



NOTICE OF MEETING

**Notice is hereby given that a Meeting
by the Hearings Commissioner
will be held in the Council Chambers
First Floor, Civic Administration Building,
101 Esk Street, Invercargill
on Wednesday 6 May 2015 at 10.00 am**

Hearings Commissioner Keith Hovell

**EIRWEN HARRIS
MANAGER, SECRETARIAL SERVICES**

A G E N D A

1. REPORT OF THE DIRECTOR OF ENVIRONMENTAL AND PLANNING SERVICES

1.1 HEARING – 1 HOLLOWAY STREET, INVERCARGILL

**Report to the Hearings Commissioner
6 May 2015**

THE HEARINGS COMMISSIONER IS:

Mr Keith Hovell

HEARING – 1 HOLLOWAY STREET, INVERCARGILL

A copy of the report, including a recommendation, is attached.

Report compiled by: David M^cPherson
Senior Resource Management Officer

Report endorsed by: T D Boylan
Planning Manager

HEARING 1

Applicant **The Power Company Limited**

Application **The Power Company Limited seeks to designate a property at 1 Holloway Street, Waikiwi for the purpose of the redevelopment, operation and maintenance of an electrical sub-station. The project covers the redevelopment of an existing 33/11kV zone substation at Waikiwi. Electrical supply for the substation will continue to be derived from the existing 33kV network in this area.**

Site **1 Holloway Street, Invercargill**

Legal Description **Lot 92 DP 5802 and Section 61 Block IV Invercargill Hundred comprising 911 square metres more or less.**

Classification **Domicile Sub-Area under the Operative District Plan. Residential 1 Zone under the Proposed District Plan.**

Process **A Notice of Requirement was received by the Council on 12 February 2015. Notice of it was served under section 95B of the Resource Management Act 1991 on 26 February 2015 and three submissions were received by the closing date of 26 March 2015 with one submitter asking to be heard.
The Council must now make a recommendation to The Power Company Limited on whether the designation should be confirmed, modified, confirmed with conditions, or withdrawn.**

Issues **The main planning issue is whether this is a suitable site for an electricity sub-station, and if so, how amenity issues, including visual appearance, noise, lightspill and safety, should be addressed.**

THE PURPOSE OF THE DESIGNATION

The application describes the requirement for a designation for a public work in the Form 18 notice as, *“The public work includes the redevelopment, operation and maintenance of an electrical substation for the reception, transformation from sub-transmission voltage to distribution voltage, and distribution of electrical power and energy. The proposed work covers ancillary activities and land uses associated with the electrical substation.”*

In the accompanying Assessment of Environmental Effects, the proposal is described in more detail as follows, *“The Power Company Limited seeks to designate the property at 1 Holloway Street, Waikiwi for the purpose of the redevelopment, operation and maintenance of an electrical sub-station. The project covers the redevelopment of an existing 33/11kV zone substation at Waikiwi. Electrical supply for the substation will continue to be derived from the existing 33kV network in this area.*

The proposed upgrade works include the following:

- *Removal of the existing transformers in a staged operation for T1 and T2 whilst maintaining at least one transformer on load at all times.*
- *Removal of the existing HV and LV cable support structures.*
- *Construction of a new transformer building to minimise site boundary noise levels, and provide fire segregation.*
- *Installation of new 33/11kV transformers, including a common neutral earthing resistor and associated connection to switchgear.*
- *Upgrade of the 11kV incomer cables to allow the full transformer load capability to be achieved.*
- *Replacement of the existing 11kV/400V Local Service Transformers with pad-mount type.*
- *Modifications to the drainage and oil containment systems.*
- *Modifications to the buried earth grid.*
- *Replacement of the T1 and T2 Voltage Regulating Relays (VRR).*
- *Provision of IRIG-B satellite time synchronisation.*
- *Review of the existing LTAC and DC supply systems.*
- *Review of the protection system requirements.*
- *Installation of the NER and associated switchgear.*
- *Retain the existing sub-station switchboard building that fronts onto Holloway Street, but improve the external appearance of the building by re-painting it in a low recessive colour and increase the level of landscaping along the footpath edge.*
- *The relocation of the existing driveway to within 1.4m of the western boundary.*

The transformer building will consist of two parts, the main transformer bay with two separate garage doors located on the western side of the building (approximately 15m x 8.9m), and two fenced off radiator spaces that form part of the overall structure on the north and south sides of the main building (8.8m x 4.3m).

The building will be constructed using a combination of concrete (exposed aggregate) tilt slab panels, horizontal steel weatherboards and louvered enclosures. The roof will be a low level pitch form with large eaves and gable ends that face north and south with an extended lantern style roof top to provide ventilation. The roof will be constructed with colour steel corrugated iron or tray form.

The two buildings (switchboard room and transformer) will not be connected and no part of the new transformer building will interfere with the existing switchboard building as outlined on the scheme plans attached as Annexure E (to the application as received).

The proposal complies with the building setback and height requirements for the Domicile Sub Area as outlined within the Operative District Plan, apart from a minor breach of the 45° recession plane on the eastern side of the building.

The existing driveway is proposed to be relocated further towards the western boundary to allow access past the existing building, and proposed transformer building. Sufficient off-street parking will also be available at the southern end of the site.

The existing 15 metre high (approx.) communications mast will be retained. The communications mast will remain the tallest structure associated with development on the subject site.

The total land area required for the proposed substation building will be approximately 210m² (refer to architects plans for all dimension details and 3D photo simulations). Therefore, the existing switchboard and proposed buildings will combine to a total built area of approximately 34% of the site area that is below the maximum site coverage allowed for within the Domicile Sub Area zone.

All transformers to be located at the site will include an oil containment area with a capacity for 10,800 litres. This is a sealed, reinforced concrete containment with no openings.

The substation does not require potable water and likewise there is no requirement for a connection to the wastewater network. Measures to address stormwater will be incorporated within the overall design of the substation site.

Further details of the proposal are provided in section 3 of the Notice of Requirement and in the Plans attached as Annexure E (to the application as received).

