Transmission Gully Line Relocation Project Assessment of Social Effects
Transmission Line Relocation

Technical Report 17A: Addendum to Assessment of Social Effects

By Beca Carter Hollings & Ferner Ltd (Beca) & Incite

5 August 2011

Revision History

Revision Nº	Prepared By	Description	Date
A	Gary Rae (Incite) & Charlotte Crack (Beca)	Draft for Review	24/06/11
B	Gary Rae (Incite)	Final Draft	04/07/11
C	Gary Rae (Incite)	Final	05/08/11

Document Acceptance

Action	Name	Signed	Date
Prepared by	Gary Rae (Incite) & Charlotte Crack (Beca)		24/06/11
Reviewed by	Gary Rae		4/07/11
Approved by	Andrea Rickard		5/07/11
on behalf of	Beca Carter Hollings & Ferner Ltd		

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1 Introduction

The NZ Transport Agency (NZTA) has identified the need for a new inland state highway from Linden in Wellington City to MacKays Crossing in the Kapiti Coast District Council. This is known as the Transmission Gully Project and is part of the Wellington Northern Corridor Road of National Significance (RoNS). The NZTA are progressing notices of requirement for designations and applications for resource consents for the Transmission Gully Project as a project of national significance under the Resource Management act 1991 (RMA). NZTA's documentation that supports the notices of requirement for designations and applications for resource consents is contained in Volumes 1 to 5. These volumes contain a substantive description of the Transmission Gully Project.

In order to allow for the construction and operation of the Transmission Gully Project, parts of the existing electricity transmission line between the Pauatahanui substation at State Highway 58 and MacKays Crossing will need to be relocated. The Paekakariki-Takapu Road A (PKK-TKR A) 110kV transmission line is part of the National Grid and is owned and operated by Transpower New Zealand Limited (Transpower). This Transmission Line Relocation Project involves the relocation of sections of the PKK-TKR A between the Paekakariki and Pauatahanui Substations from Tower 1 to 49A. The line route generally follows the existing transmission line with the route design generally governed by the need to minimise crossings of the Transmission Gully Project cognisant of environmental, cultural, engineering and other factors.

Transpower is seeking the majority of the resource consents to enable the line relocation to occur under the regulations included in the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (NESETA). These resource consents are set out in detail in the AEE and in summary are:

- Restricted discretionary land use consent for the relocation of 6 towers in Kapiti Coast District in accordance with the NESETA; and
- Restricted discretionary land use consent for the relocation of 18 towers in Porirua City in accordance with the NESETA.

No transmission lines will be relocated in Upper Hutt City or in Wellington City.

Regional consents for related works including earthworks and construction of culverts are not being applied for at this time. Where consents are required for these activities they will be applied for during detailed design.

This assessment of social effects addresses the wider social effects associated with the Transmission Gully Line Relocation (hereafter referred to as 'the Transmission Line Relocation Project'). These effects have some relevance to the Transmission Line Relocation effects, however the lines project is acknowledged as a stand-alone project, at least in the construction period which will occur prior to the roading works.

2 Project Description

The Assessment of Environmental Effects report (AEE) accompanying the application for resource consent describes the Transmission Line Relocation Project in detail and the route selection process, and the relevant plans in Volume 4: Plan Set include plans of the alignment, including location of towers. This section is a summary of the Project.

2.1 Line Route

The PKK-TKR A line between the Paekakariki and Pauatahanui Substations is 15 km long. The general alignment is shown diagrammatically in *Figure 1* of this report and in more detail in the plans in Volume 4: Plan Set.

The existing line is a 110 kV double circuit line consisting of lattice steel towers with some concrete pole structures near Pauatahanui in the south. There are 50 existing towers along this section.

For assessment purposes, the line route is split into five sections. The following summarises the relocation works for each section.

2.2 Section 1 - MacKays Crossing

This section covers the line route between Tower 1 and Tower 4. In order to accommodate the Transmission Gully Project, two existing towers will be relocated, one to the west and the other slightly to the east of the existing line. No alterations are required to towers or lines located north of the existing state highway.

