

BOARD OF INQUIRY
EAST WEST LINK PROPOSAL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a Board of Inquiry appointed under s149J of the Resource Management Act 1991 to consider notices of requirement and applications for resource consent made by the New Zealand Transport Agency in relation to the East West Link roading proposal in Auckland

**Evidence of Christopher Mark Horne on behalf of
Transpower New Zealand Limited: Planning**

10 May 2017

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STATEMENT OF EVIDENCE OF CHRISTOPHER MARK HORNE

EXECUTIVE SUMMARY

- 1 Transpower has a number of existing National Grid assets located within the East West Link project area, including three overhead transmission lines traversing the area and a substation at Southdown. These assets will be affected to varying degrees ranging from upgrading of foundations where the New Zealand Transport Agency (NZTA) proposes earthworks in close proximity to existing towers, through to the replacement of some towers and realignment of parts of one transmission line and its associated support structures. A transformer and associated infrastructure at the Southdown substation which is critical to the Auckland electrified rail network will also require relocation to respond to the current project design. These works would require a number of consents under the *Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009* (NESETA) and Auckland Unitary Plan – Operative in Part (AUP).
- 2 The statutory planning framework including the NPSET and AUP emphasise the importance of the National Grid and the need to protect it from the adverse effects of other activities which is acknowledged by the Applicant. This planning framework will also be of prime consideration in considering future resource consent applications by Transpower to undertake necessary works on its assets should the NZTA project be approved.
- 3 My evidence sets out the likely scope of works required by Transpower based on high level designs completed by Transpower to date in response to the NZTA project design, and the likely consents that would be required under the NESETA and AUP to implement these works. It also identifies the potential flow on effects of Transpower works to third parties, including potential restrictions on the use of land in areas subject to line swing. These restrictions would result from the easements Transpower would require over land affected by additional line swing in airspace, and rules in the AUP that may also restrict land uses, earthworks and subdivision in these areas.
- 4 I understand that the relevant property rights will be sought once the design of the necessary works is sufficiently advanced. If those rights are acquired first, then, in my opinion it is likely the necessary resource consents required by Transpower could then be obtained. This is because the greatest effect will be on the current landowners and the use of their property into the future – and these are matters that would largely be addressed in the acquisition process. In terms of wider effects, my opinion is informed by the preliminary assessment of visual effects undertaken by Mr Lister in his evidence in chief (EIC) on behalf of the NZTA, the planning policy framework for the National Grid, and the nature of regional consents that may be required for certain construction works under the AUP which in my experience would routinely be granted with suitable conditions.
- 5 My evidence also sets out, in broad terms, the likely consents that would be needed were Transpower to agree to underground any of this transmission lines and the type of issues that may raise with such works. I provide an opinion that there is no direct obligation on Transpower to underground any of its existing transmission lines under the statutory planning framework for the works it needs to undertake to respond to the NZTA project.

- 6 Finally, I confirm that I generally agree with the conditions approach taken by the NZTA in response to the Transpower submission to adequately protect Transpower's assets, but outline some recommended changes to the conditions where I do not consider the proposed conditions have fully addressed the matters raised.

QUALIFICATIONS AND EXPERIENCE

- 7 My full name is Christopher Mark Horne. I am a resource management consultant and director of the resource and environmental management consulting company, Incite. I hold the qualifications of Bachelor of Arts (Geography), and Master of Regional and Resource Planning, both gained at the University of Otago. I am a member of the New Zealand Planning Institute.
- 8 I have over 20 years of professional experience in the field of resource management, and have represented a variety of public and private clients on a range of matters that raise planning issues. A significant part of my experience relates to network utility infrastructure, including both project consenting, and planning advice and hearing support on resource management documents and changes that may affect the operation or deployment of infrastructure. I have acted for Transpower, Chorus, Spark (previously Telecom), Vodafone, 2degrees, Teamtalk, New Zealand Police (radio network), Vector, Watercare Services and the New Zealand Transport Agency (NZTA). I assisted Transpower with preparing their submission on the East West Link proposal, and have attended several meetings with representatives of the NZTA prior to filing this evidence. I have also visited the locations of key Transpower assets affected by the East West Link proposal.
- 9 I have previously assisted Transpower in a number of projects to alter existing Transmission lines in response to NZTA projects, was the planner responsible for obtaining designations to erect a new section of transmission line to connect a new power plant in Taranaki to the National Grid, and recently managed the consent process to underground an existing National Grid transmission line in the Ruakura area of Hamilton.
- 10 I have been engaged by Transpower to outline the planning issues associated with the East West Link proposal regarding impacts on Transpower's assets, the likely consents required by Transpower to relocate or upgrade its assets to respond to the NZTA project should approvals for the project be granted, and the possible implications for third parties from relocating Transpower assets. I am also engaged to lead the consent process for any necessary resource consents required to relocate Transpower assets should the East West Link proposal be approved.
- 11 I have read the statement of evidence of Mr Noble for Transpower and have taken that statement into account in preparing this statement of evidence.
- 12 I have also read the evidence filed on behalf of the NZTA of Mr Gavin Lister (Visual and Landscape), Mr Noel Nancekivell (Design and Construction), Ms Amelia Linzey (Alternatives and Cultural Values), Ms Andrea Rickard (Statutory Planning) and Ms Lesley Hopkins (Effects and Conditions), and the revised proposed conditions set attached to Ms Hopkins evidence.

CODE OF CONDUCT

- 13 I can confirm that I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Practice Note 2014, and I agree to comply with it. My experience is described above. I confirm that the issues addressed in this statement are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

SCOPE OF EVIDENCE

- 14 My evidence will deal with the following:
- 14.1 A summary of Transpower's National Grid assets in project area;
 - 14.2 An overview of the National Policy Statement on Electricity Transmission 2008 (*NPSET*);
 - 14.3 A discussion of the relevant provisions of the Auckland Unitary Plan, Part Operative November 2016 (*AUP*);
 - 14.4 An overview of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (*NESETA*);
 - 14.5 A discussion of the New Zealand Code of Practice for Electrical Safe Distances (NZECP 34: 2001);
 - 14.6 An overview of the likely consents and issues associated with the relocation of Transpower assets to respond to the NZTA project, including potential effects on third parties;
 - 14.7 An overview of likely consents required and associated issues were Transpower to agree to the undergrounding of any of its existing overhead assets;
 - 14.8 A discussion of the Applicant's proposed conditions in relation to network utilities and Transpower assets, and any outstanding issues; and
 - 14.9 Conclusions.

TRANSPOWER'S ASSETS IN THE PROJECT AREA

- 15 A description of Transpower's assets located within the project area and their function on the National Grid electricity transmission network is addressed in the evidence of Mr Noble. In summary, these assets include:
- 15.1 Henderson-Otahuhu A (HEN-OTA A) 220kV overhead transmission line on towers;
 - 15.2 Mangere-Mt Roskill A (MNG-ROS A) 110kV overhead transmission line on towers;

15.3 Penrose-Mt Roskill A (PEN-ROS A) 110kV overhead transmission line on towers; and

15.4 Southdown Substation, Hugo Ross Drive, Southdown.

- 16 The location of Transpower assets in relation to the East West Link project are shown on the plan attached as Appendix B to Mr Noble's evidence.

NATIONAL POLICY STATEMENT ON ELECTRICITY TRANSMISSION 2008

- 17 The NPSET came into effect on 10 April 2008. It provides a 'special status' in RMA planning and approval processes for the National Grid nationwide.

- 18 The stated matter of national significance for the NPSET is *"the need to operate, maintain, develop and upgrade the electricity transmission system"*. The Preamble to the NPS sets out the context within which the NPSET is set. It makes the statement that:

The efficient transmission of electricity on the national grid plays a vital role in the well-being of New Zealand, its people and the environment.

- 19 The Preamble sets out some of the 'special characteristics' of electricity transmission which create challenges in managing the system under the RMA. These include the need for lines, cables and substations to enable electricity to be transported over large distances; its linear nature (requiring consistency across local authorities); technical, operational and security requirements; and the need for ongoing investment in and upgrading of the system. Also noted in the Preamble are the limitations from technical, operational and security requirements for all adverse effects to be avoided or mitigated; the significant constraints that third party activities and development can place on the system; and that adverse effects are experienced at the local level, while benefits are regional or national, requiring a balanced consideration of effects.

- 20 The NPSET includes a single objective and 14 supporting policies. The objective is as follows:

To recognise the national significance of the electricity transmission network by facilitating the operation, maintenance and upgrade of the existing transmission network and the establishment of new transmission resources to meet the needs of present and future generations, while

(a) Managing the adverse environmental effects of the network; and

(b) Managing the adverse effects of other activities on the network.

- 21 This objective recognises the national significance of the electricity transmission network¹ both in terms of development of new transmission infrastructure, and the operation, maintenance and upgrading of existing infrastructure. It recognises that the network itself can result in adverse effects that need to be

¹ Defined in the NPSET to be the National Grid only.

managed, but also that other activities can have adverse effects on the network that need to be managed.

- 22 The NPSET contains 14 policies. Policy 1 recognises the national benefits of electricity transmission and the need for decision-makers to recognise and provide for the national, regional and local benefits of sustainable, secure and efficient electricity transmission. Policies 2–9 guide the management of the environmental effects of electricity transmission, setting out a general set of responsibilities for both decision-makers and Transpower. These provisions will have particular relevance for any future resource consents applied for by Transpower to relocate existing assets to accommodate the NZTA project if approved.
- 23 Policy 2 explicitly requires decision-makers to recognise and provide for the effective operation, maintenance, upgrading and development of the National Grid. This policy is particularly relevant to the NZTA project in terms of ensuring a design and conditions package that includes measures to adequately protect and provide practical access to assets that are to remain in place, and other assets are protected until suitable replacement infrastructure is in place.
- 24 Policy 3 requires consideration of the technical and operational requirements of the network when considering measures to avoid, remedy or mitigate adverse environmental effects. This policy will have particular relevance to future resource consents to relocate Transpower assets.
- 25 Policy 4 requires that for new transmission infrastructure and major upgrading, decision makers must have regard to the extent to which any adverse effects have been avoided, remedied or mitigated by the route, site and method selection. This policy maybe relevant if a new substation is required to replace the Southdown Substation, although I note that a solution regarding this substation is yet to be confirmed.
- 26 Policy 5 requires that when considering the environmental effects of transmission activities associated with transmission assets, decision-makers must enable the reasonable operational, maintenance and upgrade requirements of established electricity transmission assets. This policy is particularly relevant in plan making to ensure a reasonable planning regime for the operational, maintenance and upgrade requirements of established electricity transmission assets.
- 27 Policy 6 requires that major upgrades of transmission infrastructure are used as an opportunity to reduce existing adverse effects, including effects on sensitive activities, where appropriate. In my opinion a minor shift in the position of a transmission line within the same general locality to accommodate a road project is not a major upgrade in terms of Policy 6, and thus in my view Policy 6 is not specifically triggered. In my opinion a major upgrade would involve works such as adding an additional circuit to a transmission line or upgrading from 110kV to 220kV. In any event, I understand that Transpower is working to design and manage the works required as a result of the East West project to minimise effects wherever possible. I address this further below. It is also addressed in the evidence of Mr Noble.
- 28 Policy 7 requires that in urban environments, planning and development of the transmission system should minimise adverse effects on urban amenity, and

adverse effects on town centres and on areas of high recreational value or amenity and existing sensitive areas should be avoided. In my opinion this policy is primarily aimed at planning for and implementing new transmission lines in urban areas. However, based on the evidence of Mr Noble, I understand that based on the current high level Transpower design solutions for relocating the transmission lines, the designs seek to minimise adverse environmental effects in any case within the existing urban environment in which they are located. For example, the potential addition of new intermediate structure HEN-OTA A 15B is designed to avoid in the alternative a significant additional increase in the height of proposed structure 15A which is the replacement for existing Tower 15, whilst the design solution for crossing the Turners and Growers site (excluding any temporary bypass for construction) is designed to minimise to the extent practicable any increase in line swing over that site. I also understand that the NZTA has amended the road design as lodged around HEN-OTA A Tower 31 and MNG-ROS A Tower 33 to avoid a need to relocate and potentially increase the heights of those structures in the sensitive Onehunga area.

