

# FEASIBILITY

from



*covering*

## LAND TRANSPORTATION

*of*

WIND TURBINE EQUIPMENT



PORT OF MOUNT MAUNGANUI TO KAIMAI RANGE SITE

*for*

**VENTUS ENERGY**

September 2018

## TABLE OF CONTENTS

1.	PURPOSE AND SCOPE .....	1
1.1.	Purpose .....	1
1.2.	Scope of Work .....	1
2.	TRANSPORTATION OF COMPONENTS .....	1
2.1.	Loads and Destination .....	1
2.2.	Route from Port to Site – Blade Sections .....	2
2.3.	Transport Port to Site – Tower Sections .....	8
2.4.	Permits .....	9
2.5.	Health and Safety during Transport .....	10
2.6.	Contingency Planning .....	10
2.7.	Site Access .....	12
2.8.	Traffic Management .....	13
3.	TRANSPORT SCHEDULE .....	14
	APPENDICES 1 – SITE MAP .....	15
	APPENDICES 2 – TRANSPORT PERMIT .....	16
	APPENDICES 3 – BLADE TRAILER OPTIONS .....	23

# 1. Purpose and Scope

---

## 1.1. Purpose

The purpose of this report is to outline the route options procedures, plans and contingencies in place for the transport of several Wind Turbine components from the Port area at Mount Maunganui, to a new proposed site north of Te Aroha in the Waikato region.

Tranzcarr Heavy Haulage Ltd from Manukau has been commissioned by Ventus Energy Ltd to examine the route from Port to site.

---

## 1.2. Scope of Work

This plan will cover the transport of the Wind Turbine parts. The proposed turbine used in this report is a model is optional with three suppliers being considered. The blade length reviewed for this report (May 2018) is up to 78metres long.

Tranzcarr Heavy Haulage has been involved in several wind farm projects throughout New Zealand since 2004 and has a vast degree of knowledge in transporting the heavy and over-dimensional equipment required to be transported.

The Civil design work done to date for the project looks **reasonable and practical**, however that view is subject to detailed design following confirmation of final turbine selection and the trailer design.

The destination for the route is included elsewhere in this report.

# 2. Transportation of Components

---

## 2.1. Loads and Destination

The Turbine units will be shipped into the Mount Port area and offloaded from ship to storage on the Port. From there, they will be loaded onto trailers and transported to the site entrance on Rawhiti Rd, North of Te Aroha.

The typical turbine will comprise several different components, with the largest loads being blades, tower sections and Nacelle units. In addition, numerous smaller loads including shipping containers of ancillary plant, will be transported to the site.

This report has focused on two main concerns regards the transport.

- The blade sections measuring 78.0metres in length
- The heaviest of the loads, either Nacelle or Tower up to 85 tonne in weight. A feasibility permit issued by NZTA included in this report allows for a maximum payload of 85 tonne.

## 2.2. Route from Port to Site – Blade Sections

The Route from the Port storage out of the Mount/Tauranga region and over State Highway 29 (Kaimai Range) differs from the heavy loads to lighter Blade Sections.

At the time of this report there are no over-height loads being transported that should require any additional escort from the Lines Companies, permits however will be required and these are separate from any escort that may be needed due to height. Final details of each load are still to be provided and until dimensions are known, the likelihood of over-height escorts for the loads still exists.

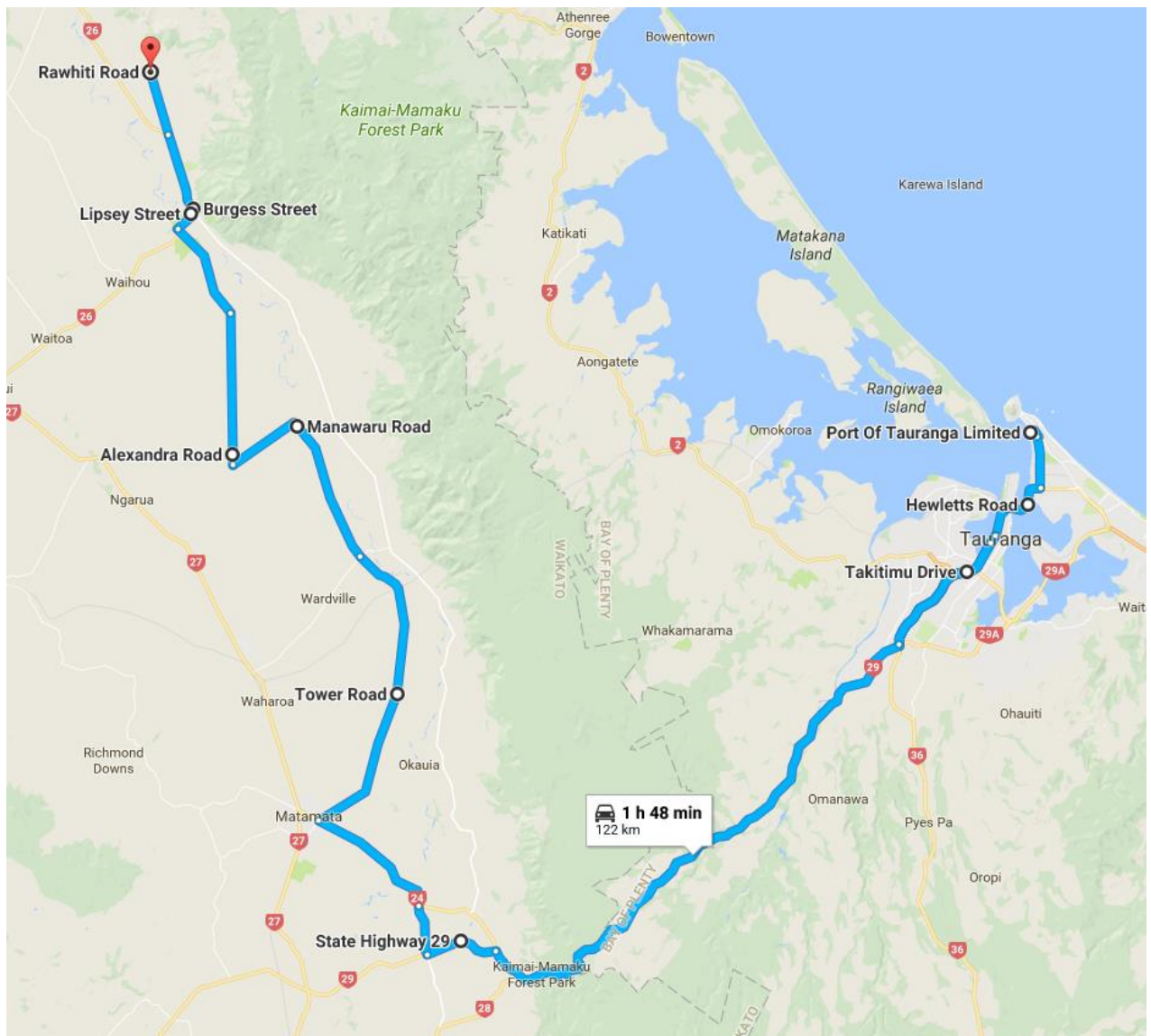


Figure 1 Route from Mount Wharf to site north of Te Aroha for Blades

The length of the blades at 78.0metres makes them the most difficult of the loads to be hauled to site. The ability to manoeuvre the long load with large overhang has meant a variation to the normal route. At present, there are no trailers in New Zealand capable of transporting such a long blade load and consideration for supply of units similar to those used in Europe and other parts of the world, needs to be made.