A landscaping plan has been offered as a condition to ensure that the redevelopment of the substation will integrate with the surrounding environment as discussed in the Landscape Assessment Report attached as Annexure G (to the application as received)."

SITE DESCRIPTION AND PROPOSAL

Section 2 of the Assessment of Environmental Effects in the application provides a comprehensive overview of the existing environment, the substation site itself, and the relevant information from the Invercargill City Council Planning Maps and Hazard Information Maps. The most relevant point in the description is that the substation is in a residential neighbourhood and is the only industrial site within a 500 metre radius.

Section 2 of the applicant's Assessment of Environmental Effects is adopted for the purpose of this report.

Section 3 of the assessment provides full details of the proposed upgrade works. The transformer building will consist of two parts, the main bay with two separate transformer rooms (15.0m x 8.9m total), and two fenced off radiator spaces on the north and south sides of the main building (8.9m x 4.3m each). The building will use concrete tilt slab panels, horizontal steel weatherboards and louvered enclosures. The roof will be a low level pitch form with large eaves and gable ends that face north and south with an extended lantern style roof top to provide ventilation. The roof will be constructed with colour steel corrugated

iron or tray form. The building will be separate and not connected to the existing switchboard building. The driveway will be relocated further west and two car parks are shown on the landscape plan. The 15 metre high communications mast will be retained. The total site coverage for the project, including the oil storage tanks, will be approximately 35% of the site. The site already has water, wastewater and stormwater connections. A landscaping plan has been included with the proposal.

SITE HISTORY

This part of Invercargill was subdivided into residential lots in 1960 and the substation was constructed by the NZ Electricity Department in 1967. The site was designated for Southland Electric Power Supply purposes in the 1985 Invercargill City District Scheme but the designation was not carried over to the 2005 District Plan. The switchroom of the substation was extended to the north in 2005. The property had a building line restriction on the title and this was cancelled in 2014.

As well as the Notice of Requirement, the Council has also received building consent applications this year for seismic strengthening work on the switchroom and for a new transformer building.

THE RESOURCE MANAGEMENT ACT 1991

Section 171(1) of the Resource Management Act 1991 (the Act) provides that when the Council is considering a requirement and any submissions received it must, subject to Part 2, consider the effects on the environment of allowing the requirement, having particular regard to:

- (a) any relevant provisions of—
 - (i) a national policy statement;
 - (ii) a New Zealand coastal policy statement;
 - (iii) a regional policy statement or proposed regional policy statement;
 - (iv) a plan or proposed plan; and
- (b) whether adequate consideration has been given to alternative sites, routes, or methods of undertaking the work if it is likely that the work will have a significant adverse effect on the environment; and
- (c) whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought; and
- (d) any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement

The Act provides that the Council then makes a recommendation to The Power Company Limited. The possible recommendations provided for in section 171(2) are:

- a) confirm the requirement;
- b) modify the requirement;
- c) impose conditions;
- d) withdraw the requirement.

Section 171(3) provides that the Council must give reasons for its recommendation under subsection 2.

Sections 172 to 174 set out the process and appeal rights which follow the recommendation.

NATIONAL AND REGIONAL POLICY STATEMENTS

Sections 7.1 and 7.2 of the Assessment of Environmental Effects supplied with the Notice of Requirement address the following national and regional policy statements:

- A. National Policy Statement on Electricity Transmission 2008
The applicant has concluded that this National Policy Statement is not relevant to the Notice of Requirement because the substation is not part of the national grid.
- B. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES)
The Hazardous Activities and Industries List includes substations and the site is also registered on the Environment Southland database of Sites Associated with Hazardous Substances. As such a Detailed Site Investigation was required. The investigation report from Davis Consulting Group was not included with the initial application but was supplied on 17 April 2015. The conclusion of this report, based on the Detailed Site Investigation, was that it is highly unlikely that the proposed redevelopment of the site presents a risk to human health. However if off-site disposal of soil is required, further investigation would be needed to determine an appropriate disposal route for heavy metals. The applicant referred to regulation 9 of the NES and concluded that the regulations under the NES do not apply to the subject piece of land. Regulation 9 refers to 'Controlled Activities' and the applicant actually quoted regulation 5(9). However the quote shows that the regulations do apply. The detailed site investigation does not demonstrate that any contaminants are at or below background levels. In fact it states that *"the soils have been impacted by activities on the substation and cannot be disposed of as cleanfill material"*. It further states, *"If off-site disposal of soil is required further investigation is needed to determine an appropriate disposal route for heavy metals."*
The extent of soil disturbance is not shown on the plans in Annexure E of the application. On the information available, it appears that a resource consent will be needed under the NES, **in addition** to any designation.
- C. Regional Policy Statement and Proposed Regional Policy Statement
The applicant's assessment says, *"The proposed substation is consistent with the relevant objectives and policies of the Operative and Proposed RPS. No objectives or policies have been identified which the proposal would offend, or be contrary to."*

The applicant's assessment is generally accepted. Sections 7.1 and 7.2 of the applicant's assessment of environmental effects are therefore adopted for the purpose of this report with the exception of its conclusion regarding the application of the NES.

INVERCARGILL CITY DISTRICT PLAN OBJECTIVES AND POLICIES

The site is located within the Domicile Sub-Area of the Invercargill City District Plan. The following parts of the District Plan have the most relevance:

Objectives and policies from the Operative District Plan:

- 3.10 Transportation
- 3.13 Infrastructure
- 3.14 Amenity values (as applicable to the Domicile Sub-Area)

Objectives and policies from the Proposed District Plan:

- 2.5 Contaminated land

- 2.7 Hazardous substances
- 2.9 Infrastructure
- 2.17 Transportation
- 2.36 Residential 1 Zone

The application discusses objectives and policies from both District Plans under the headings:

- Manawhenua
- Heritage
- Contaminated land
- Transportation
- Natural hazards
- Infrastructure
- Amenity
- Hazardous substances

I concur with the applicants assessment that the objectives and policies relating to Manawhenua, Heritage and Natural hazards have little, if any, relevance to the proposed substation redevelopment. The assessment that the proposal is not contrary to the objectives and policies relating to Transportation and Infrastructure is also accepted although adverse effects are discussed later in this report. Matters relating to Contaminated land and Hazardous substances are addressed above in the discussion on the NES because of the greater relevance of that National Environmental Standard.

