

## Baldivis substation landscaping design community workshop

Meeting date: Wednesday 24 February 2010

Meeting no: 1

Start time: 6 pm

Finish time: 8 pm

### 1. Meeting attendees

The meeting was attended by a total of 16 people, 6 Western Power representatives and 10 community/stakeholder representatives.

### 2. Introduction/Overview

Western Power hosted a community workshop on Wednesday 24 February 2010, to discuss the landscaping and screening design for the proposed Baldivis substation. The workshop ran from 6 pm-8 pm and was attended by 10 community/stakeholder participants and 6 Western Power representatives. The meeting was facilitated by independent facilitator Carol Whish-Wilson.

Invitations for the workshop were letter-dropped to around 400 residents in the local area, and invitations were also extended to key project stakeholders who have been involved in the project to-date. Advertising was also undertaken in local papers.

Attendees were provided with an information pack and a set of slides, which are available in the Projects section of the Western Power website, [www.westernpower.com.au](http://www.westernpower.com.au). Hard copies of these materials are available on request.

### 3. Purpose

Building on the information sessions, meetings, letters and online updates over the last 12 months, the workshop purpose was to:

- Advise the community about potential options for landscape and screening design of the Baldivis substation;
- Invite community comments, suggestions and questions; and
- Western Power to acknowledge and record community input to be incorporated (where possible) in the development of landscaping and screening design options. Further discussion with the community will occur at a later date.

### 4. Meeting agenda

Key agenda items for the session were:

- Western Power to provide a project update, an overview of design examples and a recommended design;

- Opportunity for community participants to discuss design vision and objectives, comment on options and recommendations, make suggestions and indicate preferences;
- Conclude with Western Power's advice on the next steps in the project, ongoing access to information and opportunities to provide comment.

## 5. Participant issues, comment and questions

### 5.1 External to the site

- Western Power confirmed that, in terms of overhead lines, the substation will be serviced by the existing transmission line on Pike Road. However, two of the existing wooden poles may be replaced with two steel poles to take the additional weight and tension for the entry into the substation (directly across the road). Participants confirmed preference for steel poles servicing the site.
- All distribution powerlines that exit the substation to feed homes and businesses will be cable (underground). Western Power confirmed that references to 'cables' means cables laid underground.
- There was a request for refreshed plantings along Eighty Road. The original trees were non native species planted by the original developer, however some did not survive causing considerable gaps. Strategically placed, additional plantings would alleviate the visual impact of the substation. Note that the cause of the low survival rate has not yet been established however Western Power will attempt to address this by ensuring appropriate native species are utilised and that soil condition and reticulation is addressed.

**Action:** Western Power to engage with the City of Rockingham regarding improvement of plantings along Eighty Rd.

- Participants strongly endorsed the need to consider and plan for the needs of future development around the site. Western Power confirmed that it will be continuing discussions with the City of Rockingham regarding proposed developments for the surrounding area. It was noted that at Waikiki, the City of Rockingham had imposed additional boundary requirements (such as access roads, property orientation etc) in planning approvals for the area surrounding the substation. Western Power has commenced works to establish similar considerations for Baldivis in the re design of the Pike and Eighty Road Local Structure Plan.

### 5.2 Plantings

#### Type

- Request for low maintenance plantings, and particular support for species that have minimal leaf and limb droppings.
- Native species were the group's preference, however where appropriate non native species can be considered.
- Some repeated support for bougainvillea, bottlebrush and eucalypts.
- Preference for evergreen plants.
- Western Power advised that although a mixture of advanced trees and tubestock could be used, there were generally better long-term results achieved with younger plantings.
- Future maintenance of the substation landscaping/screening is a key consideration. Western Power should avoid using species which will drop 'rubbish' in the area and ensure additional problems are not created.

#### Design

- Layout of plantings to take into account existing properties, including use of mature plants.

- Very tall planting to minimise view of the substation from at least one property that overlooks it (corner of Old Mandurah Road and Pike Road).
- Undertake plantings to soften driveway views into the substation from some properties.
- There was a query regarding the risk of thick vegetation creating an area for antisocial behaviour. Landscaping should be designed to minimise opportunities for antisocial behaviour.
- Consideration to be given to dense planting and plantings at variable heights. This point will be discussed further at the next concepts workshop as this point is in contradiction with the above request.
- Planting and design should attempt to fit in with/ complement the existing area. The entry to Settlers Hills from Safety Bay Road to Eighty Road and Huxtable Terrace were used as examples.

### 5.3 Fencing

#### Type

- Preference for 'weld mesh' fencing. Strong opposition to a Waikiki style block wall. Participant's felt that a block wall finish would have a greater visual impact than weld mesh and would increase the likelihood of graffiti. Participants stated a preference for vegetation screening of the substation rather than solid-wall screening.

#### Colour

- Participants did not support the wall colour used at Waikiki as they felt it 'stood out'.
- Discussion regarding colouring a weld mesh fence resulted in suggestions for the fence colour to be green, camouflage, matt natural tones. They were against using black as they felt there was the potential for black to provide strong contrast to, and therefore highlight the substation infrastructure. Clear statements were made against not painting the weld mesh fence as the zinc illume silver will cause shine and glare.
- It is important to consider the colours of the backdrop from various angles so not to make the substation and wall/screen stand out.