Included in this report are details and drawings from 2 major trailer suppliers out of Europe who specialise in trailers for Windfarm components. These types of trailers could be used in New Zealand, Tranzcarr Heavy Haulage/Machinery Movers currently operate ex there Auckland base one Nooteboom unit extendible to 49metres.

A more detailed study of the route with proper computerised tracking of proposed trailers will need to be undertaken to confirm access and modifications.

Discussions have not been held with the Local Road Authority at this stage, however the intention would be to get approval to haul these blade loads via Tower Rd once they enter the township of Matamata.

The route from State Highway 24 Into Tower Road - Manawaru Road-Alexandria Road - Stanley Road -State Highway 26 to Te Aroha - Lipsey Street - Burgess Street - State Highway 26 to Rawhiti Road and site entrance.

#### **Route Distance in km from Port to site Gate**

0km	Port exit
1km	Right turn onto Hewletts Road and across Harbour Bridge
4.1km	Takitimu Drive-Elizabeth Street Roundabout - Civil works required
4.9km	Overhead Bridge with 5.1metres clearance
6.6km	Toll Road
11.7km	SH 29 Roundabout
34.7km	Summit Kaimai Range SH 29
46.5km	SH 24 Intersection - take wrong side Inside corner turning right
52.4km	Turn right into Tower Road Matamata - Inside Pole/ sign will need to be removed
69km	Manawaru Road
81.5km	Alexandria Road - right turn on wrong side of road to Stanley Road
88.5km	SH 26 - right turn take wrong side into Te Aroha Deviation through Te Aroha via Lipsey Street and Burgess Street
94.5km	Rawhiti Road entrance - civil works required for right turn access

## Elizabeth Street Roundabout

There are some options that could be considered here; the sweep on the road from the Port area heading away from the city is too severe for the long blades. Options to consider, include removing part of the roundabout centre area so the long loads can be more central or removing barrier arms to allow the loads to proceed on the wrong side heading south, crossing back over again at a safe and suitable location.



Figure 2, Aerial view of roundabout



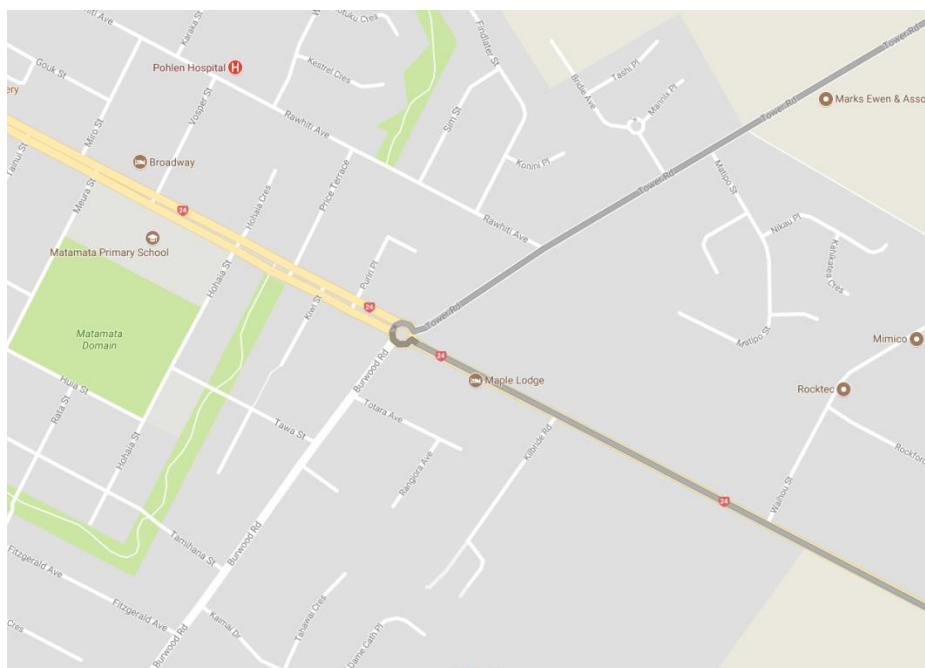
**Figure 3, view approaching the roundabout**

## SH 24 Matamata - Tower Road



**Figure 4 Ariel view of turn from SH 24 into Tower Road Matamata**

The main street In Matamata is very wide however there are several roundabouts and rail crossings. Ninety degree turn from SH 24 onto SH 27 and then an S bend turn across the rail into Waharoa. The alternative considered is to turn right off SH 24 when entering Matamata and driving east along Tower Road as shown in photo above and map view below.