The amenity policies for the Residential 1 zone in the Proposed District Plan cover values for urban design, stormwater runoff, space around and between buildings, noise, glare, electrical interference, lightspill, hazardous substances, height of structures and car parking. The application only refers to some of these values and then only in reference to mitigation measures to deal with the effects, rather than the policies. The application says in part, *“Overall the proposed redevelopment seeks to ensure that the residential amenity in the vicinity of the substation is enhanced and improved and as such it is considered that the proposed redevelopment will be consistent with the proposed Residential 1 Zone objectives and policies.”* I do not accept that installing larger transformers and enclosing them in an industrial building, even with its mitigating features, will ‘enhance and improve the residential amenity in the vicinity of the substation’. Consequently I do not conclude from the information supplied that the proposal is in keeping with the policies for residential amenity.

ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

Section 6 of the Notice of Requirement discusses environmental effects under the following headings:

1. Positive effects
2. Landscape and visual
3. Noise
4. Public health
5. Traffic
6. Amenity
7. Construction.

Comments under the same headings are made on each of these in turn.

Positive effects

The applicant's assessment is accepted. Positive effects will include:

- The security of the electricity supply will be improved,
- Visual amenity will be improved.
- Noise emissions will be reduced.

That assessment has a conclusion that the existing adverse effects will be reduced (rather than eliminated) and is subject to the further comments below.

Landscape and visual effects

The Notice of Requirement includes a Landscape Assessment Report prepared by Baxter Design Group (in annexure G of the Assessment of Environmental Effects) that assesses the landscape and visual effects of the proposed substation under the following headings:

- The existing site and surrounding context
- The proposed development
- Visibility of the development
- Recommended mitigation

The conclusion of that report states,

"This report has provided a description of the existing site, surrounding residential character and the visual effects of the proposed sub-station upgrade on that character. The existing wider neighbourhood does include the commercial, or commercial like Cargill Village Retirement complex and the Waikiwi shops.

The existing use and visual effect of the site as an electrical substation is established and the proposed upgrade will introduce a moderately sized commercial like building to the neighbourhood. The scale of the new building however is not too dissimilar to existing two storey dwellings within close proximity to the site. The proposed mitigation as outlined in this report and the proposed architect's drawings promote the use of similar materials, colours, roof pitches and forms that will allow the building to fit in with its surroundings by repeating the elements that make up the established residential dwelling character. Proposed planting on the northern, western and southern boundaries of the site will help soften the visual effect of the existing switchboard and proposed transformer buildings. This will provide a more residential like street frontage.

In conclusion, the visual effects arising from the proposed upgrade of the electrical sub-station will be moderate in that the proposal may form a visible and recognisable new element within the overall scene and may be readily noticed by the observer or receptor. However, the detail of the proposal will ensure that the new element, the transformer building in particular, will be in keeping with the established residential character."

The height of the proposed buildings is not shown on the elevation plans but scales as 8.4 metres. The neighbours to the south and south-west have submitted with their concerns which are shading and aesthetics. They have both asked that the building be kept at absolute minimum height, that evergreen trees be planted on the south-west and south boundaries, and that the barbed wire on the fence be removed and the fence tidied up and painted.

It is unclear what 'absolute minimum height' is intended to mean and the submitter may need to clarify this at the hearing. However as the intended building is less than the maximum

height allowed and there is no breach of the recession planes on the south or west boundaries, the shading effects are less than what could result from a permitted activity.

The aesthetics of the building need to be considered because it is clearly not residential in nature. One submitter refers to it as a “monster building appearing over the fence” which reduces her sense of safety on a residential property. The landscape assessment considers the appearance of the building as it affects the streetscape but does not give any consideration to its appearance as seen by any of the adjoining properties. The landscape architect comments, *“The architect’s drawings illustrate that the proposed transformer building has been designed to fit its principle purpose but also includes several external details that go some way to help blend the structure in with the surrounding residential houses. The development of a simple vertical ‘tilt slab’ building would appear industrial in character and not appropriate within the immediate environs. Therefore the introduction of a gable end roof form, large eaves, flashings and horizontal weatherboards give the building a more residential look and feel that is not too dissimilar in appearance and scale to the adjoining double story house to the east of the site. The existing security fence meets its objective to deter access to the site from the general public, but the gate is not typical of a residential gate and appears very industrial with solid steel and barbed wire along the top edge. The opportunity exists on the Holloway Street side of the development to create a new gate that meets its principle purpose, but is visually more passive in form and constructed from materials that are more in-keeping with the surrounding properties. An opportunity also exists to re-paint the existing substation building a less reflective and recessive colour that would contrast well with additional planting along the front edge of the building.”*

The quoted comments acknowledge that the building will have an industrial appearance but add that it will have design features that soften its look. However the photo montages and elevation plans from Beattie McDowell Architects clearly show that while these features are very successful for the streetscape, they only have a minor benefit for the immediate neighbours. The external radiators emphasise an industrial appearance from the perspective of the east, south and west neighbours, which is not mitigated.

The substation as it stands has existing use rights but an approval under the Resource Management Act 1991 is needed for intensification of the use of the site. The proposed building is a mitigation measure that lessens the impact the much larger transformers would have if left in the open, but it does not avoid or remedy the effects of them. While the size and form of the proposed structure is in keeping with residential standards and its bulk is further softened by the proposed landscaping, the visual impact on the properties to the south and west is clearly significant and cannot be considered minor.

The current use of barbed wire as a security measure on top of the fence and gate is totally out of character with residential amenity. The enclosure of the transformers in a building means that the wire can be removed and this will be a positive effect.