#### Design

- There was a suggestion made to incorporate "wall décor" as seen on underpass walls on the Kwinana Freeway extension/Forrest Highway.
- Is there potential benefit in including artwork in the fence/wall?
- A combination of weld mesh fence and solid wall could be used to account for varying views of the substation. A wall on the side where existing residents are closest may assist to account for the short term visual impact whilst vegetation is young.

**Action:** Western Power to investigate use of "wall décor" as seen on underpass walls on the Kwinana Freeway extension/Forrest Freeway. Western Power to investigate potential of incorporating artwork in the design.

#### Boundary

- Western Power confirmed that fencing is not required for the property boundary, as indicated on mapping provided to participants – it is only required where the inside line indicates (which represents the substation perimeter fence). Between this is a 13-15 metre buffer zone on all sides. Placing a fence at the property boundary may reduce the impact of the plantings within the buffer zone dependent on materials used and may also create an area prone to anti social behaviour as mentioned in point 5.2 – Design.
- There is the potential for a post and wire fence however this would be discussed in relation to 5.2.

- Participants were interested in the impact of having a road around the site boundary. Western Power confirmed this was being incorporated into discussions and negotiations within the Local Structure Plan. This also ensures no future properties would be positioned against the substation site.

**Action:** Boundary fencing for further consideration in next workshop.

#### 5.4 Transformer Noise

- Western Power advised that new transformers used in our substations were much quieter than what has been used in our older substations. An issue was raised about the sourcing of transformers, with German products believed to be much quieter than Indonesian or Chinese products.
- Western Power noted that switch rooms and control rooms would provide a sound buffer on one side of the site.
- Western Power noted that the site must be compliant with noise regulations. It was noted that although the proximity of properties will vary over time due to new development the regulations relate to noise levels at the nearest residence, so will be designed to comply at the existing residences as well as the future ones.
- Western Power noted that a blend of solid wall and weld mesh may be an option for the perimeter closest to transformers.
- Earth mounds were also supported for potential for noise reduction.

**Action:** Western Power to make more noise information available on the website.

#### 5.5 Earth Mounds

- A use of earth mounds was supported for all 4 sides of the substation, to increase the height and variation of plantings.
- Participants acknowledged that types of plants used on the earth mound will have a significant influence. Use of trees alone will screen less of the infrastructure. Varying heights of vegetation should be used.
- An earth mound should be flat at the top to better support plantings. Planting on the earth mound must be appropriate. It is better to plant with large shrubs. Waikiki substation showed poor results for trees on the rounded top of the earth mound as it was not seen as providing sufficient screening.

#### 5.6 Fence/Wall Topping

- The required height of a fence/wall of a substation is 3.5 metres. Topping is used to reduce the wall height. It impacts the appearance of the substation by reducing the solid wall however uses a building material that was noted as looking 'prison like'.
- On the basis that the height requirement satisfies safety and security needs, participants did not support topping the fence.

#### 5.7 Substation infrastructure

**Action:** WP to consider painting silver reflective surfaces on substation infrastructure, on request of participants.

#### 5.8 Safety

- Western Power confirmed that because of buffer distances, there was no risk of a spark from the substation igniting the surrounding plantings.
- A participant raised the issue of risks from exposure to electromagnetic fields (EMF) from the substation. Western Power confirmed substations have been historically close to residential spaces without problems and without health risk. Residents were

encouraged to take an information brochure, with links to independent information sources to find out more about electromagnetic fields.

- A brief explanation of how EMF works was given, advising that although regulatory/government bodies do not provide recommended distances for residences to be away from electrical infrastructure, safe electrical clearances play a role in reducing the EMF levels simply because they both are impacted by distance.

## 5.9 Timing

- Western Power advised that plantings on the substation site would occur as soon as possible, but could not practically occur before major substation infrastructure has been installed to avoid damage to new plants during construction. The schedule for planting would need to be incorporated to the schedule of earth works and perimeter fence/wall construction.
- Western Power advised that action could begin anytime regarding plantings along Eighty Road.

## 6. Questions & Answers

The following questions and Western Power responses were recorded throughout the meeting.

