

31 August 2023
Job No: 1016884.1000

Meridian Energy Limited
Level 11, NTT Tower
157 Lambton Quay
Wellington 6011

Attention: Nick Bowmar

Dear Nick

S92 response to transport-related issues for the proposed Mount Munro Windfarm Application APP-2022203902.00

1 Background

Meridian Energy Limited (Meridian) propose to construct a 20-turbine (90 MW) wind farm on an 8.9 km² site located east of State Highway 2 (SH2), approximately 35 km north of Masterton and 4 km south of Eketāhuna.

Tonkin & Taylor Ltd (T+T) was commissioned by Meridian to undertake transport reporting of the effects of a proposed wind farm (Mount Munro) in the Wairarapa, consisting of an Integrated Transport Assessment (ITA) in May 2023 and a Port to Site Assessment in July 2021.

The resource consent application was lodged with Horizons Regional Council, Greater Wellington Regional Council, Tararua District Council and Masterton District Council on 26 May 2023 and 9 June 2023. The application numbers with each consenting authority are as follows:

- Horizons Regional Council – APP-2022203902.00;
- Greater Wellington Regional Council – WAR230312 [39005, 39006, 39007, 39008, 39009];
- Tararua District Council – 202.2023.53.1;
- Masterton District Council – RM 230068.

Additional information was requested under Section 92(1) of the Resource Management Act on 6 July 2023. This letter report addresses transport-related information requests numbered 21, 24, 26, 28 and 29 in the Section 92 request.

2 Vehicle templates

2.1 Turbine Blade transporter

This assessment was completed considering transportation of the Vestas V136 wind turbine, with a blade length of 67 m¹.

Tracking was completed at a speed of 5km/hr.

¹ Refer Mount Munro Windfarm – Update to Port to Site Assessment, Tonkin and Taylor, June 2022



Figure 1 Turbine blade transporter vehicle template

2.2 Transformer trailer

The weight of a transformer requires a special trailer with multiple rows of wheels to appropriately spread the load across the pavement surface.

This assessment has used a trailer suitable for a 120t transformer² (17 rows of tyres) with a traction unit at each end.

Tracking was completed at a speed of 5km/hr

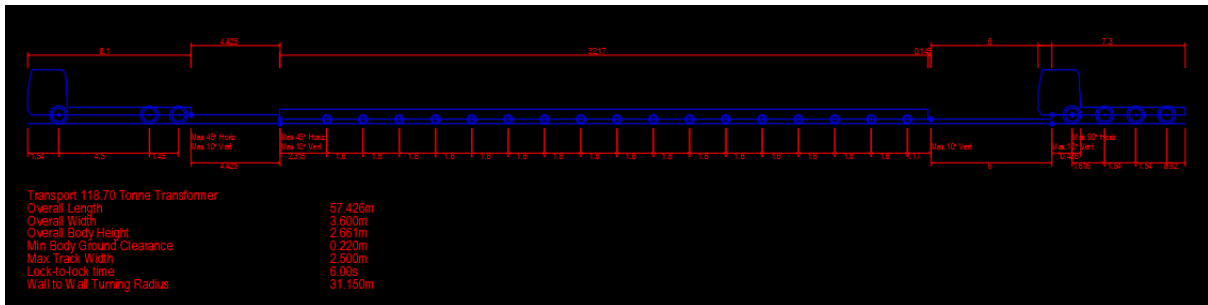


Figure 2 Transformer trailer vehicle template

2.3 Truck and trailer



Figure 3 Construction Truck and Trailer photo

² Refer Mount Munro Windfarm – Update to Port to Site Assessment, Tonkin and Taylor, June 2022

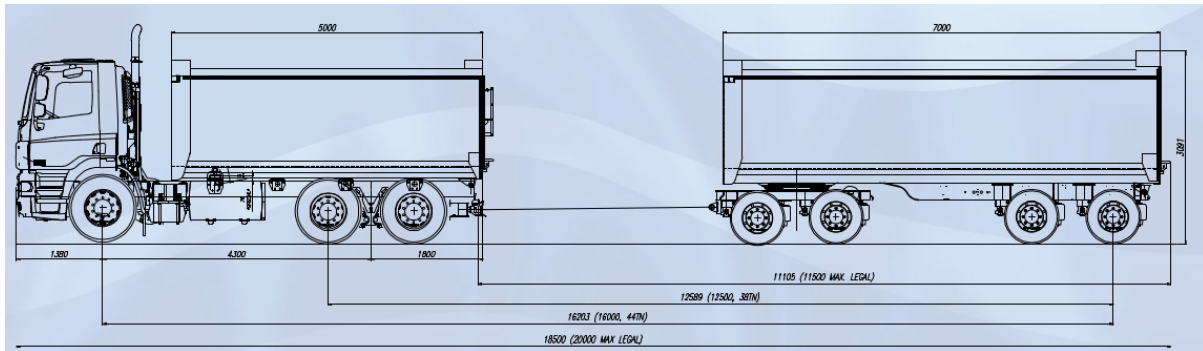


Figure 4 Construction Truck and Trailer, source <https://www.transfleet.co.nz>

A construction truck and trailer has been modelled based on the dimensions of a Transfleet Construction Aluminium Tipper Truck and Trailer³. This will transport materials such as bulk aggregate to and from the site. It is also larger (with a larger tracking envelope) than other construction vehicles such as for concrete, water or portable toilets.