- 29 Policy 8 requires that in rural environments, planning and development of the transmission system should "seek to avoid" adverse effects on outstanding natural landscapes and areas of high natural character and areas of high recreational value and amenity and existing sensitive activities. The NZTA project area where Transpower asset relocations will be required is not located within a rural environment.
- 30 Policy 9 deals with electric and magnetic fields. I understand that Transpower will continue to operate all existing transmission lines including any relocated assets in accordance with the relevant standards for electric and magnetic fields.
- 31 Policies 10 and 11 cover the management of the adverse effects of other parties on the transmission network. Policy 10 is particularly relevant to the NZTA project. The policy states:

In achieving the purpose of the Act, decision-makers must to the extent reasonably possible manage activities to avoid reverse sensitivity effects on the electricity transmission network and to ensure that operation, maintenance, upgrading, and development of the electricity transmission network is not compromised.

- 32 Accordingly, Policy 10 provides strong national direction to ensure that the operation, maintenance, upgrading, and development of the electricity transmission network is not compromised by the activities of other parties. In my view, it is therefore necessary for the NZTA project design and any conditions on the designations and resource consents to suitably take account of the Transpower assets and ensure that the National Grid is provided for and suitably protected during project construction and subsequent operation. Once relocated, it will also be necessary for any Transpower assets to be adequately protected from the activities of third parties. As outlined later in my evidence, in regard to any relocated transmission line assets, this can be achieved by easements Transpower would need to acquire and the rules for the National Grid Corridor Overlay included in the AUP.

- 33 Policy 11 requires local authorities to identify an appropriate buffer corridor within which it can be expected that "*sensitive activities*"² will generally not be provided for and/or given resource consent. The AUG includes a National Grid Corridor Overlay. The current version of the AUP includes a buffer corridor called a "*National Grid Yard*", 12m from the outer visible foundation of any tower and 12m from the centreline of any overhead transmission lines, within which there are restrictions on land uses, earthworks and subdivision. Transpower has appealed certain aspects of these provisions which I will outline later. Further, Transpower has lodged appeals to implement a wider National Grid Corridor³ from the centre line of its overhead transmission lines where there would also be additional controls applying to subdivision. The "Corridor" in the AUG is not, as I understand the provisions, just intended to address Policy 11 and sensitive activities, but also responds to Policy 10. For example "underbuild" whether or not relating to sensitive activities can significantly compromise the operation, maintenance, upgrading, and development of the electricity transmission network.
- 34 Policy 12 addresses the need for territorial authorities to identify the electricity transmission network on their relevant planning maps (the National Grid Yard is shown in the AUP), while Policies 13 and 14 address long term strategic planning for transmission assets (e.g. recognition of the designation process in district plans for new transmission lines (Policy 13), and objectives, policies and methods in regional planning instruments to facilitate long term planning for electricity transmission assets (Policy 14)).
- 35 The NPSET objective and policies therefore provide strong national direction on the need for the project design and any conditions on the designations and resource consents to ensure that Transpower's assets are appropriately protected and provided for during project construction and future operation. Further, the NPSET provides a policy framework for considering future resource consent applications to relocate Transpower assets including considering technical and operational requirements of the transmission network and providing of the reasonable operational, maintenance and minor upgrade requirements of established electricity transmission assets. The policy framework also supports the use of buffer corridor provisions in the AUP to protect Transpower overhead lines, (including any relocated lines) from the activities of third parties.
- 36 I agree with the evidence of Ms Andrea Rickard⁴ for the NZTA that, regarding her analysis of the NPSET, key considerations for the East West Link project are:
- 36.1 The importance of reliable and secure electricity supply provided by the National Grid (which in her view also underpins the concept of "wellbeing" in section 5 of the RMA); and
 - 36.2 Providing for the protection of the National Grid (as a physical resource – also with reference to section 5 of the RMA) before, during and after construction of the Project.

² Defined in the NPSET as *includes schools, residential buildings and hospitals*.

³ The current National Grid Corridor in the AUP only applies to a buffer area around National Grid substations and specified roads leading into substations.

⁴ Paragraph 10.19, EIC, Ms Andrea Rickard

AUUCKLAND UNITARY PLAN, OPERATIVE IN PART (AUP)

Overall Policy Framework

- 37 Regional policy statements and district and regional plans are required to give effect to the NPSET. The AUP includes objectives, policies and rules to protect National Grid transmission lines from the adverse effects of activities by other parties. These provisions are now largely operative aside from two specific clauses of policy D26.3(1) and a limited number of rules (see section D26 – National Grid Corridor Overlay).
- 38 In addition to the specific policy provisions for National Grid Corridors, Section B3.2 Infrastructure of the Regional Policy Statement in the AUP, and Section E26 Network Utilities and Electricity Generation which includes Auckland-Wide district and regional plan objectives and policies, includes numerous provisions to provide for and protect network utilities which would also apply to works affecting the Southdown Substation in addition to overhead transmission lines.
- 39 Objective B3.2.1(7) in the RPS states:
- The national significance of the National Grid is recognised and provided for and its effective development, operation, maintenance and upgrading are enabled.*
- 40 Objective 1 of section D26.2 National Grid Corridor Overlay states:
- The efficient development, operation, maintenance and upgrading of the National Grid is not compromised by subdivision, use and development.*
- 41 There are a number of policies to support this objective. Of particular relevance to this project, Policy 1 (those aspects not still subject to appeal)⁵ requires subdivision use and development within National Grid Corridors (among other things) to be undertaken so that it:
- 41.1 Meets the requirements of NZECP34: 2001;
 - 41.2 Does not compromise the security of supply of National Grid;
 - 41.3 Does not compromise ongoing access to transmission lines for maintenance and upgrading; and
 - 41.4 Manages all activities to avoid exposure to health and safety risk from the National Grid
- 42 The policy framework at the regional and district plan level for network utilities in Section E26:
- 42.1 recognises and provides for the National Significance of the National Grid;

⁵ Elements Policy 1 still subject to appeal by Transpower include clause (i) addressing sensitive activities in National Grid Yards in certain zones, and Clause (j) dealing with buildings in National Grid Yards in rural and future urban zones which are not directly applicable to the East West Link Project.

- 42.2 recognises the need for resilient infrastructure and continuity of service;
 - 42.3 provides for the development, operation, maintenance, repair and removal of infrastructure throughout Auckland;
 - 42.4 requires recognition of the benefits of infrastructure and value of investment in infrastructure;
 - 42.5 requires infrastructure to be appropriately protected from the adverse effects of subdivision, use and development; and
 - 42.6 requires the adverse effects of infrastructure to be avoided, remedied or mitigated.
- 43 Whilst the delivery of key transport infrastructure is also a key consideration and has support at a policy level within the AUP, the relief being sought by Transpower in this submission, which is essentially to appropriately integrate the operation, maintenance, upgrading and future development of National Grid infrastructure into the NZTA project should it be approved, is in my opinion required by the relevant objectives and policies of the AUP.

Third Party Matters

- 44 Existing rules in the AUP, and potential changes that may result from the outcome of Transpower appeals to the Environment Court and High Court, have the potential to impact on the activities of third parties on land beyond that being acquired by the NZTA for their project if Transpower assets are relocated.
- 45 Rule D24.4.1(A11) in the National Grid Corridor Overlay rules provides for "*any new building or structure, and alterations, that is not for activities sensitive to the national grid*"⁶ as a permitted activity, and under (A5) "*any activity not otherwise provided for*" is a non-complying activity. Transpower has appealed rules A5 and A11 to the High Court. I understand that the outcome it is seeking is for the activities currently authorised as permitted activities under A11 to become non-complying activities in areas not already compromised by urban development so that clear corridors can be maintained in areas yet to urbanise. I understand that the areas of the East West Project where Transpower assets may need to move are considered by Transpower to be areas already compromised by urbanisation, and any buildings and activities (not defined as activities sensitive to the National Grid) and earthworks complying with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001) as outlined below would remain as a permitted activity if the appeal is successful.
- 46 The AUP controls land disturbance (earthworks) within the National Grid Yard. The District Plan standards are equivalent to those included in the NZECP. Where these standards are met an activity is permitted in regard to earthworks. Where the standards are not met, consent as a restricted discretionary activity is generally required in regard to earthworks exceeding certain restrictions on depth in relation to distances from support structures. However, where earthworks will result in an unstable batter that will affect a National Grid support structure, or

⁶ The AUP defines **Activities Sensitive to the National Grid** as *Any dwellings, papakāinga, visitor accommodation, boarding houses, integrated residential development, retirement villages, supported residential care, education facilities, hospitals and healthcare facilities and care centres.*

where it will result in a reduction in ground to conductor clearances below what is required by Table 4 of the NZECP, earthworks become a non-complying activity. There are no appeals to these particular provisions.

- 47 Transpower has lodged an appeal in the Environment Court seeking the introduction of a National Grid Corridor which is based on the maximum extent of line swing (37, from the centreline for a 220kV transmission line such as the HEN-OTA A). It's High Court appeal also includes the subdivision rules that apply to the National Grid Corridor Overlay (D26.4.1A22-A26) to seek a set of subdivision rules that, broadly speaking, seek to make a subdivision creating a new lot with a building platform within a National Grid Yard non-complying for sensitive activities, and non-complying for other activities but only in areas of the National Grid that are not yet compromised (e.g. by urban development).
- 48 The current version of the rules in the AUP would only provide for a new building platform in National Grid Yard as a non-complying activity where it was for activities sensitive to the National Grid in residential, business, open space and special purpose zones, and in other respects would fall back to the general subdivision standards for the particular zone. I understand that the intent of the rules changes being sought by Transpower in its appeals is to avoid creating new lots where building sites for sensitive activities, and for other activities in areas not yet compromised, are not located immediately under transmission lines. This will assist in ensuring that subdivisions are suitably laid out to take risks from transmission lines and the need to retain practical access to transmission lines and support structures into account. Transpower's approach does not seek to restrict land uses per se in this wider corridor outside of the National Grid Yard.
- 49 I understand, if Transpower's lines are moved as a consequence of the East West project, the planning maps will need to be updated to show the new location of the National Grid Yard and, depending on the outcome of the appeals, the National Grid Corridor around National Grid overhead lines. However, as I explain below, my understanding is that the Yard and Corridor will always fall within the easement area obtained by Transpower that provide the property right to authorise the assets in their new location. On that basis, the planning restrictions or effects of a relocated National Grid Yard and Corridor will be little or no different to those acquired under the property rights process.