2.3 Section 2 - Wainui Saddle

This section covers the line route between Tower 5 and 15. Through this section, the line route runs to west of the proposed road and then roughly two thirds of the way up the Te Puka valley at Tower 8, the line is proposed to be relocated to the west of the Saddle. This is required in order to navigate around the Wainui Saddle, which will be occupied by the Transmission Gully Project. Towers will be erected halfway up the main spur to the west of the Saddle and will skirt round the high point of the saddle and then crossing the Transmission Gully Project between Towers 11 and 12, before dropping back into the Horokiri Valley of the Saddle at roughly Tower 13. Minor relocations will be required to the remaining towers (including tower 13) in this section (as compared with current positions) in order to accommodate the proposed Transmission Gully Project with the line aligned roughly parallel and to the east of the existing line.

2.4 Section 3 - Horokiri Stream

This section covers the line route between Tower 16 and 25. Minor relocations of towers (as compared with current positions) are required to accommodate the proposed Transmission Gully Project with the proposed line aligned roughly parallel and to the east of the existing line. Tower 23 is to be removed.

2.5 Section 4 - Battle Hill

This section covers the line route between Tower 26 and 33. Relocations of towers is required to accommodate the proposed Transmission Gully Project with the proposed line aligned roughly parallel and to the east of the existing line. The proposed line crosses the Transmission Gully Project between Towers 32 and 33.

2.6 Section 5 - Golf Course

This section covers the line route between Tower 34 and 42. Relocation of towers is required in order to accommodate the proposed Transmission Gully Project with the proposed line aligned roughly parallel and to the west of the existing line.

2.7 Section 6 - State Highway 58

This section covers the line route between Tower 43 and 49a. Tower 43 is relocated to the west of the existing tower. No other tower relocations are needed in this section.

2.8 Tower Design and Access Tracks

The proposal is to relocate 24 existing tower structures, to strengthen 10 towers, and remove one tower in its entirety. Table 1 summarises the changes to each of the towers. The number references for the towers relates to the plans in Volume 4: Plan Set.

Table 1 – PKK-TKR A Line Towers

Description	Towers	Quantity
Replaced structures	2A, 3A, 8A, 9A, 10A, 11A, 12A, 13A, 14A, 15A, 16A, 17A, 18A, 22A, 24A, 25A, 26A, 31A, 32A, 33A, 40A, 41A, 42A, 43A	24
Structures to be strengthened*	1, 4, 7, 19, 21, 27, 30, 34, 39, 44	10
Structures to be removed entirely	23	1
Unaffected Structures (not moving or being strengthened	5, 6, 20, 28, 29, 35, 36, 37, 38, 45, 46, 47, 48, 49, 49a	15
Total		**50**

* Involves foundation and/or tower strengthening.
The “A” in the tower reference denotes relocated/replaced tower.

Appendix A contains details of each of the towers including co-ordinates and indicative expected heights of each tower. The replacement towers are expected to range in height from approximately 29 m through to 39 m.

The towers will be steel lattice design, similar to existing towers.

Tower foundations will be approximately 9m x 9m for a strain tower and for construction, an additional clearance buffer of approximately 3 m around each tower. In addition, generally an area of approximately 20 m x 25 m will be required to one side of each proposed tower for construction crane assembly purposes. This construction area will be able to reinstated following use.

Transpower has an existing access track along the line for maintenance purposes. This track is shown on the drawings contained in Volume 4: Plan Set. This existing access track and other existing tracks (including farm and forestry tracks) will be used for construction access to provide four wheel drive access to each tower. The tracks will be approximately 3.5m to 4.5m wide. At the Wainui Saddle, for the towers located outside the extent of works for the NZTA’s Transmission Gully Main Alignment (i.e. for towers 9A, 10A and11A), access is likely to be taken off the existing access track that currently serves the farm and the gas pipeline owned by Vector. New tracks will be constructed off this to gain access to Towers 9A and 10A.

3 Scope and Methodology

The methodology that underpins this assessment of social effects for the Transmission Line Relocation Project is based on the NZTA Transmission Gully Project assessment of social effects methodology described in section 5 (Methodology) of Technical Report 17, the Assessment of Social Effects/ Social Impact Assessment (hereafter referred to as 'the SIA').

