

ROAD DESIGN SPECIFICATIONS FOR OVERDIMENSION LOADS



"The Sign of a Professional"

REVISION 4 ~ MARCH 2010

**NEW ZEALAND HEAVY HAULAGE ASSOCIATION
ROAD DESIGN SPECIFICATIONS
FOR
OVERDIMENSION LOADS**

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NEW ZEALAND HEAVY HAULAGE ASSOCIATION DESIGN SPECIFICATION DOCUMENT FOR OVERDIMENSION LOADS

1 Introduction

The vast majority of loads transported on New Zealand roads can be transported within the normal maximum dimensions. There is however a significant number of loads that exceed these dimensions, and by their very nature cannot be transported with reduced size.

Such overdimension loads place demands on this roading network, and Land Transport NZ does impose conditions on the travel to ensure safety for all road users under the Dimension and Mass Rule (41001).

There are also some factors that designers of roading structures can take into account that makes the transport of overdimension loads safer and easier to undertake. The specifications that are listed in the document are designed to act as a guideline for Road Controlling Authorities (RCA's) to ensure that these loads can be transported across its roading network.

1.1 Aims

The aim of these specifications is to:

1. Ensure that loads are physically able to fit on the road, and within the range of structures that are commonly found on roads in New Zealand, and
2. Encourage RCA's to design roads and structures such that safety is maintained whilst the load is negotiating the road and any structures that may be built into or on the road.

1.2 Application of this Document

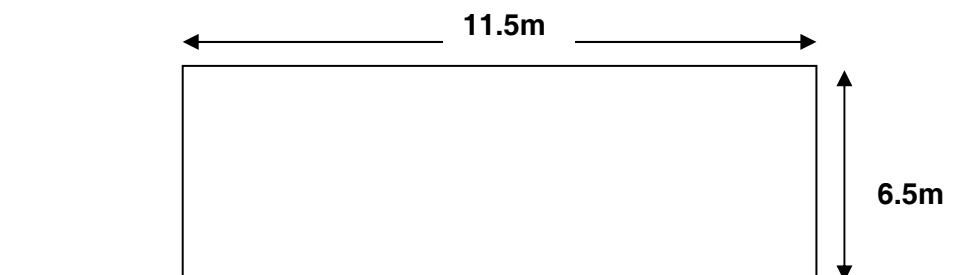
The specifications are intended for all new roads being developed along with roading changes or modifications.

The specifications are intended as guidelines for RCA's to apply to specific situations. In some cases it is accepted that it will not be possible to meet all the requirements. In such situations, RCA's are strongly encouraged to consult with the Association and local heavy haulage/overdimension operators to discuss alternative design configurations.

2 General Dimension Requirements

2.1 Width and Height Requirements

Minimum Overall width	11.5 metres
Minimum Height from pavement surface	6.5 metres



Note: These dimensions include a clearance envelope that permits the safe passage of a load with sufficient tolerance to clear any obstructions.

Based on normal overdimension load travel patterns in New Zealand, these dimensions allow for 97% of wide loads and high loads to travel unimpeded.

2.2 Special Routes Height Requirements

There are some special routes where extra height clearance should be provided by Road Controlling Authorities.

These are for the purpose of accessing specific destinations, or for the purpose of transporting special goods from the site of manufacture to their delivery point.