RESOURCE MANAGEMENT (NATIONAL ENVIRONMENTAL STANDARDS FOR ELECTRICITY TRANSMISSION ACTIVITIES REGULATIONS 2009 (NESETA)

- 50 The NESETA came into effect on 14 January 2010 and applies to existing (as at 14 January 2010) high voltage transmission lines owned and operated by Transpower (i.e. existing National Grid transmission lines). The NESETA:
 - 50.1 specifies activities that relate to the operation, maintenance, upgrading, removal or relocation of existing transmission lines that are permitted activities, subject to terms and conditions to ensure that these activities do not have significant adverse effects; and
 - 50.2 specifies resource consent requirements for transmission lines that do not meet the terms and conditions for permitted activities, or are not otherwise described in the regulations as permitted, controlled, restricted discretionary or non-complying activities.

- 51 The NESETA is a self-contained rules regime applying to existing transmission lines and ancillary earthworks instead of the AUP, other than where specified in the regulations to the contrary (e.g. earthworks requiring regional consents). The scope of the NESETA would cover relocation of support structures and undergrounding of existing lines. It does not cover activities relating to substation works. Whilst the NESETA includes district plan level rules for disturbing contaminated land (Regulations 33(9) and Regulation 36), Transpower has previously received legal advice that consent for disturbing contaminated land under the NESETA is not required where an equivalent consent for such is required under rules in a regional plan⁷.
- 52 Any subsequent changes to Transpower transmission lines resulting from the NZTA project will require a number of resource consents under the NESETA, and potentially some additional regional resource consents such as the discharge of stormwater from earthworks in areas that may be subject to elevated concentrations of contaminants. The final extent of any consents required under the NESETA and the AUP is subject to further design work by Transpower. Whilst this design process has commenced, it is subject to change should any changes be made to the NZTA project design through the course of the Board of Inquiry proceedings. Should any of the necessary consents for Transpower works not be granted, there may be implications for the NZTA project design.
- 53 The likely resource consents required for the provisional high level designs for Transpower infrastructure is discussed further later in my evidence and is summarised in Appendix A to my evidence. The possibility of notification of applications for elements of the Transpower works cannot be precluded at this stage.

**NEW ZEALAND ELECTRICAL CODE OF PRACTICE FOR ELECTRICAL SAFE DISTANCES
(NZECP 34:2001)**

- 54 NZECP34:2001 (or "the NZECP") is a mandatory code of practice pursuant to the Electricity Act 1992 which sets minimum safe distances from overhead transmission lines to protect persons, property, vehicles and mobile plant from harm or damage from electrical hazards. The NZECP establishes clearance distances to buildings and structures, the ground (including stockpiles of earth), and other lines, as well as how close buildings, structures and excavations can occur to poles and towers. Transpower is able to grant dispensations in certain circumstances to meeting these minimum requirements in terms of National Grid transmission lines.
- 55 Designation Condition NU.3 as notified included a general obligation for works to meet NZECP34: 2001. The NZECP is administered by Worksafe New Zealand, and prior to that by other Government entities. I understand that Transpower has experienced regular instances where development does not comply with the NZECP, often due to people not being aware of their obligations, and enforcement of it relies on agencies such as Transpower making Worksafe aware of any breaches after they have already occurred. Accordingly, Transpower routinely seeks specific conditions based on the NZECP requirements on designations and resource consents to ensure the obligations are clear for consent holders and are enforceable under the RMA.

⁷ See NESETA Regulation 4(2)(f).

- 56 Transpower's submission sought that proposed Condition NU.3 be expanded out into a number separate conditions to draw more attention to the particular standards to be met in relation to matters such as excavation controls near structures, stockpiling of material under conductors and clearances for mobile plant operating near and underneath Transpower conductors. The purpose of this was to make it less likely that contractors will not be aware of the requirements, thus reducing risk to National Grid assets as well as the health and safety of contractors and the public. The evidence of Ms Lesley Hopkin's proposes some alternative amendments to the conditions to address this submission which I discuss separately later in my evidence.
- 57 As outlined in the evidence of Mr Noble, the design information provided to date shows that the NZTA will need to apply to Transpower for dispensations from NZECP:34 2001 in some instances (e.g. where excavations near transmission line support structures exceed the permitted standards). If dispensations cannot be granted, further tower/conductor relocation work may be required, or alternatively, the road works moved further from the National Grid assets.

LIKELY CONSENTS AND ISSUES FOR TRANSPOWER WORKS

Transmission Lines

- 58 As previously outlined, Transpower will require several consents under the NESETA to relocate transmission line assets to accommodate the East West Link project. Likely consent requirements under the NESETA based on current information from the NZTA on project design and the high-level assessments undertaken by Transpower to date are set out in Appendix A to my evidence.
- 59 Some regional consents may also be required under the AUP in relation to discharge of sediment from land disturbance where there are elevated levels of contaminants for both asset relocations and removal, and foundation strengthening for assets remaining in place. This is yet to be determined as no specific investigations have been undertaken at this stage into ground contamination around Transpower's towers and potential new structure locations. However, based on other projects I have been involved with, these particular consents if required are unlikely to be contentious subject to Transpower preparing and implementing a suitable Site Management Plan (SMP) during construction works.
- 60 Whilst the AUP includes specific rules on the taking and diversion of water associated with construction dewatering, I understand from discussions with Transpower engineers that it is likely any dewatering of pile foundations for new monopoles would meet the permitted activity standards in the AUP should any short-term construction dewatering be required.
- 61 A number of likely works such as foundation strengthening and tower/cross arm upgrading/reconfiguration where the tower does not need to be moved would be a permitted activity under Regulation 14 of the NESETA. I understand from the additional design information provided to Transpower by the NZTA following the close of submissions that MNG-ROS A Tower 33 and HEN-OTA A Tower 31 located near the Onehunga foreshore will not require relocation or any height increases, and as such will not require any resource consents under the NESETA for changes

to the tower form or location. Whilst foundation strengthening may be required for MNG-ROS A Tower 33 which is located within an Outstanding Natural Feature in the AUP (ID46 Hopua explosion crater and tuff exposure), I am advised by Transpower engineers that the amount of land disturbance would be unlikely to exceed 50m³ (which is the permitted activity threshold for earthworks in natural areas in the NESETA), and thus will not trigger an earthworks consent under the NESETA (i.e. is permitted under Regulation 33(2)). Accordingly, based on current design information, my analysis of the NESETA is that no NESETA resource consents will be required under the regulations for any proposed Transpower works in the visually and geologically sensitive areas at the Onehunga end of the works. As previously outlined, I would anticipate any AUP regional consent for ground contamination to be relatively routine if a suitable SMP to manage the effects of disturbing contaminated soil is in place.

- 62 Transpower's high level design calls for the replacement of several existing towers with new double circuit monopole structures. Structure relocation works of this nature are either permitted, controlled or restricted discretionary activities under the NESETA, depending on whether certain conditions are met including but not limited to the extent of any height increase and lateral shift (Regulations 14, 15 and 16). Existing assets requiring relocation based on the current design information are all HEN-OTA A structures including Tower 9 located adjacent to the Southern Motorway adjacent to Luke Street/Deas Place, Towers 14 and 15 in the 'Tip Top Corner' area on and adjacent to the Turners and Growers site, and Towers 18 and 19 either side of the proposed Great South Road overpass.
- 63 Whilst detailed engineering design has yet to be completed to confirm the exact extent of any required shift and increase in height, it is anticipated that at least some of these structure relocations will trigger a worst-case resource consent status of a restricted discretionary activity under Regulation 16 of the NESETA. The matters of discretion in Regulation 16 include:
- 63.1 Visual, landscape and ecological effects;
 - 63.2 Effects on historic heritage;
 - 63.3 Effects on sensitive land uses;
 - 63.4 Earthworks;
 - 63.5 Effects and timing of construction works.
- 64 The term "*Sensitive Activities*" is defined in the NPSET as "*includes schools, residential buildings and hospitals*", whilst "*Activities Sensitive to the National Grid*" is defined in the AUP as "*any dwellings, papakainga, visitor accommodation, boarding houses, integrated residential development, retirement villages, supported residential care, education facilities, hospitals and healthcare facilities and care centre*". I am unaware of any sensitive land uses in terms of these definitions likely to be directly impacted on by the proposed relocation of Transpower assets. Property rights issues on third parties aside which I discuss separately below, for any new Transpower monopoles to replace existing Towers I would envisage that the principal consenting risk for any new structures for this particular project would be in regard to visual effects. Transpower is yet to undertake its own visual assessment of the likely visual effects of the tower

relocation works as it is yet to confirm final design solutions. However, I note that the general visual effects of these works have been considered in the evidence of Mr Lister who has filed landscape and visual evidence on behalf of the NZTA⁸. His evidence concludes that the changes to the transmission line will not have adverse visual effects of any significance.

- 65 The Transpower high level design also includes the need for some new intermediate structures (double circuit monopoles) to provide sufficient safe electrical clearances over roads. This includes proposed new structure 15B adjacent to the new motorway ramps in the 'Tip Top Corner' area, and a new structure 19B immediately adjacent to the Southdown Substation to provide the necessary clearances over the proposed extension to Hugo Johnson Drive. These new structures would require resource consent as a discretionary activity under Regulation 39 of the NESETA. As with the proposed structure relocations, subject to obtaining any necessary property rights, in my opinion the greatest consenting risk for these structures would be in regard to visual effects. Mr Lister's evidence has considered the proposed new structure 15B and as previously outlined reaches the conclusion that the changes to the transmission line will not have adverse visual effects of any significance.
- 66 I note that Mr Lister's evidence does not make specific reference to proposed new structure 19B located adjacent to the Southdown Substation. However, as this structure would be erected in an area within the Business – Heavy Industry Zone with amenity values characterised by the substation and Mercury electricity generation infrastructure, I would envisage that consenting risk for this particular structure in terms of visual effects would be generally low. I have discussed this additional structure with Mr Lister and I understand that he will confirm in his rebuttal evidence that there would not be any adverse visual effects of any significance.
- 67 I have read the Cultural Effects evidence of Ms Linzey and the summary of the effects on values of importance to mana whenua submitted with the application material. From this material, I am not aware of any specific adverse cultural effects that may result from the Transpower works, although I note that at a minimum there will need to be suitable discovery protocols and potentially cultural monitoring in place for any works. The extent of any adverse cultural effects if any would need to be confirmed with relevant mana whenua groups at an appropriate time when there is more certainty around the scope of Transpower works.

Effects on Third Parties from Changes to Transmission Lines

- 68 As previously outlined, the AUP includes a National Grid Yard affecting an area 12m from the outer visible foundation of any National Grid support structure and 12m from the centre line of any National Grid overhead transmission line. Transpower is also seeking through appeals a wider National Grid Corridor, primarily designed to manage subdivisions, which applies to a wider area influenced by the maximum extent of line swing. In the case of the HEN-OTA A line, the corridor width sought in the appeal is 37m either side of the centre line of the transmission line. Should any of the Transpower transmission lines be moved, these areas that include restrictions in the AUP may affect additional land

⁸ Paragraph 8.60(b), EIC, Mr Gavin Lister

outside of the NZTA designations and thus may impact on the activities of the owners and occupiers of those properties affected.

