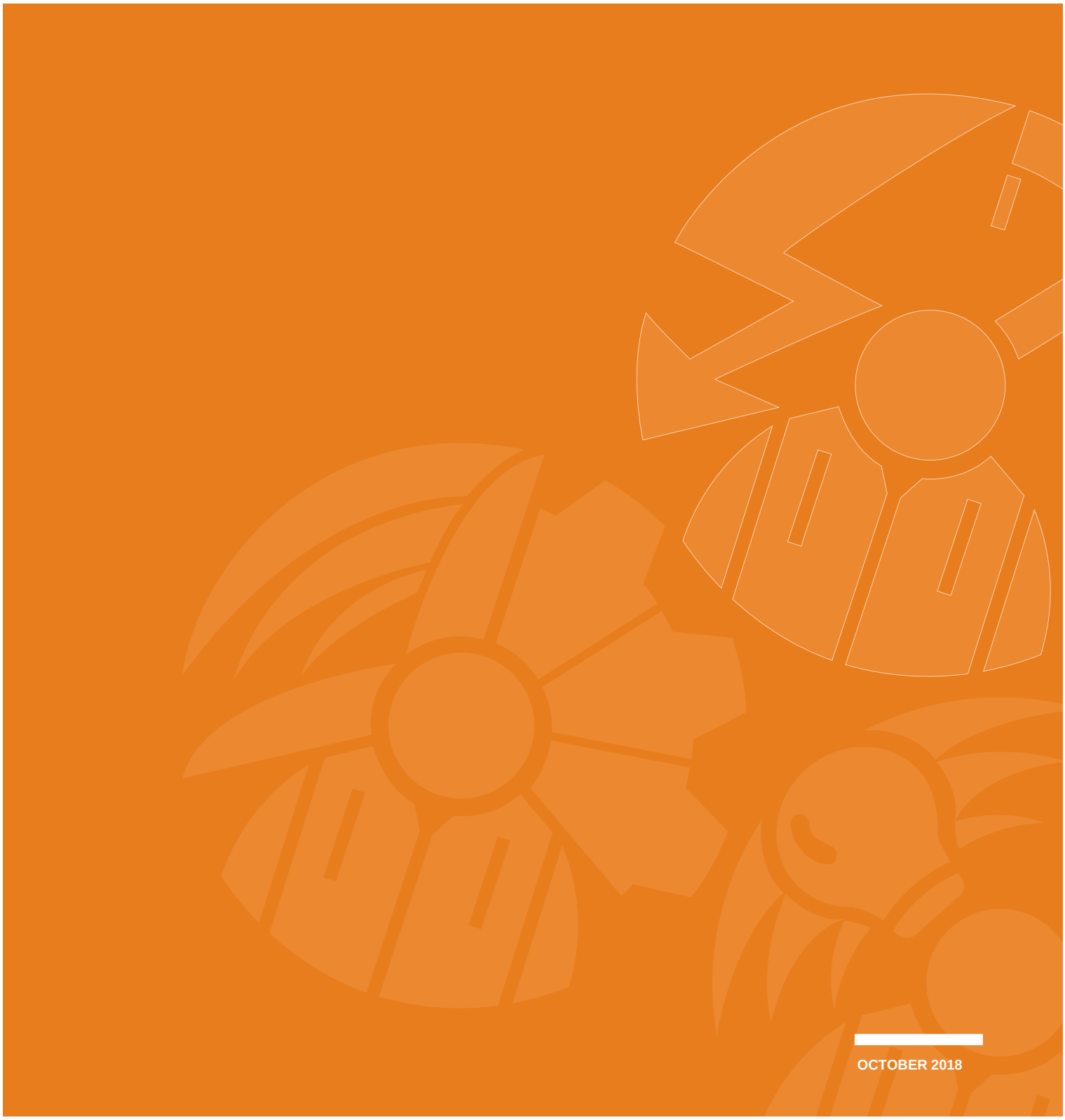


Guide for Transport of High Loads through Electricity Network Areas in New Zealand

First published August 2000
CONSULTATION DRAFT: OCTOBER 2018

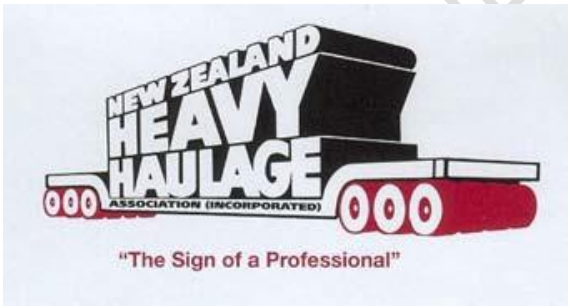
HEALTH + SAFETY
ASSET MANAGEMENT
PROF DEVELOPMENT

Guide for Transport of High Loads through Electricity Network Areas in New Zealand

Issued and published by the Electricity Engineers' Association of New Zealand (Inc.) (EEA).