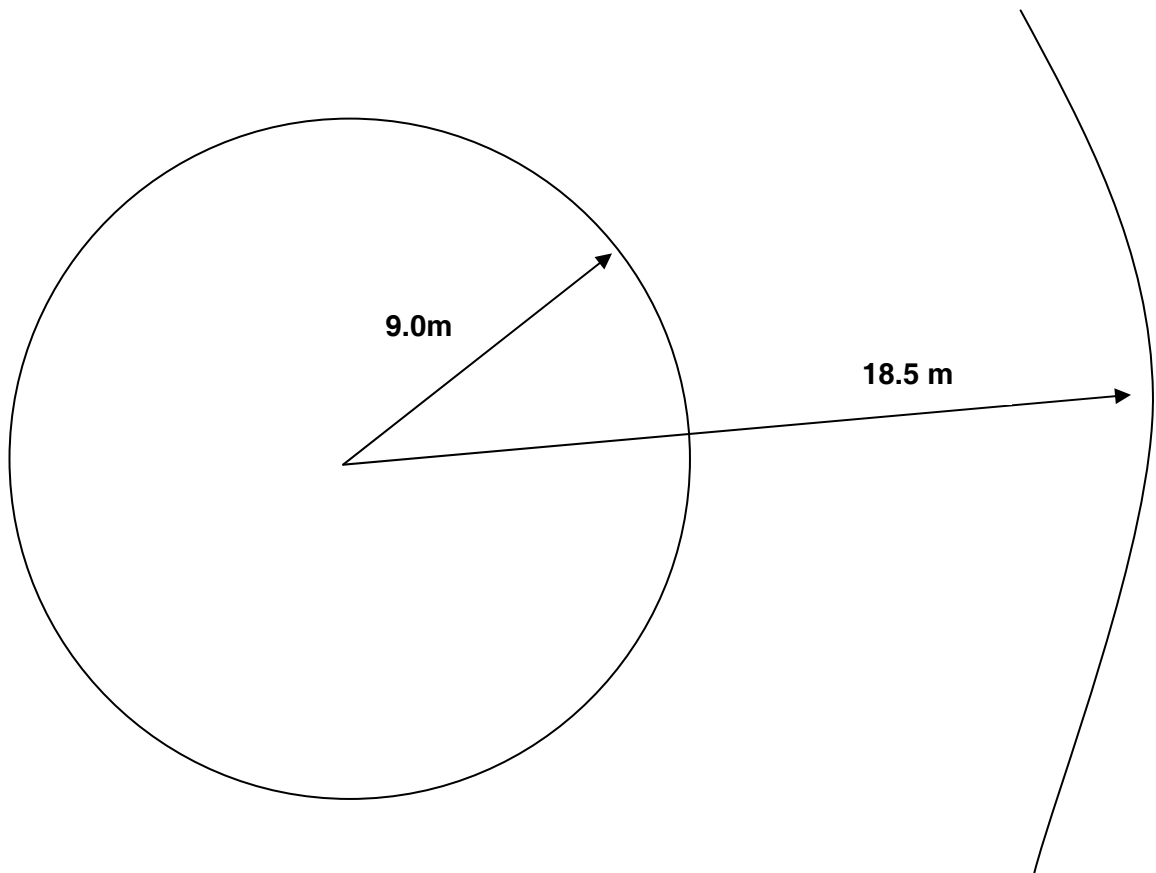
Examples of these situations include the following:

- Delivery of boats or yachts from their construction centre to their destination, for example a local marina
- Large goods bound for export where access to the local port is required

In these situations liaison with the NZ Heavy Haulage Association or with local carriers should identify what these routes are. Typically in these situations, a height clearance of 8 metres should be sufficient for most large overdimension loads.

2.3 Turning Circle Requirements

Roundabouts, etc	Inside diameter as small as possible. Suggest inside swept path of 9.0 m and minimum outside swept path of 18.5 m
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3 New Works Specifications

3.1 Requirements for Mountable Road Structures

<p>Specifications for kerbs at:</p> <ul style="list-style-type: none">• roundabouts• traffic islands• pedestrian refuges	<p>100mm height (maximum)</p> <p>150mm height not preferred as causes damage to tyres, wheels and kerbs</p> <p>All islands, roundabouts to be made mountable. Gradual angle as per photo 1.</p> <p>Gentle collar on roundabouts where possible (see photo 1)</p>
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Photo 1

Note: Height of kerbing on traffic islands lower to ease driving over islands if necessary – easier on concrete kerbing and tyres

Collar on roundabout to ease mountability

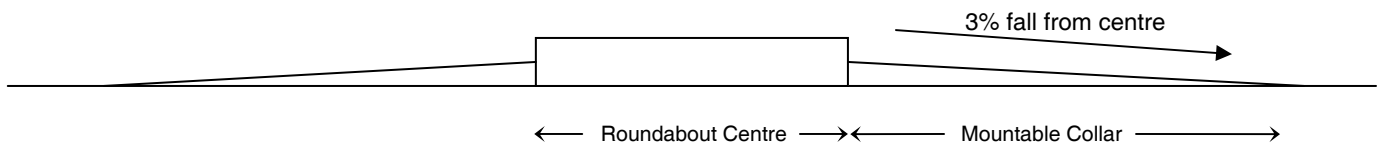
A minimum of planting in centre of roundabout