- 69 Whilst these 'planning consequence' effects are not included in the matters of discretion for restricted discretionary activities in the NESETA, they could be considerations for new structures such as proposed structures 15B and 19B.
- 70 I understand that where Transpower relocates any transmission line, it loses its property rights protection under the Electricity Act 1992, and needs to obtain a property right for any additional areas affected by its lines (including line swing in airspace). Accordingly, Transpower would need to acquire easements for any areas affected beyond the areas being designated for road purposes by the NZTA. I understand that this is likely to affect parts of the Turners and Growers site, as well as commercial properties immediately north of the proposed NZTA designation adjacent to the HEN-OTA A transmission line where Towers 19 and 18 need to be replaced and moved clear of the new road alignment. The locations of these existing towers overlaid on an aerial photo with the current extent of the National Grid Yard in the AUP included are shown on Figure 4 of Appendix A to my evidence. The proposed NZTA designation line is not overlaid on that figure but can be seen for comparative reference on Sheet 8 of the NZTA drawing set (Set 3 Road Alignment and Set 12 Utilities Relocation).
- 71 I understand that the restrictions on any easements Transpower would obtain would likely be more restrictive than the rules in the AUP, and as such the rules of the AUP would not impose any additional restrictions on third parties over and above any restrictions that will be imposed through any easements obtained. That said, the relocation of Transpower assets will result in some adverse effects on other properties such as the Turners and Growers site due to the restrictions that will be placed on other land either through the acquisition of property rights and/or planning restrictions that would follow limiting the use of that land. These 'flow-on' effects will need to be considered by the Board of Inquiry in weighing the overall effects (positive and negative) of the project.
- 72 Constructing temporary line deviations (bypasses) on or adjacent to private land may also temporarily impact on the owners and occupiers of affected land during project construction. These construction effects can reasonably be considered in any resource consents under the NESETA. I understand that Transpower does not require an easement for temporary construction line deviations although still needs to obtain an interest in the land such as a license, and that the AUP National Grid Corridor Overlay rules would not apply to such temporary line deviations. AUP rules aside, in a practical sense land owners/occupiers would still need to comply with the NZECP for any land use and earthworks activities undertaken whilst these temporary line deviations were in place. Temporary line deviations are permitted activities where any necessary structures are erected no earlier than 60 working days before the works to undertake the maintenance or upgrading (tower replacement) commences and are removed no more than 60 working days after the end of these works, or are a worst case controlled activity where these timeframes cannot be met, so could not be declined although consent conditions could be imposed

Southdown Substation

- 73 I understand that some reconfiguration of the Southdown Substation itself will be required as the NZTA project impacts on an existing transformer and related infrastructure which I understand is critical to Kiwi Rail for the Auckland electrified rail system. I understand from Mr Nobel's evidence that the overall substation includes a 220kV substation associated with the HEN-OTA A transmission line, as this was previously a grid injection point from the adjacent Mercury power station (power station is currently in operation), and well as infrastructure specifically related to Kiwi Rail for the Auckland electrified rail network (referred to by Mr Nobel as the Kiwi Rail substation. As outlined in the evidence of Mr Noble, the Kiwi Rail transformer will need to move to a new location, potentially at a completely new site away from Southdown. The Southdown Substation is not designated by Transpower, and substation work is not covered by the NESETA. Therefore, any reconfiguration of the substation will fall to be assessed under the AUP. A plan attached as Appendix E to My Noble's evidence confirms the extent of the substation, which I then refer to in a proposed condition in regard to that substation to provide certainty as to when the proposed condition is triggered.
- 74 The substation is located in the Business - Heavy Industry Zone. Unenclosed substations are a restricted discretionary activity in this AUP zone. Works beyond the AUP definition of *minor infrastructure upgrading* would require resource consent as a restricted discretionary activity on this site. Potentially the equipment could be relocated to another substation that is designated and be undertaken as an outline plan or works, or a completely new substation site may be required which would likely need to be designated.
- 75 Other consents under the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2001* and AUP are also likely to be required due to the nature of activities undertaken within the substation which may have resulted in the soils having elevated concentration levels of contaminants.

UNDERGROUNDING OF TRANSPOWER TRANSMISSION LINES

- 76 Some submitters have sought that the NZTA project provide for the undergrounding of Transpower overhead lines as mitigation for the East-West link Project. In particular, Panuku Auckland is seeking that part of the MGN-ROS A line is placed underground in the Onehunga foreshore area. I note *that* none of Transpower's structures need to be relocated or increased in height in this locality, with the most substantive works to Transpower assets occurring in relation to the HEN-OTA A line in areas located well away from the Onehunga foreshore.
- 77 The evidence of Mr Noble sets out some of practical and operational constraints with undergrounding Transpower overhead lines, some of the possible high levels costs, and the termination infrastructure required at each end of an underground section.
- 78 I am aware of other instances where Transpower has agreed to underground lines where this is funded by the entity seeking that the lines be placed underground. For example, this occurred though Westgate and the new Massey North Town Centre, whilst my company has recently obtained resource consents on behalf of

Transpower to place a 110kV line underground in the Ruakura area of Hamilton to assist with the development of land for residential purposes, which in that instance I understand was fully funded by the developer.

- 79 Were Transpower to agree to underground any of its lines, the works would be subject to resource consents under the NESETA and certain provisions of the AUP. The undergrounding of existing overhead transmission lines per se including any associated termination structure is a controlled activity under Regulations 12 and 15(3), provided certain standards are met. These standards include a maximum allowable height increase for a termination structure of up to 15% higher than any structure being replaced, complying with any height restrictions for airport purposes or within a public view shaft in a district plan, and not being located within 12m horizontally of any occupied building (or not closer to an occupied building if the structure being replaced is already within 12m). If these standards are not met, a termination structure would be Restricted Discretionary Activity under Regulation 16(2).
- 80 Any related earthworks for undergrounding would likely require resource consents. Under the NESETA earthworks consents are required at least due to the presence of the Outstanding Natural Feature (the permitted earthworks threshold in such areas in Regulation 33(2) is 50m³), and potentially in terms of works affecting any areas of historic heritage and/or contamination. However, as AUP regional consents for earthworks are expected to be required, particularly where the Outstanding Natural Feature is crossed, and potentially in regard to other historic heritage and ecological overlays, duplicate NESETA consents for the same matters are arguably not needed in terms of Regulation 4(2)(f) (i.e. the NESETA regulations do not apply to earthworks to the extent that they are subject to a regional rule). The extent of any potential property effects has not been investigated, but Transpower would also need to acquire easements over any affected properties.
- 81 I understand from the evidence of Mr Noble that the technical, practical and cost challenges of undergrounding the HEN-OTA A line in particular would be substantial, would affect a large corridor which would potentially impact on important ecological and geological features and likely impact on a substantial number of properties, and that substantial transition stations would be required at either end of the underground section that would have visual effects more akin to a substation. As these transition stations would involve more than a simple termination structure and would require other infrastructure such as large gantries, resource consent for these transition stations (aside from any AUP consents for earthworks) would be required as a discretionary activity under Regulation 39 of the NESETA.
- 82 As previously outlined in my evidence, in my opinion the NPSET does not place any particular obligation on Transpower to underground lines as part of a relocation of assets to accommodate a roading project. Whilst Policy 6 of the NPSET requires substantial upgrades of transmission infrastructure to be used as an opportunity to reduce existing adverse effects of transmission including such effects on sensitive activities where appropriate, the current scope of work Transpower proposes to undertake is not in my view a substantial upgrade of existing transmission lines. Nor does Policy 6, even if it were to apply, specifically require undergrounding. The HEN-OTA A line will remain on the same general alignment, and the visual and landscape assessment of Mr Lister concludes that

changes to the transmission line will not have adverse visual effects of any significance.

APPLICANT'S PROPOSED CONDITIONS

- 83 Transpower's submission sought several specific conditions to be placed on the designations, as well as seeking more general relief in regard to:
- 83.1 Imposing a "condition precedent" that will prevent works in the vicinity of Transpower assets until all detailed assessments are complete, mitigations put in place, necessary approvals have been obtained where relocations are required, and assets relocated/constructed;
 - 83.2 A further condition that enables Transpower to be involved in the tender process for contractor engagement and contractor briefings; and
 - 83.3 As the design of the project or other conditions may be amended as part of the Board of Inquiry process, other relief that may be necessary to address the general matters raised in the Transpower submission.
- 84 Conditions are addressed in the planning evidence of Ms Lesley Hopkins filed on behalf of the NZTA. Ms Hopkins has suggested several changes to the conditions to address matters raised in the Transpower submission. These changes all relate to the Network Utilities (NU) conditions on the designations⁹. The amendments and related commentary accept in principle the outcomes Transpower is seeking, but seek some different changes in the detail of the conditions to those sought by Transpower to achieve these outcomes.
- 85 Some further changes I recommend to the version of conditions attached to Ms Hopkins' evidence are attached in Appendix B to my evidence.

Compliance with NZECP 34: 2001

- 86 A number of Transpower's proposed conditions/conditions changes were to ensure there was a more clearly expressed obligation to meet certain compliance requirements of the NZECP that the more general obligation in condition NU.3 as notified, particularly to ensure contractors are aware of their obligations. Ms Hopkins agrees that it is appropriate that the conditions include further detail on the particular restrictions and requirements under the NZECP that may apply, but prefers to simplify the conditions with the detail able to be included in the Network Utilities Management Plan (NUMP) which will be prepared in consultation with Transpower¹⁰.
- 87 The changes proposed by Ms Hopkins are not designed to lessen any obligations on contractors, but rather to reduce the complexity of the conditions and enable the detail to be included in the NUMP. In my view this approach is satisfactory provided there is sufficient detail included in the NUMP, and provided there are suitable contractual arrangements in place with contractors and suitable briefing of contractors to ensure relevant obligations are met. I note that Transpower's

⁹ Appendix A, pages 18-15. EIC, Ms Lesley Hopkins

¹⁰ Paragraph 15.70. EIC, Ms Lesley Hopkins

request to include a condition to enable it to be involved in tender/contract and contractor briefing processes has not been adopted in Ms Hopkins conditions set.

- 88 The evidence of Mr Nancekivell¹¹ on design and construction matters for the NZTA states that the Transport Agency is committed to addressing Transpower's concerns around contractor compliance and is willing to involve Transpower in the tender process. Given this commitment on behalf of the NZTA, in my opinion it is appropriate to include a specific condition requiring the NZTA to provide Transpower with the opportunity to be involved in contractor briefings relating to compliance with the NZECP and works in close proximity to the Southdown Substation. I have recommended an additional clause to the proposed NUMP condition to address this. In my opinion, a condition clause of this nature, given the complexity of this project in relation to existing transmission assets, lessens the risks associated with being less specific about the particular NZECP conditions within the conditions themselves as sought in the Transpower submission.
- 89 Ms Hopkins recommends that Transpower's proposed Condition NU.5 to address the risk of Earth Potential Rise (EPR) and transferred voltages be incorporated into Condition NU.3. In my opinion this is achieving an equivalent outcome and I support this amendment.