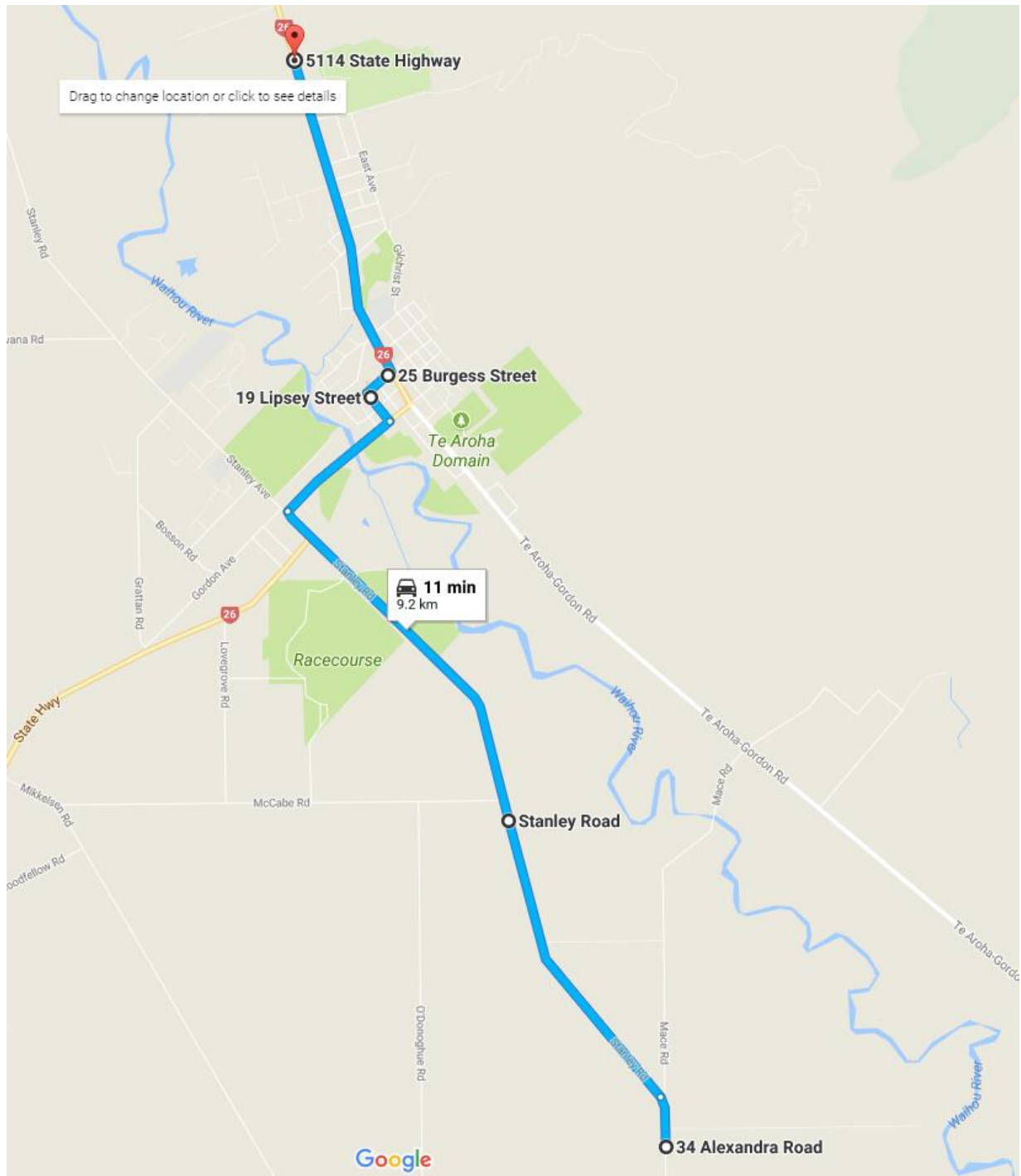


**Figure 5 Street map view of turn from SH 24 into Tower Road Matamata**

The right turn is very sharp and some road furniture on the Inside of the corner will need to be removed.



## Te Aroha Bypass



**Figure 6 Street map view of Te Aroha and bypass option**

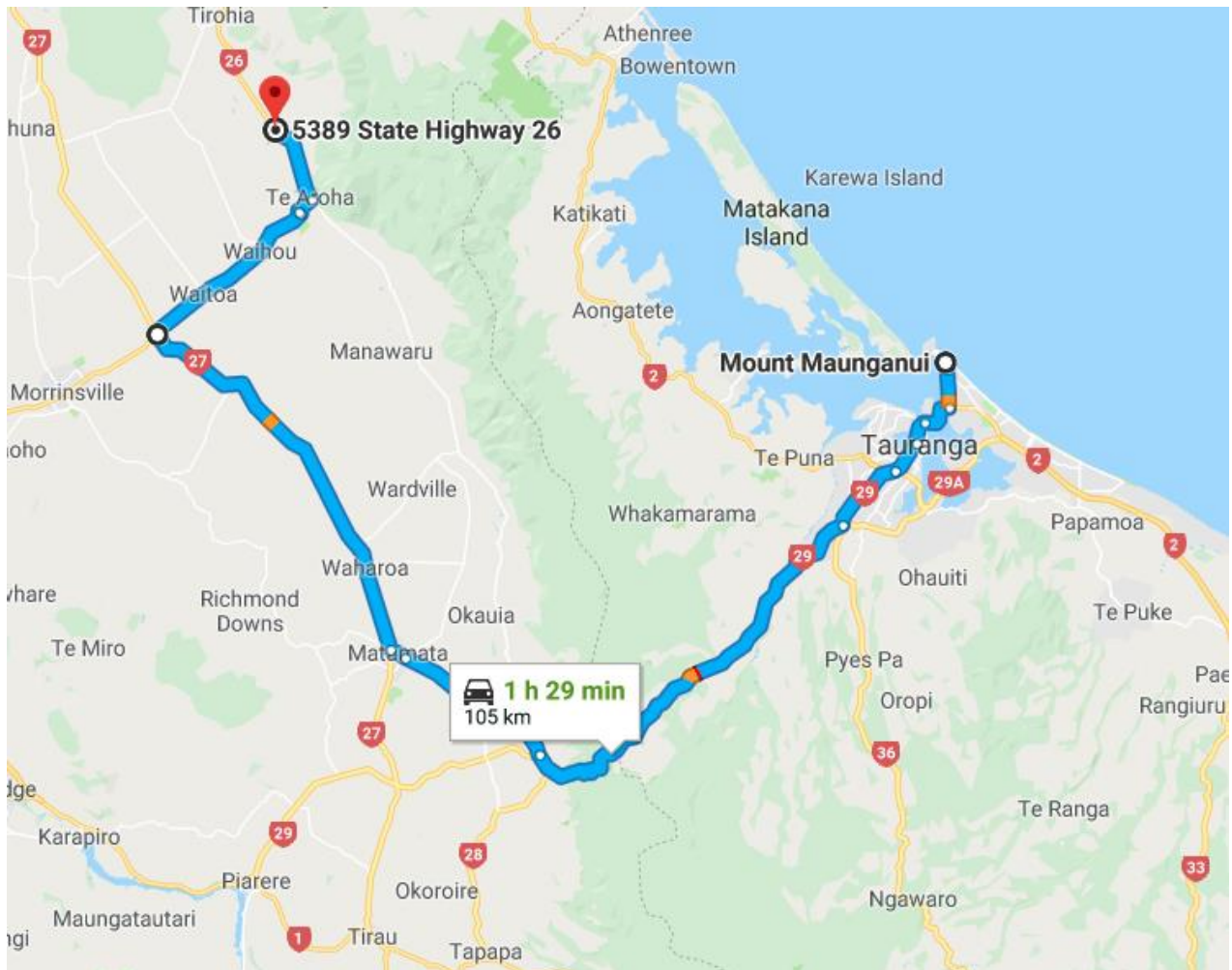
Following the exit from Stanley Road onto SH 26 and then through Te Aroha a bypass as shown above, this deviation will keep the long and heavy loads away from the main business centre of the town.

Tranzcarr has had no contact at this stage with the Local Road Authority for approval to transport the blades off the main state highway network on using the route set out above.

### 2.3. Transport Port to Site – Tower Sections

The haulage of the heavy Tower and Turbine sections (Nacelle and Generator); the route from the port will follow a different path. This is because of the weight and height for the overhead bridges on Takitimu Drive.

Following a feasibility permit request to New Zealand Transport Agency (NZTA) using a Generic heavy load of 85tonne, approval was given to haul these loads on the route shown below.



**Figure 7 Street map view from Mount wharf to site – Heavy Loads**

The route above follows the State highway network all the way from the Port to site, with the exception of the last section onto Rawhiti Road. A copy of a feasibility overweight permit issued by NZTA is annexed to this report covers the route for the heavy tower and Nacelle loads only, this follows the State Highway network for these heavy loads. This permit primarily covers the overweight load and the restrictions on the bridge structures on the designated route. Note the route for the long blade loads and other equipment that will not be subject to overweight restrictions will deviate off at Matamata and use Tower Road.

The heavy Tower and Nacelle Generator loads will also need approval permits from the overhead Lines Companies due to the transport height exceeding 4.8metres. No separate escort is required as the loads are less than 5.4metres off the ground and this is the recognised

threshold from the Lines Companies, allowing unescorted loads to proceed. The final schedule of dimensions for each load will be required before a final decision on escorts is known.



