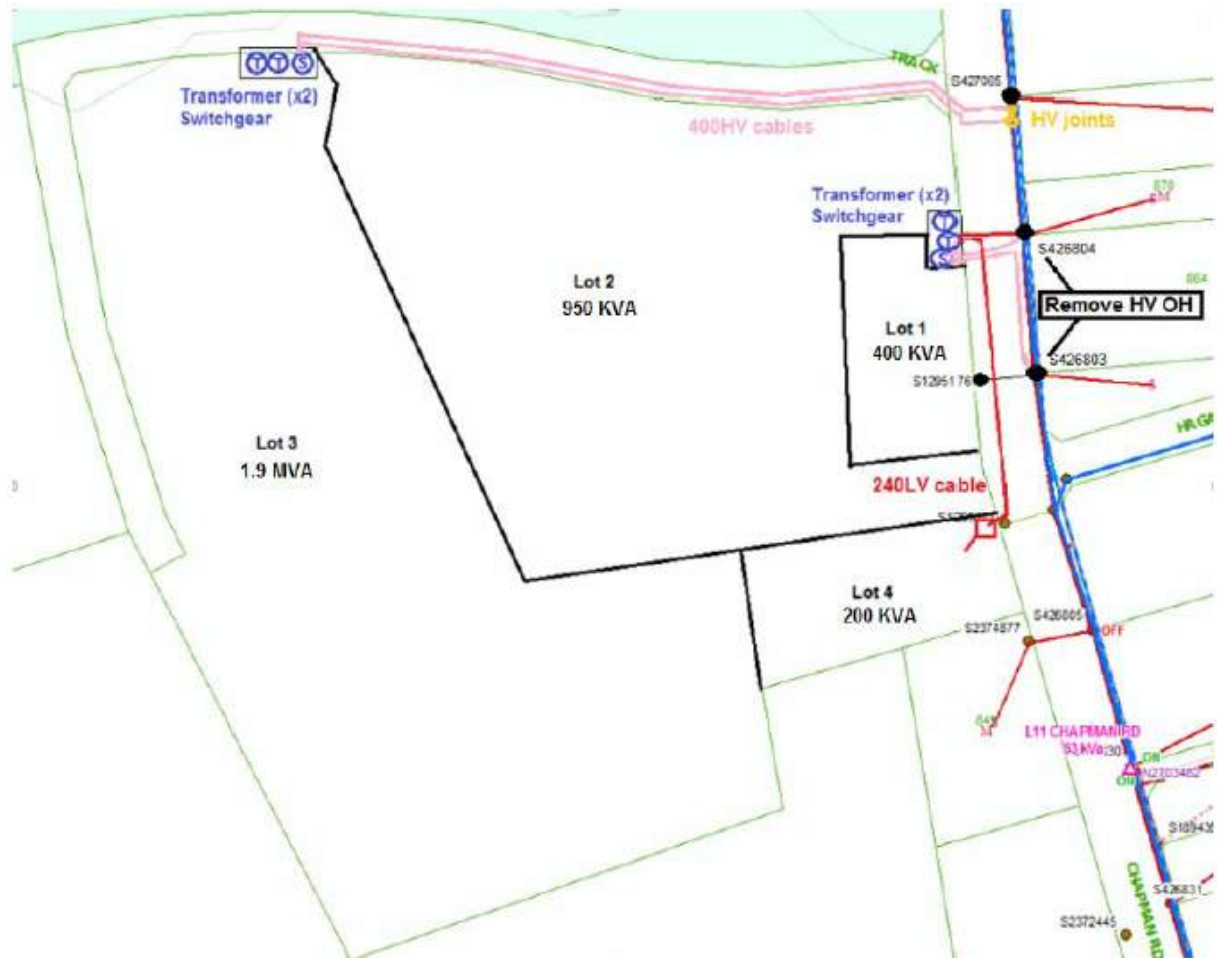


Figure 1: Proposed Western Power Supply Infrastructure Works

The total site for each of the substations will be 6.85m (W) x 5.2m (D) as per Western Power's Distribution Substation Manual Document Number DSM-3-06. Each of the four electrical units within each site is approximately 1.6m in height. The substation site is to be installed in a road reserve extension. The Site Main Switchboards (SMSBs) must be installed contiguous to this substation site, with a direct Customer owned LV Consumer Main cable connecting the SMSB to the transformers' LV frame. Buildings must meet minimum fire separation from the substation units of 6m or include fire rated walls to meet WP requirements.

The information presented above and in WP's feasibility study is based on desktop information and is subject to detail design investigation/confirmation. The final connection arrangement will be determined following application for a detailed design and firm access offer. Western Power will neither reserve capacity nor guarantee supply to this development without a formal request being lodged. The connection arrangement is therefore subject to change where there are network changes due to other developments. An assumption has been made that there will be no environmental obstacles that will impact Western Power works.

### **2.3.2 INTERNAL ELECTRICAL INFRASTRUCTURE**

All internal reticulation will be private and installed to WP's WA Distribution Connections Manual (WADCM), WA Electrical Requirements (WAER) and AS3000 Wiring Rules. It shall be owned and maintained by the Strata Body Corporate.

The network will consist of a Site Main Switchboard fed by the Western Power point of supply, from which feeder cable circuits will emanate. The cables will be laid in the common property roadways. They shall supply multiple Distribution Boards (DBs), strategically distributed through the site. Given the size of the site, significant feeder cables will be required to supply these DBs. From the DBs, circuits to supply each building will emanate. Circuits to supply the communal facilities will also be required.

Internal roadway and car park lighting is recommended for pedestrian safety. The lighting shall be provided in the form of pole top lights to comply with road lighting standards (AS1158). Lighting of internal roads is to be privately owned and managed and will be of the responsibility of the lot owner.

### **2.3.3 RELOCATION OF EXISTING ASSETS**

Based on DBYD maps and provided information, no existing HV aerial lines traverse through the subject site and therefore no relocations are required and so no allowance for costs for relocations has been included (other than the interface works to provide new infrastructure). It has been assumed that the internal layouts will be designed to allow for Western Power stay poles to be retained in their current location to minimise additional costs to the development.

### **2.3.4 HEADWORKS**

The NCMT indicates that available capacity is currently between 15-20MVA, with an expectation that it will diminish below 15MVA by 2026. The estimated demand of this site is just under 4MVA and will impact on the remaining capacity in the network. The Western Power Feasibility Study advises there is adequate spare capacity available on the two HV feeders in the vicinity of the site to supply the proposed loads. The proposed connection arrangement is however subject to a detailed study which is conducted under the formal connection application request.

### **2.3.5 LIGHTING FOR NEW ROADWAYS ON GAZETTED ROAD RESERVE**

All newly created roadways on gazetted road reserve will require new lighting to satisfy the requirements of AS1158 and the Local Government Authority. The lighting could consist of standard or decorative Western Power lighting poles, or if the Local Government preferred, "privately" (Local Government) owned lighting, where any range of suitable lighting products could be utilised, opening up the opportunity to use broader technologies and strategies, including:

- Architectural lighting poles and luminaires.
- High efficiency and low glare LED luminaires.
- Multi-technology poles, including banner mounts, CCTV cameras and power outlets.

- Time based, light level and motion detection controlled lighting operation and output levels.

## **2.4 POWER SUPPLY TIMELINES**

Western Power will neither reserve capacity nor guarantee supply to this development without a formal request being lodged. A Design and Access Offer Application (DAO) must be prepared and submitted to Western Power for the design and construction of the proposed development to commence. With the estimated customer contribution in excess of \$600,000, the project is identified as a major capacity project. For this type of project, the timeframe for the application process and WP quote is approximately 9-12 months and 3 months for construction.

## **SECTION 3 COMMUNICATION SERVICES**

### **3.1 EXISTING NETWORK**

Broadband and Voice communications to the area was until recently provided by Telstra from the Glenfield Exchange but the network has now been converted to NBN Co Fixed Line. The Telstra Glenfield Exchange is approximately 2 Km route length from the development – see attached PDF. A P100 conduit runs up Chapman Rd which most likely could support the hauling of additional cable. Telstra cable capacity to the area is limited to 70 pair and may not be sufficient to service the new development, if new NBN Co copper based services were required. Telstra fibre is available at the intersection of Hagan Rd and Chapman Rd.

The portion of surrounding network converted to NBN Co broadband under their Brownfields Rollout Programme is primarily on the eastern side of Chapman Rd and we understand that Fibre to the Premises (FTTP) technology has been delivered to residences – see NBN Co Rollout Map attached.

Telstra's 4GX mobile network provides coverage to the proposed development and offers download speeds up to 75 Mbps – see attached coverage map.

### **3.2 NBN Co - PROPOSED COMMUNICATIONS**

Given that the Brownfields Rollout has occurred in the area and assuming NBN Co assessed the proposed development to be within its Fixed Line Footprint, then NBN Co would have to accept the development for infrastructure, if the Developer elected not to choose one of the alternative infrastructure providers.

It is possible, that NBN Co would provide service via FTTP technology, rather than Fibre to the Node (FTTN). Approximately 160 Retail Services Providers (RSP's) are able to deliver service on the NBN Co wholesale network in the Glenfield area and would be able to provide broadband with typical downstream/upstream speeds of 100/40 Mbps and download allowances of up to 1000GB per month, if the technology were FTTP but less than half that rate if the technology were FTTN. NBN Co are also developing a range of Business offerings for their FTTP network,

both asymmetric and symmetric, to 1 Gbps with 24/7 service restoration within 8 hours, which are expected to be released later in 2018.

The classification of roads won't affect the pit and pipe design, although it could affect ownership of the assets. NBN Co generally don't take ownership of pit and pipe assets on strata titles, or equivalent but will take ownership of pit and pipe assets on gazetted roads.

Under current Federal government policy, Developers are responsible to pay for telecommunications infrastructure charges, in addition to the cost of pit and pipe. Whilst Deployment Charges will apply, Backhaul Charges may not be levied, if sufficient capacity resides within the existing NBN Co network. We recommend that a Feasibility Assessment be undertaken and a quote sought for Backhaul.

### **3.3 TELSTRA – PROPOSED COMMUNICATIONS**

Since NBN Co have rolled out their Brownfields network, they are the Infrastructure Provider of Last Resort for all voice and broadband services within the Fixed Line Footprint, which we understand this development falls within. All Telstra voice and broadband services on its copper network will be disconnected within 18 months of NBN Co declaring the area fibre "Ready for Service (RFS)", under the Definitive Agreement with NBN Co. Since we understand that RFS only occurred in May 2016 there may be some residual Telstra working services. If so, it would be prudent to encourage the transfer of these services to NBN Co or cancel, prior to the commencement of construction of the new development. Telstra must then use the NBN Co wholesale network for fixed line services for a period of 20 years.

However, Telstra can retain its existing point to point fibre services or install new point to point fibre services since it has the right of first refusal for point to point fibre services under the Definite Agreement with NBN Co. Telstra usually exercise their right of first refusal, especially where customers are under Telstra Account Management. We understand that Telstra wideband or managed services are unaffected by the disconnection policy triggered by the NBN Brownfields rollout. Such services may still be operating on the existing main cables on the eastern and western side of Chapman Rd.

### **3.4 TELSTRA AND NBN Co RELOCATIONS**

Telstra pit and pipe network at the intersection of Sunset Blvd/Chapman Rd and Road 1/Chapman Rd may be affected by the proposed roundabouts – see Telstra DBYD on the attached Comms Concept Plan. Because Telstra main cables are installed on the route, ownership of these assets would have been retained by Telstra following the NBN Co Brownfields Rollout. To the best of our knowledge no distribution cables are located on the route, where ownership would have transferred to NBN Co. Pits that aren't affected by the roundabout works should not require relocation.

On the western side of Chapman Rd Telstra direct buried cables are installed in private property. Network on private property is likely to be on the 3m alignment but alignments could vary depending on terrain and vegetation. Note that pits on the western side of Chapman Rd would most likely be located on road reserve, even though the associated cable is located on private property. We recommend that network on private property be relocated to road reserve. If not, a service easement would need to be registered over the

route and 24/7/365 access provided to the route. Retention of the route on private property may affect the building envelopes of SS1 and SH-MH12.

If NBN Co have converted the existing surrounding network to FTTTP then NBN Co fibre would most likely be located in Telstra conduit on the eastern side of Chapman Rd – see NBN Co DBYD attached and NBN Co Rollout Map. If the proposed roundabout works affect Telstra's conduit network then NBN Co fibre would require relocation.

We recommend that road plans take account of existing Telstra/NBN Co infrastructure and consideration be given to offsetting the roundabouts from the centreline of Chapman Rd. Where network is affected, relocation requests would need to be lodged with the relevant authorities. A roundabout at Hagan Rd/Chapman Rd (Road 1) is likely to have a greater impact on cost than that at Sunset Blvd.

## **SECTION 4 BUDGET ESTIMATES**

### **4.1 ELECTRICAL SERVICES**

We understand that the Network Augmented Costs for the commercial subdivision will be calculated in accordance with Western Power's Full Cost Method as per Access Code 2004 where the commercial development has been undertaken by the developer but will not become the end user.