NUMP Notice Period

- 90 Transpower's submission sought that the NUMP be provided to it for review and comment at least 6 months prior to it being submitted to the Council as required by Condition NU.2 (proposed Condition NU.4 in Transpower submission). Ms Hopkins has pointed out a number of practical constraints in achieving this timeframe, and instead suggests a 40-working day period prior to the commencement of construction. She also notes that the NZTA would in practice be talking to Transpower ahead of this 40-working day period as the draft NUMP is developed. I note that Condition NU.1 already includes an obligation that the NUMP is developed in consultation with the relevant infrastructure providers, which can occur ahead of this 40-working day period.
- 91 Based on the practical limitations Ms Hopkin's has outlined with providing for a 6-month period for Transpower to review the NUMP ahead of it being submitted to the Council (essentially 7 months before construction is commenced), I consider the revised condition proposed by Ms Hopkins to be reasonable.

Operational Access to Transpower Assets

- 92 Transpower's submission sought a new condition (NU.10) to ensure ongoing access to Transpower assets both during construction and once the roads become operational. This condition has not been adopted in Ms Hopkin's evidence. This is presumably in reliance on the more general Condition NU.1(a) which includes an obligation for the NZTA to include measures and methods in the NUMP to ensure that critical infrastructure can be accessed for maintenance at all reasonable times, or emergency at all times, during and after construction activities.
- 93 As the NUMP will not apply following completion of construction, I prefer the approach taken in the Transpower submission to seek a direct obligation in the

¹¹ Paragraph 15.86(b), EIC, Mr Noel Nancekivell

designation conditions to ensure ongoing practical access is provided to Transpower structures once the works authorised by the designations become operational. I accept that the condition should be worded to ensure for situations where practical access is across private land and the NZTA project does not alter that access, that there would be no obligation on the NZTA to provide access if for some reason that private access was removed by another party. To this end I generally support proposed Condition NU.10 as initially sought by Transpower in its submission, with minor amendments as included in Appendix B to this evidence.

Southdown Substation

- 94 Condition NU.11 proposed in the Transpower submission was a condition precedent requiring a solution to the relocation of the Kiwi Rail transformer to be confirmed and a new transformer and related infrastructure to be commissioned before works can be undertaken affecting this transformer and related infrastructure. Ms Hopkins has suggested an alternative condition (NU.6) requiring a more general obligation for the NZTA to work with Mercury, Transpower, Vector, Kiwi Rail and Auckland Transport to confirm any works and associated methodology on and around the Southdown Substation to mitigate any potential risk to the rail network and ensure continuity of electricity supply.
- 95 Given the critical nature of the Kiwi Rail transformer, in my view the proposed Transpower condition provides a higher degree of protection to this critical asset within the substation until such time that a suitable alternative solution is implemented. On that basis, I prefer the condition proposed by Transpower in its submission, although I note that can be provided in conjunction with the condition proposed by Ms Hopkins as set out in Appendix B to my evidence, and referenced to a specific plan to make it clear what comprises the substation to provide certainty around when the condition is triggered.

General Condition Precedent

- 96 Transpower also sought by way of relief in its submission a general condition precedent to prevent works in the vicinity of Transpower assets until all detailed assessments are complete, mitigations put in place, necessary approvals have been obtained where relocations are required, and assets relocated/constructed¹². I accept this this requested relief point is somewhat uncertain for the NZTA and I understand was sought primarily to preserve Transpower's position while it worked through updated NZTA design information to ensure there is actually a workable solution for all Transpower structures and conductor spans. However, as in practice the NZTA project cannot reasonably proceed until certain Transpower assets are relocated, the obligations in the proposed conditions for the NZTA and its contractors to meet the requirements of the NZECP, given any works that cannot meet the NZECP are not able to proceed without Transpower first granting dispensations, and given Transpower's role in the NUMP preparation and requested role in contractor briefing, in my view there are sufficient protections in place to not need a general condition precedent as requested in the submission. A condition to address the Southdown Substation situation can be addressed separately in the conditions as previously outlined.

¹² Paragraph 4.2, Page 9, Transpower submission

CONCLUSIONS

- 97 In my opinion, subject to appropriate conditions being imposed and the NZTA working with Transpower to relocate existing assets that cannot practically or safely remain in place, the NZTA can implement its project and achieve its transportation objectives without it being contrary to the NPSET and having unreasonable risks on the National Grid.
- 98 A number of conditions are proposed by the NZTA, including amendments made in response to Transpower's submission, which in principle seek the same outcomes as those sought by Transpower. In general I support the network utility conditions proposed by Ms Hopkins, albeit with some differences of view in how to achieve these outcomes in the detail of the conditions. I have suggested some changes to conditions to address this.
- 99 In addition to measures to protect existing Transpower assets, relocation of some transmission line support structures and the addition of further structures will be required that will require resource consents. Based on current information on the likely nature of Transpower works required, the policy framework of the NPSET and AUP, information provided in the Applicant's assessment of environmental effects and related evidence reviewed, and in particular the preliminary visual assessment undertaken by Mr Lister on behalf of the NZTA, I consider it likely that resource consents for these works would be able to be obtained, particularly if any necessary property rights to facilitate these works are obtained. However, the relocation of Transpower assets will result in some adverse effects on other properties such as the Turners and Growers site due to the restrictions that will be placed on other land either through the acquisition of property rights and/or planning restrictions that would follow limiting the use of that land. These 'flow-on' effects will need to be considered by the Board of Inquiry in weighing the overall effects (positive and negative) of the project.

Appendix A:

Transpower Works Consent Requirements

Appendix A: Assessment of Potential NESETA and Auckland Unitary Plan Consents for Transpower Provisional High Level Design Solutions¹

The following tables are an initial assessment of the resource consent requirements under the NESETA and Auckland Unitary Plan (AUP) for Transpower's provisional high level design solutions for the East West Link project based on current information.

Information on the likely scope of works to respond to NZTA designs has been confirmed by Transpower engineers.

Screen shots from the AUP are included where key Transpower works are likely to be required. The AUP map legend with relevant notations highlighted (e.g. overlays and designations) is included at the end of this appendix to assist with interpreting the screen shots.

¹ All issues and provisional Transpower designs are subject to final NZTA project design and further design work by Transpower

Table1: Southern Motorway Segment, HEN-OTA A Towers 7 to 12

Transpower Asset or Structure	General Scope of Works	Likely consent requirements
Towers 7, 8, 10, 11, 12	Foundation strengthening, tower/arm refurbishment.	<p>NESETA Regulation 14 – permitted activity</p> <p>Tower 12 is shown located within Transpower Designation 8502 which is understood to be an AUP mapping error that the Auckland Council has agreed to correct (i.e. Tower 12 is not designated). The description of Designation 8502 in the AUP is <i>Electricity transmission – overhead electricity transmission lines in a corridor between Penrose Substation on Gavin Street and the Tamaki River.</i></p> <p>Foundation strengthening work potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
Tower 9 and Replacement Structure 9A	Replace tower immediately to north with a new monopole of equivalent height.	<p>NESETA Regulation 15 controlled activity or NESETA Regulation 16 Restricted Discretionary Activity, depends on degree of lateral shift required (TBC design). Relevant matters of discretion (Regulation 16) include:</p> <ul style="list-style-type: none"> • Visual, landscape and ecological effects; • Effects on historic heritage; • Effects on sensitive land uses; • Earthworks; • Effects and timing of construction works. <p>Tower 9 is located within Transpower Designation 8509 for the purpose of <i>Electricity transmission - tower site (Tower 9) and associated overhead transmission lines of the Henderson to Otahuhu-A 220kV transmission line.</i> It may not be practical to locate the new monopole will not be located within extent of the existing designation.</p> <p>NESETA Regulation 19: Tower 9 removal is a Permitted Activity.</p>

		Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).
Temporary bypass of Tower 9 to facilitate construction of new replacement monopole.	Erect temporary pole in road reserve of Luke Street/Deas Place and attach conductors to temporary pole during construction.	NESETA Regulation 17, temporary line deviations (and associated temporary structures) are permitted activities subject to being erected no earlier than 60 working days before the start of the required maintenance or upgrading, and removed not later than 60 working days after the end of those works.



Figure 1: HEN-OTA A Tower 9 Works Site:
Source - Auckland Unitary Plan: Part Operative 15 November 2016

Table 2: ‘Tip Top Corner Segment’, HEN-OTA A Towers 13 to 17

Transpower Asset or Structure	General Scope of Works	Likely consent requirements
Tower 13 and Tower 17	Foundation strengthening, tower/arm refurbishment.	<p>NESETA Regulation 14 – permitted activity.</p> <p>Foundation strengthening work potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
Tower 14 and Replacement Structure 14A	Remove Tower 14 and replace with a new monopole structure on Turners and Growers site.	<p>NESETA Regulation 19: Tower 14 removal is a Permitted Activity.</p> <p>NESETA Regulation 16: Replacement monopole likely to be a restricted discretionary activity due to anticipated extent of lateral shift from existing tower footprint. Relevant matters of discretion (Regulation 16) include:</p> <ul style="list-style-type: none"> • Visual, landscape and ecological effects; • Effects on historic heritage; • Effects on sensitive land uses; • Earthworks; • Effects and timing of construction works. <p>Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>

Tower 15 and Replacement Structure 15A	Remove Tower 15 and replace with a new monopole structure provisionally in road reserve adjacent to Turners and Growers site, within the same footprint as existing Tower 15 (a temporary bypass of the line will be constructed to enable this to occur).	<p>NESETA Regulation 19: Tower 15 removal is a Permitted Activity.</p> <p>NESETA Regulation 16: Replacement monopole likely to be a restricted discretionary activity due to a height increase likely to exceed the permitted and controlled activity standard of 15%. Relevant matters of discretion include:</p> <ul style="list-style-type: none"> • Visual, landscape and ecological effects; • Effects on historic heritage; • Effects on sensitive land uses; • Earthworks; • Effects and timing of construction works. <p>Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
Additional Intermediate Structure 15B	Erect additional structure (monopole) to enable sufficient vertical clearances over new motorway ramps.	<p>NESETA Regulation 39: Discretionary activity.</p> <p>Foundation construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity - under Rule E30.4.1(A7)).</p>
Tower 16	Convert Tower 16 to a 'strain' on existing footprint. May require foundation strengthening and additional steel reinforcing within tower envelope and change in insulator configuration.	<p>NESETA Regulation 14 – permitted activity.</p> <p>Foundation strengthening work potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
Temporary Bypass of Towers 14 and 15	Erect temporary poles on Turners and Growers land and/or in road reserve (configuration TBC) and attach conductors to temporary poles during construction of Towers 14A and 15A/B.	NESETA Regulation 17, temporary line deviations (and associated temporary structures) are permitted activities subject to being erected no earlier than 60 working days before the start of the required maintenance or upgrading, and removed not later than 60 working days after the end of those works.

		Foundation construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity - under Rule E30.4.1(A7)).
Reconductoring (various spans)	Undertake reconductoring of various spans to avoid future road closures (including Southern Motorway) and avoid leaving mid span joints over roads at completion of works.	NESETA Regulation 6: Permitted activity.