**Figure 8 Tower section**

---

## **2.4. Permits**

### **2.4.1. NZTA Over-Dimension Permits**

Over-dimension and over-weight permits with NZTA and Local Road Authorities are required for all loads.

All transport will be completed within the requirements of the Land Transport Vehicle Dimension and Mass Rule 41001, 2002 and its amendments. This rule includes time and travel and pilot escort requirement for each load during haulage.

It would be expected that all Blade loads would depart the Port area and be clear of the Tauranga City boundary by 0700hours on any day. The restrictions that could be required to navigate the Elizabeth Street roundabout will dictate the times of travel. Similarly all heavy loads should also depart the port with the intention of clearing the City limits by 0700hours.

All heavy and over-dimensional loads must be recorded to NZTA via the Palmerston North central registry, prior to departure from the Port. The senior Class 1 load escort will be advised of any potential problems on the route and of any other large loads using the network at the same time.

## **2.4.2. Kiwi Rail**

All loads will require Kiwi Rail approval and permits; there are several level crossings over the entire route and the requirement will be that Kiwi Rail Train control will be notified when each load approaches each crossing and approval is then granted to cross once the line is clear.

## **2.4.3 Overhead Power Line Companies**

Permits will be required for all loads that exceed 4.8metres in travel height. Overhead escorts and supervision will be required for all loads that exceed 5.4metres in travel height from all Lines Companies over the entire route.

---

## **2.5. Health and Safety during Transport**

A Job Safety and Environmental Analysis (JSEA) will be required for the transport works and shall be reviewed by everyone involved in the transport prior to it commencing.

Before each transport movement each day, the crew should complete a Daily Hazard ID.

---

## **2.6. Contingency Planning**

### **2.6.1. Minor Breakdown on Route**

Where a minor breakdown occurs, repairs should be made on site under temporary traffic management. Instances may include a puncture, blown hydraulic or air hose.

### **2.6.2. Major Breakdown on Route (Prime Mover)**

Spare Prime movers will need to be available should a major breakdown occur. The prime movers will be towed away and exchanged with new units as required. The steep grade on the Kaimai Range will also mean an additional Prime Mover back up should be on hand if required.

### **2.6.3. Major Breakdown on Route (Trailer)**

If a major breakdown occurs on a trailer, all efforts should be made to affect a repair as soon as possible. If the breakdown requires a significant delay, then an assessment will be made depending on:

- The location of haul at the time of breakdown.
- What are the safety/traffic implications for leaving the load on site / crane removing the load?
- When the haul should resume.
- Discussions with Road Authorities and the Police.

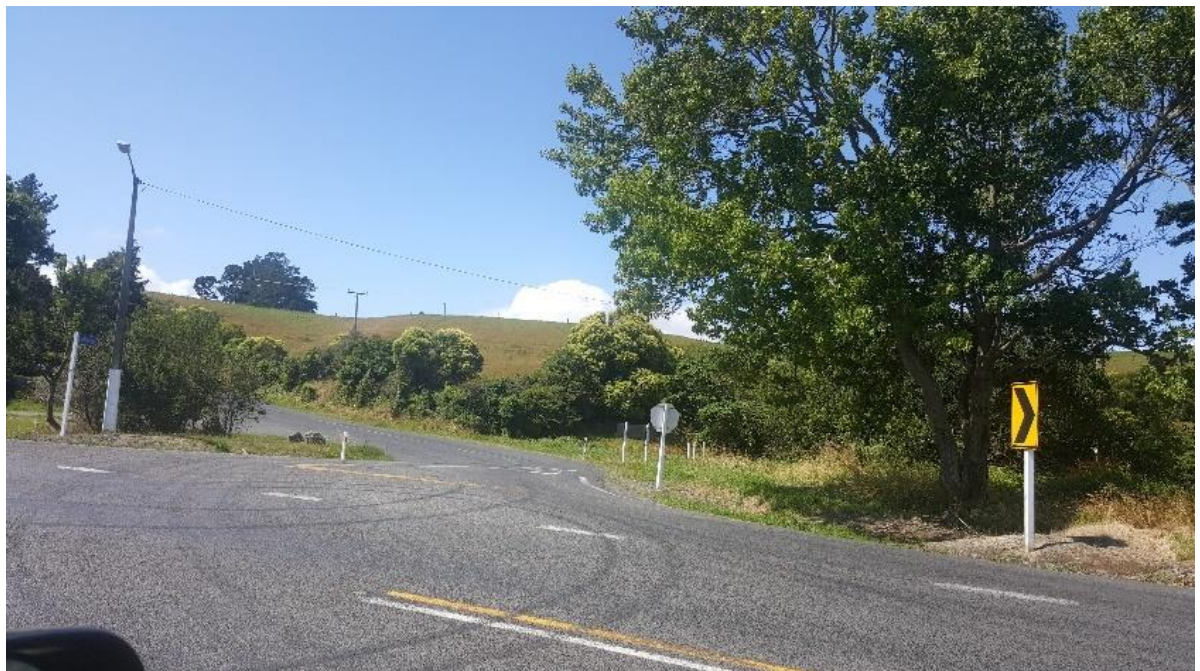
#### **2.6.4. Accident**

In the event of an accident, either directly associated with the movement, or in the movement preparation, the transport team will work under direction of the Police.

---

## 2.7. Site Access

Site Access is via Rawhiti Road north of Te Aroha, at the time of this report the exact site entrance is not known and not details of the site roads is available.



**Figure 10. Right turn into Rawhiti Road**

The turn of the State Highway into Rawhiti is very sharp and will require some attention prior to the heavy and long loads arrival.



**Figure 11 – Rawhiti Road**

Rawhiti Road is a narrow-split highway with several small bridges and culverts. The actual site entrance is not known at the time of this report, therefore no assessment of the structures on this road has been completed with the Local Road Authority.

The initial Civil design report for the site shows gradients exceeding 15percent, these appear to be reasonable and possible but more details will be required around the make-up and construction of these roads.

A site plan and proposed layout of the turbine locations is annexed to this report.

---

## **2.8. Traffic Management**

All loads on the road will operate with their own traffic management in the form of load pilot escorts.