Our very early pre-design order of probable cost estimates for the electrical services are as follows:

| <b>Component</b>                                 | <b>Cost</b>   |
|--------------------------------------------------|---------------|
| <b>External Works</b>                            |               |
| Substation 1                                     | \$190k        |
| Substation 2                                     | \$190k        |
| HV Cabling and Joints                            | \$170k        |
| New HV Termination Pole and Cable Terminations   | \$40k         |
| LV Cable and Uni Pillar                          | \$20k         |
| Street Light Poles and Cables (Sunset Boulevard) | \$35k         |
| Street Light Poles and Cables (Chapman Road)     | \$55k         |
| Western Power Charges                            | \$100k        |
| <b>TOTAL</b>                                     | <b>\$800k</b> |

The WP Feasibility Report provides an estimated customer contribution of \$700k ± 30%. The cost of street lighting is not included in this total. The above cost estimate is in line with the estimate provided by Western Power.

### **4.2 COMMUNICATION SERVICES**

The cost for pit and pipe design and construction would be of the order indicated below (Concept Plan attached):

| Component                                            | Cost          |
|------------------------------------------------------|---------------|
| <b>Internal Works</b>                                |               |
| New Pit & Pipe                                       | \$50k         |
| <b>TOTAL</b>                                         | <b>\$50k</b>  |
| <b>NBN Co Infrastructure Charges</b>                 |               |
| Backhaul Charge – for 4 super lots                   | \$20k         |
| Deployment Charge – for 17 tenancies                 | \$7k          |
| <b>TOTAL</b>                                         | <b>\$27k</b>  |
| <b>Relocation Costs</b>                              |               |
| Telstra relocation – western side of Chapman Rd      | \$50k         |
| Telstra relocation – Sunset Blvd roundabout          | \$30k         |
| Telstra relocation – Hagan Rd roundabout             | \$50k         |
| NBN Co Fibre relocation - eastern side of Chapman Rd | \$40          |
| <b>TOTAL</b>                                         | <b>\$170k</b> |
| <b>GRAND TOTAL OPC</b>                               | <b>\$247k</b> |

### 4.3 QUALIFICATIONS AND EXCLUSIONS

All cost in today's dollars, all design costs and GST excluded.

#### 4.3.1 ELECTRICAL SERVICES COST ASSUMPTIONS AND EXCLUSIONS

Budget estimates are very early pre-design order of probable cost estimates based upon a desk-top evaluation of available information.

This cost estimate excludes decorative street lighting, mobilisation costs, accommodation costs, design fees and switchboard(s)/materials for internal electrical reticulation.

The subdivision HV Pool does not apply to commercial subdivisions as they are too variable for a pool to operate. This means that HV infrastructure will be at full cost to the developer. However, it also means that the system charge payment will not be required, and so these costs have been excluded from our estimate.

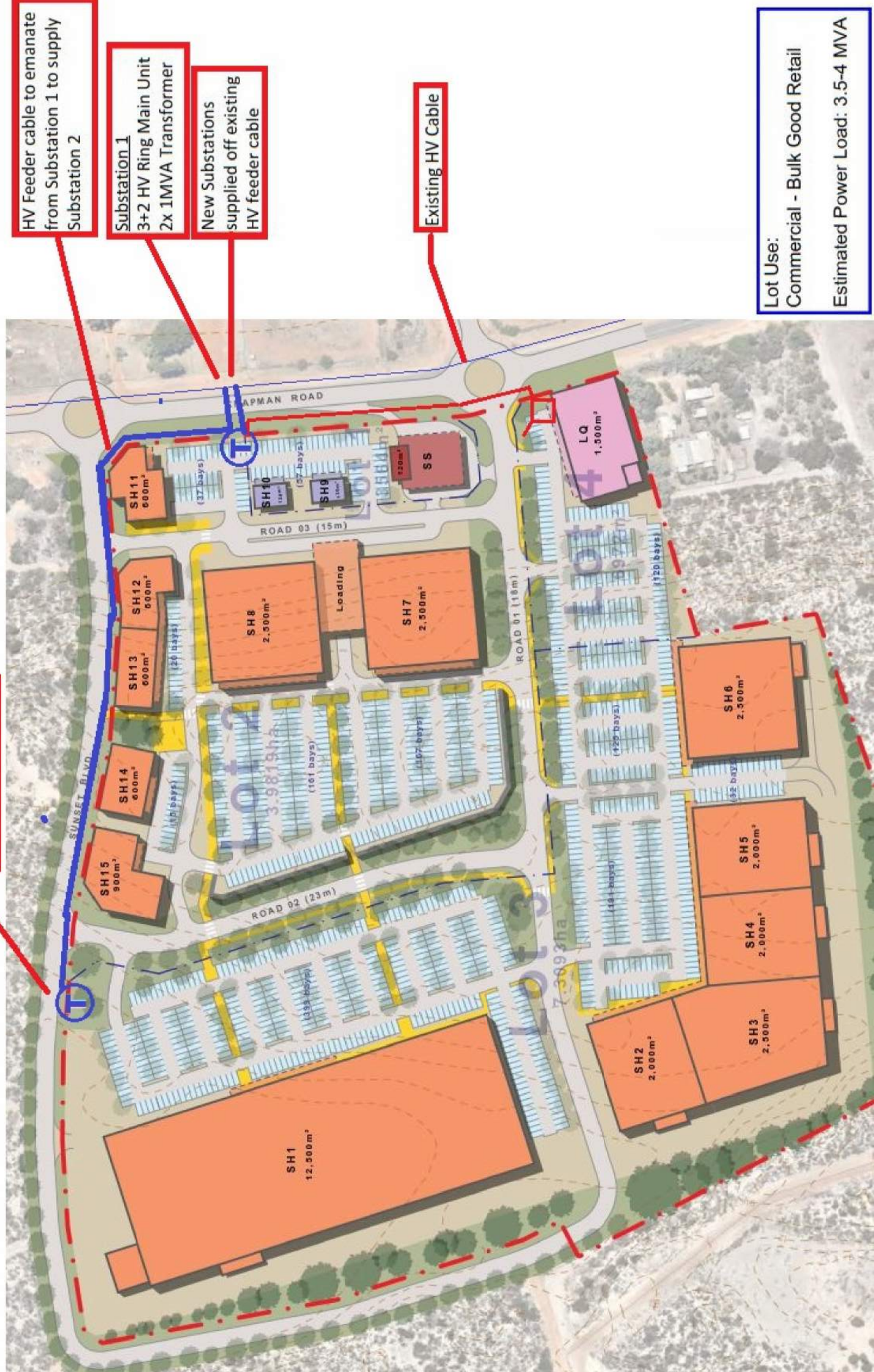
The above headwork cost estimates provided are indicative only. Based off Western Power's Feasibility Study, no major upgrade works are required at the Zone Substation such as installation of a new 400HV dedicated feeder cable to the proposed subdivision and therefore these costs have been excluded.

An assumption has been made that street lighting to AS1158 is required for Sunset Boulevard and Chapman Road for the portion surrounding the site.

More detailed cost estimates can be created once detailed designs are complete and confirmation on type of tenants occupying each lot.

#### **4.3.2 COMMUNICATION SERVICES COST ASSUMPTIONS AND EXCLUSIONS**

- Common Trench provided by Developer with road verge/paving restored and reinstated
- One premise per tenancy
- Does not include the cost of Communications Equipment Rooms, internal building cable access pathways, internal building cabling nor terminating equipment
- Relocation costs are a broad estimate only and we strongly recommend seeking quotes from the relevant carriers
- Allowance has been made for a Backhaul charge, however, It is possible that no Backhaul Charge will apply, if NBN Co have sufficient capacity within their existing network



Substation 2  
2+2 HV Ring Main Unit  
2x 1MVA Transformer

HV Feeder cable to emanate  
from Substation 1 to supply  
Substation 2

Substation 1  
3+2 HV Ring Main Unit  
2x 1MVA Transformer

New Substations  
supplied off existing  
HV feeder cable

Existing HV Cable

Lot Use:

Commercial - Bulk Good Retail

Estimated Power Load: 3.5-4 MVA



| TOTAL BAYS           |                          |
|----------------------|--------------------------|
| LOT 3                | 7,3093ha                 |
| LOT AREA             | 23,500m <sup>2</sup> GFA |
| Buffy Goods Showroom | 23,500m <sup>2</sup> GFA |
| TOTAL GFA            | 470 bays                 |
| TOTAL BAYS REQUIRED  | 746 bays                 |
| TOTAL BAYS PROVIDED  |                          |

| TOTAL BAYS           |                          |
|----------------------|--------------------------|
| LOT 3                | 7,309.3ha                |
| LOT AREA             | 23,500m <sup>2</sup> GFA |
| Buffy Goods Showroom | 23,500m <sup>2</sup> GFA |
| TOTAL GFA            | 470 bays                 |
| TOTAL BAYS REQUIRED  | 746 bays                 |
| TOTAL BAYS PROVIDED  |                          |

Teilstra and NBN Co networks may require relocation, depending on position of roundabouts, since portion of Teilstra network direct buried





# OVERVIEW ONLY



## OVERHEAD LEGEND

### Structures

- Power Pole
- Transmission Poles

### Transmission Overhead Powerline

- Transmission (33kV - 330kV)

### Distribution Overhead Powerline

- High Voltage (1kV - 33kV)
- Low Voltage (< 1kV)

### Proposed Construction Assets

- Design Area \*
- High Voltage Overhead Powerline
- Low Voltage Overhead Powerline
- Power Pole

### Communications Assets

- Overhead Pilot Cable

### Feature

- Area of Interest

1

2

3

4

Hagan

Whyatt

Chapman

\* Please refer to coversheet

**Privately owned cables NOT SHOWN**  
(including house services)

This map is **INDICATIVE ONLY**.  
Check that you have enough  
clearance from the **DANGER ZONES**  
near overhead powerlines.

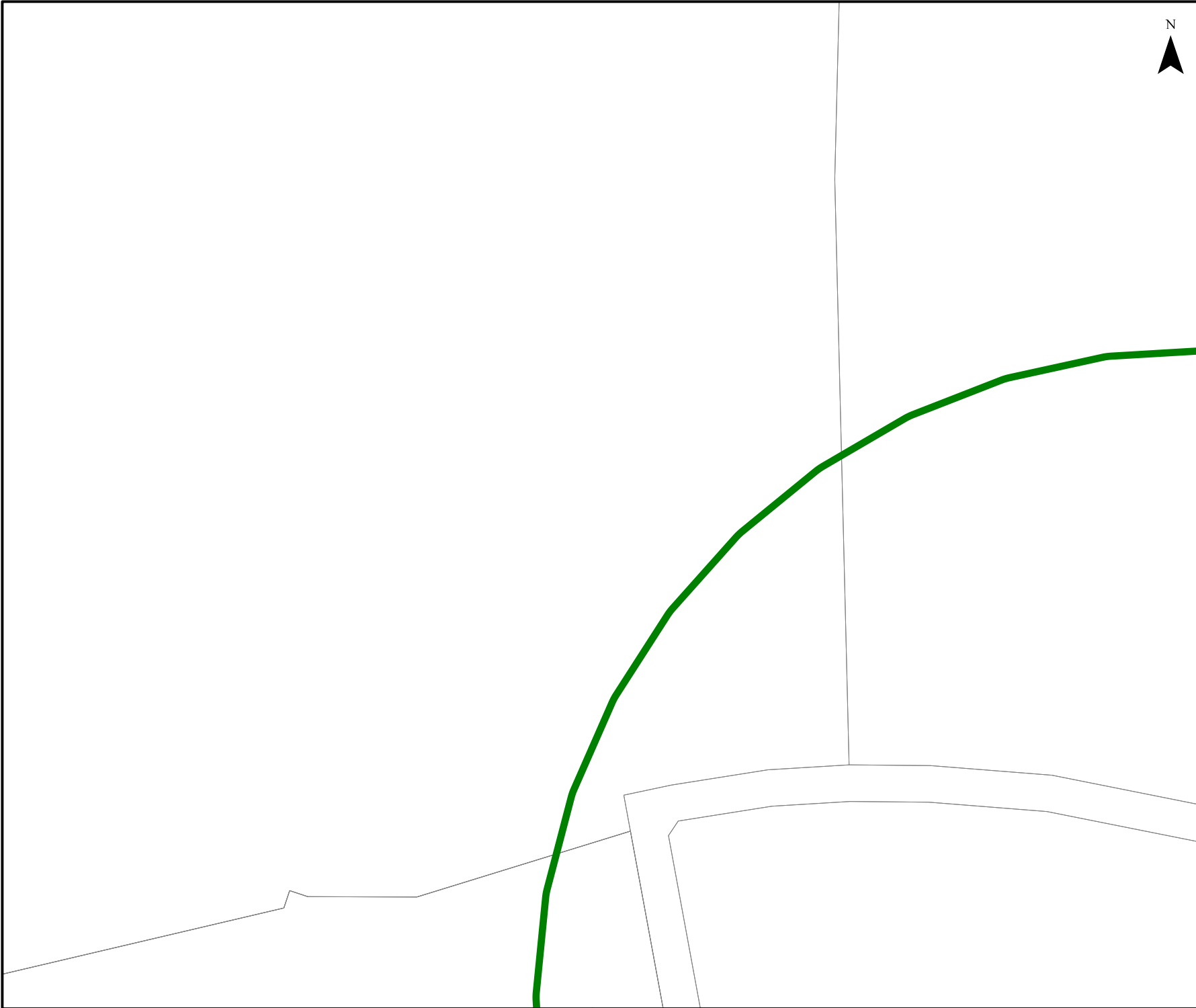
Telephone Support: 1300 769 345  
Mon to Fri - 08:00 to 16:30