The submitters request that the fence be painted should not be considered at the hearing, but left as a matter between the parties.

Conclusion

In summary, the adverse visual effects of the redevelopment are not minor. The mitigation measures of building design and landscaping are likely to be very successful for the streetscape but of minimal benefit to the adjoining owners. The removal of the barbed wire from the fence and gate will mitigate the industrial/prison-like appearance it conveyed, but that aspect was completely inappropriate in a residential environment to begin with.

Noise effects

The Notice of Requirement includes an Assessment of Noise Effects prepared by Marshall Day Acoustics in 2014 (in Annexure H of the Assessment of Environmental Effects) that has assessed existing and future noise effects from the Waikiwi substation for the purposes of this Notice of Requirement.

Their assessment has drawn the following conclusions:

- *We consider a night-time noise limit of 35 dB L_{Aeq} at adjacent properties to be appropriate for the transformer noise;*
- *Existing transformer noise emissions have been measured to be well above this limit;*
- *The proposed substation redevelopment will significantly reduce transformer noise levels and, if designed appropriately, could achieve 35 dB L_{Aeq} at adjacent properties;*
- *If transformer noise levels were reduced to 35 dB L_{Aeq} at adjacent properties, nearby residents would experience significant positive noise effects. Transformer noise levels would reduce by 3-8 dB at the west and south boundaries, and by up to 20dB at the east boundary;*
- *Recommended designation noise conditions have been provided.*

Marshall Day has recommended that noise conditions are placed on the designation along the lines of the following, which are to be given effect to when the redevelopment of the site occurs:

1. *Site noise emissions must not exceed the following noise limits at or within the boundary of any other site:*
Noise from sources containing Special Audible Characteristics (e.g. transformer noise)*
Daytime (0700–2200 hours) 50dB L_{Aeq}
Night-time (2200–0700 hours) 35 dB L_{Aeq}
*Noise from sources which do not contain Special Audible Characteristics**
Daytime (0700–2200 hours) 55 dB L_{Aeq}
Night-time (2200–0700 hours) 40 dB L_{Aeq}
**As defined in NZS 6802:2008 "Acoustics – Environmental noise"*
2. *Noise shall be measured and assessed in accordance with NZS 6801:2008 "Acoustics–Measurement of environmental sound" and NZS "Acoustics–Environmental noise" respectively.*
3. *Construction activities shall be planned, managed and assessed in accordance with NZS 6803:1999 "Acoustics – Construction Noise".*
4. *During times when an emergency generator is required, generator noise levels shall not exceed 55 dB L_{A10} at or within the boundary of any other site.*

The applicant has promoted these as designation conditions but they need to be strengthened further. In the assessment of environmental effects, the applicant quotes Marshall Day's comment, "*The proposed substation redevelopment will significantly reduce transformer noise levels and, if designed appropriately, **could** achieve 35 dB L_{Aeq} at adjacent properties.*" Certification that the building design **will** achieve these outcomes is necessary.

The residential submitters have strongly expressed their concerns regarding both the volume and tone of the noise. They point out that a key detail of the Marshall Day noise survey was that it was carried out on 3 October 2011 and point out that this was before the transformers reached their full capacity of today. There is an implied concern that the new transformers will also have increased noise levels over time.

The tonal component, described by the submitters as “a constant, one pitched noise” is a greater concern. It is recognised in the Marshall Day report which recommends a significantly lower acceptable noise level for transformer noise than other noise, in accordance with the New Zealand standard.

Conclusion

It is apparent from both the submissions and the Marshall Day report that the current adverse effects from noise are unacceptable. Marshall Day has recommended conditions regarding noise which, if implemented, will mitigate the adverse effects to a nationally accepted standard, although this does not mean that it will be acceptable to people who may have become more sensitive over time to the constant irritation of the tonal component.

Provided that the applicant accepts conditions regarding certification of the acoustic standards of the building, and noise monitoring as the capacity of the transformers increases, I expect that noise emissions will be able to be classed as acceptable.

Public health and safety

Electromagnetic fields

The Assessment of Environmental Effects says that a definitive guideline regarding protection of public health from non-ionising radiation has been published by the International Commission for Non-ionising Radiation Protection. The Guideline provides reference levels for safe exposure to electric, magnetic and electromagnetic fields and complying with these reference levels will eliminate all known biological or health effects by a wide safety margin. It says, “Based on work undertaken by the National Radiation Laboratory on behalf of PowerNet Limited (managing agent for TPCL's assets) on a number of substations of similar design and capacity it is possible to conclude that the maximum ELF field strengths around the substation would not be expected to have any significant effect on the magnetic field exposures on nearby properties. As such the proposed redevelopment of the Waikiwi substation will comply with the Guideline and will have no adverse effects on human health.”

The applicant has promoted a draft condition on radiation levels which is similar to one used by the Council for other substations.

Electrical Interference

“A substation has been operated at the subject site since 1967 and the applicant is not aware of any complaints having been received which relate to electrical interference on/with electronic equipment from adjacent neighbours. The transformers proposed as part of the substation upgrade are modern in design and have been designed to ensure that electrical interference on/with electronic equipment is negligible.”

The complete lack of any complaints is considered sufficient evidence that there have not been, and are most unlikely to be, any adverse effects from electrical interference.

Hazardous substances

The only hazardous substance intended to be kept on the site is transmission oil. The Operative District Plan allows storage of 2,000 litres above ground and 10,000 litres below ground in the Domicile Sub-Area. The Proposed District Plan allows above-ground storage of up to 600 litres in certified tanks, or 10,000 litres in certified super vault tanks constructed to South Western Research Institute standards, with no threshold for below-ground storage.

There is some ambiguity in the application regarding the use and quantity of the oil on site. The Assessment of Environmental Effects says, “All transformers to be located at the site will include an oil containment area with a capacity for 10,800 litres. This is a sealed, reinforced concrete containment with no openings.” It is inferred from this statement that each of the two transformers will contain 10,800 litres of oil coolant, a total of 21,600 litres.