The conclusions and mitigation measures from various other supporting technical reports (referred to within this assessment) are also taken account of in this assessment of social impacts.

4 Existing Environment/Context

For the purposes of the SIA undertaken for the NZTA/PCC Transmission Gully project (the road) the route was divided into six community areas, which represent broadly identifiable communities along the route. These SIA community areas differ from the route sections used in the original Scheme Assessment Report (SAR), and they also differ from the route sections used in the NZTA Assessment of Environmental Effects and in various technical reports which support the NoR and AEE. For the purpose of preparing the SIA it is considered appropriate to nominate separate 'Community Areas' that are more representative of the communities along the route, in terms of the location and concentrations of dwellings and local facilities common to specific communities.

This delineation of community areas is considered to be relevant and appropriate for the Transmission Line Relocation project. The land, on which the existing transmission lines and, therefore, the Transmission Line Relocation Project is proposed, falls within the SIA Community Area 2 and part way into Community Area 3. Each is described below in turn:

- Community Area 2 – 'Rural Communities' between MacKays Crossing and Pauatahanui (Maungakotukutuku and Paekakariki Hill), Kapiti District and in Porirua City: Contains predominantly rural land, comprised of forests and areas of steep pasture land. There are very few residential dwellings within this community area in the vicinity of the lines; however there is a small grouping of residential dwellings including dwellings west of the line accessed off Paekakariki Hill Road; and
- Community Area 3 – Pauatahanui, in Porirua City: Extends through rolling residential land north of SH58, crosses SH58 and a low-lying estuarine plain associated with the Pauatahanui Inlet, then climbs the moderately-steep terrain to the south. The majority of this section is unpopulated with dwellings, except for some groupings of rural-residential dwellings east of the line at Flighty's Road near the southern end of the section. It should be noted that the line relocation does not affect the area south of SH58 (i.e. Whitby).

It is noted that there are no other sensitive land uses (schools, childcare facilities or hospitals) along the alignment (refer to Section 7.6 of the AEE), and that all relocated towers (except towers 9A, 10A, 11A, and 32A) will be located within NZTA's designation. The four towers outside the designation are zoned rural. Existing dwellings relative to lines are shown on the plans contained in Volume 4: Plan Set.

Figure 1 shows the Community Areas relative to the existing and proposed transmission line.

The transmission lines were commissioned in 1924. They therefore are a long-established part of the existing environment, particularly in Community Area 2.

The existing environment for this assessment of social effects for the Transmission Line Relocation Project is the same as that provided for the NZTA Transmission Gully Project SIA (in section 6 (Existing Environment) of Technical Report 17, the SIA).