Information valid for 30 days  
from date of issue

A4

Scale : 1:5125

**WARNING! Look out for  
overhead power lines**



**OVERHEAD LEGEND**

**Structures**

- Power Pole    ■ Transmission Poles

**Transmission Overhead Powerline**

- Transmission (33kV - 330kV)

**Distribution Overhead Powerline**

- High Voltage (1kV - 33kV)  
— Low Voltage (< 1kV)

**Proposed Construction Assets**

- Design Area \*  
— High Voltage Overhead Powerline  
— Low Voltage Overhead Powerline  
● Power Pole

**Communications Assets**

- Overhead Pilot Cable

**Feature**

- ▭ Area of Interest

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN  
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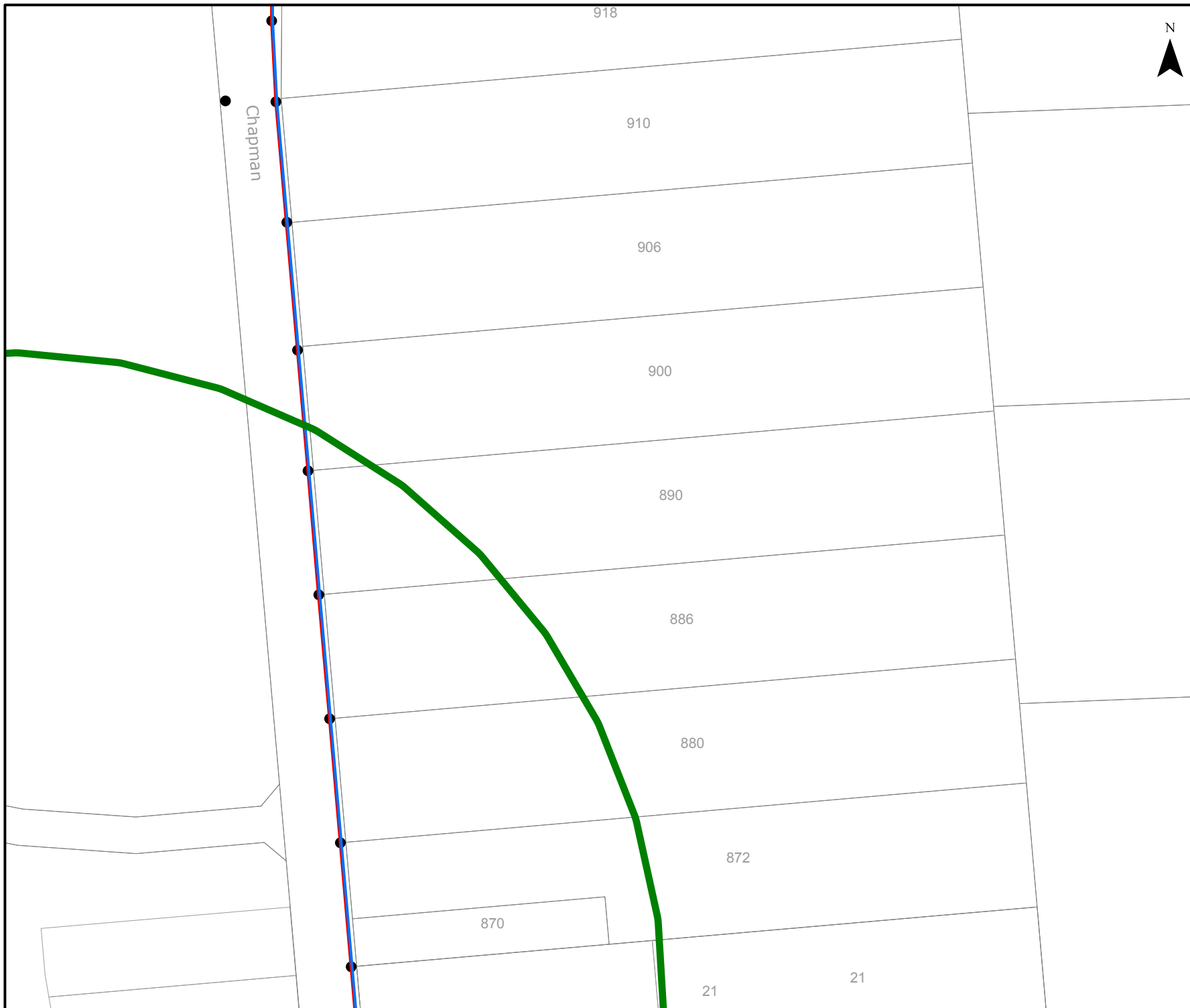
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Mon to Fri - 08:00 to 16:30**

**Information valid for 30 days  
from date of issue**

**A4**

**Scale : 1:2500**

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overhead power lines**



**OVERHEAD LEGEND**

**Structures**

- Power Pole    ■ Transmission Poles

**Transmission Overhead Powerline**

- Transmission (33kV - 330kV)

**Distribution Overhead Powerline**

- High Voltage (1kV - 33kV)
- Low Voltage (< 1kV)

**Proposed Construction Assets**

- Design Area \*
- High Voltage Overhead Powerline
- Low Voltage Overhead Powerline
- Power Pole

**Communications Assets**

- Overhead Pilot Cable

**Feature**

- ▭ Area of Interest

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN  
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**WARNING! Look out for  
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## OVERHEAD LEGEND

### Structures

- Power Pole
- Transmission Poles

### Transmission Overhead Powerline

- Transmission (33kV - 330kV)

### Distribution Overhead Powerline

- High Voltage (1kV - 33kV)
- Low Voltage (< 1kV)

### Proposed Construction Assets

- Design Area \*
- High Voltage Overhead Powerline
- Low Voltage Overhead Powerline
- Power Pole

### Communications Assets

- Overhead Pilot Cable

### Feature

- ▭ Area of Interest

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN  
(including house services)**

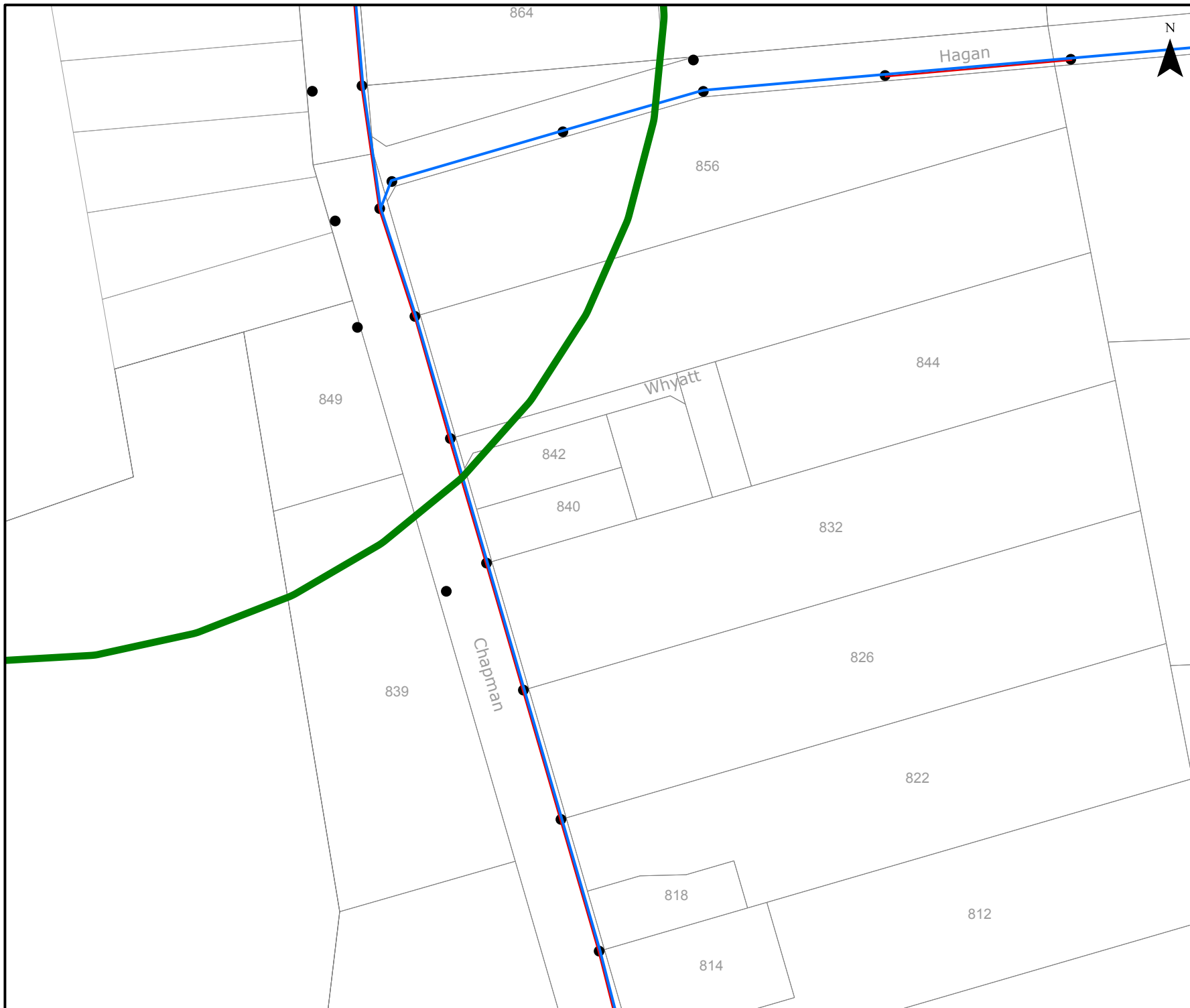
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Telephone Support: 1300 769 345  
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Information valid for 30 days  
from date of issue

A4 | Scale : 1:2500

**WARNING! Look out for  
overhead power lines**



| OVERHEAD LEGEND                 |                    |
|---------------------------------|--------------------|
| Structures                      |                    |
| Power Pole                      | Transmission Poles |
| Transmission Overhead Powerline |                    |
| Transmission (33kV - 330kV)     |                    |
| Distribution Overhead Powerline |                    |
| High Voltage (1kV - 33kV)       |                    |
| Low Voltage (< 1kV)             |                    |
| Proposed Construction Assets    |                    |
| Design Area *                   |                    |
| High Voltage Overhead Powerline |                    |
| Low Voltage Overhead Powerline  |                    |
| Power Pole                      |                    |
| Communications Assets           |                    |
| Overhead Pilot Cable            |                    |
| Feature                         |                    |
| Area of Interest                |                    |

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN (including house services)**

This map is **INDICATIVE ONLY**.  
Check that you have enough clearance from the **DANGER ZONES** near overhead powerlines.

Telephone Support: 1300 769 345  
Mon to Fri - 08:00 to 16:30

Information valid for 30 days from date of issue

A4 | Scale : 1:2500

**WARNING! Look out for overhead power lines**

# OVERVIEW ONLY



## UNDERGROUND LEGEND

### Structures

- |                    |                         |
|--------------------|-------------------------|
| ● Pillar           | □ UG Crossing *         |
| ● Metal Pole       | ■ Ring Main Unit        |
| △ Transformer Site | ■ LV Distribution Frame |

### Distribution Cables

- |                                   |
|-----------------------------------|
| — High Voltage Cable (1kV - 33kV) |
| — Low Voltage Cable (< 1kV)       |
| — Street Light Circuit (< 1kV)    |
| — Street Light Pilot (< 1kV)      |
| — Earth Wire                      |

### Cable Pole Terminations

- |                  |                  |
|------------------|------------------|
| ▲ HV Termination | ▼ LV Termination |
|------------------|------------------|

### Proposed Construction Assets

- |                                  |                  |
|----------------------------------|------------------|
| ■ Design Area *                  |                  |
| — High Voltage Underground Cable |                  |
| — Low Voltage Underground Cable  |                  |
| ● Metal Pole                     | ▲ HV Termination |
| ● Pillar                         | ▼ LV Termination |
| △ Transformer site               |                  |

### State Underground Power Project

- |                       |
|-----------------------|
| ■ CURRENT Work Area * |
| ■ COMPLETED Area *    |

### Feature

- |                    |
|--------------------|
| □ Area of Interest |
|--------------------|

\* Please refer to coversheet

**Privately owned cables NOT SHOWN  
(including house services)**

This map is **INDICATIVE ONLY**.  
Hand exposure via pothole  
method is **MANDATORY**.