First published August 2000

October 2018 – For Consultation



Developed by the EEA in consultation with the New Zealand Heavy Haulage Association (NZHHA)

Copyright

Disclaimer

This Guide has been prepared by representatives of the electricity supply industry in consultation with the heavy haulage industry to provide guidance on safety practices for use by the industry.

Although electricity supply industry representatives recommend the Guide as setting out good practice, it should not be relied on as a substitute for legislative requirements. The Guide should always be used in conjunction with the applicable legislative requirements, including health and safety requirements. If there is uncertainty as to what guidelines or legislative requirements apply in any particular situation, specialist advice should be sought.

The Guide is not intended to replace or affect the legal obligations under any statute, regulation, rule or electricity code of practice that may be applicable to the transport of over-dimension loads through an electricity network area. In particular, any network operator's vehicles or network services contractor's vehicles that are engaged in any high load escorting must at all times comply with the applicable Land Transport Rule and any other transport requirements in force at the time.

The Guide is endorsed by the EEA; however, neither the EEA nor the individuals or companies involved in its preparation accept any liability whatsoever to any party for any error or omission from the Guide, or any liability for injury, loss (including indirect loss), damage or any other claim caused by or resulting from application or lack of application of the guidelines it contains.

The Guide is also endorsed by the New Zealand Heavy Haulage Association (NZHHA), which has been consulted on and contributed to the Guide's content, with similar non-acceptance of any liability for errors, omissions, injuries, losses or damage resulting from the application or lack of application of the Guide. The NZHHA wishes to see more national standardisation of procedures and forms in respect to the transport of high loads throughout the country and requests network operators to adopt the recommendations in the Guide to the extent permitted by each network's individual characteristics.

Status of examples & case studies

Examples, including sample processes, or Case Studies in this Guide are included to assist with consideration of health and safety issues. The Examples or Case Studies are not a comprehensive statement of matters to be considered, nor steps to be taken, to comply with any Statutory Obligations pertaining to the subject matter of this Guide.

Preface

This "Guide for Transport of High Loads Through Electricity Network Areas in New Zealand" (the Guide) was prepared originally in 2008 by the Electricity Engineers' Association of New Zealand (the EEA) in consultation with the New Zealand Heavy Haulage Association (NZHHA) for application in New Zealand and was reviewed and updated in 2015. As the 2015 version was not published it has been further reviewed and updated in 2017/2018. It is intended to provide guidance to electricity network operators in administering and controlling the transport of high vehicular loads through their network areas.

The Guide includes, with a view to desirable national standardisation, recommendations as to the content and form of the high load transport Requests that are lodged by haulage contractors prior to the travel period and the Permissions that are issued in response by network operators. They suggest, wherever practicable, the establishment of high load corridors that may be used by haulage contractors without necessitating any action by the relevant network operator and discuss the requirement to reach agreement on the travel period through the area. The Guide makes no recommendation as to the quanta of fees that should be charged in those cases for which an operator incurs chargeable costs, other than to say that the operator should make a charge that is fair, reasonable and justifiable.

The EEA is the national organisation for persons involved in technical matters in any aspect of the electricity supply industry, including its generation, transmission, distribution, utilisation, consulting and contracting sectors. One of its key roles is in the development and maintenance of technical, engineering and safety guidelines for the industry.

The Guide is not mandatory. It is a statement of good practice intended to promote consistence among network operators and good compliance among haulage contractors.

Users of this Guide are reminded that, although many of them are not directly referenced in this Guide, the EEA has published a wide range of publications (see EEA website www.eea.co.nz) for the ESI. The content of these publications sets out good engineering policies, practices and procedures that have strong relevancy to ensuring the safety of employees, workplaces, and members of the public in various situations; some of this content may be applicable to the transport of high loads.

This Guide originally published in September 2008, has been revised in 2015 and in 2017/2018 to update its references in the light of changes in legislation that have occurred since 2008. The New Zealand Electrical Code of Practice No. 34 *Electrical Safety Distances* (ECP 34) remains unchanged. However, the Health and Safety in Employment Act has been replaced by the Health and Safety at Work Act, the Electricity Regulations 1997 have been superseded by the Electricity (Safety) Regulations 2010 and the Traffic Regulations 1976 have been superseded by various Land Transport Rules, the Rule applicable to the transport of high loads being Land Transport Rule – *Vehicle Dimensions and Mass 2016.*

It is appropriate also to call attention to the incident in December 2013 in which a high load being transported through a network area by a transport contractor contacted and brought down live low voltage conductors. These were pushed by an employee of the transport contractor into a ditch but the damage was not reported to the local network company. The live conductors subsequently caused the electrocution of several sheep and two sheep dogs and, but for intervention by a farmer, might have caused electrocution of the accompanying shepherd. The farmer rather than the contractor reported the damage and the ongoing risk. WorkSafe subsequently prosecuted the transport contracting company and the court sentenced its director to four months home detention and fined the company $60,000. This incident brings home the importance of compliance with safe practices when transporting high loads.