Tracking was completed at a speed of 20km/hr for all intersections, and 30km/hr along Old Coach Road.

2.4 Truck

Where a truck and trailer could not be accommodated additional tracking has been completed with just the Truck portion of the Truck and Trailer described in Section 2.3.

Tracking was completed at a speed of 20km/hr.

3 Sites

3.1 Main access (SH2, Old Coach Road)

A Turbine Blade transporter was tracked along old Coach Road. This approached along SH2 from the north in accordance with the Port to Site Assessment (all port options approached from the north).

The existing intersection accommodates truck and trailer units.



Tracking envelopes were developed to identify if a central island could be added in the centre of Old Coach Road at SH2 (and reduce vehicles being able to cross the opposing lane when turning and control intersection turning speeds). However the tracking envelopes overlap meaning there isn't a space that would be clear of turning vehicles.



Truck and trailer units have also been tracked along Old Coach Road, with two-way passing around corners as shown on the plans.



Specific works required along Old Coach Road are shown on drawings 1016884.1000-100 to 109 and described below in Table 1.

³ https://www.transfleet.co.nz/product_brochures.cfm

Table 1 Main access (SH2, Old Coach Road) required works

Location	Description
<p>Intersection of SH2 and Old Coach Road (Drawing 100)</p>	 <p><i>Figure 5 Ch 50. Looking northwest with SH2 in the background. Existing fence and field to be relocated for turbine blade transport</i></p> <ul style="list-style-type: none"> • Temporary surface for turbine blades. Existing fence to be removed and earthworks to cut down the corner of the field. Excess cut material removed from site. • Existing drainage channels to be temporarily culverted into existing manhole • Fence and existing drainage channels to be reinstated following turbine transport • Existing manhole to be protected from turbine trailers • Relocate existing give way sign to new removable pole in current location.
<p>Ch160 (Drawing 101)</p>	 <p><i>Figure 6 Ch170. Looking northwest</i></p> <ul style="list-style-type: none"> • Trim lower branches of tree to accommodate swing of turbine blade • Relocate existing intersection warning sign to new post

Location	Description
Ch320 (Drawing 101)	 <p data-bbox="432 696 815 725"><i>Figure 7 Ch250. Looking southeast.</i></p> <ul data-bbox="432 779 1251 884" style="list-style-type: none"> • Tail swing to the left over the adjacent paddock. No obstructions noted • Remove small existing tree on the LH side of the road • Road widening (see below)
Ch0-Ch400 (Drawings 100 to 102)	<p data-bbox="432 902 1385 965">Ch0-Ch400. Widen road to 7m. In addition further widening to 9m around two corners. This will require;</p> <ul data-bbox="432 972 1050 1160" style="list-style-type: none"> • Earthworks of adjacent bank • Some fence relocation • Relocation of drainage ditch and field access culverts • New unsealed pavement • Adjacent to 84588 State Highway 2
Ch640-Ch850 (Drawings 103 & 104)	 <p data-bbox="432 1628 1262 1657"><i>Figure 8 Ch730. View south. Widen road on the inside of the corner (LH side)</i></p> <p data-bbox="432 1711 1331 1740">Widen road to 7m around inside of corner opposite power poles. This will require;</p> <ul data-bbox="432 1747 1050 1933" style="list-style-type: none"> • Earthworks of adjacent bank • Some fence relocation • Relocation of drainage ditch and field access culverts • New unsealed pavement • Adjacent to 56 Old Coach Road

Location	Description
Ch850-Ch1080 (Drawings 104 to 106)	 <p data-bbox="432 712 1382 775"><i>Figure 9 Ch970. View south. Removal of adjacent trees and bushes and bank on the left side of the road approaching the corner.</i></p>  <p data-bbox="432 1288 1302 1317"><i>Figure 10 Ch1060. View north. Letterbox relocated and road widened to the left.</i></p> <p data-bbox="432 1368 1007 1397">Widen road to 8m through corners. This will require;</p> <ul data-bbox="432 1406 1369 1688" style="list-style-type: none"> • Removal of adjacent trees and bushes and bank on the west side of the road approaching the corner (Ch960-Ch1120) • Removal of adjacent trees and bushes and earthworks to fill adjacent slope on the east side of the road through the corner opposite #103 Old Coach Road. This will require work within the dripline of the remaining trees. • Relocate #103 letterbox • Some fence relocation • New unsealed pavement