Telephone Support: 1300 769 345  
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Information valid for 30 days  
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A4

Scale : 1:5125

**WARNING! Look out for  
overhead power lines**

1

2

3

4

HAGAN RD

WHYATT RD

CHAPMAN RD



**UNDERGROUND LEGEND**

| Structures       |                       |
|------------------|-----------------------|
| Pillar           | UG Crossing *         |
| Metal Pole       | Ring Main Unit        |
| Transformer Site | LV Distribution Frame |

| Distribution Cables             |  |
|---------------------------------|--|
| High Voltage Cable (1kV - 33kV) |  |
| Low Voltage Cable (< 1kV)       |  |
| Street Light Circuit (< 1kV)    |  |
| Street Light Pilot (< 1kV)      |  |
| Earth Wire                      |  |

| Cable Pole Terminations |                |
|-------------------------|----------------|
| HV Termination          | LV Termination |

| Proposed Construction Assets   |                |
|--------------------------------|----------------|
| Design Area *                  |                |
| High Voltage Underground Cable |                |
| Low Voltage Underground Cable  |                |
| Metal Pole                     | HV Termination |
| Pillar                         | LV Termination |
| Transformer site               |                |

| State Underground Power Project |  |
|---------------------------------|--|
| CURRENT Work Area *             |  |
| COMPLETED Area *                |  |

| Feature          |
|------------------|
| Area of Interest |

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN (including house services)**

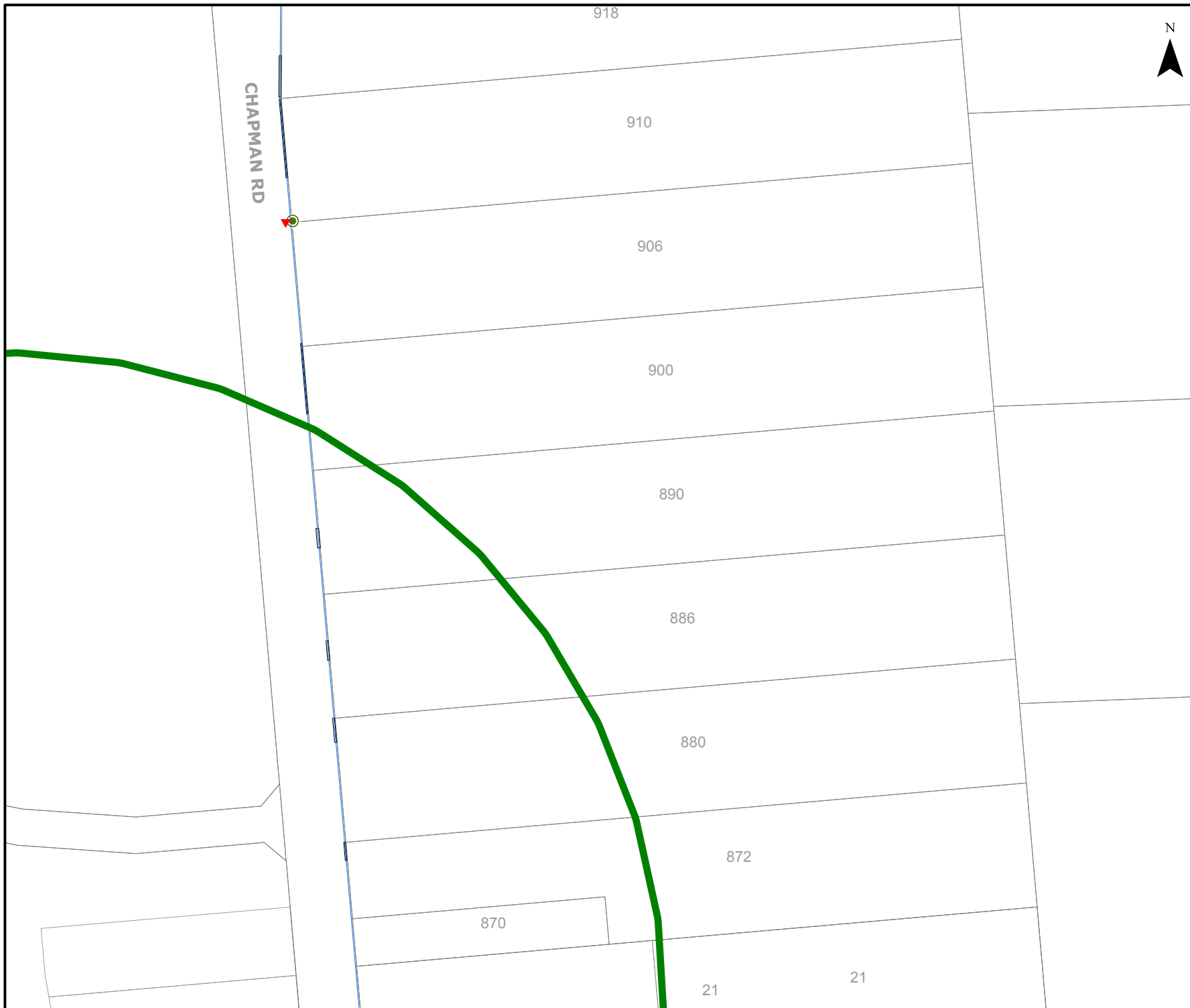
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Mon to Fri - 08:00 to 16:30**

**Information valid for 30 days  
from date of issue**

|           |                       |
|-----------|-----------------------|
| <b>A4</b> | <b>Scale : 1:2500</b> |
|-----------|-----------------------|

**WARNING! Look out for overhead power lines**





**UNDERGROUND LEGEND**

**Structures**

 Pillar

 Metal Pole

 Transformer Site

 UG Crossing \*

 Ring Main Unit

 LV Distribution Frame

**Distribution Cables**

 High Voltage Cable (1kV - 33kV)

 Low Voltage Cable (< 1kV)

 Street Light Circuit (< 1kV)

 Street Light Pilot (< 1kV)

 Earth Wire

**Cable Pole Terminations**

 HV Termination

 LV Termination

**Proposed Construction Assets**

 Design Area \*

 High Voltage Underground Cable

 Low Voltage Underground Cable

 Metal Pole

 Pillar

 Transformer site

 HV Termination

 LV Termination

**State Underground Power Project**

 CURRENT Work Area \*

 COMPLETED Area \*

**Feature**

 Area of Interest

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN (including house services)**

**This map is INDICATIVE ONLY.**  
**Hand exposure via pothole method is MANDATORY.**

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**Information valid for 30 days from date of issue**

A4

Scale : 1:2500

**WARNING! Look out for overhead power lines**

Sequence Number: 54083210

Date of Issue: 7/07/2016



**UNDERGROUND LEGEND**

| Structures       |                       |
|------------------|-----------------------|
| Pillar           | UG Crossing *         |
| Metal Pole       | Ring Main Unit        |
| Transformer Site | LV Distribution Frame |

| Distribution Cables             |  |
|---------------------------------|--|
| High Voltage Cable (1kV - 33kV) |  |
| Low Voltage Cable (< 1kV)       |  |
| Street Light Circuit (< 1kV)    |  |
| Street Light Pilot (< 1kV)      |  |
| Earth Wire                      |  |

| Cable Pole Terminations |                |
|-------------------------|----------------|
| HV Termination          | LV Termination |

| Proposed Construction Assets   |                |
|--------------------------------|----------------|
| Design Area *                  |                |
| High Voltage Underground Cable |                |
| Low Voltage Underground Cable  |                |
| Metal Pole                     | HV Termination |
| Pillar                         | LV Termination |
| Transformer site               |                |

| State Underground Power Project |  |
|---------------------------------|--|
| CURRENT Work Area *             |  |
| COMPLETED Area *                |  |

| Feature          |  |
|------------------|--|
| Area of Interest |  |

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN (including house services)**

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Hand exposure via pothole method is MANDATORY.**

**Telephone Support: 1300 769 345  
Mon to Fri - 08:00 to 16:30**

**Information valid for 30 days  
from date of issue**

|    |                |
|----|----------------|
| A4 | Scale : 1:2500 |
|----|----------------|

**WARNING! Look out for overhead power lines**





### UNDERGROUND LEGEND

| Structures       |                       |
|------------------|-----------------------|
| Pillar           | UG Crossing *         |
| Metal Pole       | Ring Main Unit        |
| Transformer Site | LV Distribution Frame |

| Distribution Cables             |                            |
|---------------------------------|----------------------------|
| High Voltage Cable (1kV - 33kV) | Low Voltage Cable (< 1kV)  |
| Street Light Circuit (< 1kV)    | Street Light Pilot (< 1kV) |
| Earth Wire                      |                            |

| Cable Pole Terminations |                |
|-------------------------|----------------|
| HV Termination          | LV Termination |

| Proposed Construction Assets  |                                |
|-------------------------------|--------------------------------|
| Design Area *                 | High Voltage Underground Cable |
| Low Voltage Underground Cable | Metal Pole                     |
| Pillar                        | HV Termination                 |
| Transformer site              | LV Termination                 |

| State Underground Power Project |                  |
|---------------------------------|------------------|
| CURRENT Work Area *             | COMPLETED Area * |

| Feature          |  |
|------------------|--|
| Area of Interest |  |

**\* Please refer to coversheet**

**Privately owned cables NOT SHOWN (including house services)**

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Hand exposure via pothole method is **MANDATORY**.

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Mon to Fri - 08:00 to 16:30

Information valid for 30 days from date of issue

|    |                |
|----|----------------|
| A4 | Scale : 1:2500 |
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**WARNING! Look out for overhead power lines**

# appendix two: western power feasibility study



# Feasibility Report

L55 Chapman Rd GLENFIELD

Large Commercial Connection (4 green title lots subdivision)

6/09/2016

## Document release information

|                 |                          |
|-----------------|--------------------------|
| Client          | Pritchard Francis        |
| Project name    | NF010116                 |
| Document number | 40954498                 |
| Document title  | Feasibility Study Report |
| Revision status | A                        |

**Document prepared by:**

**Western Power  
ABN 18540492861**

**71 Ewing Street, Bentley 6102**

Prepared by:

Christophe Vandenhoven

Senior Distribution Project Designer

Reviewed by:

N/A

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## Table of contents

|          |                                                            |            |
|----------|------------------------------------------------------------|------------|
| <b>1</b> | <b>Introduction</b>                                        | <b>1</b>   |
| 1.1      | Background                                                 | 1          |
| 1.2      | Purpose                                                    | 1          |
| 1.3      | Scope of Study                                             | 1          |
| <b>2</b> | <b>Study Activities</b>                                    | <b>2</b>   |
| 2.1      | Network Configuration Assessment                           | 2          |
| 2.2      | Network Impact Assessment                                  | 2          |
| <b>3</b> | <b>Technical Evaluation</b>                                | <b>3</b>   |
| 3.1      | Overview                                                   | 3          |
| 3.2      | Western Power scope of works                               | 3          |
| 3.3      | Western Power Distribution Outdoor Substation Requirements | 4          |
| 3.4      | Customer Contribution for Western Power Works              | 5          |
| 3.5      | Assumptions                                                | 5          |
| 3.6      | Application Requirements                                   | 5          |
| <b>4</b> | <b>Conclusions and Recommendations</b>                     | <b>6</b>   |
|          | <b>Appendix A - Customer's site plan</b>                   | <b>A-1</b> |

# **1 Introduction**

---

## **1.1 Background**

Pritchard Francis is intending to develop a large commercial subdivision at L55 Chapman Rd in Glenfield. The estimated site load of 3.5MVA is to be reticulated across 4 green title lots.

## **1.2 Purpose**

3E Consulting Engineers on behalf of Pritchard Francis has submitted a feasibility study request to determine if there is sufficient network capacity for the estimated load; the Western Power scope of works; and the costings.

The proposed outcomes from the feasibility study are:

- Determine if there is sufficient network capacity to supply 3.5MVA;
- Determine Western Power scope of works to supply each green title lot as per the customer's site plan;
- Identify any network constraints;
- Provide cost estimate (+/- 30%) for the Western Power scope of works;
- Provide an indicative time frame for the Western Power scope of works.

## **1.3 Scope of Study**

The activities that will be undertaken to achieve the specified outcomes are:

1. Network configuration assessment;
2. Network Planning assessment;
3. Technical evaluation;
4. Estimate.

## 2 Study Activities

### 2.1 Network Configuration Assessment

The proposed development area in Glenfield is shown below in figure 1. The customer's lot is within an 11KV network area and located approximately 3.5km from Chapman Zone Substation (CPN). Two 11KV feeders (CPN316 and CPN336) go pass the proposed development site. The backbone cable on the CPN336 feeder consists of mainly 240mm<sup>2</sup> Cu XLPE cable. The backbone conductor on the CPN316 feeder consists of mainly 19/3.25AAAC and 7/4.75AAAC. This area is supplied by CPN 316.0 WAGGRAKINE HV feeder circuit.

There is no existing supply to the customer's lot.