3.2 Special Requirements for Roundabouts with Mountable Collars

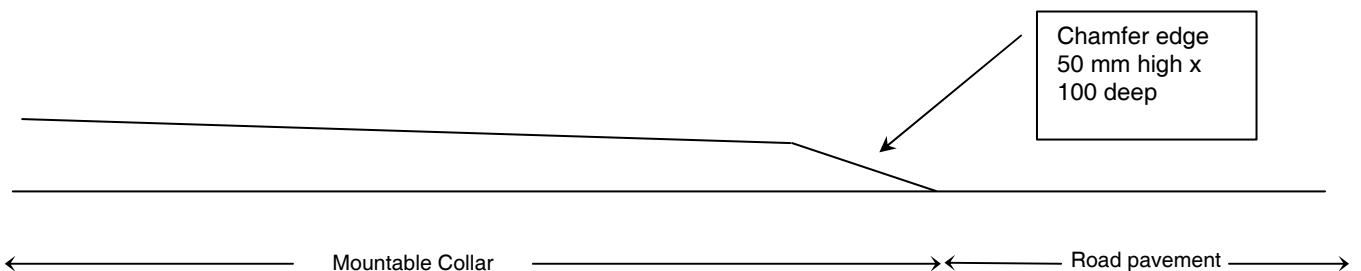
A common design feature with roundabouts installed in urban areas is for the roundabout to have a mountable collar, which heavy vehicles need to mount in order to proceed past the roundabout.

These can be suitable for overdimension loads, however the following specifications should be adhered to.

<p>Specifications for roundabouts with mountable collars</p>	<p>Mountable collar should be as wide as possible so that the entire width of the truck and trailer can travel over the collar section</p> <p>The fall across the mountable collar should be no more than 3%</p> <p>The edge of the collar to the road should either be flat or should have a chamfer edge of no more than 50mm in height to 100 mm depth</p>
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Cross section of roundabout with mountable collar



Roundabout with mountable collar detail

3.3 Requirements for Traffic Islands & Pedestrian Islands

All Traffic Islands	<p>No shrubs or plantings in the middle.</p> <p>Hard fill or grass only</p> <p>To be built in solid concrete unless there is a maximum clearance for a wide load – i.e. truck will not have to mount island.</p> <p>Consult the Heavy Haulage Association if planting.</p> <p>See photo 2 for good example. Note: painting the kerb white would improve visibility of these lower profile islands.</p>
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Photo 2

- Note:** Height of kerbing on traffic island eases driving over islands if necessary
- Kerbing is easily mountable
 - No planting - concrete fill instead
 - See below for requirements for signage

3.4 Special Requirements for Pedestrian Refuges

Pedestrian Refuges	<p>Need 12.0m clearance between solid structures.</p> <p>Centre island not preferred unless there is minimum 7.5m clearance from the side to centre island.</p> <p>Gradual slope on kerbs to 100mm max.</p> <p>Must be made mountable, as per photo 3.</p> <p>Handrails are not preferred unless designed in pieces to be easily removable.</p>
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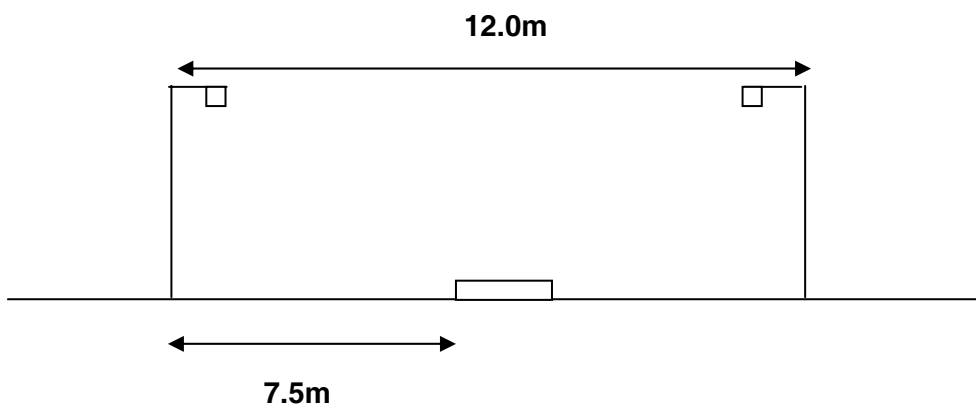


Photo 3

Note: Height of kerbing on traffic island eases driving over islands if necessary
Kerbing is easily mountable
No planting - concrete fill instead
See below (section 3.5) for specifications relating to signage, poles, etc.