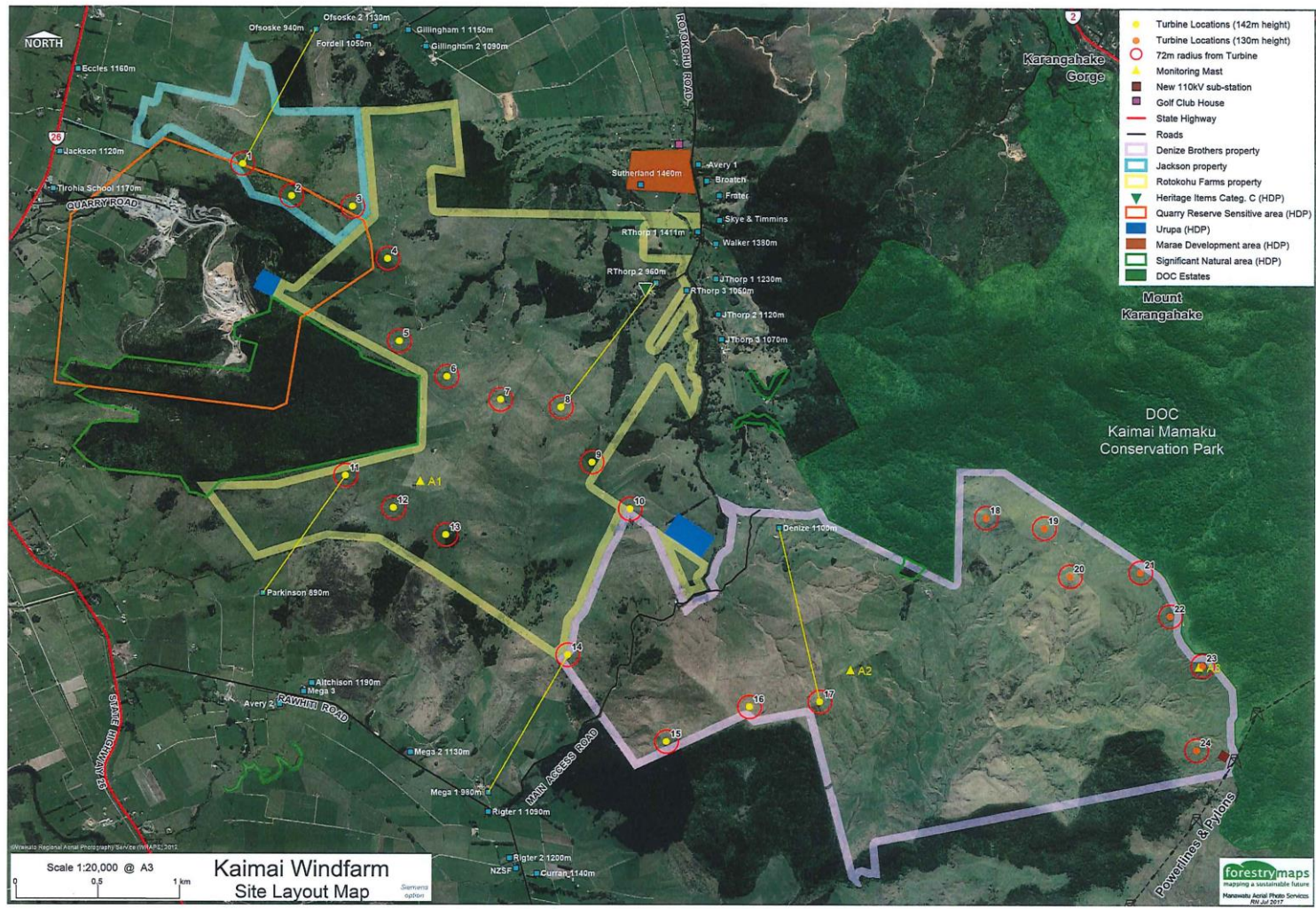
Some additional forms of traffic management may be required on Takitimu Drive at the Elizabeth Street round about and also at the site entrance.

### 3. Transport Schedule

The following summary is the estimated number of loads for transport based on a total of 24 complete Turbines from the Port to site.



# Appendices 1 – Site Map



## Appendices 2 – Transport Permit



Feasibility No.: WB/M/16/0015

Tranzcarr Heavy Haulage, PO Box 23194, Hunters Corner, Auckland 2155, Attn: Mike van Ravenstein,  
 Fax: 09 2783600, Phone: 09 2639900  
 TSL No. 0204035  
 is hereby authorised to use (vehicle description): Transporter  
 Registered N°(s): BIGSWD, T241Q, N466R, N467R, 8X4SWD  
 Feasibility Study Only - not for issue as an Overweight Permit  
 For the transport of: Tower section  
 On Route: Tauranga to Rawhiti rd, Te Aroha  
 Over the route specified below, subject to the conditions, restrictions, and maximum mass limits in this Permit.

VAI: 1.41

Axle Number	1	2	3	4	5	6	7	8	9	10
Axle Type*	S	T	T	8	8	8	8	8	8	8
Individual Axle Mass Limit (kg)	6500	9000	9000	10500	10500	10500	10500	10500	10500	10500
Spacing from previous axle (m)	0.00	4.50	1.45	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Tyre Size	13R22.5	13R22.5	13R22.5	Standard	Standard	Standard	Standard	Standard	Standard	Standard

Axle Number	11	12	13	14	15	16	17	18	19
Axle Type*	8	8	8	8	8	S	S	T	T
Individual Axle Mass Limit (kg)	10500	10500	10500	10500	10500	5500	5500	5500	5500
Spacing from previous axle (m)	1.80	1.80	1.80	1.80	1.80	7.75	1.92	1.73	1.45
Tyre Size	Standard	Standard	Standard	Standard	Standard	385/65 R 22.5	385/65 R 22.5	Standard	Standard

\* S=Single tyred axle, T=Twin tyred axle, 4=Four tyred oscillating axle, 8=Eight tyred oscillating axle. The tyre sizes shall be as indicated above.

The total mass on any individual axle, axle set or combination of axles must not exceed the sum of the mass limits shown for those axles in the table above.

### Critical Conditions

1. The gross mass of the vehicle with the load must not exceed **172,500** (Kilograms)
2. The gross mass of the vehicle must not exceed the gross vehicle mass, gross combination mass, maximum towed mass, or brake code mass where these limits apply to the vehicle
3. The vehicle must comply with all bridge restrictions specified in the permit.

### Additional Conditions

1. *Separate Plant* - The carriage or towing of separate items of plant, equipment or materials not specifically nominated in the description of load is not permitted.
2. *Mass* - The mass of any axle shall not exceed the mass specified in this permit. The gross mass of the vehicle or combination of vehicles must not exceed the limit specified on the current certificate of loading issued to the vehicles.

3. *Authorised Agent* - The vehicle shall not be operated on a road or bridge under this permit when in the opinion of an authorised agent of the road controlling authority, as communicated to the operator, it would be contrary to public interest to do so.
4. *Non Transferable* - This permit is not transferable either to other users of or to any vehicle other than the vehicle described by this permit.
5. *Weighing*- Police are authorised to divert vehicles up to five kilometres from the approved route for the purpose of weighing, provided under strength bridges are not included on the route.

**ROUTE AND SPECIAL INSTRUCTIONS:**
**Route**

Section	Highway	From RP	From Junction	To RP	To Junction
1	SH2	151 / 6.38		164 / 0.0	
Totara Ave/SH2 intersection to SH2/SH29A junction (Te Maunga)					
2	SH29A	0 / 0.0		14 / 0.0	
Te Maunga to SH29A/SH29 junction (Tauriko)					
3	SH29	19 / 0.0		31 / 0.0	
Tauriko to SH29/SH27 junction					
4	SH27	74 / 9.58		46 / 0.0	
SH29/SH27 junction to SH27/SH26 junction (Tatuanui)					
5	SH26	36 / 0.0		48 / 4.7	
Tatuanui to SH26/Rawhiti rd intersection					

Permit mass limits are only applicable on the routes specified above. If the vehicle deviates from this general route general mass limits will apply.