However the actual containment area is contradictory in the building consent plans. One sheet shows two tanks with a combined capacity of 10,250 litres while another sheet shows a single 20,000 litre tank although this is presumably in addition to the existing 1,430 litre one. The applicant needs to clarify the oil volume that will be part of the machinery, the actual capacity of the containment tanks, and whether there will be any storage on site. No information has been provided about the current oil quantity on the site.

A submission says, *"The thought of the containment area with 10,800 litres of oil sitting at my boundary disturbs me. I won't feel safe living there any longer."* This comment emphasises the need to remove all ambiguities. While it appears as if there will be no exceedance of the District Plan limits, there is a need for certainty.

The two residential submissions say that *"most of the land in the area is reclaimed and some of it is on the site of an old pottery."* The site is not identified on the Hazard Information Maps but that may be due to no studies having been undertaken. Old aerial photography shows that there was a clay pit in the area south of the site but it does not appear to have extended to the substation site. In any case the submitters have now alerted The Power Company to this aspect and foundation design will need to meet Building Code standards for the load bearing support available.

Traffic effects

The vehicle access to the site is to be extended and the normal Council permit will be required for this work.

The District Plan does not have any requirement for on-site car parking but the landscaping plan shows provision for two parks.

Construction traffic is not likely to be significantly different to that for a large dwelling.

Traffic access to the site when operational will be minimal and restricted to trained TPCL employees and authorised contractors. This will be less than for a dwelling.

Adverse traffic effects are assessed as minimal.

Residential amenity

Electricity substations are a permitted activity in the Domicile Sub-Area and the Residential 1 Zone subject to structures not exceeding six square metres in area or two metres in height. When this size is exceeded, the effect of the substation on the amenities of the immediate neighbourhood would be taken into account for a resource consent application. This is a Notice of Requirement rather than a resource consent but amenity values are still a major consideration. The following Rules in the District Plans have relevance when assessing adverse effects on the residential neighbourhood from the proposed substation:

Noise (4.34) – This has been discussed under a separate heading.

Lightspill (4.35)

Height of Structures (4.39)

Private Open Space and Density (4.40)

Contaminated Land (3.3, Proposed District Plan) – This was discussed under the NES.

Lightspill (3.11, Proposed District Plan)

Residential 1 Zone (3.34, Proposed District Plan)

Lightspill

The application says, *"The substation has been designed to ensure that safe night time operations can occur on the site. All lighting installed as part of the proposal will be directed into the site so that the spill of light is contained within the boundaries of the site and will not result in glare or nuisance to surrounding properties. The lighting will be fitted with motion*

sensors and will not be illuminated on a continuing basis. As such the potential effect of the lighting is considered to result in effects which will be no more than minor." Despite this statement, the applicant has requested a 10 lux limit rather than the 5 lux provided in the District Plan without further explanation. The security lighting should be able to be positioned and directed within the site to minimise any spill beyond the boundaries.

The requests to exceed the residential lightspill limits to and have the light levels measured 1.5 metres outside their site boundaries instead of at the actual site boundaries are not acceptable on face value and need to be justified by the applicant.

Height of Structures

The application says, "*The proposal complies with the building setback and height requirements for the Domicile Sub Area as outlined within the Operative District Plan, apart from a minor breach of the 45° recession plane on the eastern side of the building.*"

The actual breach of the recession plane is about 500mm over a 15.5 metre length which I consider substantial. However it is noted that there has not been a submission from the affected neighbour to the east.

The elevation plans supplied do not include dimensions but are to scale. While the text of the application refers to a height of 7.8 metres, this is not to the top ridge of the building which is 8.4 metres above ground level.

The communications mast is 15 metres high which is two metres above the permitted limit. This is an existing situation and it is stated that it will remain the tallest structure associated with development on the site.

While the non-compliance with the District Plan height rule can be accepted as minor, based on the lack of any expressed concern from the affected neighbour, the applicant's assessment of effects is based solely on the proposed upgrade rather than the proposed designation. For the designation, the following condition has been requested, "*That the maximum height for all new structures associated with the reception, transformation and distribution of electrical power (excluding overhead lines and their support structures) shall not exceed 14 metres above existing ground level. Furthermore, any new building (as defined by the Building Act 2004) shall not exceed 10 metres in height above existing ground level. New support structures for overhead lines and communications equipment shall not exceed 20 metres in height above existing ground level.*"

Without a supporting assessment of effects, this request is not justified. The District Plan standards include new lines being underground and communication structures not more than 13 metres high. Given the concerns of the submitters to the actual proposal, these additional requests appear oppressive.

Private Open Space and Density

The District Plan requires a four metre side yard and the proposal is for a 3.860 metre yard, which is non-compliant. The affected neighbour has not made a submission and the degree of non-conformity is minor.

The Operative District Plan includes a 40% site coverage limit and the Proposed District Plan proposes to reduce this to a 35% permitted maximum. Coverage in excess of 45% would become a non-complying activity. The proposed redevelopment will bring the actual site coverage up to about 35%. The draft condition requested by the applicant is, "*That structures, excluding overhead lines and their support structures, shall not cover more than 50% of the site.*"

The application says, "*The existing switchboard and proposed buildings will combine to a total built area of approximately 34% of the site area that is below the maximum site coverage allowed for within the Domicile Sub Area zone.*" No assessment is made of the

adverse effects of an additional 15% site coverage. A 40% coverage limit appears more reasonable.

Residential 1 Zone

In addition to the amenity standards already discussed, the Proposed District Plan also requires a minimum of 30% of the gross site area to be in permeable surfaces. The landscape plan indicates that only about 9% of the site will be permeable. Matters to be taken into account where the permeable area is less than 30% include alternative methods of slowing stormwater runoff from the site and measures to address the effects of stormwater contamination. The proposal does not consider slowing stormwater runoff but the additional oil containment provisions will reduce the likelihood of stormwater contamination.