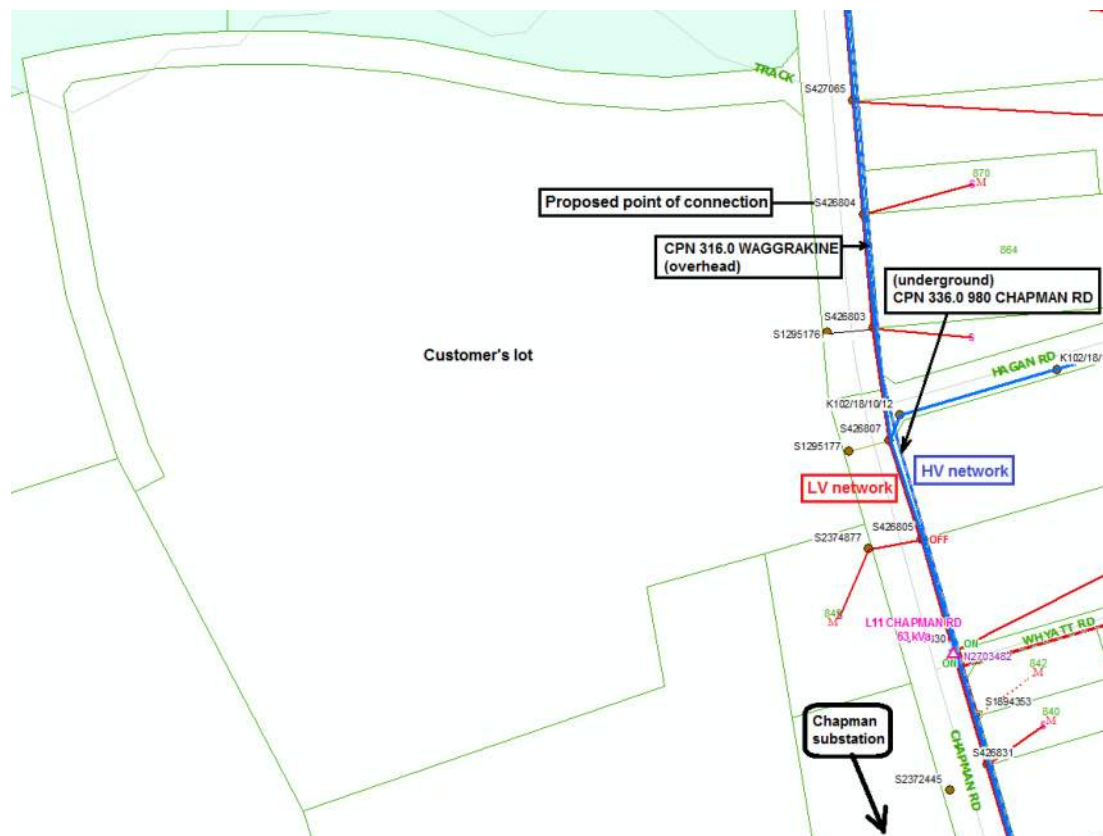


Figure 1

### 2.2 Network Impact Assessment

From a feasibility assessment perspective, there are adequate spare capacity available on these two feeders to supply the proposed load. It is better to supply the load from 2 feeders. Once Western Power receive a formal request to connect this load, a detail study will be carried out to check for any voltage issue and transmission network constraints.



### 3.3 Western Power Distribution Outdoor Substation Requirements

The proposed substation requirements will be as per DSM 3-06. See details below:

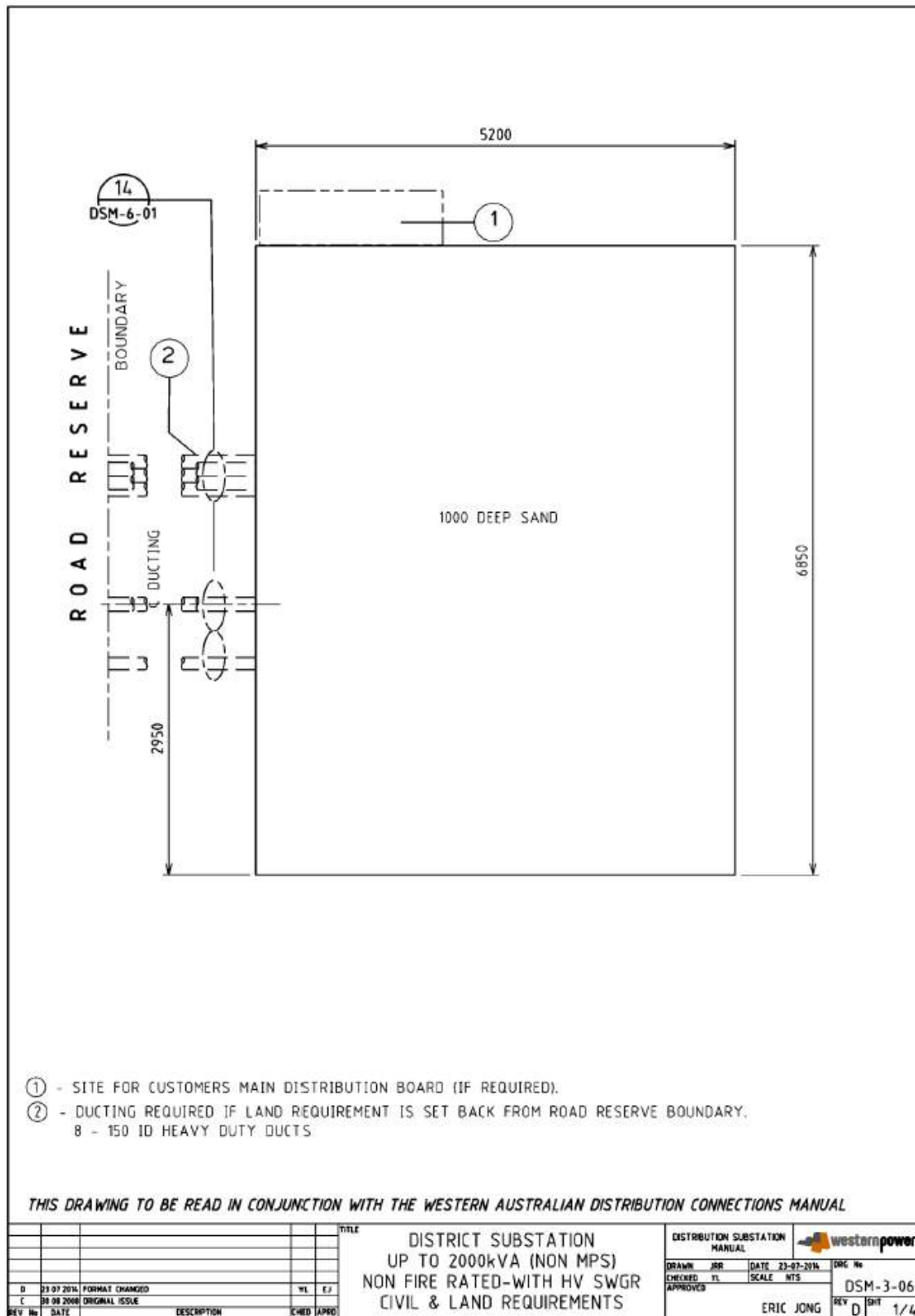


Figure 3

### **3.4 Customer Contribution for Western Power Works**

The estimated customer contribution for the completion of Western Power's works would approximately be **\$700,000.00 ±30%**.

Please note:

- this estimate does not include any revenue offset. There is not enough information provided in this application to allow Western Power to forecast any revenue.
- this estimate is based on a desktop review of the required Western Power works associated with implementing this option. This estimate is non-binding and could be subject to change at completion of the Access Offer.

### **3.5 Assumptions**

Based on the scope of works highlighted in this report, it is anticipated that:

- No environmental obstacles will impact on Western Power scope of works;
- No Third party approval(s) will be required;
- Western Power's load assessment is supported by the customer's load breakdown.

### **3.6 Application Requirements**

This project is identified as a major capital project as the overall customer contribution is in excess of \$600,000, thus customer needs to contact Western Power access team via the following link:

<https://www.westernpower.com.au/media/1606/enquiry-notification-of-proposed-connection-application.pdf>

Once completed, please submit the form to: [network.access@westernpower.com.au](mailto:network.access@westernpower.com.au).

## 4 Conclusions and Recommendations

---

There is spare capacity on both HV feeders running past the development. Network Planning recommends to share the load between both HV feeders.

Western Power works will include the installation of 2x substation (2+2 RMU and 2MVA transformer), the installation of 4x HV cable (approx. 820m), the installation of 2x LV cable (approx. 140m), 2x HV joint, 3x cable pole termination, the replacement of 2x pole, the removal of a bay of HV conductors and the installation of 1x pillar.

Further studies will be required at design stage to check for any voltage issue and transmission network constraints.

The above presented information is based on the desktop information & is subject to detail design investigation/confirmation. Therefore, the final capital contribution for the requested works will be determined following application for a detailed design and firm access offer.

This project is identified as a major capital project as the overall customer contribution is in excess of \$600,000, so in order to proceed ahead with a firm connection proposal & cost, a formal application to Western Power will need to be made by submitting an Access application through Western Power website. Refer to step 1 of attached web link below:

<https://www.westernpower.com.au/connections/new-connections/>

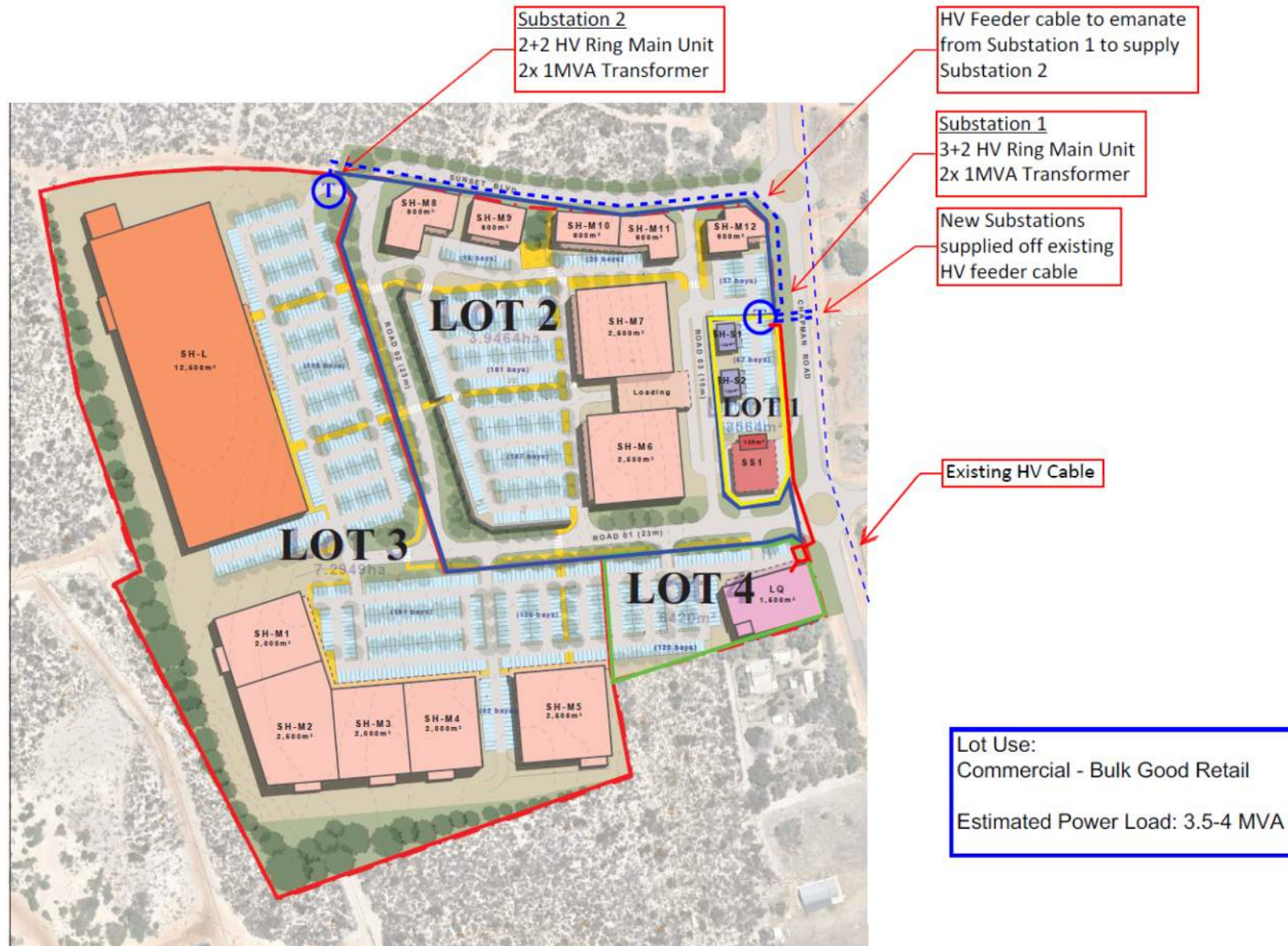
The timeframe for the completion of such project is around a year - 9 months for the access application process and 3 months for construction.

### Disclaimer:

Power systems are dynamic in nature, due to new users and frequent changes in consumer behaviour. As such, Western Power's distribution electricity networks will change over time - this may have a bearing on the amount of reinforcement required to accommodate new developments.

Applicants need to be aware that Western Power's response may become out-of-date, resulting in a significant variation in infrastructure requirements and/or cost. To provide a firm connection proposal and cost, a formal application to Western Power will need to be made, in accordance with current connection policies.