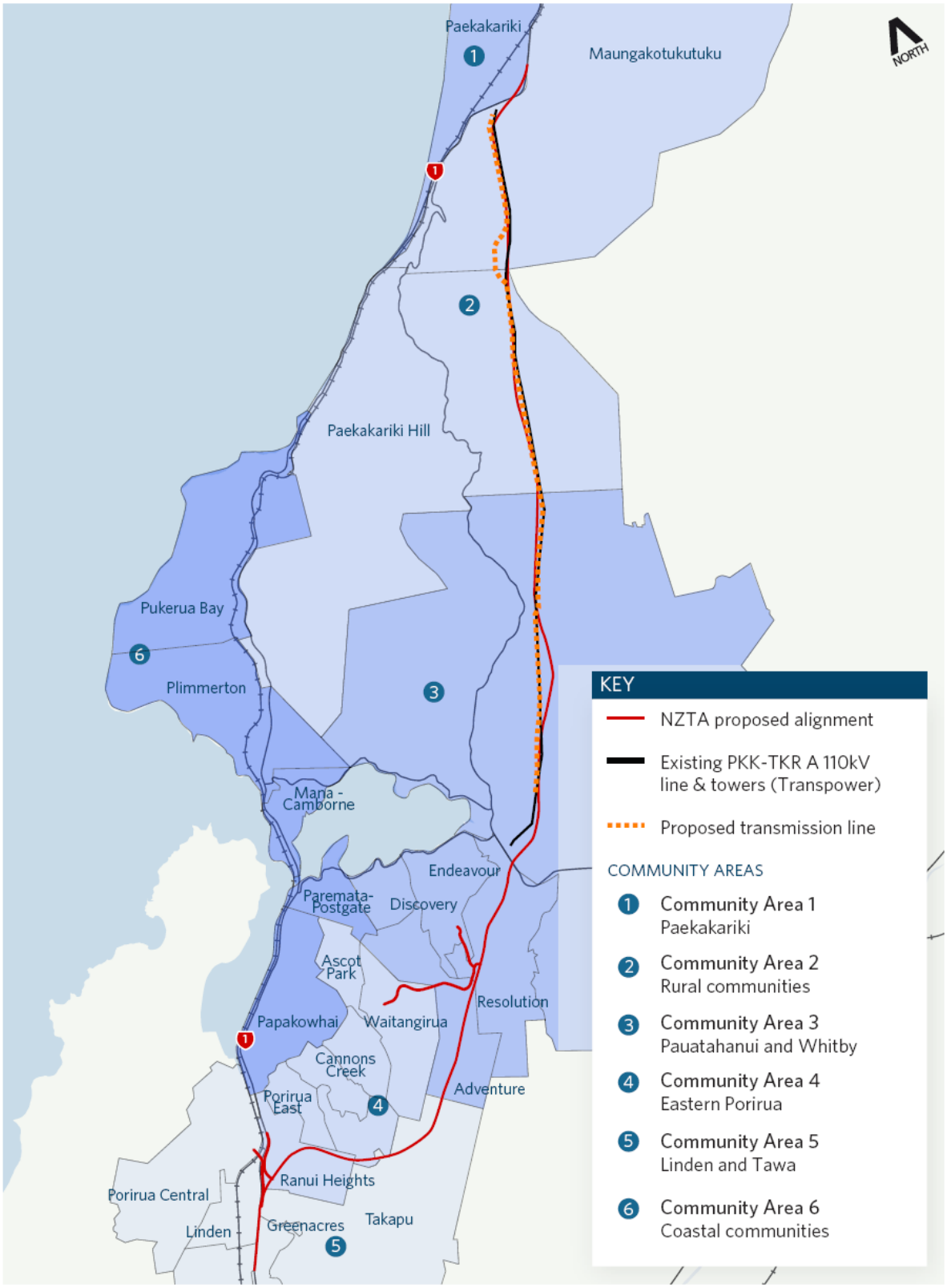

Figure 1: Community Areas

5 Assessment of Effects

5.1 Overview

The Transmission Line Relocation Project consists of modifications to an existing transmission network, broadly along the same corridor that it currently occupies (with some more pronounced re-alignment near the Wainui Saddle section). In addition this work will take place along the same corridor as that of the NZTA Transmission Gully Project. It is also noted that the environment in this project area is very lightly populated with the main concentrations of residential, rural-residential and rural dwellings located at and beyond the northern and southern ends of the corridor, where the extent of work associated with this project is minor and will cause only benign effects.

The NZTA Transmission Gully project will occur in the same corridor as this, and over a considerably longer time frame (approximately 7 years). However, it is acknowledged that the Transmission Line Relocation Project will occur prior to the road construction, and it is a stand-alone project requiring its own assessment for any social effects.

5.2 Short-term effects of construction

The main potential social impacts arising from construction activities for the Transmission Line Relocation Project are considered to relate to:

- construction noise effects;
- traffic and access effects;
- effects on recreational activity; and
- landscape and visual effects.

The scale of works is relevant to both potential noise effects and traffic effects.

As described in Section 2 of this assessment, overall there will be 24 new (relocated) tower structures, 1 will be removed, and 15 will not be moved at all. Construction is expected to take approximately one year to one and a half years (including site investigations, construction and commissioning). The line relocation will take place prior the substantial works for the road.