Comments

There is nothing in the Notice of Requirement to justify going beyond the District Plan limits for lightspill, height of structures or site coverage. The volume of paper in the whole application makes it unlikely that potential submitters would have gone beyond the redevelopment proposal itself to realise that a designation would potentially allow a much greater impact than they initially believed.

Any designation should be based on the information available in the assessment of effects on the environment provided, rather than on suggested draft conditions that allow a much greater impact on residential amenity.

Construction effects

Construction effects are generally unavoidable for a project of this nature but are generally for a relatively short term. The Spey Street substation envisaged an overall construction period of between 9 and 12 months with works generally occurring between the hours of 7:30am and 8:00pm Monday to Friday, with limited works on Saturdays and Sundays and I would expect a similar time period and working hours for this project.

The applicant has promoted eight conditions that relate to the construction period:

- *'Construction activities shall be planned, managed and assessed in accordance with NZS 6803:1999 "Acoustics – Construction Noise".'*
- *A Construction Management Plan shall be submitted for the approval of the Director of Environmental and Planning Services prior to the commencement of works and should demonstrate the mitigating procedures to be utilised for dust and noise, particularly in relation to neighbouring residential properties.'*
- Six draft conditions setting out protocols relating to the accidental discovery of human skeletal remains, taonga or artefact material, and natural state greenstone were also included.

The Construction Management Plan will address health and safety, complaints procedure, noise management, dust management, sediment and erosion control measures, and traffic and pedestrian management. It will be developed and submitted to the Council for approval prior to works commencing.

Having these conditions on the designation will ensure that construction effects are acceptable.

ALTERNATIVE SITES AND METHODS

The Resource Management Act (the Act) requires a territorial authority when considering a Notice of Requirement and any submissions received to (subject to Part 2) have particular regard to whether adequate consideration has been given to alternative sites, routes or methods of undertaking the work. However this examination is only required if:

- (i) the requiring authority does not have an interest in the land sufficient for undertaking the work; or
- (ii) it is likely that the work will have a significant adverse effect on the environment

The application says that there is no obligation for The Power Company Limited to consider alternative sites, routes or methods with respect to this Notice of Requirement as:

1. *TPCL currently owns and operates an electricity substation on the site; and*
2. *There is no likelihood that the proposed redevelopment of the substation will have significant adverse effects on the environment.*

It goes on to say, “*Notwithstanding section 171(1)(b) of the Resource Management Act 1991, TPCL has given robust consideration to alternative sites and methods as part of evaluating its response to predicted electrical load increases in this area and identifying and securing the proposed site for the electrical substation.*” Despite this statement, there is no reference in the Notice to any alternative sites that may have been considered.

I do not accept that the adverse effects of the redevelopment have been shown to be minor and the draft conditions put forward provide scope for adverse effects to or residential amenity values to be significant. In my view, there is an obligation for The Power Company Limited to consider alternative sites and comply with section 171(1)(b)(ii) of the Act before a designation can be placed on the District Plan. The substation services a large area of Invercargill, including Lorneville and Otatara and there would appear no need for it to continue to be in a residential area. While the substation can justifiably claim to have been there first and that the neighbours were aware of its presence before they moved in, the submitters have said that the adverse effects have increased during their tenure. While the redevelopment will reduce noise effects, the Notice of Requirement, through the draft conditions put forward, clearly contemplates adverse effects increasing in the future but has made no comment on their impact. The complete replacement of the current transformers is a major step and if the substation is to move to a new site, this would be the opportune time for it to do so.

The application states that alternative methods for distributing, controlling and transforming electricity have not been considered largely due to the fact that no practical or mainstream alternative technologies exist, other than substations and buildings.

The application also states that alternative planning methods have been considered but the designation process is more appropriate than the resource consent process in terms of providing for this regionally significant infrastructure. It adds that designating the land provides certainty for The Power Company Limited that the land can be used for substation purposes and that it also provides The Power Company Limited with flexibility to upgrade the site in the future to reflect demand and changing technology. In addition it suggests that the designation process allows for the use of the site and the specific boundaries of the activity to be identified in the District Plan and that a designation provides certainty to the community in terms of what can occur on the site into the future.

It is quite correct that a designation is more beneficial to The Power Company Limited than a resource consent would be. This is because further development can occur with minimal regulatory involvement, provided that it is recognised in the designation. However this designation would provide considerably less certainty to the community on what future

development can occur because it is non-specific on what that development might be and there is no analysis of the potential effects on the residential environment.

Summary

The Act requires the Council to have particular regard to whether adequate consideration has been given to alternative sites, routes or methods of undertaking the work if it is likely that the work will have a significant adverse effect on the environment. The applicant has claimed that there is no likelihood that the proposed redevelopment of the substation will have significant adverse effects on the environment but I do not agree with this. The Assessment of Environmental Effects gives little consideration to the impact of the redevelopment on the immediate neighbours, and no consideration to the cumulative impact that the designation would allow. In my view the requirements of section 171(1)(b)(ii) have not been met and the Notice of Requirement is therefore not yet complete.

REASONABLE NECESSITY

Section 171(1)(c) of the Act provides that the Council must have particular regard to whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought.

The application says that the proposed upgrade of the Waikiwi Substation will satisfy the following criteria:

- Ease of network connection;
- Economic considerations;
- Access and maintenance;
- Ease of site and build implementation;
- Central to load; and
- Improved network reliability.