## Appendix A - Customer's site plan



## appendix three: earthworks





| SITE SUMMARY         |                          |
|----------------------|--------------------------|
| SITE AREA            | 12.2397ha                |
| Bulky Goods Showroom | 32,040m <sup>2</sup> GFA |
| Service Station      | 120m <sup>2</sup> GFA    |
| Liquor Store         | 1,500m <sup>2</sup> GFA  |
| TOTAL GFA            | 33,660m <sup>2</sup> GFA |
| TOTAL BAYS REQUIRED  | 719 bays                 |
| TOTAL BAYS PROVIDED  | 1323 bays                |

| CITY OF GREATER GERALDTON PARKING REQ. |                                |
|----------------------------------------|--------------------------------|
| Bulky Goods Showroom                   | 1 bay per 50m <sup>2</sup> GFA |
| Service Station                        | 1 bay per 50m <sup>2</sup> GFA |
| Liquor Store                           | 1 bay per 20m <sup>2</sup> GFA |

| LOT SUMMARY          |                       |
|----------------------|-----------------------|
| LOT 1                |                       |
| LOT AREA             | 0.3564ha              |
| Bulky Goods Showroom | 240m <sup>2</sup> GFA |
| Service Station      | 120m <sup>2</sup> GFA |
| TOTAL GFA            | 360m <sup>2</sup> GFA |
| TOTAL BAYS REQUIRED  | 8 bays                |
| TOTAL BAYS PROVIDED  | 57 bays               |

| LOT 2                |                         |
|----------------------|-------------------------|
| LOT AREA             | 3.9819ha                |
| Bulky Goods Showroom | 8,300m <sup>2</sup> GFA |
| TOTAL GFA            | 8,300m <sup>2</sup> GFA |
| TOTAL BAYS REQUIRED  | 166 bays                |
| TOTAL BAYS PROVIDED  | 400 bays                |

| LOT 3                |                          |
|----------------------|--------------------------|
| LOT AREA             | 7.3093ha                 |
| Bulky Goods Showroom | 23,500m <sup>2</sup> GFA |
| TOTAL GFA            | 23,500m <sup>2</sup> GFA |
| TOTAL BAYS REQUIRED  | 470 bays                 |
| TOTAL BAYS PROVIDED  | 746 bays                 |

| LOT 4               |                         |
|---------------------|-------------------------|
| LOT AREA            | 0.6972ha                |
| Liquor Store        | 1,500m <sup>2</sup> GFA |
| TOTAL GFA           | 1,500m <sup>2</sup> GFA |
| TOTAL BAYS REQUIRED | 75 bays                 |
| TOTAL BAYS PROVIDED | 120 bays                |

LEGEND

- Site Boundary
- Existing Cadastre
- Existing Contours (2m)
- Indicative Retaining Wall Location
- Vegetation Screening
- Proposed Lot Boundary

- SH Bulk Goods Showroom
- LQ Liquor Store
- SS Service Station
- Pedestrian Route
- Parking Bays
- Road

Development Concept  
Lot 55 Chapman Road, Glenfield

Date: 31 October 2016  
Scale: 1:2,000 @ A3  
Drawing No. 715-528 ST-1 A  
Staff: MD\_GW

Level 7, 182 St Georges Terrace  
Perth Western Australia 6000  
Telephone +61 08 9289 8300  
Facsimile +61 08 9321 4786  
www.tpgwa.com.au  
The Planning Group WA Pty Ltd  
ABN 36 097 273 222





# Constraints

Lot 55 Chapman Road, Glenfield

Date: 31 October 2016  
Scale: 1:2,000 @ A3  
Drawing No. 715-528 ST-2 A  
Staff: MD\_GW

Level 7, 182 St Georges Terrace  
Perth Western Australia 6000  
Telephone +61 08 9289 8300  
Facsimile +61 08 9321 4786  
www.tpgwa.com.au  
The Planning Group WA Pty Ltd  
ABN 36 097 273 222



0 20 40m

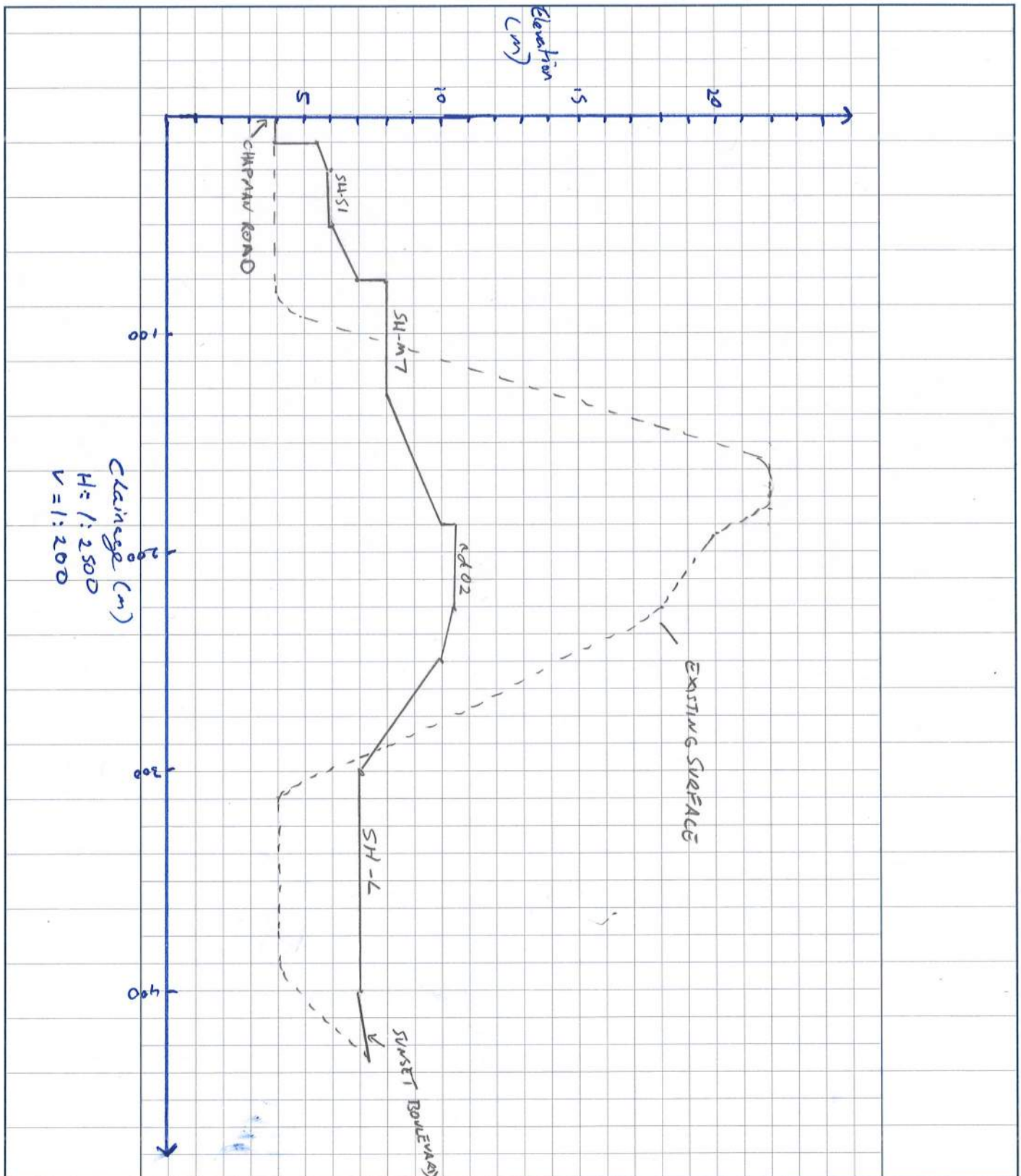


PROJECT: 16-102 Lot 55 Chapman  
Road, Glenfield - Earthworks  
Cross-section A

PAGE: 1 / 3

DATE: 26/08/2016

REF NO: appendix 3



Level 1  
430 Roberts Road  
PO Box 2150  
Subiaco WA 6904

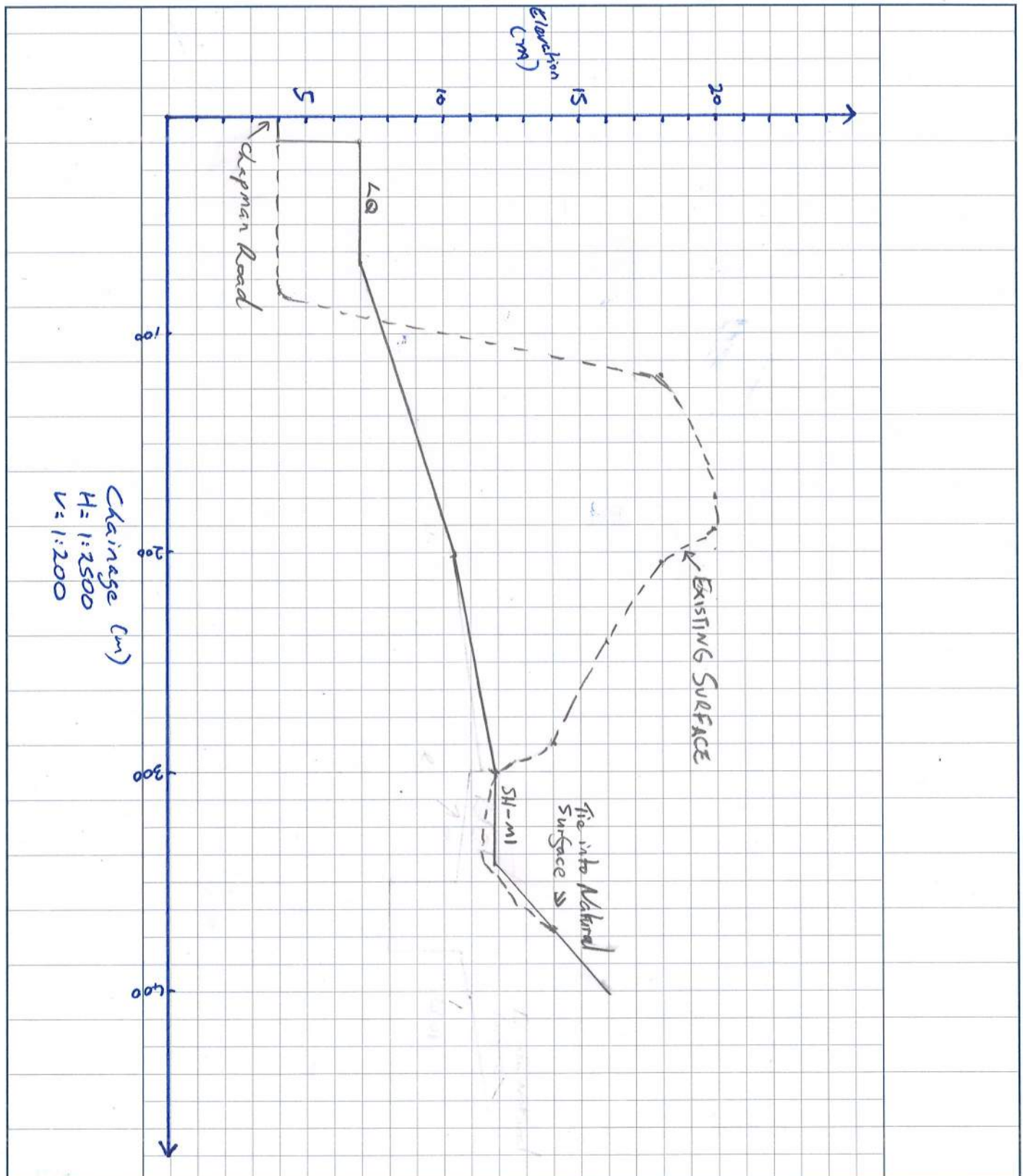
Telephone: (08) 9382 5111  
Facsimile: (08) 9382 5199  
admin@pfeng.com.au

## CALCULATION SHEET

PROJECT: 16-102 Lot 55 Chapman  
Road Glenfield - Earthworks  
Cross-Section B

PAGE: 2 / 3

DATE: 26/08/2016 REF NO: appendix 3



Level 1  
430 Roberts Road  
PO Box 2150  
Subiaco WA 6904

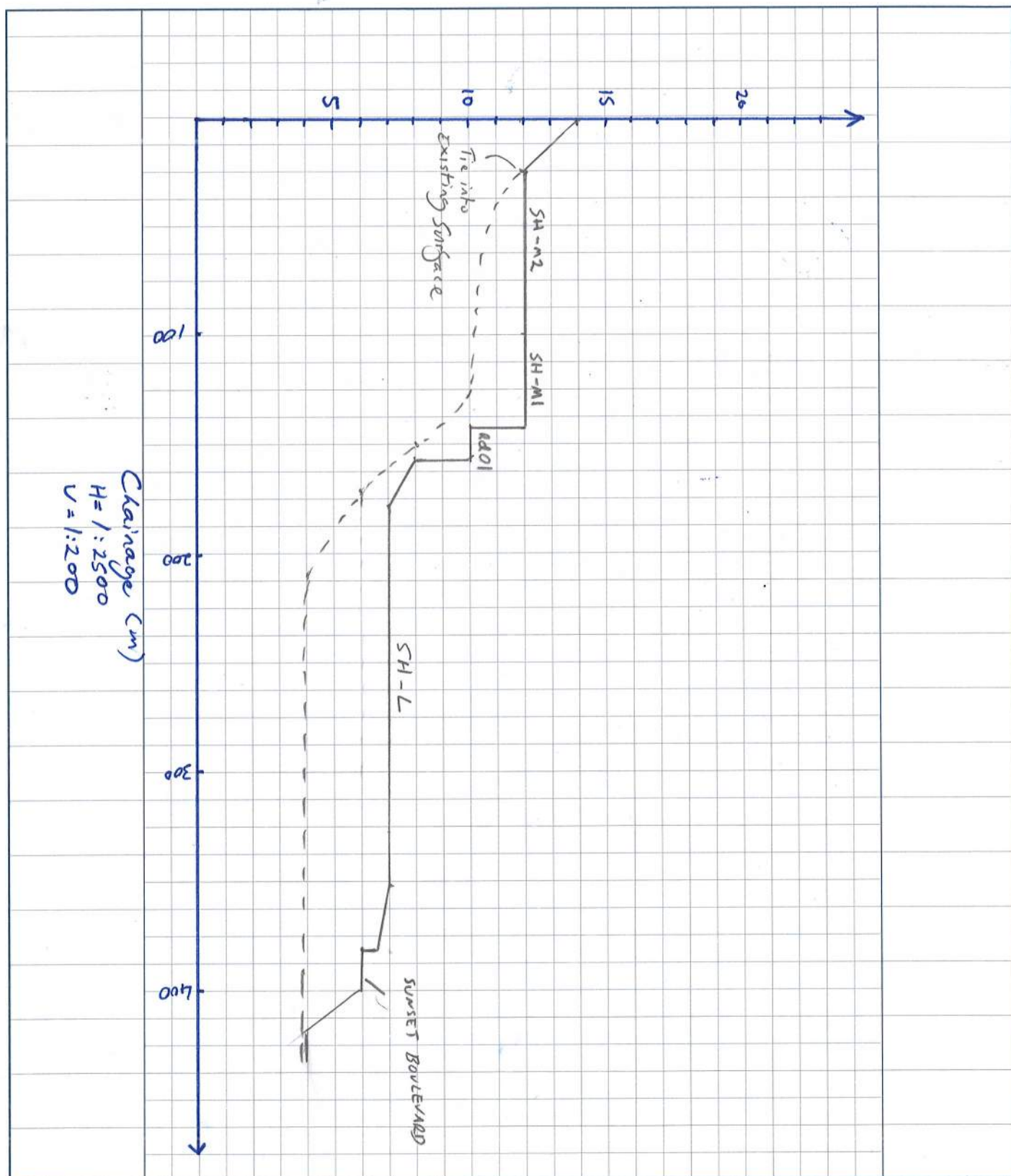
Telephone: (08) 9382 5111  
Facsimile: (08) 9382 5199  
admin@pfeng.com.au