It is expected that the construction phase will make use of two of NZTA's identified construction yards, one at McKays crossing (to access the northern towers) and the other at Battle Hill Forest Farm Park, which is accessed off Paekakariki Road, for the remaining towers. The use of these yards is dependent on the activities NZTA is undertaking at that time. From these yards, the tower sites will be accessed from the existing access track or existing farm tracks (e.g. the Vector pipeline track for construction of towers on the western side of Wainui Saddle).

A variety of heavy and light vehicles will be used during the construction period. These vehicles include articulated trucks, concrete delivery trucks, crane trucks and four wheel drive vehicles. Trucks using local roads will include those delivering and removing tower/foundation components and delivering concrete for foundations (in the event that an on-site concrete batching plant to be used for the NZTA Transmission Gully project will not be available for use during the line relocation and therefore concrete will therefore need to be transported in). In terms of duration, construction traffic would typically be concentrated in certain locations for short periods associated with the sequence of works. The highest level of construction movement would occur during foundation construction and tower construction works. Each replacement tower would take approximately two weeks to construct. Removing the existing towers and tower strengthening works will take

approximately one week each. Other vehicle movements would occur on an occasional basis over the entire construction phase.

The key considerations from this are that:

- The overall level of traffic movements for construction will be considerably less than that for the NZTA Transmission Gully project and the assessments of traffic, access and noise effects and associated mitigation measures associated with that project (described in section 8 (Local social impact assessment) of Technical Report 17, the SIA) are relevant to this project as well;
- Whilst the works will occur in advance of that roading work, and this is therefore a stand-alone project, it is noted that trucks and other vehicles will use existing access and farm tracks; the work is of limited duration; and the construction sites (i.e. sites for new pylons as shown in Table 1 above) are well removed from dwellings or other sensitive land uses (see further comment in section 5.3 below).

It is considered that this construction activity will have no detrimental effects on access to parks and reserves or other recreational activity, particularly as existing accesses and tracks will be used and the volumes of traffic during construction will not be substantial.

Any landscape or visual effects from the construction activities themselves are considered to be minor and of short term duration, and will have no social effects of any consequence.

5.3 Long-term effects of the relocated transmission line

For the Transmission Line Relocation Project, the main potential impacts once the line is relocated are related to:

- Traffic and access effects from maintenance activities;
- Visual amenity; and
- Potential health effects from electric and magnetic fields.

For the on-going operation of the relocated lines, no additional maintenance vehicles are anticipated above what already occurs for the existing infrastructure, and so there will be no social impact arising from traffic movements associated with the on-going operation of the lines.

In terms of visual effects, the following considerations are made:

- The completed Project will not represent a significant change in the amenity of the area for local residents in the affected parts of Community Areas 2 and 3 because the transmission lines are part of the existing visual environment in those areas, and will remain so, albeit in a slightly modified alignment;
- The tower relocations will be set back from any residential properties. In several locations the towers will actually be located further away from residential properties (including dwellings) than the existing locations of these towers. This is particularly the case for towers 31A, 32A, 40A, 41A, 42A, and 43A. In no cases will any new towers be located within 120 metres of any dwelling, and in most cases the distances are considerably greater than this, and so are not considered to have adverse amenity impacts (the precise changes in separation distances are listed in Section 7.6 of the AEE); and

- The conclusion from Technical Report 5A: Addendum to the assessment of landscape and visual effects is that overall visual effects of the proposed realignment will be no more than minor. It also concludes that adverse visual effects from houses will be limited to 7 houses (on Paekakariki Road and Flightys Road) and will be moderate, and conversely there will be some minor positive visual effects for several properties in the Flightys Road area because towers will be moved further away from their dwellings and will be located at lower elevations.

In relation to potential health impacts, it is acknowledged that residents in the general vicinity of the lines may have perceived concerns at potential health impacts from any changes to existing transmission lines.