Location	Description
<p>Ch1130-Ch1220, Ch1250-Ch1340, Ch1370-Ch1490 (Drawings 106 to 108)</p>	<div data-bbox="432 248 1171 714" data-label="Image"> </div> <p data-bbox="432 734 1380 826"><i>Figure 11 Ch1220. View south across culvert. Power pole in the back right of the photo to be relocated back to the property boundary. Bank to the back left to be cut back and road widened</i></p> <div data-bbox="432 875 1171 1272" data-label="Image"> </div> <p data-bbox="432 1292 1347 1352"><i>Figure 12 Ch1280. View south. Power poles on the right of the photo to be relocated back to the property boundary. Road widened to the left</i></p> <p data-bbox="432 1406 1302 1435">Sections of widening road to 7m either side of existing culvert. This will require;</p> <ul data-bbox="432 1447 1347 1740" style="list-style-type: none"> • Earthworks of adjacent bank • Some fence relocation • Relocation of drainage ditch and field access culverts • Further earthworks of bank at Ch1370 and Ch1440 to achieve blade swing. Note the existing bank is 2m to 3m high • New unsealed pavement • Relocate power poles at Ch1270 and Ch1440 back to the property boundary • Adjacent land parcel has no street address

Location	Description
Ch1700 (Drawing 109)	 <p data-bbox="432 636 1077 667"><i>Figure 13 Ch1650. View south with site entrance on the left</i></p> <ul data-bbox="432 719 1374 817" style="list-style-type: none">• Exact scope of works to be confirmed in detailed design to align with the proposed access road• Adjacent land parcel has no street address

3.2 Terminal substation access (SH2, Kaiparoro Road)



Refer to Drawing 1016884.1000-200

A Transformer trailer was tracked to the site entrance. This approached from the north in accordance with the Port to Site Assessment (all port options approached from the north). This requires temporary works to cut the corner as described below.

Truck and trailer units have also been tracked at the intersection with SH2. No issues were noted with the current intersection width.

Specific works required are shown on Figure 1016884.1000-200 and described below in Table 2.

Table 2 Terminal substation access required works

Location	Description
<p>Intersection of SH2 and Kaiparoro Road</p>	 <p><i>Figure 14 Kaiparoro Road looking east to its intersection with SH2. Works required on the left</i></p> <ul style="list-style-type: none"> • Relocate approximately 35m fence and remove five pine trees around corner. • Relocate existing give way sign to new removable pole in current location. • Investigate existing culvert and extend beyond tracking path if impacted. • Reinstate tracked path (approximately 200m²) and drainage features following completion of works
<p>Kaiparoro Road at site entrance</p>	 <p><i>Figure 15 Kaiparoro Road at the site entrance looking east. Site entrance will be on the right.</i></p> <ul style="list-style-type: none"> • Widen site access point to accommodate vehicle tracking. Extend culvert if required to accommodate entrance splay

Location	Description
	<ul style="list-style-type: none"> • Relocate existing intersection warning sign to new removable pole in current location • Remove existing fence line (approximately 15m) from opposite the site entrance to the existing warning sign • Widen pavement by 1.0m for approximately 20m around inside of corner

3.3 Internal Transmission line access (SH2)

Refer to Drawing 1016884.1000-201

Trucks are expected to be the largest vehicle to use this access.

Tracking showed that the existing entrance is suitable for truck units only. Additional widening will be required if truck and trailers are proposed.

We recommend that this entrance is restricted to truck units only.

3.4 Internal Transmission line access (Opaki-Kaiparoro Road)

Refer to Drawing 1016884.1000-202

Trucks are expected to be the largest vehicle to use this access.

Tracking showed that it is technically possible for a truck and trailer unit to turn left out of the existing entrance but to achieve this they would be required to fully cross into the opposing traffic lane across the adjacent Makakahi River bridge with limited visibility to opposing traffic.



Figure 16 Internal Transmission line access (Opaki-Kaiparoro Road) and Makakahi River bridge

We recommend that this entrance is restricted to truck units only.

The existing driveway is also steep and may require more intensive pavement maintenance especially where trucks accelerate and decelerate approaching Opaki-Kaiparoro Road.

4 Applicability

This report has been prepared for the exclusive use of our client Meridian Energy Limited, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of a S92 request for the resource consent application (APP-2022203902.00) and that Horizons Regional Council, Greater Wellington Regional Council, Tararua District Council and Masterton District Council as the consenting authority will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

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Tonkin & Taylor Ltd

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