## CALCULATION SHEET

PROJECT: 16-102 Lot 55 Chapman  
Road, Glenfield - Earthworks  
Cross-Section C

PAGE: 3 / 3

DATE: 29/08/2016 REF NO: appendix 3



## appendix four: road upgrades/ extensions

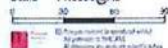




Plan No.: 14511-17

Revision: REV.3

Scale: 1:3000 @ A3



132 Scarborough Beach Road, Unit 10 Hawthorn WA 6100 www.whelans.com.au

**FIGURE 9**  
**GLENFIELD DISTRICT**  
**ACTIVITY CENTRE PRECINCT**  
**CONCEPTUAL MASTERPLAN**

DATE: 20/12/2013  
DRAWN BY: C. KELLY  
CHECKED BY: J. P. KELLY  
FILE: 14511-17 Activity Centre Precinct Conceptual Masterplan.dwg  
VOLUME: A-0  
REVISION: 03/12/2013



Figure 10. Road Hierarchy for Glenfield District Activity Centre Precinct (Source: AECOM, 2012)

Level 1  
430 Roberts Road  
PO Box 2150  
Subiaco WA 6904

Telephone: (08) 9382 5111  
Facsimile: (08) 9382 5199  
admin@pfeng.com.au

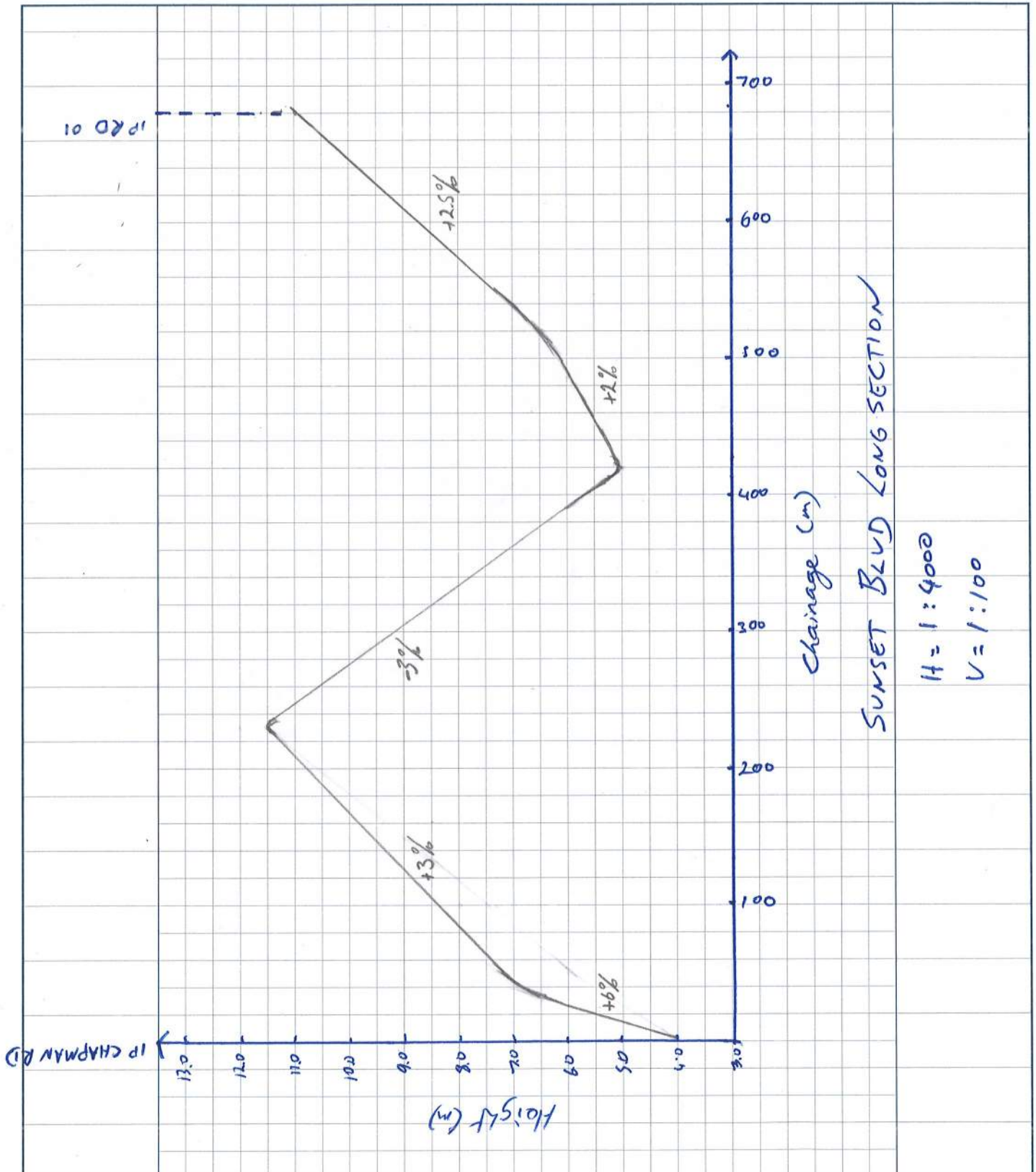
## CALCULATION SHEET

PROJECT: 16-102 Lot 55 Chapman Road, Glenfield - Sunset Blvd Longsection

PAGE: 1 /

DATE: 29/8/16

REF NO: appendix 4



# appendix five: water corporation correspondence



## Aaron Smith

---

**From:** Brett Coombes <Brett.Coombes@watercorporation.com.au>  
**Sent:** Friday, July 15, 2016 12:27 PM  
**To:** Aaron Smith  
**Subject:** RE: Lot 55 Chapman Road, Glenfield Request Land Planning Advice  
**Attachments:** Waggrakine SD ww conveyance planning.PNG.PDF

Aaron,

I will leave it to Ian to provide information on the extent of the Glenfield WWTP odour buffer and any limitations on sensitive land uses on this site within the buffer area. Ian's Tel number is 9420-2617.

From a ww planning perspective, the site is located at the far southern end of the Waggrakine Sewer District in the catchment of a future WWPS 'C'. This is a long term transfer station (Type 180) and there are no plans or need to construct it in the short term, so there is currently no detailed catchment plan for this PS. Substantial development around the future WWPS 'C' would likely be required before your site could be gravitated in that direction. You might have to consider private or temporary WWPS arrangements either directly to the WWTP, or into the sewerage network to the north-west (subject to a discharge point being available).

Regards

**Brett Coombes**  
*Senior Urban Planner*  
*Assets Planning Group*  
**Water Corporation**  
*T: (08) 9420 3165*

---

**From:** Aaron Smith [mailto:[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)]  
**Sent:** Friday, 15 July 2016 10:56 AM  
**To:** Brett Coombes  
**Cc:** Cory Johnson  
**Subject:** RE: Lot 55 Chapman Road, Glenfield Request Land Planning Advice

Thanks Brett,

Any chance I can get his contact info off you?

Regards,

**Aaron Smith**  
Engineer - Civil  
Pritchard Francis | T (08) 9382 5111

---

**From:** Brett Coombes [mailto:[Brett.Coombes@watercorporation.com.au](mailto:Brett.Coombes@watercorporation.com.au)]  
**Sent:** Friday, July 15, 2016 10:41 AM  
**To:** Aaron Smith <[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)>  
**Subject:** RE: Lot 55 Chapman Road, Glenfield Request Land Planning Advice

Hi Aaron,

Just to let you that Ian Kininmonth on our team is handling your query, mainly because the site is in or close to the WWTP odour buffer. I will keep in touch with Ian to make sure your question about the roads/no-roads strata options is addressed.

Regards

**Brett Coombes**  
Senior Urban Planner  
Assets Planning Group  
**Water Corporation**  
T: (08) 9420 3165

---

**From:** Aaron Smith [<mailto:aaron.s@pfeng.com.au>]  
**Sent:** Thursday, 14 July 2016 5:10 PM  
**To:** Brett Coombes  
**Cc:** Cory Johnson  
**Subject:** RE: Lot 55 Chapman Road, Glenfield Request Land Planning Advice

Hi Brett,

Further to my email below the clients intention is to create 4 separate green title lots with all internal access ways to be dealt with via reciprocal rights of access easement (where necessary) as opposed to creation of public roads. This will of course create several issues with relation to servicing each site with sewer. Are you able to confirm what implications there would be as a result of pursuing the green title option as compared to the strata option?

If you could provide me a copy of the catchment plan for the area in the interim it would be greatly appreciated as well.

Feel free to call me to discuss.

Regards,

**Aaron Smith**  
Engineer - Civil  
Pritchard Francis | T (08) 9382 5111

---

**From:** Aaron Smith  
**Sent:** Thursday, July 14, 2016 11:49 AM  
**To:** 'brett.coombes@watercorporation.com.au' <[brett.coombes@watercorporation.com.au](mailto:brett.coombes@watercorporation.com.au)>  
**Subject:** RE: Lot 55 Chapman Road, Glenfield Request Land Planning Advice

Hi Brett,

I just got some new information from the client regarding the lot layout and possible converting the lot into 4 green title sites rather than a single strata site. Given that some of the site (north west corner) appears to be below the treatment plant to the south where I assume we would have to connect into. I have attached a copy of the latest layout plan for your information as this will factor into your response I would assume.

Regards,

**Aaron Smith**

Engineer - Civil

Pritchard Francis | T (08) 9382 5111

**From:** Aaron Smith**Sent:** Thursday, July 7, 2016 1:53 PM**To:** [brett.coombes@watercorporation.com.au](mailto:brett.coombes@watercorporation.com.au)**Subject:** Lot 55 Chapman Road, Glenfield Request Land Planning Advice

Hi Brett,

Been trying to do this request online but it is being a pain and not letting me submit the for “We experienced a technical difficulty while processing your request. Your data may not have been correctly saved” and I am uncertain why. Could you help? I am not sure if you helped me with a similar site a couple years back on the same road or not.

The site is Lot 55 Chapman Road, Glenfield (Outer Geradlton) and the client is going through the Local Structure Planning phase for which we are doing the servicing report. The site is approximately 122,000m<sup>2</sup> with the area to physical have a building to be around 31,660m<sup>2</sup> comprising 17 showrooms on the single lot. The expected flows for water and wastewater are expected to be 2.39L/s and 2.56L/s respectively.

It is intended to construct a mixture of small, medium and large showrooms for bulky goods type stores. We intend to connect into the existing 100AC water main in Chapman Road to supply the subject site with potable water and fire water. It is also intended to construct a sewer to discharge into the existing treatment plant to the west of the site.

Can you please confirm the WC's requirements and confirmation of connection points.

Regards,

**Aaron Smith**

Engineer - Civil

T (08) 9382 5111 | E [aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au) | W [www.pfeng.com.au](http://www.pfeng.com.au)

Level 1, 430 Roberts Road, Subiaco WA 6008 | PO Box 2150 Subiaco WA 6904



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## Aaron Smith

---

**From:** Russell Nelson <Russell.Nelson@watercorporation.com.au>  
**Sent:** Monday, August 15, 2016 9:39 AM  
**To:** Aaron Smith  
**Cc:** Ian Kininmonth  
**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Aaron,

Extension of the dn 150 is acceptable but it will need to be taken from the dn150 near the cnr of Moorings Loop and cross connected at Corallina Quays to the dn 100.

Regards

### Russell Nelson

Team Leader Headworks Delivery  
Development Services

---

**E:** [Russell.Nelson@watercorporation.com.au](mailto:Russell.Nelson@watercorporation.com.au)

**T:** (08) 9420 3361



**A:** 629 Newcastle Street, Leederville, WA  
6007

**P:** PO Box 100, Leederville, WA 6902

---

**Keep in touch**     **W:** [watercorporation.com.au](http://watercorporation.com.au)



Your lawn is taking a nap.  
Your sprinklers should too.  
Winter sprinkler ban 1 June - 31 August  
Check if you're included at  
[watercorporation.com.au/sprinklerban](http://watercorporation.com.au/sprinklerban)

---

 **Please consider the environment before printing this email.**

---

**From:** Aaron Smith [mailto:[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)]  
**Sent:** Monday, 15 August 2016 9:03 AM  
**To:** Russell Nelson  
**Cc:** Ian Kininmonth  
**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Hi Russell,

Have you heard anything back from the operators regarding the potential extension of a 150mm main up Chapman Road?