The Power Company Limited is in the best position to make the above assessments and clearly believes that this substantial investment in its infrastructure is necessary to achieve its objectives which are:

- *“To provide exceptional urban and rural networks in the Southland and Otago regions.*
- *To ensure the long-term security of supply to meet the demand of residential and commercial growth in the Southland and Otago regions thereby supporting community growth and development.*
- *To achieve an exceptional level of service, at reasonable cost and to enhance the prosperity of the electricity customers, the Southland and Otago regions and a return on investment.”*

While it is accepted that the work is reasonably necessary, the Act also requires the Council to have particular regard to whether the designation is also reasonably necessary to achieve these objectives. In this regard the application says, *“Consideration has also been given to the use of the designation procedure. Designating the land provides certainty for TPCL that the land can be used for electricity substation purposes. Designating the land will enable the subject land to be used for its intended purpose, while accurately specifying the boundaries of the land to which these activities will occur. The Notice of Requirement also states that the designation of the subject land will provide the flexibility for the Requiring Authority to upgrade the site in the future to reflect demand and changing technology. Without the designation, land use consents would be required. A land use consent does not provide the same flexibility as a designation with respect to undertaking maintenance upgrade works over time. TPCL's apparatus requires on-going maintenance and possibly upgrading in the future. Maintenance and upgrades are an essential function of TPCL's activities which can occur on both a regular and irregular basis. The outline plan procedure under section 176A*

of the Act provides TPCL with a degree of certainty that it can conduct essential maintenance and where necessary upgrades, when needed in the future. It also provides the requiring authority and territorial authority with an effective and efficient means for communicating and regulating activities for ensuring compliance with the Act.”

The above comments clearly show that a designation is reasonably necessary for achieving the objectives of The Power Company Limited. However this is also subject to Part 2 of the Act.

OTHER MATTERS

Section 171(1)(d) of the Act provides that the Council must have particular regard to any other matter the territorial authority considers reasonably necessary in order to make a recommendation on the requirement.

The views of the residential submitters need to be taken into account. The specific points they have raised have been discussed as part of the assessment of effects on the environment. However the main point of these two submissions is that they believe that the extent of the redevelopment and the provision for future upgrades indicate that the substation is outgrowing its site within a fully developed residential area, and their preference is for it to be moved to a larger site outside residential areas.

PART 2 OF THE RESOURCE MANAGEMENT ACT 1991

The matters that the Council must have regard to in considering the Notice of Requirement and the effects of the proposal on the environment are all subject to Part 2 of the Act. Part 2 establishes the purpose and principles of the Act which are set out in sections 5 to 8.

Section 5 sets out the purpose of the Act, which is to promote the sustainable management of physical and natural resources. This management is to be in a way or at a rate that enables people or communities to provide for their social, cultural and economic wellbeing, and their health and safety while:

- (a) Sustaining the potential of the natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;
- (b) Safeguarding the life-supporting capacity of the air, water, soil, and ecosystems; and
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

This section shows that it is the individual people as well as community representatives who best know which activities will provide for their social, cultural and economic well being. However the statutory obligation of the Council is to ensure that the provisos are met. While a balancing approach is called for which would mean that the electricity supply for the Invercargill City District is secured, it is subject to adverse effects being avoided, remedied or mitigated, in that order of preference. The purpose of the Act looks to the future in this regard.

Section 6 requires territorial authorities to recognise and provide for matters of national importance. It is not relevant in this case because none of the listed matters of national importance relate to this particular site or activity.

Section 7 is relevant in that it requires the Council to have particular regard to, among other things:

- (b) The efficient use and development of natural and physical resources
- (ba) The efficiency of the end use of energy

- (c) The maintenance and enhancement of amenity values, and
- (f) Maintenance and enhancement of the quality of the environment

Section 8 requires territorial authorities to take into account the principles of the Treaty of Waitangi in achieving the purpose of the Act. There is no evidence to suggest that the principles of the Treaty have any relevance to this site. However the applicant has consulted local iwi and has promoted conditions in relation to accidental discovery protocols.

CONCLUSIONS

1. The first issue is whether the provisions of section 171 have been met. I have put forward the view that the lack of any assessment of alternative sites means that they have not. If this is accepted, the matter will need to be dealt with before the hearing can be concluded.
2. The Notice of Requirement does not include an assessment of alternative sites. If the substation is to be moved to another site, it is better to do so before a major upgrade of the existing site.
3. Based on the information provided, a resource consent will be needed under the NES, in addition to any designation.
4. Based on the information supplied, the proposal is not in keeping with the District Plan policies for residential amenity.
5. Noise and visual amenity are the main adverse effects identified.
6. The Assessment of Noise Effects prepared by Marshall Day Acoustics recommended conditions to support the conclusions made in its report. However the conditions need to be strengthened to ensure that the outcomes identified are achieved.
7. The adverse effects of the redevelopment on visual amenity are significant from the perspective of the adjoining neighbours.
8. The current use of barbed wire as a security measure on top of the fence and gate is totally out of character with residential amenity.
9. The draft conditions put forward in the application include significant breaches of the residential standards in the Operative and Proposed District Plans. The adverse effects on residential amenity of such breaches were given no consideration in the Assessment of Environmental Effects supplied with the Notice of Requirement.
10. It is not clear if the quantity of oil in the transformers is 10,800 litres or 21,600 litres. There is also a contradiction in the building consent plans on whether the containment facility will cater for 10,250 litres or 21,430 litres. These aspects should be clarified.
11. There is a reasonable necessity for a substation upgrade.
12. Part 2 of the Act requires adverse effects to be avoided, remedied or mitigated. The draft conditions put forward with the Notice of Requirement would lead to an increase in adverse effects.

RECOMMENDATION

Should the Commissioner be satisfied after hearing the evidence that the provisions of section 171 and Part 2 of the Act are met it should be recommended to the Requiring Authority that the designation be confirmed subject to the following conditions:

1. The designated activities shall be undertaken in accordance with the Notice of Requirement application lodged with Invercargill City Council on 12 February 2015, the recommendations provided in the Landscape Assessment Report prepared by Baxter

Design Group Limited dated 27 November 2014, the recommendations provided in the Assessment of Noise Effects prepared by Marshall Day Acoustics dated 2 December 2014 and plans appended to the application, except as varied by the conditions in this recommendation.

2. Landscaping shall be carried out and completed in accordance with the Landscape Plan (Ref 1716 CP3 dated 27 November 2014) provided with the Notice of Requirement within one year of the electricity substation redevelopment being completed. The landscaping is to be retained and maintained by The Power Company Limited for as long as the site is used for the purpose of the designation.
3. The external appearance, external cladding, and colour of the substation shall be in general accordance with that shown on the plans attached to this recommendation and labelled as Waikiwi Substation Concept (reference: 1418: 27/11/2014).
4. Structures, excluding overhead lines and their support structures, shall not cover more than 40% of the site.