3.5 Clearance Requirements for Traffic Islands & Pedestrian Islands

<p>Islands Centre of a Road</p>	<p>Need 12.0 m distance between structures either side of an island</p> <p>7.5 m clearance required from one side of the island to a permanent structure. e.g. Traffic lights, light posts, power transformers, power poles, permanent signs and any other permanent structure.</p> <p>This island must still be built mountable. If there is a car parked opposite, the option to mount the island may have to be taken by an operator.</p>
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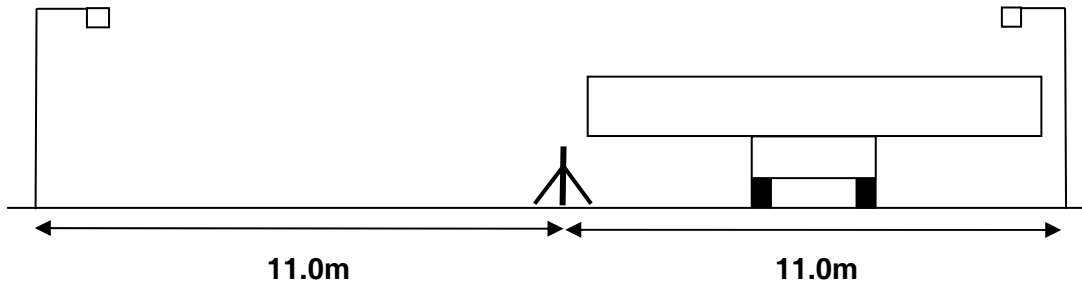


In many situations the painting of “no parking” lines for 15 metres on either side of the traffic island prevents cars being parked in awkward positions.

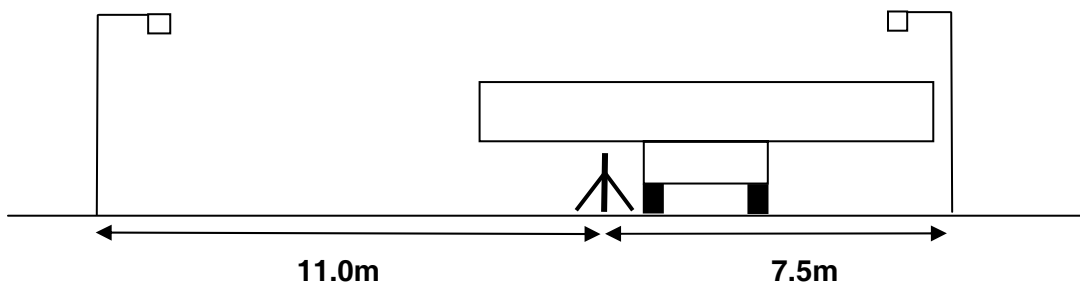
<p>Pedestrian Barriers/Handrails</p>	<p>Not preferred.</p> <p>If required then must be able to be removable and pulled out by one person</p> <p>A maximum of 900mm high.</p> <p>Clearance still required as above (overall width clearances).</p>
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3.6 Clearance Requirements for Wire Rope Median Barrier