Regards,

**Aaron Smith**

Engineer - Civil  
Pritchard Francis | T (08) 9382 5111

---

**From:** Russell Nelson [<mailto:Russell.Nelson@watercorporation.com.au>]  
**Sent:** Friday, August 5, 2016 11:43 AM  
**To:** Aaron Smith <[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)>  
**Cc:** Ian Kininmonth <[Ian.Kininmonth@watercorporation.com.au](mailto:Ian.Kininmonth@watercorporation.com.au)>  
**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Aaron,

I have some concerns regarding the extension of retic for your suggested location, the extension if it can occur will need to come from closer to the end of the DN300 to minimise the potential impacts on existing customers.

I am seeking some further advice from the operators in regard to this.

Regards

**Russell Nelson**

Team Leader Headworks Delivery  
Development Services

---

**E:** [Russell.Nelson@watercorporation.com.au](mailto:Russell.Nelson@watercorporation.com.au)

**T:** (08) 9420 3361



**A:** 629 Newcastle Street, Leederville, WA  
6007

**P:** PO Box 100, Leederville, WA 6902

---

**Keep in touch**



**W:** [watercorporation.com.au](http://watercorporation.com.au)



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---

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---

**From:** Aaron Smith [<mailto:aaron.s@pfeng.com.au>]  
**Sent:** Friday, 5 August 2016 9:27 AM  
**To:** Russell Nelson  
**Cc:** Ian Kininmonth  
**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Hi Russell,

Have you had a chance to investigate this further?

Regards,

**Aaron Smith**

Engineer - Civil

Pritchard Francis | T (08) 9382 5111

---

**From:** Aaron Smith**Sent:** Thursday, July 28, 2016 10:39 AM**To:** 'Russell Nelson' <[Russell.Nelson@watercorporation.com.au](mailto:Russell.Nelson@watercorporation.com.au)>**Cc:** Ian Kininmonth <[Ian.Kininmonth@watercorporation.com.au](mailto:Ian.Kininmonth@watercorporation.com.au)>**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Russell,

Potable water will not be high (2.4 – 2.6L/s) I would imagine given that it is all mostly showroom space, a liquor store and a service station however it is more the issue of the fire service.

Regards,

**Aaron Smith**

Engineer - Civil

Pritchard Francis | T (08) 9382 5111

---

**From:** Russell Nelson [<mailto:Russell.Nelson@watercorporation.com.au>]**Sent:** Thursday, July 28, 2016 10:33 AM**To:** Aaron Smith <[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)>**Cc:** Ian Kininmonth <[Ian.Kininmonth@watercorporation.com.au](mailto:Ian.Kininmonth@watercorporation.com.au)>**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Aaron,

Do you have any indication as to the possible demands for the sites, this may affect the options for extension of the dn150.

Regards

**Russell Nelson**Team Leader Headworks Delivery  
Development Services

---

**E:** [Russell.Nelson@watercorporation.com.au](mailto:Russell.Nelson@watercorporation.com.au)**T:** (08) 9420 3361**A:** 629 Newcastle Street, Leederville, WA  
6007**P:** PO Box 100, Leederville, WA 6902

---

**Keep in touch**     **W:** [watercorporation.com.au](http://watercorporation.com.au)

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Check if you're included at  
[watercorporation.com.au/sprinklerban](http://watercorporation.com.au/sprinklerban)

 Please consider the environment before printing this email.

---

**From:** Aaron Smith [<mailto:aaron.s@pfeng.com.au>]  
**Sent:** Thursday, 28 July 2016 9:39 AM  
**To:** Russell Nelson  
**Cc:** Ian Kininmonth  
**Subject:** RE: Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Hi Russell,

We are looking into a site located at Lot 55 Chapman Road, Glenfield just north of Geraldton, specifically I wanted to chat to you about a possible interim servicing solution for the site. Currently there is a 100mm main servicing the site which is intended to be subdivided into 4 individual lots servicing commercial bulky goods stores (Bunnings, BBQ's Galour, etc) which require a connection from 150mm main. Given that the extension of the 300mm main is not expected to be completed until late 2020 and there is always the possibility that this gets further delayed, should the client wish to proceed in the meantime they will need to still provide a service to the site and with a 150mm main. The nearest 150mm main that I could find was 1.6km to the south in Corallina Quays. Would the WC accept the extension of this main up the western side of Chapman road running next to the existing Whitworth Street Pressure Main?

I have attached a copy of a plan indicating the proposed extension as well as the development for your information.

Any questions please give me a call.

Regards,

**Aaron Smith**  
Engineer - Civil  
Pritchard Francis | T (08) 9382 5111

---

**From:** Ian Kininmonth [<mailto:ian.Kininmonth@watercorporation.com.au>]  
**Sent:** Tuesday, July 19, 2016 10:46 AM  
**To:** Aaron Smith <[aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au)>  
**Subject:** Response - Service feasibility - Lot 55 Chapman Road, Glenfield

Attention: Aaron Smith

Thankyou for your email dated 7<sup>th</sup> July 2016 and subsequent email of 14<sup>th</sup> July 2016. In response I advise as follows:

#### Water

The site is currently serviced with a 100 main which is unlikely to provide flows and pressures adequate for the size of development proposed. Current planning proposes the extension of a 300 distribution main past the site in the mid to late 2020's (Attachment: wate-plan-dist.pdf). Extension of water services to the site from existing mains will be at the developer's expense.

#### Wastewater

A number of options may be available to service the site with wastewater services, which could include:

1. Construction of a private pump station (PS) and main to the Geraldton North WWTP which can empty into the WWTP discharge chamber. A private PS could service the proposed 4 lots but only if they are strata titled.
2. Construction of a temporary pump station which could service the 4 freehold lots. This could possibly inject into the WW pressure main located adjacent the subject land, however the feasibility of this would need to be investigated.

The above would be at the developer's expense. Our current planning is also attached (ww-plan.pdf)

#### WWTP odour buffer

The odour buffer for the Geraldton North WWTP extends over the subject land. This has been recognised as a Special Control Area (SCA) in the City of Greater Geraldton Town Planning Scheme No. 1 gazetted 11 December 2015. Information on land uses which are considered compatible are accessible from this

page <http://www.watercorporation.com.au/home/builders-and-developers/land-planning/buffers>

Please contact me should you require further information. Regards,

#### **Ian Kininmonth**

Senior Town Planner  
Development Services

**Water Corporation**

**T: (08) 9420 2617**

<http://www.watercorporation.com.au/home/builders-and-developers/land-planning>



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# appendix six: atco gas correspondence



## Aaron Smith

---

**From:** Asset Services <Asset.Services@atcogas.com.au>  
**Sent:** Tuesday, August 9, 2016 9:32 AM  
**To:** Searle, Lewis  
**Subject:** RE: Lot 55 Chapman Road, Glenfield

Yes Lewis, you can pass the info on.  
It's a MP network so the max pressure they can get is 10kPa.

Regards,  
Moh. Hammad  
System Management Engineer



[www.atcogas.com.au](http://www.atcogas.com.au)



81 Prinsep Road, Jandakot, Western Australia, 6164  
Telephone: (08)6163 5138  
Mobile: 0406332325

---

**From:** Searle, Lewis  
**Sent:** Tuesday, 9 August 2016 8:46 AM  
**To:** Asset Services  
**Cc:** Benabbas, Maria; Drawing Office  
**Subject:** RE: Lot 55 Chapman Road, Glenfield

Many thanks Moh; so , are you happy for me to pass on this info 'as is" to client?

He phoned me and was unable to provide any specific load details...

thanks

Thanks

Regards

**Lewis Searle**  
GIS Draughtsman



[www.atcogas.com.au](http://www.atcogas.com.au)



81 Prinsep Road, Jandakot, Western Australia, 6164  
Telephone: (08) 6163 5160

---

**From:** Asset Services  
**Sent:** Monday, 8 August 2016 4:04 PM

**To:** Searle, Lewis  
**Cc:** Benabbas, Maria  
**Subject:** RE: Lot 55 Chapman Road, Glenfield

Hi Lewis,

Modelling is based on 2016 model in severe winter conditions  
Metersets in vicinity are loaded with 60% of its capacity  
Modelling shows that, the max load that can be supplied to the development from the existing 225PE - MP main in Chapman Rd without reinforcement is 150SCMH (5550 MJ/hr).

Regards,  
Moh. Hammad  
System Management Engineer



[www.atcogas.com.au](http://www.atcogas.com.au)



81 Prinsep Road, Jandakot, Western Australia, 6164  
Telephone: (08)6163 5138  
Mobile: 0406332325

---

**From:** Asset Services  
**Sent:** Friday, 5 August 2016 4:34 PM  
**To:** Searle, Lewis; Asset Services; Hammad, Mohamed  
**Cc:** Drawing Office  
**Subject:** RE: Lot 55 Chapman Road, Glenfield

Hi Lewis,

I pass this enquiry as this has to be modelled to check the network capacity to Moh.  
He will get back to you soon.

Moh, could you please model the enquiry below from Lewis and respond to him,

Thanks

Regards,  
Maria Benabbass  
Asset Planning Engineer



[www.atcogas.com.au](http://www.atcogas.com.au)



81 Prinsep Road, Jandakot, Western Australia, 6164

Telephone: (08) 6163 5137

---

**From:** Searle, Lewis  
**Sent:** Friday, 5 August 2016 1:26 PM  
**To:** Benabbas, Maria; Asset Services

**Cc:** Drawing Office  
**Subject:** FW: Lot 55 Chapman Road, Glenfield

Hi Maria, I just spoke to Aaron on the phone.

All he actually requires at this stage is confirmation that the proposed project (please see attached .pdf's and attached original email from Aaron) can be successfully fed via the adjacent 225mmPE MP main on Chapman Road?

Can you please either let him know or let me know and I will let him know.

Many thanks

Regards

**Lewis Searle**  
GIS Draughtsman



[www.atcogas.com.au](http://www.atcogas.com.au)



81 Prinsep Road, Jandakot, Western Australia, 6164

Telephone: (08) 6163 5160

---

**From:** Searle, Lewis  
**Sent:** Friday, 5 August 2016 1:17 PM  
**To:** 'Aaron Smith'  
**Cc:** Pemberton, Chris; Drawing Office  
**Subject:** RE: Lot 55 Chapman Road, Glenfield

Hi Aaron.

Thanks you for your submission.

Can you please Email us a copy of the common trenching water plan in .pdf format + the precal cadastral file in .dgn or AutoCAD format, version 2000 or earlier please.

You are correct, there is a 225mmPE Medium Pressure main outside this proposed job.

Please also let me know exactly where you will required gas pipes and I will get our engineers to pipe- size this design - only then will ATCO be able to come up with an accurate quote for you to reticulate this project (this job will almost certainly require capital contribution from client as a non-residential job)

Your query will be addressed by Drawing Office.

Regards

**Lewis Searle**  
GIS Draughtsman

81 Prinsep Road, Jandakot, Western Australia, 6164

Telephone: (08) 6163 5160

---

**From:** Aaron Smith [<mailto:aaron.s@pfeng.com.au>]

**Sent:** Wednesday, 27 July 2016 11:49 AM

**To:** Searle, Lewis

**Subject:** Lot 55 Chapman Road, Glenfield

Hi Lewis,

I am currently undertaking a servicing report for Lot 55 Chapman Road, Glenfield just north of Geradlton and just wished to confirm whether there will be any issues servicing the site with gas. The site is expected to be developed into 4 green title lots with each composed of bulky goods stores (Bunnings, BBQ's Galour, etc.) as shown on the attached development concept. Sunset Blvd will be a gazetted road reserve while all internal access ways to be dealt with via reciprocal rights of access easement (where necessary) as opposed to creation of gazetted roads.

Currently there is a 225mm diameter MP main running up Chapman Road which fronts the site. Can you see any issues servicing the site from the existing 225mm dia main in Chapman Rd based on the proposed development option attached?

Regards,

**Aaron Smith**

Engineer - Civil



**T** (08) 9382 5111 | **E** [aaron.s@pfeng.com.au](mailto:aaron.s@pfeng.com.au) | **W** [www.pfeng.com.au](http://www.pfeng.com.au)

Level 1, 430 Roberts Road, Subiaco WA 6008 | PO Box 2150 Subiaco WA 6904





Level 1  
430 Roberts Road  
SUBIACO WA 6008  
PO Box 2150  
SUBIACO WA 6904

Tel: (08) 9382 5111  
[admin@pfeng.com.au](mailto:admin@pfeng.com.au)

[www.pfeng.com.au](http://www.pfeng.com.au)



Suite 4  
2A MacPherson Street  
BROOME WA 6725  
PO Box 3634  
BROOME WA 6725

Tel: (08) 9192 8015  
[broome@pfeng.com.au](mailto:broome@pfeng.com.au)

Suite 5  
25 Parap Road  
PARAP NT 0820  
PO Box 104  
PARAP NT 0804

Tel: (08) 7999 8811  
[nt@pfeng.com.au](mailto:nt@pfeng.com.au)