Figure 2: Tip Top Corner HEN-OTA A Tower 13 and Tower 14 Works Site:
Source: Auckland Unitary Plan: Part Operative 15 November 2016

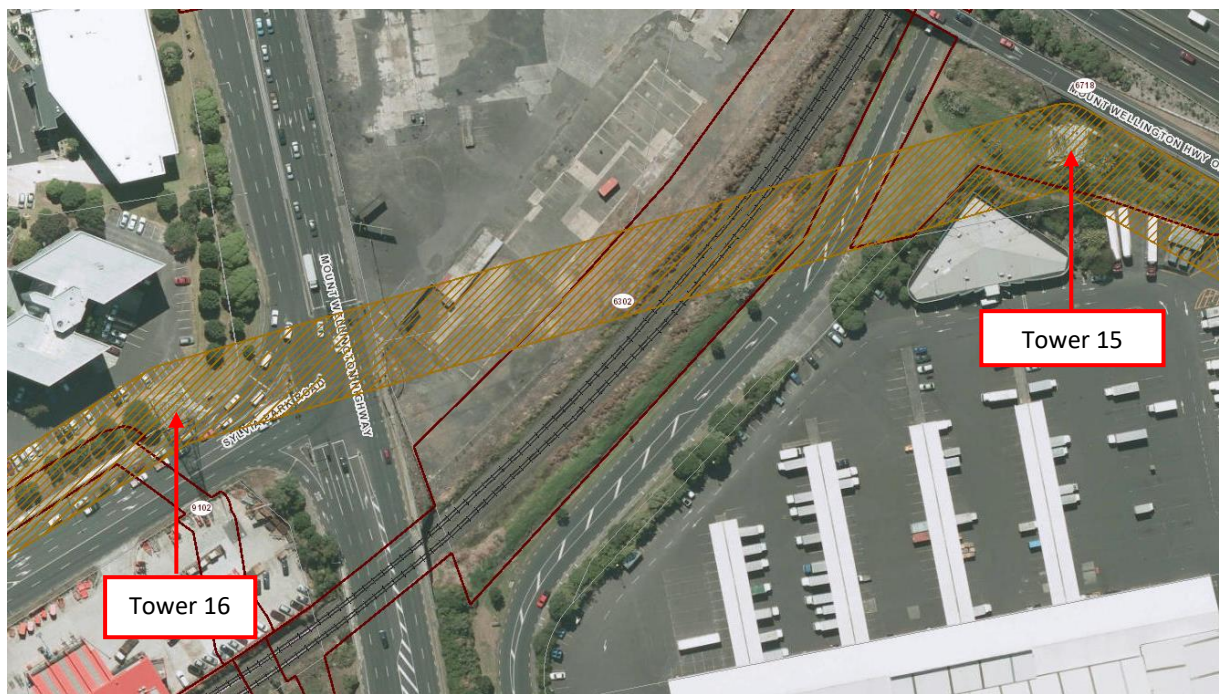


Figure 3: Tip Top Corner Tower 15 and Tower 16 Works Site:
Source Auckland Unitary Plan: Part Operative 15 November 2016

Table 3: Great South Road Overpass Segment, HEN-OTA A Towers 18 and 19

Transpower Asset or Structure	General Scope of Works	Likely consent requirements
Tower 18 and Replacement Structure 18A	Remove Tower 18 and replace with a new monopole provisionally in the order of 8m higher to provide sufficient conductor clearances over new overpass.	<p>NESETA Regulation 19: Tower 18 removal is a Permitted Activity.</p> <p>NESETA Regulation 16: Replacement monopole likely to be a restricted discretionary activity due to anticipated extent of lateral shift from existing tower footprint, and height increase. Relevant matters of discretion include:</p> <ul style="list-style-type: none"> • Visual, landscape and ecological effects; • Effects on historic heritage; • Effects on sensitive land uses; • Earthworks; • Effects and timing of construction works. <p>Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
Tower 19 and Replacement Structure 19A	Remove Tower 19 and replace with a new monopole provisionally in the order of 8m higher to provide sufficient conductor clearances over new overpass.	<p>NESETA Regulation 19: Tower 19 removal is a Permitted Activity.</p> <p>NESETA Regulation 16: Replacement monopole likely to be a restricted discretionary activity due to anticipated extent of lateral shift from existing tower footprint, and height increase. Relevant matters of discretion include:</p> <ul style="list-style-type: none"> • Visual, landscape and ecological effects; • Effects on historic heritage; • Effects on sensitive land uses; • Earthworks; • Effects and timing of construction works. <p>Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>

Temporary Bypass's of Towers 18 and 19	Erect temporary pole(s) on adjacent private land and attach conductors to temporary pole(s) during construction of Towers 18A and 19A.	NESETA Regulation 17, temporary line deviations (and associated temporary structures) are permitted activities subject to being erected no earlier than 60 working days before the start of the required maintenance or upgrading, and removed not later than 60 working days after the end of those works.
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Figure 4: Great South Road Overpass Works Site:
Source - Auckland Unitary Plan: Part Operative 15 November 2016

Table 4: Southdown Substation Segment, Southdown Substation and HEN-OTA A Tower 20

Transpower Asset or Structure	General Scope of Works	Likely consent requirements
New Structure 19B	Erect a new monopole structure between HEN-OTA A Tower 20 and Southdown Substation to provide required vertical clearances over proposed Hugo Johnson Drive extension.	<p>NESETA Regulation 39: New structure required a resource consent as a discretionary activity.</p> <p>Foundation construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity - under Rule E30.4.1(A7)).</p>
Tower 20	No change	NA
Southdown Substation	<p>Relocation of kiwirail transformer to a new location (TBC if a completely new site or within existing substation).</p> <p>Other substation reconfiguration as necessary associated with relocation of the transformer.</p>	<p>Subsection is not designated by Transpower. Works within the substation are not covered by NESETA and are subject to the AUP.</p> <p>Unenclosed substations are a restricted discretionary activity in this AUP zone (Business – Heavy Industry). Works beyond the AUP definition of <i>minor infrastructure upgrading</i> would require resource consent as a restricted discretionary activity on this site. Potentially the equipment could be relocated to another substation that is designated and be undertaken as an outline plan of works.</p> <p>Auckland Council land use consent for land disturbance likely to be required in terms of the <i>Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2001</i> (note that this does not apply to transmission line works undertaken under the NESETA but does apply to the substation). Activity status to be determined by levels of contaminants on site (TBC).</p> <p>Foundation removal and construction potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>

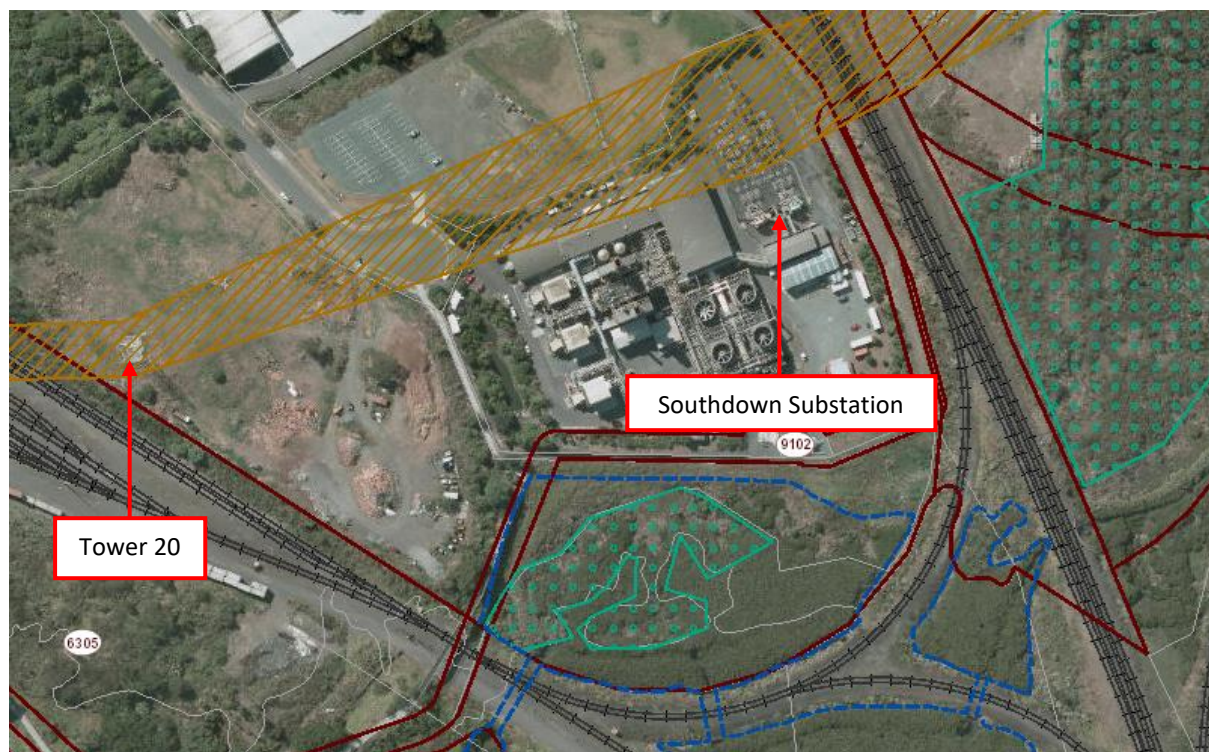


Figure 5: Southdown Substation Works Site:
Source- Auckland Unitary Plan: Part Operative 15 November 2016

Table 5: Onehunga Segment: HEN-OTA A Tower 31, MNG-ROS A Tower 33, PEN ROS A Towers 20-22

Transpower Asset or Structure	General Scope of Works	Likely consent requirements
HEN-OTA A Tower 31	<p>NZTA plans as lodged indicated that the tower may need to move or be increased in height due to location of new ramps.</p> <p>Based on the latest cross sections provided to Transpower, it is understood that the scope of work would now not require any movement or height increase of the tower. NZTA revised design needs to be provided to the Board to confirm this outcome.</p>	<p>No specific work identified at this stage.</p> <p>If foundation strengthening is required, potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
MNG-ROS A Tower 33	<p>NZTA plans as lodged indicated that the tower may need to move or be increased in height due to location of road alignment. More recent cross sections provided to Transpower by NZTA show that the tower can remain.</p> <p>Based on the latest cross sections provided to Transpower, it is understood that the scope of work would now only involve foundation strengthening and arm/insulator reconfiguration. NZTA revised design needs to be provided to the Board to confirm this outcome.</p>	<p>NESETA Regulation 14: Permitted Activity.</p> <p>Whilst excavations for foundation strengthening would occur in an Outstanding Natural Feature in the AUP, up to 50m³ of earthworks is still permitted under NESETA Regulation 33.</p> <p>Works would remain outside AUP <i>extent of heritage place</i> around scout hall under AUP, so permitted under NESETA Regulation 33.</p> <p>Foundation strengthening potentially requires AUP regional discharge consent if the land is assessed as being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>