Note: Notwithstanding any definition in the City Council Operative District Plan 2005, for the purposes of this designation the following definition will apply:

The area of a 'Structure' shall be measured as the total ground area covered by a building or structure, but shall not include landscaped areas, open sealed or unsealed outdoor storage areas, car parking and vehicle access areas, drainage systems, underground lines, underground earthing grids, fences or land covered by overhead lines and their support structures.

5. The maximum height for all new structures associated with the reception, transformation and distribution of electrical power (excluding overhead lines and their support structures) shall not exceed 13 metres above existing ground level. New support structures for overhead lines and communications equipment shall not exceed 13 metres in height above existing ground level. Furthermore, any new building (as defined by the Building Act 2004) shall not exceed 10 metres in height above existing ground level.
6. There shall be no barbed wire on any external or internal fences or gates.
6. Any lighting associated with the substation shall not result in greater than 5 lux spill (horizontal and vertical) of light onto any adjoining property, measured at the boundary of the site.
7. The strength of electric and magnetic fields generated by infrastructure located at the site shall not, within publicly accessible areas, exceed the limits for continuous non-occupational exposure confirmed by the International Commission on Non-Ionising Radiation Protection (1990) or any subsequent amendments thereof or substitutes for.
8. Site noise emissions shall not exceed the following noise limits at or within the boundary of any other site:

Noise from sources containing Special Audible Characteristics* (e.g. transformer noise):

Daytime (0700–2200 hours)	50 dB L _{Aeq}
Night-time (2200–0700 hours)	35 dB L _{Aeq}

Noise from sources which do not contain Special Audible Characteristics*

Daytime (0700–2200 hours)	55 dB L _{Aeq}
Night-time (2200–0700 hours)	40 dB L _{Aeq}

* As defined in NZS 6802:2008 "Acoustics – Environmental noise"

9. Noise shall be measured and assessed in accordance with NZS 6801:2008 "Acoustics – Measurement of environmental sound" and NZS 6802:2008 "Acoustics – Environmental noise", respectively.

10. Noise levels shall be monitored on a regular basis by The Power Company Limited and the results of the monitoring provided to the Invercargill City Council. The monitoring shall be carried out on the same basis as the noise survey undertaken by Marshall Day Acoustics on 3 October 2011 – that is, similar reference points and time in the evening shall be used. The first monitoring survey shall be carried out in October 2016 and biannually after that.
11. Building consent plans for the transformer building shall include certification from a suitably qualified person that the design will achieve the above standards for transformer noise.
12. Construction activities shall be planned, managed and assessed in accordance with NZS 6803:1999 "Acoustics – Construction Noise".
13. During times when an emergency generator is required, generator noise levels shall not exceed 55 dB L_{A10} at or within the boundary of any other site. The Power Company Limited shall commission noise readings to demonstrate compliance, if any complaints about emergency generator noise levels are received.
14. A Construction Management Plan shall be submitted to and approved by the Director of Environmental and Planning Services prior to the commencement of works and should demonstrate the mitigating procedures to be utilised for dust and noise, particularly in relation to neighbouring residential properties.
15. Appropriate sedimentation and erosion control measures shall be employed for any earthworks on the designated site.
16. No outline plan shall be required for the maintenance or replacement of any transformers, poles, support structures, switchgear, cables or conductors provided that there is no overall increase in the height of the relevant facility, no intrusion into any yard, no structure or combination of structures exceeding 40% site coverage and no increase in noise emissions resulting from the work.

Koiwi Accidental Discovery

17. If Koiwi (human skeletal remains) are discovered, then work shall stop immediately and advise Te Ao Marama Incorporated (Ngai Tahu (Murihiku) Resource Management Consultants) shall be advised.
18. They will arrange a site inspection by the appropriate tangata whenua and their advisers, including statutory agencies, who will determine whether the discovery is likely to be extensive and whether a thorough site investigation is required.
19. In recognition of Section 6 of the Resource Management Act 1991 and legal requirements under the Historic Places Act 1993, there is a requirement to consult the New Zealand Historic Places Trust when archaeological sites are disturbed without authorisation previously obtained. The New Zealand Police also need to be consulted if the discovery includes Koiwi or human remains.
20. Materials discovered will be handled and removed by Iwi responsible for the tikanga appropriate to their removal or preservation.

Taonga or Artefact Accidental Discovery

21. Taonga or artefact material (eg pounamu/greenstone artefacts) other than Koiwi will be treated in a similar manner so that their importance can be determined and the environment recorded by qualified archaeologists alongside the appropriate tangata whenua.

***In-situ* (Natural State) Pounamu/Greenstone Accidental Discovery**

22. Pursuant to the Ngai Tahu (Pounamu Vesting) Act 1997, all natural state pounamu/greenstone in the Ngai Tahu tribal area is owned by Te Runanga o Ngai Tahu. The Ngai Tahu Pounamu Resource Management Plan provides for the following measures:

- Any *in-situ* (natural state) pounamu/greenstone accidentally discovered should be reported to the Pounamu Management Officer of Te Runanga o Ngai Tahu as soon as is reasonably practicable.
- The Pounamu Management Officer of Te Runanga o Ngai Tahu will in turn contact the appropriate Kaitiaki Papatipu Runanga.
- In the event that the finder considers the pounamu is at immediate risk of loss such as erosion, animal damage to the site or theft, the pounamu/greenstone should be carefully covered over and/or relocated to the nearest safe ground. The find should then be notified immediately to the Pounamu Management Officer.

Contact details for the Pounamu Management Officer are as follows:

Te Runanga o Ngai Tahu
50 Corsair Drive
PO Box 13046
Wigram
Christchurch 8141

E-mail: info@ngaitahu.iwi.nz

Tel: +64 3 366 4344

Tel: 0800 KAI TAHU (0800 524 8248)

Fax: +64 3 341 6792