The need to further amend the content of the Guide may arise to take account of experiences gained in applying the Guide's recommendations, suggestions of useful additional content and other feedback from network operators, haulage contractors, their respective associations and the authorities that govern road transport. Accordingly, the content of the Guide will be reviewed periodically.

Suggestions for clarifying, revising or supplementing the content should be sent to:

Guide for Transport of High Loads
Electricity Engineers' Association of NZ (Inc.)
P O Box 5324
Wellington
New Zealand
e-mail: admin@eea.co.nz Web: www.eea.co.nz
Peter Berry
EEA Executive Director

CONTENTS

Copyright 1
Disclaimer 1
Status of examples & case studies 1
Preface 2
1. Executive Summary 6
1.1 Purpose 6
1.2 Application 6
1.3 Minimum Distances 6
1.4 Permissions 6
1.5 Trigger Heights 6
1.6 Notice 7
1.7 Charges 7
1.8 Other Issues 7
1.9 Summary Table 8
2. References 10
3. Definitions, Abbreviations and Acronyms 10
4. Introduction 13
4.1 Background 13
4.2 Objectives of the Guide 14
4.3 Application 14
4.4 Responsibilities 15
4.5 Grounds for Departure 15
5. Legislation, Rules and Codes 16
5.1 Health and Safety at Work Act 2015 16
5.2 Electricity Act 1992 16
5.3 Electricity Industry Act 2010 17
5.4 Land Transport Rule: Vehicle Dimensions and Mass 2016 17
5.5 Electricity (Safety) Regulations 2010 19
5.6 Electrical Code of Practice 34 (ECP 34) 19
5.7 Recommended Safety Distances for High Loads 21
6. Governing Authorities 23
6.1 New Zealand Transport Agency (NZTA) 23
6.2 Over-dimension Permit Issuing Authority (OPIA) 23
6.3 Network Operator 24
7. Requests and Permissions 25
7.1 Notice of Travel 25
7.2 Content of Request 25
7.3 Conditions of Permission 26
7.4 Model Request and Permission Forms 27
8. Carriageway Conductor Database 29
9. Route Corridors 31
10. Procedures 32
10.1 Trigger Heights 32
10.2 Load Height Measurement 32
10.3 No Route Check 33

10.4 Route Check 33
10.5 Load Escorting Only 34
10.6 Load Escorting with Accompanying Network Operator Vehicle 34
10.7 Multiple Load Transports 35
10.8 Communications among Convoy Vehicles 35
10.9 Use of Skids 35
10.1.1 Skids are fitted: 36
10.1.2 Limitations of skids when used as an insulating cover 36
10.1.3 Considerations 36
10.1.4 Materials for skids 36
10.10 Fitting 37
11. Travel Period 38
12. Advance Notice 39
13. Charges 41
14. Dispute Resolution 42
15. Attachments to the Guide 43
Appendix 1: Extract from ECP 34 44
Section 4: Safe distances of conductors from the ground and water 44
Table 4: Minimum safe distances of conductors from the ground 45
Appendix 2: Model request and permission forms 46
Request for Permission of Transport of High Load through Network Area 46
Permission of Transport of High Load through Network Area 47
Appendix 3: Model procedures 48
A3.1 Creation of Database of Carriageway Conductors 48
A3.2 For Transport of High Loads along Established High Load Corridors 48
A3.3 For High Loads Not Exceeding Trigger Height 1 48
A3.4 For High Loads Exceeding Trigger Height 1 but Not Exceeding Trigger Height 2 49
A3.5 For High Loads Exceeding Trigger Height 2 but Not Exceeding Trigger Height 3 49
A3.6 For High Loads Exceeding Trigger Height 3 50
Appendix 4: Model check list 51
A4.1: Request Form contains following: 51
A4.2: Permission Form contains following requirements 51
A4.3: Procedures 52
A4.4: Invoices 52
A4.5: Payment 52
Appendix 5: High load transport permission – Decision tree 53

1. Executive Summary

1.1 Purpose

This document has been developed to assist the achievement of consistent practices among (electricity) network operators and improve compliance of haulage contractors in respect to the transport of high loads through electricity network areas.