PEN-ROS A Towers 20-22	Foundation strengthening, tower/arm refurbishment.	<p>NESETA Regulation 14: Permitted Activity.</p> <p>Foundation strengthening potentially requires AUP regional discharge consent if the land is assessed being subject to elevated levels of contaminants and permitted and controlled activity concentration levels are not met (discretionary activity -under Rule E30.4.1(A7)).</p>
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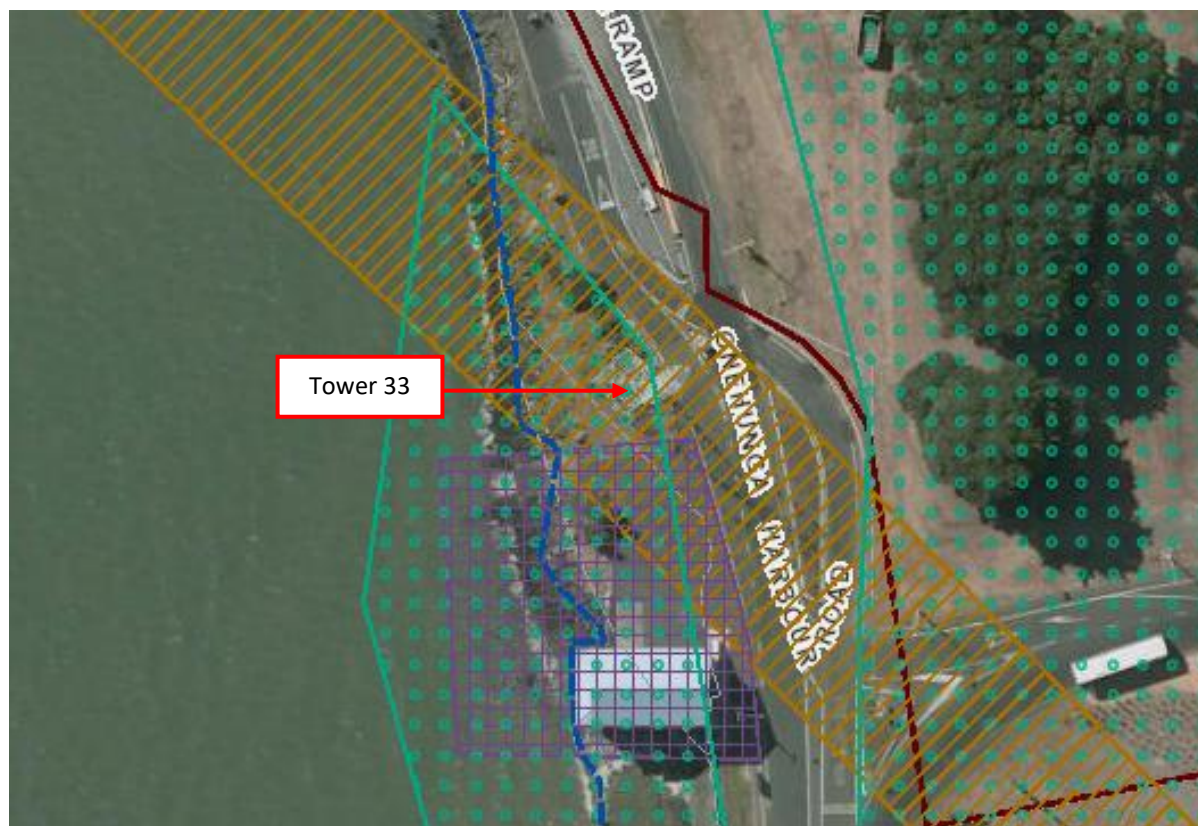


Figure 6: MNG-ROS A Tower 33 Works Site, Onehunga:
Source - Auckland Unitary Plan: Part Operative 15 November 2016

Auckland Unitary Plan Operative in part 15th November 2016 - LEGEND

Appeals

- Properties affected by Appeals seeking change to zones or management layers
- Properties affected by Appeals seeking reinstatement of management layers







Plan Modifications

- Notice of Requirements
- Plan Changes

ZONES

	Residential - Large Lot Zone
	Residential - Rural and Coastal Settlement Zone
	Residential - Single House Zone
	Residential - Mixed Housing Suburban Zone
	Residential - Mixed Housing Urban Zone
	Residential - Terrace Housing and Apartment Buildings Zone
	Business - City Centre Zone
	Business - Metropolitan Centre Zone
	Business - Town Centre Zone
	Business - Local Centre Zone
	Business - Neighbourhood Centre Zone
	Business - Mixed Use Zone
	Business - General Business Zone
	Business - Business Park Zone
	Business - Heavy Industry Zone
	Business - Light Industry Zone
	Open Space - Conservation Zone
	Open Space - Informal Recreation Zone
	Open Space - Sport and Active Recreation Zone
	Open Space - Civic Spaces Zone
	Open Space - Community Zone

ZONES

	Rural - Rural Production Zone	Tagging of Provisions: [i] = Information only [rp] = Regional Plan [rcp] = Regional Coastal Plan [rps] = Regional Policy Statement [dp] = District Plan (only noted when dual provisions apply)
	Rural - Mixed Rural Zone	
	Rural - Rural Coastal Zone	
	Rural - Rural Conservation Zone	
	Rural - Countryside Living Zone	
	Rural - Waitakere Foothills Zone	
	Rural - Waitakere Ranges Zone	
	Future Urban Zone	
	Green Infrastructure Corridor (Operative in some Special Housing Areas)	
	Coastal - General Coastal Marine Zone [rcp]	
	Coastal - Marina Zone [rcp/dp]	
	Coastal - Mooring Zone [rcp]	
	Coastal - Minor Port Zone [rcp/dp]	
	Coastal - Ferry Terminal Zone [rcp/dp]	
	Coastal - Defence Zone [rcp]	
	Coastal - Coastal Transition Zone	
	Special Purpose Zone - Airports & Airfields, Cemetery, Quarry, Healthcare Facility & Hospital, Tertiary Education, Maori Purpose, Major Recreation Facility, School	
	Strategic Transport Corridor Zone	
	Water [i]	

Tagging of Provisions:

- [i] = Information only
- [rp] = Regional Plan
- [rcp] = Regional Coastal Plan
- [rps] = Regional Policy Statement
- [dp] = District Plan (only noted when dual provisions apply)

DESIGNATIONS

- Designations
- Airspace Restriction Designations

OVERLAYS		Terrestrial [rp/dp]	Natural Resources
		Marine 1 [rcp]	
		Marine 2 [rcp]	
		Natural	Lake Management Areas Overlay (Natural Lake and Urban Lake)
		Urban	
		Water Supply Management Areas Overlay [rp]	
		Natural Stream Management Areas Overlay [rp]	
		High-Use Stream Management Areas Overlay [rp]	
		High-Use Aquifer Management Areas Overlay [rp]	
		Quality-Sensitive Aquifer Management Areas Overlay [rp]	
		Wetland Management Areas Overlay [rp]	
		Airport Approach Surface Overlay [rcp/dp]	Infrastructure
		Aircraft Noise Overlay	
		City Centre Port Noise Overlay	
		Quarry Buffer Area Overlay	
		National Grid Corridor [rcp/dp]	National Grid Corridor Overlay
		National Grid Yard [rcp/dp]	
		Sites & Places of Significance to Mana Whenua Overlay [rcp/dp]	Mana Whenua

CONTROLS

Key Retail Frontage

General Commercial Frontage

Adjacent to Level Crossings

General

Motorway Interchange Control

Business Park Zone Office Control

Cable Protection Areas Control [rcp]

Centre Fringe Office Control

Coastal Inundation Control [rcp/dp]

Height Variation Control

Arterial Roads

Building Frontage Control

Vehicle Access Restriction Control

- Precincts
- Indicative Coastline [i]
- Rural Urban Boundary

OVERLAYS

Notable Trees Overlay

Natural Heritage

Outstanding Natural Features Overlay [rcp/dp]

Outstanding Natural Landscapes Overlay [rcp/dp]

Outstanding Natural Character Overlay [rcp/dp]

High Natural Character Overlay [rcp/dp]

Local Public Views Overlay [rcp/dp]

Viewshafts

Height Sensitive Areas

Regionally Significant Volcanic Viewshafts
& Height Sensitive Areas Overlay [rcp/dp]

Regionally Significant Volcanic Viewshafts Overlay Contours [i]

Locally Significant Volcanic Viewshafts Overlay [rcp/dp]

Locally Significant Volcanic Viewshafts Overlay Contours [i]

Extent of Overlay




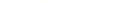
Waitakere Ranges Heritage Area Overlay

Subdivision Schedule

Modified

Natural

Ridgeline Protection Overlay

		Historic Heritage Overlay Place [rcp/dp]	Built Heritage & Character
		Historic Heritage Overlay Extent of Place [rcp/dp]	
		Special Character Areas Overlay Residential and Business	
		Auckland War Memorial Museum Viewshaft Overlay [rcp/dp]	
		Auckland War Memorial Museum Viewshaft Overlay Contours [rcp/dp]	
		Dilworth Terrace Houses Viewshaft Overlay	
		Dilworth Terrace Houses Viewshaft Overlay Contours	

CONTROLS		Identified Growth Corridor Overlay	Built Environment
		Hazardous Facilities	
		Infrastructure	Emergency Management Area Control
		Flow 1 [rp]	
		Flow 2 [rp]	Stormwater Management Area Control
		Level Crossings With Sightlines Control	
		Macroinvertebrate Community Index [rcp/dp]	
		Parking Variation Control	
		Subdivision Variation Control	
		Surf Breaks [rcp]	

Appendix B:

Tracked Changes to NZTA Conditions

Network Utilities (NU)		
<i>Network Utilities Management Plan</i>		
Clean version of conditions attached to evidence of Lesley Hopkins, with additional Transpower changes recommended by Chris Horne		
NU.1	NoR 1 NoR 2	<p>(a) The Requiring Authority shall prepare and implement a Network Utilities Management Plan (NUMP). The NUMP shall be prepared in consultation with the relevant infrastructure providers who have existing network utilities that are directly affected by the Project.</p> <p>The purpose of the NUMP is to ensure that the design and construction of the Project takes account of, and includes measures to address the safety, integrity, protection and (where necessary) the relocation of existing network utilities.</p> <p>(b) The NUMP shall include methods and measures to:</p> <ul style="list-style-type: none"> (i) Ensure that critical infrastructure can be accessed for maintenance at all reasonable times, or emergency works at all times, during and after construction activities; (ii) Manage the effects of dust and any other material potentially resulting from construction activities and able to cause material damage, beyond normal wear and tear, to the overhead transmission lines; and (iii) Ensure that no activity is undertaken during construction that would result in ground vibrations, ground instability and/or ground

Explanation of changes
No changes proposed to condition.

