

Technical Evaluation Report

MF010834 – 28 Lewis Rd, Wattle Grove

Small Commercial Connection

3/04/2017

Document release information

Client	BEST Consultants
Project name	MF010834
Document number	DM#42436452
Document title	28 Lewis Rd, Wattle Grove
Revision status	A

Document prepared by:

Western Power
ABN 18540492861

85 Prinsep Road, Jandakot 6164

Prepared by:

Aden Hoddy

Distribution Design Network Officer

© 2017 Electricity Networks Corporation t/a Western Power

Any use of this material except in accordance with a written agreement with Western Power is prohibited.

Table of contents

1	Introduction	1
1.1	Background	1
1.2	Purpose	1
1.3	Scope of Study	1
2	Study Activities	2
2.1	Activity 1 – Network Configuration Assessment	2
2.2	Activity 3 – Network Capacity Assessment	2
2.2.1	Network Voltage Limits	3
3	Technical Evaluation	4
3.1	Identified Western Power Connection Arrangement	4
3.1.1	Overview	4
3.1.2	Site Map	4
3.1.3	Western Power Scope of Works	4
3.1.4	Customer Contribution for Western Power Works	5
3.1.5	Third Party Approvals	5
3.1.6	Customer Scope of Works	5
3.1.7	Assumptions	5
3.1.8	Application Requirements	6
4	Conclusions and Recommendations	7

1 Introduction

1.1 Background

BEST Consultants has engaged Western Power on behalf of client, Fount of Life Outreach Ministries Inc. requesting a feasibility study be undertaken in relation to providing a new underground point of supply for 28 Lewis Rd, Wattle Grove. The applicant has requested Western Power to provide the estimated customer contributions to supply a new 60KVA three phase point of connection

1.2 Purpose

The proposed outcomes from the feasibility study are:

- Determine whether there is sufficient capacity available on the LV network to provide a 60KVA supply.
- Determine whether the voltage at the point of connection under peak load satisfies voltage limits.
- Provide a cost estimate ($\pm 30\%$) for the customer contribution towards the identified 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 Capacity Assessment
3. Western Power and Customer Scope of Works
4. Estimated Customer Contribution

2 Study Activities

2.1 Activity 1 – Network Configuration Assessment

28 Lewis Rd, Wattle Grove has an existing Western Power connection via an overhead service line to the shared LV network 'Lewis 1'. The LV network is supplied from the WE519 (22kV) HV feeder emanating from the Welshpool substation, located approximately 7.3kms from the development site.



Figure 1 – Existing Western Power Network

2.2 Activity 3 – Network Capacity Assessment

Western Power has an existing 22kV/415V 100kVA overhead transformer 'Lewis 1' situated in road reserve along Lewis Rd. The transformer is a 'district' arrangement which is supplying the nearby commercial and residential premises. A network review has been completed on the available capacity of the nearby transformer, refer to Table 1 below

Scenario	Lewis 1 TX Utilisation
Historical Peak	20%
Historical Peak + Customer Load	80%

Table 1 – Existing Transformer Utilisation

2.2.1 Network Voltage Limits

Load flow simulation on both LV network indicates that the network voltages at the end of the network are currently below acceptable limits. As under voltage issues are not evident, connecting this additional load will not impact the existing LV network.

3 Technical Evaluation

3.1 Identified Western Power Connection Arrangement

This section will determine the Western Power and customer's scope of works associated with a suitable network connection at the minimal practical asset location.

3.1.1 Overview

The preferred connection arrangement to the customer's site will be in an accordance with the arrangement specified within *Distribution Substation Manual (DSM)* section 1-03. As no volt-drop issues are actively present on the supplying LV network, a connection has been proposed via the 'Lewis 1' LV network.

3.1.2 Site Map



Figure 2 – Proposed Western Power Scope of Works

3.1.3 Western Power Scope of Works

With reference to the site map in section 3.1.2 of the document, the Western Power scope of works is as follows;

1. Install new uni-pillar as per the customer's site plan.
2. Install new 240XLPE cable from existing transmission pole to new pillar.

3. Remove existing overhead service line from customer's lot.

3.1.4 Customer Contribution for Western Power Works

The estimated customer contribution for the completion of Western Power works would approximately be **\$35,000**.

The customer will be charged in accordance with Western Power's *Distribution Low Voltage Connection head Works Scheme (DLVCHS)* for the supply increase from the allocation (32A) to the requested 115A maximum demand (site increase of 83A). Please note this estimate does not include the assessment of Revenue Offset. The customer will be eligible for revenue offset if sufficient information is provided to Western Power under a formal connection request to allow Western Power to adequately determine the annual consumption.

Please note 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. The above estimate also includes GST (10%) and *Capcon Recovery Tax* (13.9%).

3.1.5 Third Party Approvals

Nil

3.1.6 Customer Scope of Works

The customer will be required to complete the following scope of works for the proposed connection;

- The customer must provide suitable pillar location 300 mm above the 100 year flood level, on the low side of any boundary retaining wall and not in an unsafe/non accessible position. Refer *WA Distribution Connections Manual*.
http://www.westernpower.com.au/documents/WA_Distribution_Connections_Manual.pdf
- The customer shall comply with the customer supply arrangement as per the DSM.

3.1.7 Assumptions

The above cost estimate and scope of works is based on the following main assumptions;

- No other connection requests and changes to network conditions prior to the formal application for this connection.
- The proposed design solution, estimated cost (non-binding) is based on the desktop information only & is subject to detailed design investigation.
- Customer is responsible for all electrical installation works beyond the Western Power point of supply (pillar).
- The records of assets shown in Western Power system and DBYD for other utilities are accurate and there being no obstructions to the 0-500mm Western Power cable alignment in the road reserve.
- All new underground cables are assumed to be installed in at WP standard depth (i.e. 850mm deep from finished level) & in WP standard alignment (0-500m from property boundaries) apart from road crossings.
- The proposed works receive no objection from all involved parties (which may include local authorities, private land owners and/or other utilities).
- Transmission approval is granted for the proposed distribution works associated on the existing transmission pole.

- Environmental studies have not been undertaken for the purpose of this report.
- The load assessment on the submission of the formal application will support the customers load request.

3.1.8 Application Requirements

The customer will need to submit a *Small Commercial Connection* application via the Western Power website and provide the relevant requested information. It's recommended the application should make reference to this feasibility study MF010834 in the application.

<https://westernpower.transactcentral.com/forms/servlet/SmartForm.html?formCode=small-commercial-con>

4 Conclusions and Recommendations

Western Power can conclude that based on the information provided, it is feasible to connect the proposed 60kVA connection to the existing LV network without any LV reconfiguration identified. However, depending on the time scale of the customer's development, the existing overhead transformer may need to be upgraded in the future due to possible competing applications.

Applicants need to be aware that the information herein is provided in good faith and is accurate at the time of issue. 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.

As capacity cannot be reserved, it is possible that requirements will also be altered, resulting in a significant variation in power infrastructure requirements. There may be other competing application for new loads or upgrades which may use the available spare capacity.

Applicants need to be aware that Western Power's response may become out-of-date, resulting in a significant variation in power infrastructure requirements. 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.