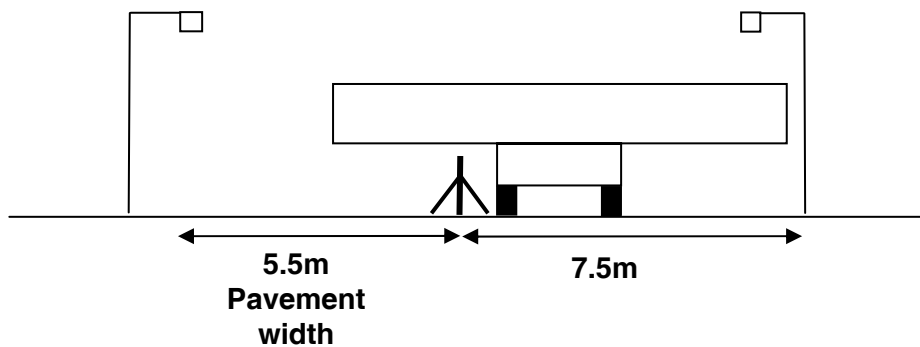
(a) Preferred



(b) Where width restricted one side



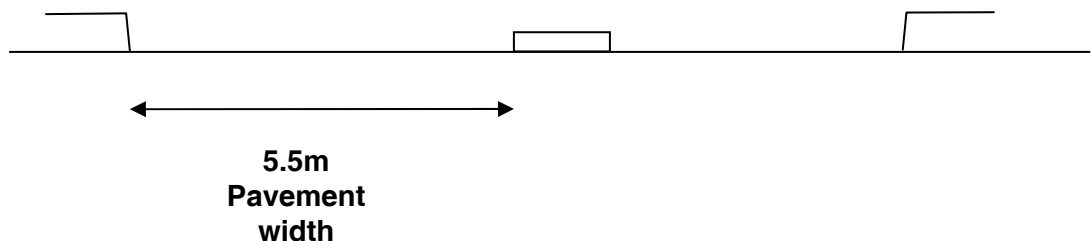
(c) Where overall width restricted – absolute minimum requirement



Wire Rope Median Comments:

- If a centre road median barrier is to be installed then the minimum width measurement to any width restrictions on the edge of the roadway must be 7.5m from the median barrier
- This assumes that wider loads can travel above the median barrier and hang the load over the barrier with appropriate measures in place for traffic control.
- The median barrier should be no more than 1.0 m high
- A stretch of median barrier that requires scenario (b) or (c) should be no longer than 2km in length to reduce the amount of waiting time for other traffic using the road. Consideration must also be given to providing pull over areas at the ends of median barriers to allow a wide load to come through.

3.7 Requirements for Pavement Width



- This scenario is for where a centre island median also has side islands built out from the kerb.
- The minimum pavement width of 5.5m on at least one side of the island is to allow for widening trailers to move past these islands without needing to mount the islands.
- Frequently these wide trailers have very low ground clearance so cannot mount the islands easily.

3.8 Requirements for Traffic Signals / Signage

Overhead Traffic Signals	<p>A minimum height of 6.5m for overhead light heads.</p> <p>Alternatively to be either hinged or able to be swung away to provide clearance.</p>
Arrow Signage /Keep Left Signs	<p>Height a maximum of 900mm from the road surface (not from top of traffic island)</p> <p>Signs mounted in a sleeve, and able to be pulled out, or spring loaded with flip-flop mounting.</p> <p>Sleeve to be flush with the top surface.</p>
Stop and Give Way Signs	<p>Signs mounted in a sleeve, and able to be pulled out.</p> <p>Sleeve to be flush with the top surface.</p>
Other Road Furniture, Barriers	<p>Either hinged or readily removed by one person.</p>

3.9 Requirements for Threshold Signs

Threshold signs have become very popular in recent years to slow traffic entering a built up area from a rural area.

These typically include large signs placed opposite each other to create a gateway effect to cause drivers to slow down as they approach the threshold area.