**BRIDGE ENGINEERING SELF SUPERVISION:** NZTA BESS identification card or BESS letter must be carried at all times

- A. Bridge crossings on this permit are valid only for operators with BESS accreditation
- B. The driver must adhere to *Specific Traffic Control Requirements* for each bridge listed on this permit
- C. The driver may cross bridges specified in this permit unless there is a "DNC" or "DO NOT CROSS" noted & therefore **MAY NOT BE CROSSED UNDER ANY CIRCUMSTANCES**
- D. Vehicle is to avoid moving through peak hour and holiday traffic.

**VEHICLE DIMENSION & MASS RULE:** Vehicle travel times that apply to this permit are those that relate specifically to each type of vehicle as covered by the Land Transport Rule Vehicle Dimension and Mass 2002 Rule 41001.

**LOCAL AUTHORITY ROADS**

Local Authority Permit is required to travel on Local Authority roads not covered by this overweight permit

**Requirement to observe permit conditions**

A breach of weight limits specified on this form, or any permit condition, is an offence as provided in the *Land Transport (Offences and Penalties) Regulations 1999*.

**Permit is invalid if:**

1. The vehicle is off-route, unless directed to do so by NZ Police or the road controlling authority
2. The permit is altered without authority
3. The vehicles or persons operating the vehicles are not those described on the permit.

**Revocation**

This permit can be revoked, under clause 5.6 of the Rule.

**Authorised Issuing Officer**

..... (Signature)  
Nicola Dixon (Name)  
22 January 2016 (Date)  
Permit Issuing Officer (Designation)  
(for NZ Transport Agency (Controlling Authority)  
Waikato and Bay of Plenty (Location)  
100350 - 12 January 2016 (Permit Dated)

**Note:**

1. This permit is an exemption from the mass limits set out in the Land Transport Rule: Vehicle Dimensions and Mass 2002, and does not authorise the user to exceed the exemption so permitted or exempt the user from complying with all other acts, regulations and other laws (including those relating to certificate of loading, road user charges or Static Roll Threshold).
2. This permit must be carried on the vehicle, and must be surrendered for inspection on the demand of any enforcement officer, or an authorised agent of the NZ Transport Agency or a road controlling authority.
3. The conditions on the reverse of this form shall apply together with any other conditions on the attached sheets.
4. *Overdimension* - For the transport of vehicles and loads that exceed the limits specified in Section 6 of the Land Transport Rule: Vehicle Dimensions and Mass 2002, a separate permit must be obtained from the Overdimension Permit Issuing Agency (OPIA) at the NZ Transport Agency, Palmerston North. OPIA contact number 0800 OVERSIZE / 0800 683774.
5. *Railway Level Crossings* - Travel over level crossings is not fully covered by this permit. Operators of overweight and overdimension vehicles may require permission from KiwiRail or their agents for travel over railway level crossings
6. *Tyre pressure* - Tyres must be operated at the pressures recommended by either the manufacturer or the Tyre and Rim Associations but not exceeding the maximum pressures stated in the Land Transport Rule 32013: Tyres and Wheels 2001.

**Fees Payable:**

Permit Issuing Fee (As specified in Schedule 4A of the Heavy Motor Vehicle Regulations 1974)	\$18.18
Bridge Supervision Fee (0 Trips)	\$0.00
Total Fee	\$18.18
GST	\$2.73
Total	\$20.91

Feasibility Study Only

### Critical Conditions: Bridge Restrictions

1. Engineering supervision of bridges is required during the trip authorised by this permit. For this purpose the user to whom this permit is issued shall contact the agents of the road controlling authorities nominated below at least **24 hours** in advance of the bridge crossing and arrange to meet the supervisor.

The vehicle and its load shall be operated in strict accordance with all instructions given by the supervisor and it shall not proceed past the arranged meeting place without being instructed to do so by the supervisor.

- Note: (a) A police officer, unless specifically authorised by the road controlling authority, is not empowered to carry out bridge engineering supervision  
 (b) If the operator fails to rendezvous within one hour of the time arranged and the supervised crossing(s) is/are postponed or cancelled, a fee of \$40 will be charged (the equivalent of one supervised crossing).

2. Agents are:

**Bridge Engineering Self-Supervision (BESS) registered Driver.**  
**BESS ID Card or Letter Must Be Carried On Vehicle**  
**Failure to produce VOIDS Permit**

3. Bridges requiring engineering supervision are:

Bridge No.	State Highway	Route Position	Bridge Name	BSN	Speed*	Position*	Risk to Other Vehicles*	GPS Co-ords N/E
1	2	157/1.88	HEWLETTS ROAD FLYOVER (Incr Dir)	1589	10	OWN LANE	Low	6387963/2793123
2	29A	8/3.23	WAIMAPU STREAM BRIDGE (Incr Dir)	162	50	OWN LANE	Not Significant	6379985/2787118
3	29	21/2.9	OMANAWA RIVER BRIDGE (Incr Dir)	239	20	OWN LANE	Not Significant	6377814/2780803
4	29	21/5.96	RUAHIHĪ BRIDGE (WAIROA RIVER) (Incr Dir)	269	10	Central	High	6375618/2778932
5	29	21/11.0	NGAMUWAHINE RIVER BRIDGE (Incr Dir)	323	10	OWN LANE	Low	6371686/2775663
6	29	21/12.0	TE AHARA STREAM (BEACON) BRIDGE (Incr Dir)	330	50	OWN LANE	Not Significant	6371426/2775055
MAINTAIN 0.5M GAP FROM GUARDRAIL								
7	29	21/17.85	TUAKOPAI STREAM BRIDGE (Incr Dir)	388	10	OWN LANE	Low	6368191/2770658
8	29	50/1.21	WAIOMOU STREAM BRIDGE (Incr Dir)	512	50	OWN LANE	Not Significant	6366367/2762560
9	29	50/8.26	WAIHOU RIVER BRIDGE (Incr Dir)	582	10	OWN LANE	Low	6364879/2756117
10	27	74/7.44	MANGAWHERO STREAM BRIDGE (Decr Dir)	814	10	OWN LANE	Low	6366536/2753695
11	27	46/6.74	WAITOA RIVER BRIDGE (Decr Dir)	527	10	Central	High	6391072/2744494
12	26	35/4.1	WAITOA RIVER BRIDGE (Incr Dir)	391	20	OWN LANE	Not Significant	6397050/2742648
13	26	35/5.29	WAIHEKAU STREAM BRIDGE	403	10	OWN LANE	Low	6397606/2743681

Bridge No.	State Highway	Route Position	Bridge Name	BSN	Speed*	Position*	Risk to Other Vehicles*	GPS Co-ords N/E
			(CURTINS) (Incr Dir)					
14	26	35/7.61	PIRAUNUI STREAM (INCREASING) BRIDGE (Incr Dir)	426	10	OWN LANE	Low	6398949/2745560
15	26	48/0.0	WAIHOU RIVER BRIDGE (SH26) (Incr Dir)	480	10	OWN LANE	Low	6402622/2749448

\*See the next page

4. The user to whom this permit is issued shall contact the police at least two working days in advance of the crossing of any bridge in the above list where "police control" is indicated and make arrangements for a police officer to be present to control other traffic during the supervised crossing.
5. Bridge Engineering Self Supervision is permitted only for the bridge listed and the person named in condition 2 above.