		<p>settlement likely to cause material damage to network utilities.</p> <p>(c) At least 40 working days prior to commencement of Construction Works affecting a network utility, the Requiring Authority shall provide a draft of the NUMP to the relevant infrastructure provider for review and comment. The NUMP shall describe how the input from the infrastructure provider in relation to its assets has been incorporated. The Requiring Authority shall consider any comments received from the infrastructure provider when finalising the NUMP.</p> <p>(d) Any amendments to the NUMP related to an infrastructure providers' assets shall be prepared in consultation with that infrastructure provider.</p>
NU.2	NoR 1 NoR 2	A copy of the NUMP shall be provided to the Manager for information at least 20 working days prior to the commencement of any Enabling Works or Commencement of Construction where those enabling or Construction Works impact on network utilities.
NU.3	NoR 1 NoR 2	<p>(a) In addition to the matters set out in Condition NU.1, the NUMP shall include procedures, methods and measures to manage effects of the construction works on the following transmission lines:</p> <ul style="list-style-type: none"> i) Mangere-Mt Roskill A 110 kV Line; ii) Penrose – Mt Roskill A 110 kV Line; and iii) Henderson – Ōtāhuhu A 220 kV Line. <p>(b) The NUMP shall include:</p> <ul style="list-style-type: none"> i) Details of any dispensations and associated procedures, methods and

No changes proposed to condition.
<p>New clause (b)(vi) on contractor briefings added. As per relief point 4.3 in the Transpower submission. In lieu of the more detailed conditions on NZECP34: 2001 sought in Transpower's submission now incorporated into condition NU.3 and to reduce risks to the Southdown Substation, this new clause is recommended to ensure Transpower involvement in contractor briefings. The clause is designed to reduce risks to critical Transpower assets during project construction.</p>

		<p>measures agreed with Transpower for construction works that cannot meet <i>New Zealand Electrical Code of Practice for Electrical Safe Distances 2001</i> (NZECP 34:2001) or any subsequent revision of the code;</p> <p>ii) For all other works, procedures, methods and measures to demonstrate how construction works will meet the safe distances within the NZECP 34:2001 or any subsequent revision of the code and including specific measures and methods relating to:</p> <ul style="list-style-type: none"> • Excavation or disturbance of the land around any Transpower transmission support structures under Clause 2.2.3; • Building to conductor clearances under Section 3; • Depositing of material under or near overhead electric lines under Clause 4.3.1; • Mobile plant or load to Transpower transmission lines under Clause 5.2; • People to conductor clearances; <u>and</u> • Warning notices during use of mobile plant in proximity of overhead lines under Clause 5. <p>iii) Details of measures to control induction and transferred voltages and Earth Potential Rise where use of conductive material for road infrastructure or relocated network utilities is within 12 metres of the outer</p>	
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		<p>foundations of any transmission tower or proposed tower or monopole;</p> <p>iv) Details of areas within which additional management measures are required, such as fencing off, entry and exit hurdles and the minimum height for any hurdles; and</p> <p>v) Details of contractor training for those working near transmission lines and other assets; <u>and</u></p> <p><u>vi) Provision for Transpower involvement in contractor briefings for works involving the following:</u></p> <ul style="list-style-type: none"> <u>• Works within 12m of any Transpower overhead transmission line support structure;</u> <u>• Works within the maximum extent of line swing (at maximum operating temperature) of any Transpower overhead transmission line; and</u> <u>• Works within 20m or encroaching into the Southdown Substation.</u> 	
NU.4	NoR 1 NoR 2	<p><u>(a)</u> In addition to the matters set out in Condition NU.1, the NUMP shall include procedures, methods and measures to manage effects of the construction works on the following Watercare assets:</p> <p><u>(i)</u> Hunua 1 at Sylvia Park Road/Great South Road intersection</p> <p><u>(ii)</u> Sylvia Park watermain</p> <p><u>(iii)</u> Hunua 3 transmission watermain</p> <p><u>(iv)</u> Hunua 4 transmission watermain</p> <p><u>(v)</u> Eastern Interceptor Westfield Siphon</p>	<p>NA to Transpower.</p>

		<p>(b) The NUMP shall:</p> <ul style="list-style-type: none"> (i) Demonstrate how construction works will meet safety procedures required by Watercare for works within the vicinity of its assets; and (ii) Describe the areas within which additional management measures are required; and (iii) Describe the process for obtaining approval from Watercare before works commence within close proximity to Watercare assets under the <i>Water Supply and Wastewater Network Bylaw 2015</i>.
NU.5	NoR 1	<p>(a) In addition to the matters set out in Condition NU.1, the NUMP shall include procedures, methods and measures to manage effects of the construction works on the First Gas East Tamaki to Taupaki Gas Pipeline.</p> <p>(b) The NUMP shall demonstrate how construction works will meet First Gas operating standards and codes including:</p> <ul style="list-style-type: none"> • AS2885: Pipelines – Gas and Liquid Petroleum (Part 1 for design and Part 3 for operation and maintenance); and • New Zealand Health and Safety in Employment (Pipelines) Regulations 1999.
NU.6	NoR 1	<p>The Requiring Authority shall work with Mercury, Transpower, Vector KiwiRail and Auckland Transport to confirm the design and construction methodology for Construction Works on or around the Southdown substation.</p> <p>Prior to any relocation of the Southdown substation or the commencement of any other physical works</p>

NA to Transpower.
<p>New text to replace struck out text as per condition NU.11 in the Transpower submission. This version of the condition is preferred as it is more certain that works cannot occur that adversely affect the Kiwi Rail transformer and related infrastructure within the Southdown Substation until a suitable replacement transformer has been commissioned. Minor amendments from the submission version</p>

		<p>affecting the substation, the Requiring Authority shall identify and confirm with the above parties, appropriate measures to mitigate any potential risks to the rail network and ensure continuity of electricity supply.</p> <p><u>The Requiring Authority shall not undertake any Construction Works that would compromise the ongoing operation of the transformer and other assets located within the Southdown Substation serving the Auckland rail network, until such time as a replacement transformer and any related infrastructure has been commissioned.</u></p> <p><u>For the purposes of this condition, the Southdown Substation is that area shown on the plan titled “Transpower New Zealand - East-West Connection Southdown Substation”, dated 9 May 2017.</u></p>
NU.7	NoR 1 NoR 2	Prior to the Commencement of Construction, the Requiring Authority shall not require Auckland Transport or Network Utility Operators with existing infrastructure within the road reserve to seek written consent under section 176 of the RMA for on-going access to enable work associated with the routine construction, operation and maintenance of existing assets.
<u>NU.X</u>	<u>NoR 1</u> <u>NoR 2</u>	<u>In addition to Condition NU.1(a) above, the Requiring Authority shall ensure that any batters, retaining walls, crash barriers, fencing, noise barriers and other such physical measures constructed as part of the Project do not remove practical access for ongoing access to Transpower structures during construction and operation of the works authorised by the designation.</u>

<p>have been made for readability and style consistency. A plan to define the extent of the substation has been provided.</p>
<p>No changes proposed to condition.</p>
<p>Generally as per condition NU.10 in Transpower submission. To ensure the final constructed road configuration does not remove practical ongoing access to Transpower structures once the project becomes operational. An obligation in the NUMP to outline how practical access will be retained does not guarantee this obligation on an ongoing basis post construction when the NUMP would no</p>

	NoR 1 NoR 2	Advice Note: <i>In addition to the RMA processes, there are other additional processes and approvals applying to any work or activity that affect network utilities. The Requiring Authority may require additional approvals from Network Utility Operators prior to any works commencing in proximity to network utilities.</i>

longer apply. The wording is not intended to make the NZTA responsible for any practical access removed by other property owners unrelated to the NZTA project where practical access to Transpower structures currently relies on access over private land.

Legend

Substation

Existing Structure

Existing Transmission Lines

by Voltage

220 kV

220kV Outdoor Switchyard

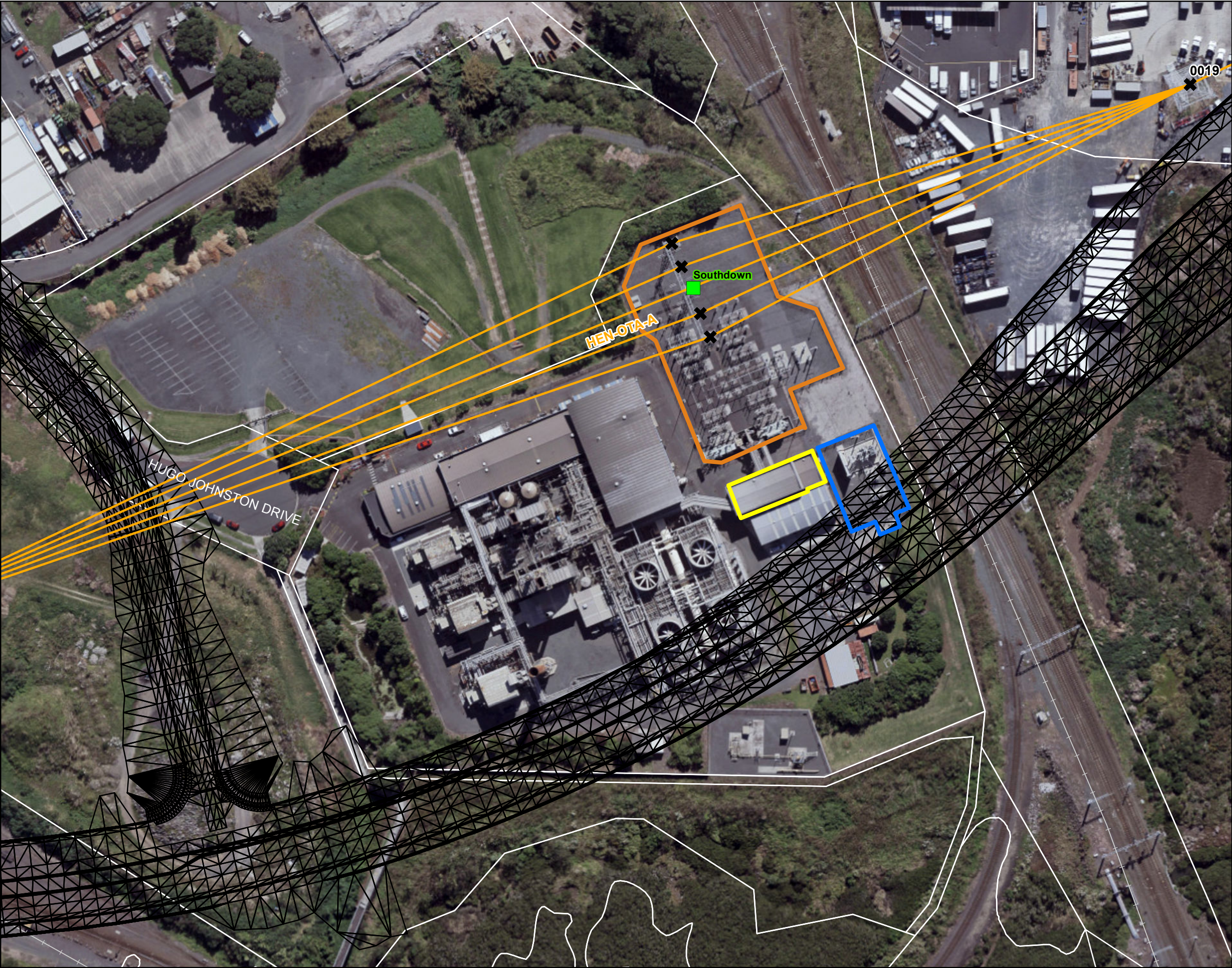
Kiwi Rail transformer and associated switchgear

Control Building and Relay Room

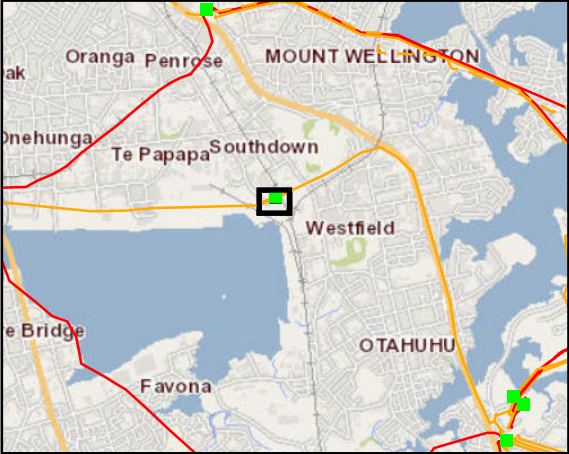
East-West Connection alignment

Railway

Parcel Boundary



Sheet 1 of 1



External Disclaimer
This document is produced for external release. Its conclusions are based on the information currently available to Transpower and may change as further information becomes available either internally or externally.
East-West Connection Alignment as per NZTA (3d_composite_surface_final.DWG)
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Cadastral Data as per CoreLogic.