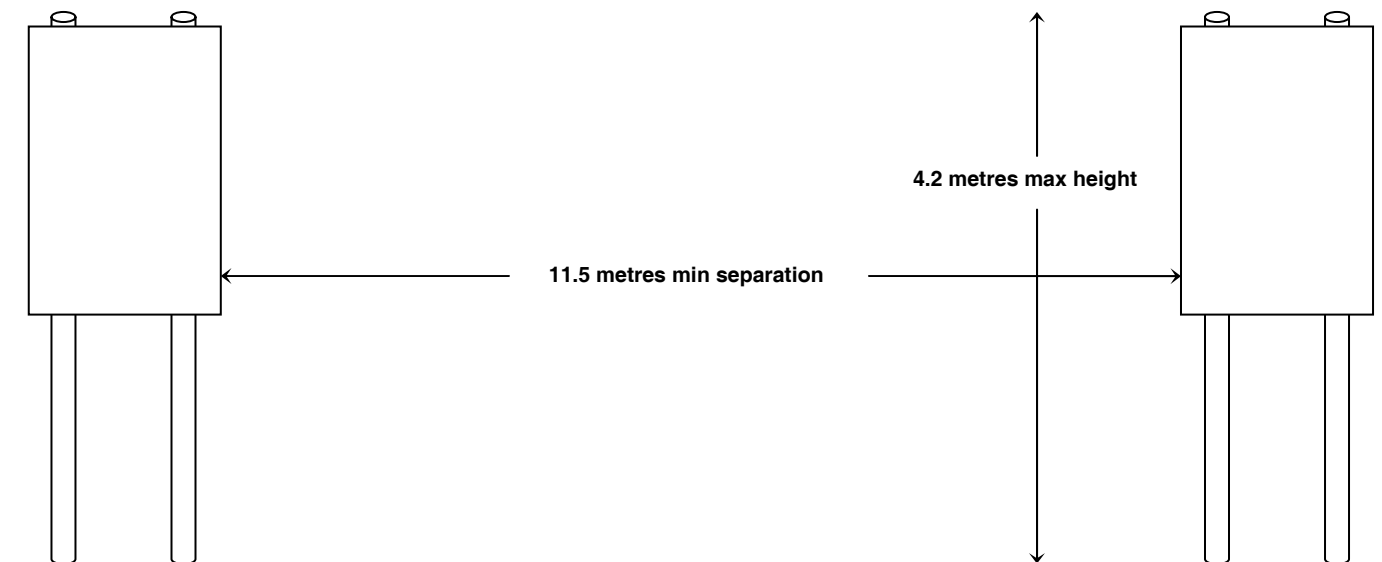
Consideration needs to be given to the travel of overdimension loads through the threshold sign area.

The basic requirements follow:

A minimum clearance of 11.5 metres between the two signs laterally across the road should be provided

The height of the threshold sign should be no more than 4.2 metres above the road surface. This allows some overdimension loads that exceed the 11.5 metre width to be lifted above the signs.

Where there is no alternative route for overdimension loads wider than 11.5 metres then the threshold signs must be made easily demountable – or have a swivel mechanism so that at least one of the signs can be rotated through 90 degrees to allow for these loads to pass through.



4 Maintenance

4.1 Vegetation Maintenance

In rural areas in particular, but also in urban areas, the growth of vegetation in the following areas can reduce the available width or height to transport overdimension loads:

- Roadside Trees or bushes
- Brush growth in cuttings
- Overhanging trees that reduce available height due to drooping branches, rain, excessive leaf growth, and alike

We recommend that all vegetation be maintained so that there is a minimum of 1.5 metres of available space outside of the white line on the edge of the pavement so as to allow for overdimension loads.

In addition, a height of at least 6.5 metres should be maintained, both over the roadway and extending out to the 1.5 metres beyond the white edge line.

4.2 Mill and Pave Operations

The re-surfacing of road pavements is a continuous operation for many road controlling authorities.

The issue for overdimension loads is that if the asphalt fill is simply laid over the top of the existing road surface, then this essentially reduces the height available to overdimension loads.

Over the course of years then valuable height clearances to overhead structures, lights, power lines, overbridges and alike can effectively be reduced by a significant amount.

We recommend that on those overdimension routes where there are overhead restrictions, that the pavement is milled out and replaced to the same height, so that available height is not lost.

5 Conclusion

These guidelines are provided to enable Road Controlling Authorities to not only meet their safety obligations but also provide for the safe movement of large permitted loads wherever possible.

However there may be specific sites where it may be difficult for whatever reason for a roading authority to meet these requirements.

In these situations, it is requested that the roading authority consult with the Association and local transport company's to negotiate the next best possible solution.

6 Contact Details

We request that Road Controlling Authorities please consult the New Zealand Heavy Haulage Association pertaining to any roading issues with regards to roundabouts, traffic islands or any new construction work that may impede the movement of overweight, overwidth and overheight loads on our roads.

New Zealand Heavy Haulage Association

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