Question	Answer
<b>Q.</b> Will the substation definitely be located on this site?	<b>A.</b> Yes. Western Power has identified this site as the most suitable location for the Baldivis substation.
<b>Q.</b> What are the height requirements for perimeter fencing?	<b>A.</b> A fence/wall needs to be 3.5 metres tall to meet safety/security requirements. This can be a 3 metre wall/fence, with 0.5 metres of 'topping', or just 3.5 metres of wall/fence.
<b>Q.</b> How are electromagnetic fields safety factored into substation design?	<b>A.</b> Various configuration techniques of infrastructure are taken into consideration at design stage. This relates to electrical phases and simple positioning of infrastructure type. Safe electrical clearances also inadvertently act as a method of reducing EMF levels as they stipulate distances of infrastructure from perimeter fencing.
<b>Q.</b> When will construction take place?	<b>A.</b> At present, we expect that construction will take place in late 2011, with the substation expected to be in-service around November 2013.
<b>Q.</b> Can landscaping take place between the two white lines on the map?	<b>A.</b> Yes. This area is reserved for this purpose. On the east and west boundaries there is 13 metres in which to landscape, and on the north and south sides there is 15 metres.
<b>Q.</b> Is bore water used, or does Western Power use scheme water?	<b>A.</b> Western Power uses our own irrigation/bores. However the reticulation design has not begun so connections have not been finalised.
<b>Q.</b> What is the status of the new housing estate/ subdivision plans for the area?	<b>A.</b> Subdivision plans have been developed by Cardno, in consultation with landowners. These plans are currently being negotiated with the landowners. This is an effort on the part of Western Power to have the surrounding land

Question	Answer
	designed to reduce visual impact for future landowners. The plan will not be submitted for approval by Western Power however as part of the approvals process, the City of Rockingham will advertise the plan seeking comment on subdivision plans from the community.
<b>Q.</b> Is having a substation this distance from a school safe?	<b>A.</b> Yes, substations are strategically placed throughout the Perth area, many of them being closer in proximity to homes, schools and businesses than this site, and with no health issues. In terms of safety, Western Power meets fencing guidelines, and there are alarm systems within the substation which alert us if someone is trying to gain access. There is clear signage around substations making the dangers of entering very clear.
<b>Q.</b> What size are the 2 proposed steel poles, which may potentially replace the existing wooden poles?	<b>A.</b> They are generally around 300-400 mm diameter at the top, and 800 mm diameter at the base. The height will be approximately 18 metres.
<b>Q.</b> What is the ultimate configuration of the substation?	<b>A.</b> In the first instance, only one transformer will be installed. The ultimate configuration will include 3 transformers, which will be contained within the existing boundary. After the first transformer is installed, additional infrastructure is only added as demand for electricity in the area increases. This will depend on the timing of construction of new homes and businesses.  A map showing both layouts is contained within the workshop presentation.

## 7. Actions Summary

- Western Power to engage with the City of Rockingham regarding improvement of plantings along Eighty Rd, with action to commence as soon as practicable.
- Western Power to investigate use of “wall décor” as seen on underpass walls on the Kwinana Freeway extension/Forrest Highway.
- Western Power to investigate the potential of incorporating artwork in the design.
- Western Power to consider painting silver reflective surfaces in the substation.
- Western Power to provide more information on noise and make it available on the project website. This information is provided below:

The Environmental Protection (Noise) Regulations 1997 (Noise Regulations) are implemented and managed by the Department of Environment and Conservation (DEC). The Noise Regulations set the highest noise levels that can be received (assigned levels) at noise-sensitive premises. The Noise Regulations also provide guidance on the measurement of noise for comparison to the 'assigned levels'.

The assigned noise levels are the levels of noise allowed to be received at a premises at a particular time of the day or night. There are different assigned levels for (1) noise -sensitive premises (residential), (2) commercial (shops, offices etc) and (3) industrial premises (factories, mines etc). The assigned levels for noise-sensitive

premises vary depending on the time of day, being lower at night when people are more sensitive to noise. For noise-sensitive premises, the assigned levels also depend on how close the house is to industrial and commercial areas and major roads.

The assigned level for noise-sensitive premises range from 45dB(A) (day time) to 35dB(A) (night time) plus any influencing factor. The influencing factor is calculated for each noise-sensitive premise receiving noise. It takes into account the amount of industrial and commercial land and the presence of major roads within the 450m radius around the noise receiver.

Western Power engage external noise specialists to conduct Environmental Noise Impact Assessments at existing transmission substations. Western Power utilise both internal resources and external noise specialists to undertake predictive modelling for future transmission substations. Western Power currently utilise various noise mitigation techniques to manage noise emissions from Western Power's assets. Western Power's noise mitigation techniques range from boundary walls to full enclosures of the noise emitting asset.

Publications regarding noise are available on the DEC website: <http://www.dec.wa.gov.au/content/view/3427/1958/>

- Boundary fencing to be further considered in a future workshop.
- Western Power to investigate the possibility of painting silver reflective surfaces a more muted colour on equipment within the substation.

#### 8. Next steps

Next steps were outlined as being:

- Participants can pass on any further ideas/comment to Western Power by contacting Kathy Craig on (08)9326 6070 or email [kathy.craig@westernpower.com.au](mailto:kathy.craig@westernpower.com.au)
- Participants are also encouraged to visit our blog site [www.youhavethepower.com.au](http://www.youhavethepower.com.au) and post comments/ ideas
- Concepts will be finalised and made available on the Projects section of our website [www.westernpower.com.au](http://www.westernpower.com.au), and another workshop will be held to discuss the concepts in more detail.
- If you would also like to receive a hard copy of any information provided, please contact Kathy Craig.
- A Development Application will be submitted in late 2010.

*Report prepared by Carol Whish-Wilson, Workshop Facilitator & Lisa Hamblin, Western Power and Kathy Craig, Western Power*

*March 2010.*