The AEE in Section 4.2.10 and in Section 7.10 demonstrates compliance will be achieved with the relevant electric and magnetic field reference levels for public exposure. In summary, the voltage and current of the lines will not change and therefore the Electric and Magnetic Fields (EMF) for the lines will also not change. Whilst the location of the lines will change in areas as described above, modelling undertaken for the Project indicates that EMF levels will diminish rapidly with separation from the lines. The closest relocated tower to an existing residential building is Tower 33A at over 120 metres from the nearest dwelling, and at that distance the EMF levels are at background levels. This tower is shifting approximately 10m to the north and 5 m to the west from the existing tower. The next closest is Tower 3A, located 140m from the nearest residential building. The distances for the remaining towers are considerably greater. It is further noted that the line is to be relocated further from dwellings at Paekakariki Hill Road and Flightys Road.

Overall, for the reasons outlined above, the Transmission Line Relocation Project is not considered to have any social impacts once the Project is operational that are significantly different to those associated with the existing transmission lines.

It is also worthwhile to consider any effects against the context of the wider NZTA Transmission Gully Project, which will have a more substantial and significant change on the environment in this location longer term. Consequently any social effects associated with the Transmission Line Relocation Project over and above effects associated with that project will be minor (as assessed in the SIA in Technical Report 17).

6 Monitoring and Mitigation

6.1 Mitigation

There is no specific social effect mitigation recommended as part of the SIA for the Transmission Line Relocation Project. However, appropriate mitigation measures for any effects that do arise, such as for visual effects and traffic impacts, have been provided by the relevant technical assessments, and these are included in the recommended conditions for consent.

These include Conditions relating to landscaping and visual effects, and in relation to a Construction Environmental Management Plan (CEMP), which has measures to require liaison and contact with the community affected by the works, including complaints procedures and action.

6.2 Monitoring

It is acknowledged that the impacts of the project, especially from construction, will be noticeable for the local communities in which the Project will interface. Open on-going communication will be undertaken to ensure that the community is informed about what is happening in their neighbourhood. This will cater for expected concerns, but will also be capable of addressing concerns that were not anticipated during the pre-lodgement assessments.

It is considered that no monitoring of social effects is required for the Transmission Line Relocation Project over and above what has been recommended within the SIA. Monitoring for that project is detailed in the CEMP (Construction and Environmental Management Plan) and includes reporting and consultation and communication with local residents that may be affected by activities during construction.

7 Summary and Conclusion

The Transmission Line Relocation Project is to occur within Community Area 2, and within part of Community Area 3, in terms of the SIA that has been completed for the NZTA Transmission Gully Project. The transmission lines in these areas are an established part of the existing physical and visual environment. The Transmission Line Relocation Project will entail relocation of these structures and lines along much the same route as present, in an area that is to later be the subject of construction activity for the NZTA Transmission Gully Project.

As outlined with the Assessment of Effects above, any social effects generated by the Transmission Relocation Line Project will be little different from effects associated with the existing line, and will be no more than minor. There will not be any social effects arising from the Transmission Line Relocation Project that are over and above the effects that are outlined in the NZTA Transmission Gully Project SIA, however it is noted that some specific mitigation measures are proposed for this lines relocation project and these are included in the recommended conditions of consent..

Appendix A

Details of Towers

Transmission Gully Line Relocation - Schedule of Changes to Transmission Line Support Structures