Feasibility Study Only

## Critical Conditions: Bridge Restriction Requirements

### A. SPEED

The speed of the overweight vehicle shall not exceed the value shown while on the bridge.

### B. POSITION

The vehicle shall travel in the left hand lane on all bridges except those for which alternative bridge engineering supervision instructions are specifically provided in this permit.

**Own Lane** - the overweight vehicle shall travel in its own lane as far as is practicable.

**Offset** - the overweight vehicle shall travel so that its centre is at the indicated distance from the kerb on the left of the vehicle.

**Central** - the overweight vehicle shall travel on that part of the bridge most favourable to the structure. This shall be:

- (i) central on the beam system for bridges with beams and concrete decks;
- (ii) central between kerbs for slab bridges;
- (iii) approximately central on the beam system but with wheels as near as possible over the beams for bridges with timber decks.

**Opposite Bridge** - the overweight vehicle shall use the bridge for the opposing traffic direction.

**Ford or Bypass** - the overweight vehicle shall not cross the bridge but use the adjacent ford or bypass.

### C. TRAFFIC CONTROL

Other heavy vehicles proceeding in the same direction shall be spaced at least 30 metres from the overweight vehicle while it is on the bridge. Cars may be closer if necessary.

Where "offset", "central" or "opposite bridge" is indicated for position, traffic travelling in the opposing direction shall be prevented from crossing the bridge while the overweight vehicle is on it.

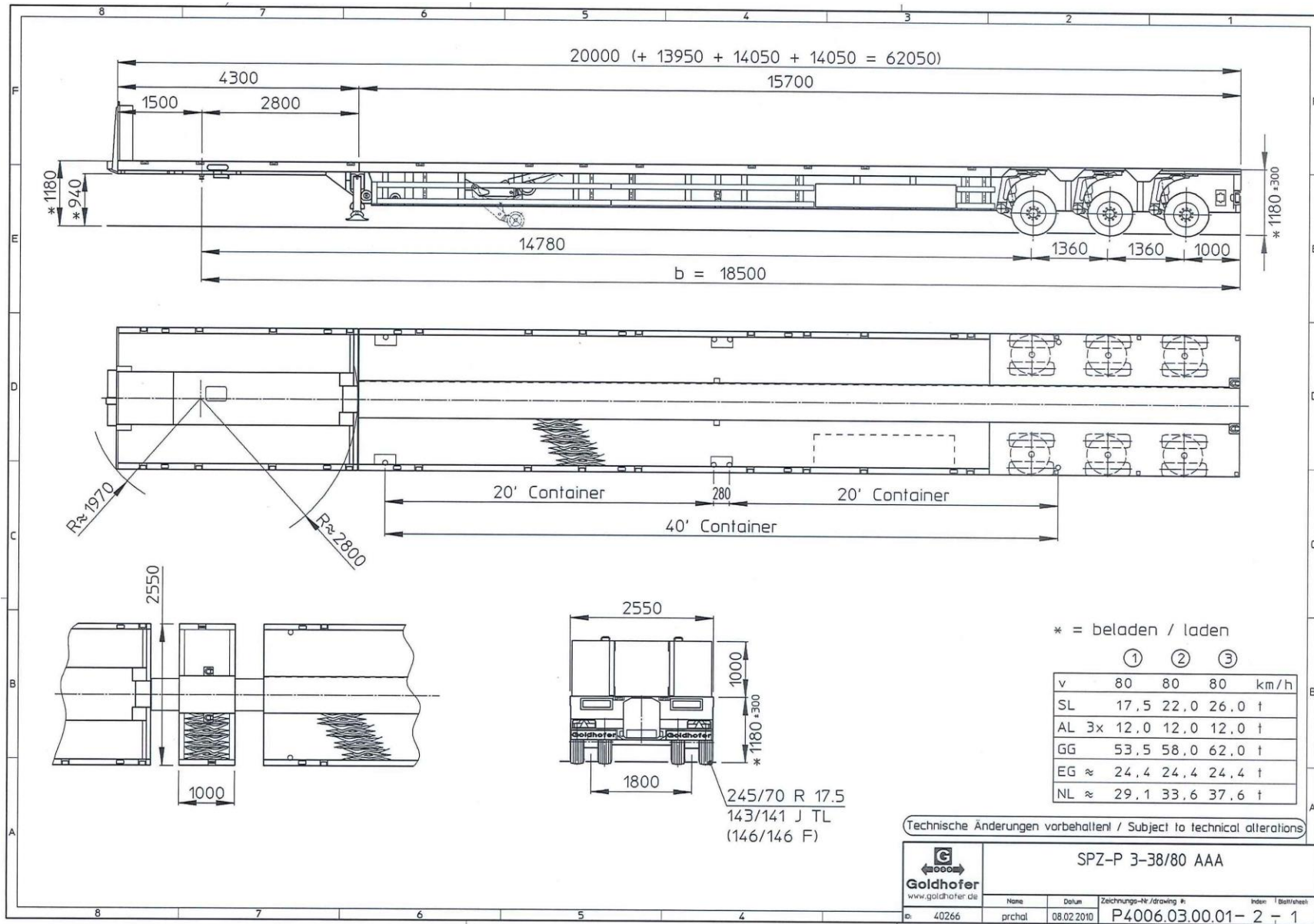
Traffic control at bridge crossings shall be in accordance with the "Code of Practice for traffic control at bridges being crossed by overweight vehicles"

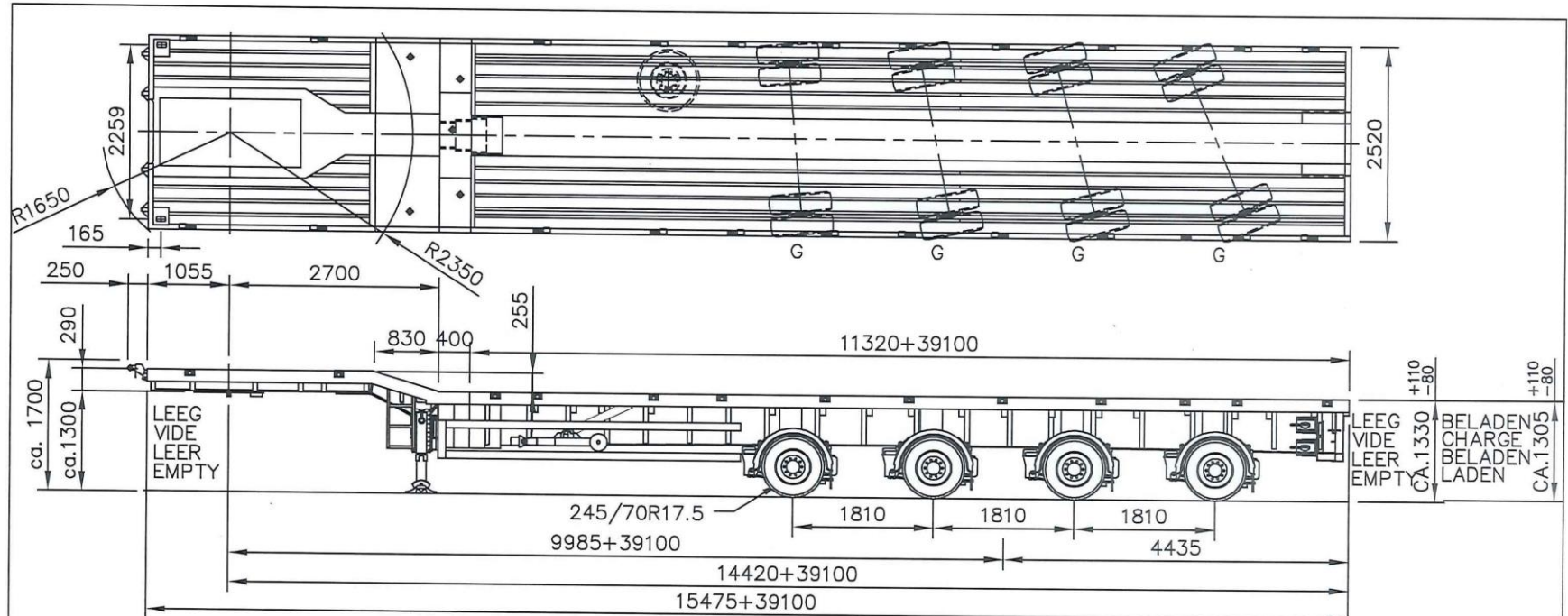
Traffic control requirements:

Risk to other vehicles	Traffic control requirements
Not significant	None required
Low	Overweight vehicle to have revolving amber light or flashing amber light visible from the rear together with rear facing retro-reflective hazard panels
High	Provide qualified traffic controllers or Class 1 or Class 2 certified pilots using approved industry procedures.

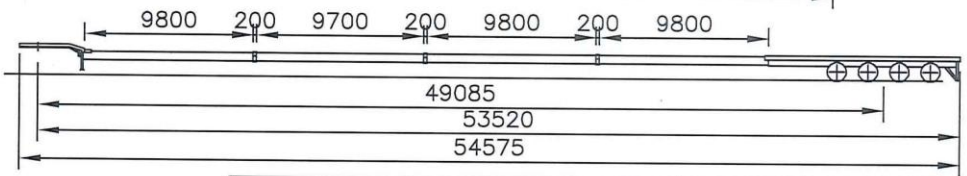


# Appendices 3 –





Uitschuifstappen							
Uitschuifbaardeel		Middendeel		Middendeel		Middendeel	
Nr	L	Nr	L	Nr	L	Nr	L
1	125 mm	1	125 mm	1	125 mm	1	125 mm
2	500 mm	2	500 mm	2	500 mm	2	500 mm
3	1000 mm	3	1000 mm	3	1000 mm	3	1000 mm
4	1500 mm	4	1500 mm	4	1500 mm	4	1500 mm
5	2000 mm	5	2000 mm	5	2000 mm	5	2000 mm
6	2500 mm	6	2500 mm	6	2500 mm	6	2500 mm
7	3000 mm	7	3000 mm	7	3000 mm	7	3000 mm
8	3500 mm	8	3500 mm	8	3500 mm	8	3500 mm
9	4000 mm	9	4000 mm	9	4000 mm	9	4000 mm
10	4500 mm	10	4500 mm	10	4500 mm	10	4500 mm
11	5000 mm	11	5000 mm	11	5000 mm	11	5000 mm
12	5500 mm	12	5500 mm	12	5500 mm	12	5500 mm
13	6000 mm	13	6000 mm	13	6000 mm	13	6000 mm
14	6500 mm	14	6500 mm	14	6500 mm	14	6500 mm
15	7000 mm	15	7000 mm	15	7000 mm	15	7000 mm
16	7500 mm	16	7500 mm	16	7500 mm	16	7500 mm
17	8000 mm	17	8000 mm	17	8000 mm	17	8000 mm
18	8500 mm	18	8500 mm	18	8500 mm	18	8500 mm
19	9000 mm	19	9000 mm	19	9000 mm	19	9000 mm
20	9800 mm	20	9450 mm	20	9450 mm	20	9450 mm
		21	9700 mm	21	9800 mm	22	9800 mm



ALL RIGHTS RESERVED REPRODUCTION OR DISCLOSURE TO THIRD PARTIES OF THIS DOCUMENT OR ANY PART THEREOF IS NOT PERMITTED, EXCEPT WITH THE PRIOR AND EXPRESS WRITTEN PERMISSION OF ROYAL NOOTEBOOM TRAILERS B.V. WIJCHEN, HOLLAND.

TOLERANTIE Wanneer geen tolerantie aangegeven geldt ± 1mm

DATUM 08/12/16  
GET. JHOO  
GEC.

OVB-65-04V(ZQ)  
XMROVB000H0000199

PROJEKTE

OPMERKING  
C015609 (01)  
V0..... Hulpbesturing

ACUUT VAN 5480339  
TEK.LIJST  
SCHAAL 1:50  
1:100

FORMAAT A3  
TEK.NR. 5524160

WIJCHEN HOLLAND

WIJZIGING PAR. DATUM WIJZ.LTR

**Goldhofer**



**THE ULTIMATE ROTOR BLADE TRANSPORTER  
(TESTED WITH BLADE LENGTHS UP TO 71m)**

**Dez.  
2010**



• "Goldhofer AG completely fulfilled our profile of requirements on a transport vehicle for the rotor blade of our V 112 - 3.0 MW. Various loading situations were tested and we were completely satisfied with the results. Even the most difficult driving situations on uneven terrain had no impact on our rotor blade. We were able to issue the official transport approval for this vehicle in good conscious!"

**Gunnar K. Storgaard Pedersen  
VESTAS Technology R&D  
Specialist Transport  
Installation & Service**



• "The handling characteristics of this new Goldhofer SPZ-P 3 AAA are fantastic. With the precise, direct and aggressive steering, roundabouts are no problem at all. After just two test runs across Denmark our driver mastered the operation of the vehicle without using the radio controlled auxiliary steering!"

**Torben Rafn, Director  
Torben Rafn & Co. A/S  
International Specialtransporter**



• "Brilliant solutions are simple! - This is something that Goldhofer AG demonstrates in convincing fashion. The impressive features of the skidding device include its low kerb weight, user-friendly operation and its fast and efficient load securing."

Jørn Rahbek Christiansen  
 VESTAS Wind Systems A/S  
 Projekt Manager Technology R&D,  
 Special Tools



For any further information,  
 please contact:  
**Klaus Bähr +49 8331 15-246**

• "Wind turbine manufacturers and transport specialists have long awaited this vehicle. The transport of rotor blades with lengths of 55, 58 or 61 m is no trouble at all. Even when faced a rotor blade length of 71 m, manufacturers and hauliers remain confident!"

Jørn Bolding, Direktor  
 Jørn Bolding A/S  
 „Goldhofer Scandinavia“

• "We have tested a wide variety of vehicles with our 61.5 m rotor blade. The SPZ-P 3AAA from Goldhofer was the only one which won us over from the start. We also look forward to seeing this vehicle on our premises in the future!"

Repower / LM