Existing tower	Proposed tower	Existing/ proposed	Strengthening	Existing		Proposed		Type	Span (m)	Existing height (m)	Proposed Height (m)	Height difference (m)
				Northing (m)	Easting (m)	Northing (m)	Easting (m)					
1	-	Existing	Yes	5461376	1765624			Strain	308	17.3	No change	-
2	2A	Proposed		5461117	1765471	5461122	1765451	Strain	361	23.4	33.0	9.6
3	3A	Proposed		5460749	1765416	5460764	1765405	Strain	440	30.7	33.0	2.3
4	-	Existing	Yes	5460327	1765353			Suspension	421	41.5	No change	-
5	-	Existing		5459909	1765300			Suspension	273	31.3	No change	-
6	-	Existing		5459638	1765266			Suspension	337	24.2	No change	-
7	-	Existing	Yes	5459304	1765223			Strain	252	17.5	No change	-
8	8A	Proposed		5459058	1765145	5459057	1765172	Strain	381	24.8	30.0	5.2
9	9A	Proposed		5458709	1765030	5458899	1764826	Strain	239	28.8	30.0	1.2
10	10A	Proposed		5458518	1764925	5458714	1764675	Strain	280	28.0	30.0	2.0
11	11A	Proposed		5458294	1764805	5458436	1764713	Strain	401	28.8	30.0	1.2
12	12A	Proposed		5458142	1764748	5458038	1764762	Strain	234	15.7	32.0	16.3
13	13A	Proposed		5457906	1764660	5457817	1764687	Strain	355	23.5	32.0	8.5
14	14A	Proposed		5457575	1764615	5457466	1764633	Suspension	349	21.9	36.0	14.1
15	15A	Proposed		5457260	1764571	5457121	1764580	Suspension	319	28.0	36.0	8.0
16	16A	Proposed		5456923	1764525	5456807	1764528	Strain	229	17.3	32.0	14.7
17	17A	Proposed		5456694	1764449	5456590	1764455	Suspension	253	18.7	36.0	17.3
18	18A	Proposed		5456488	1764380	5456350	1764374	Strain	307	17.6	30.0	12.4
19	-	Existing	Yes	5456049	1764316			Suspension	387	28.2	No change	-
20	-	Existing		5455666	1764260			Suspension	213	28.2	No change	-
21	-	Existing	Yes	5455455	1764229			Suspension	405	18.6	No change	-
22	22A	Proposed		5455113	1764178	5455051	1764195	Strain	503	28.2	35.0	6.8
23	-	Removed		5454783	1764131					24.8	Removed	-
24	24A	Proposed		5454478	1764087	5454548	1764211	Strain	324	22.0	33.0	11.0
25	25A	Proposed		5454158	1764040	5454234	1764131	Suspension	314	24.7	39.0	14.3
26	26A	Proposed		5453834	1763993	5453929	1764056	Suspension	445	28.2	40.0	11.8
27	-	Existing	Yes	5453498	1763943			Strain	367	23.5	No change	-
28	-	Existing		5453164	1763794			Suspension	280	28.1	No change	-
29	-	Existing		5452909	1763678			Suspension	387	22.0	No change	-
30	-	Existing	Yes	5452555	1763521			Suspension	369	28.1	No change	-
31	31A	Proposed		5452218	1763370	5452213	1763384	Strain	399	16.0	30.0	14.0
32	32A	Proposed		5451893	1763216	5451828	1763278	Strain	347	23.3	30.0	6.7
33	33A	Proposed		5451516	1763106	5451525	1763109	Strain	490	31.0	29.0	-2.0
34	-	Existing	Yes	5451045	1762969			Suspension	197	21.9	No change	-
35	-	Existing		5450856	1762915			Suspension	267	15.8	No change	-
36	-	Existing		5450600	1762842			Suspension	344	16.2	No change	-
37	-	Existing		5450269	1762748			Suspension	355	28.0	No change	-
38	-	Existing		5449927	1762650			Suspension	290	21.9	No change	-
39	-	Existing	Yes	5449651	1762561			Suspension	270	21.8	No change	
40	40A	Proposed		5449368	1762479	5449396	1762474	Strain	317	15.7	31.0	15.3
41	41A	Proposed		5449067	1762392	5449113	1762328	Strain	224	15.7	30.0	14.3
42	42A	Proposed		5448798	1762311	5448900	1762259	Suspension	400	17.2	37.0	19.8
43	43A	Proposed		5448514	1762166	5448518	1762140	Strain	469	21.7	33.0	11.3
44	-	Existing	Yes			5448089	1761949	Strain	291	21.9	No change	
45	-	Existing				5447829	1761820	Suspension	323	27.7	No change	
46	-	Existing				5447540	1761675	Strain	299	17.1	No change	
47	-	Existing				5447416	1761404	Suspension	199	18.4	No change	
48	-	Existing				5447336	1761221	Suspension	130	15.7	No change	
49	-	Existing				5447325	1761099	Strain	25	18.5	No change	
49a	-	Existing				5447256	1761118	Strain	21	16.5	No change	