1.2 Application

High load written Permissions are mandatory and apply to high loads that exceed 5.0 metres from road level. Additionally, haulage operators must request a Permission for loads that are between 4.3 and 5.0 metres in height if there is an overhead obstruction that the loads cannot clear or as required by the network operator.

1.3 Minimum Distances

Electrical Code of Practice 34 (Electrical safe distances) (ECP 34) specifies that carriageway conductors shall have a minimum height above the road surface of between 5.5 and 8 metres depending on the voltage. However, there may be reasons (e.g. undiscovered vehicle or weather damage) why such conductors are not always at the minimum height. ECP 34 states that minimum approach distances (MADs) from live electrical conductors do not apply to loads being transported on roads but there are recommendations for MADs applicable to travelling high loads contained in this Guide.

1.4 Permissions

Written Permissions must be obtained from network operators prior to the passage of any high load over 5.0 m through a network area. Requests for a Permission must be lodged with network operators (model form provided in this Guide) in good time to permit any necessary arrangements for carriageway conductor height checks or any escort to be made. Network operators may set trigger heights requiring written Permission, from 4.3 m to 5.0 m, based on risk assessments undertaken on the network to ensure the safe transport of high loads.

1.5 Trigger Heights

Trigger heights are adopted by network operators to initiate successively more onerous requirements to ensure the safe transport of high loads. These are generally route dependent and range from no conditions where a high load corridor (no or very high carriageway crossing conductors) exists to requirements involving a shutdown of supply to network connections where the load is of such height as to require the removal and replacement of crossing conductors.

See Summary Table in 1.9.

1.6 Notice

The required notice to any network operator will vary dependent on the work that is necessary to ensure the safe transport of the high load through the network. This may range from a desk-top check of the carriageway crossing conductors along the proposed route to the arrangement, through electricity retailers or directly, of shutdowns of supply to the network's connections.

See Summary Table in 1.9.

1.7 Charges

In general, charges to the haulage contractor in connection with the transport of a high load should be fair, reasonable and justifiable but without subsidy from the network operator.

See Summary Table in 1.9.

1.8 Other Issues

If the network operator wishes to check the height of the load as it enters the network area, then this should be determined when the transporter is at its normal travelling height.

It is recommended that the haulage operator provide any escort with a hand-held radio to assist with convoy communication

.

1.9 Summary Table

NZTA Rule Requirement	HIGH LOAD HEIGHT	TRIGGER HEIGHT	PERMISSION REQUIRED	RATIONALE	RECOMMENDED PROCEDURE	NOTICE (WORKING DAYS)
Land Transport Rule: Vehicle Dimension and Mass 2016 (Rule 41001) Schedule 6 Part 3 Overheight requirements	4.3 m – 5.0 m	4.3 m – 5.0 m	Based on network operator trigger height(s)	NZTA require written permission from the owner of an **overhead obstruction** that the vehicle travelling underneath cannot clear.	Network operator Permission requirements for the route based on the trigger height and specific permission requirements	One to three, depending on need for check
Land Transport Rule: Vehicle Dimension and Mass 2016 (Rule 41001) Schedule 6 Part 3 Overheight requirements	>5.0 m	>5.0 m	Yes	NZTA requires: An overdimension permit Written permission from the network operator for all high loads over 5.0 m	Issue written Permission based on route requirements	One to three, depending on need for check
		Example: TH1 = 5.0[1] m >5.0 m – 5.2[2] m	Yes	Warning that check along route should be considered	Issue written Permission and, if prudent, inspect route prior to high load transport to check if low voltage carriageway conductors are below regulatory height of 5.5 m	One to three, depending on need for check
		Example: TH2 = 5.2[2] m >5.2[2] m – 6.0 m	Yes	Height will infringe recommended safety distance for low voltage carriageway conductors at regulation height	Issue written Permission and consider providing escort if required to oversee safe negotiation of low voltage carriageway conductors by raising these if necessary to allow passage	Three to five, depending on time required to arrange escort, if any

		Example: TH3 = 6.0 m >6.0 m	Yes	Height may be greater than that to which low voltage conductors may be safely raised or else may infringe on recommended safety distance for high voltage carriageway conductors	Issue written Permission and provide escort with lines truck to either lift live high voltage carriageway conductors with live line tools or, where lifting is not possible, remove and replace conductors	Five if lifting only is practicable Ten for necessary shutdowns with removal and replacement

NOTES:

1. Trigger heights chosen will be determined by the carriageway conductors to be encountered along the proposed high load route, taking account of their voltage and the heights to which, they may be safely raised by insulated skids (LV only) or other means, including live line tools, to permit the safe passage of the load. High loads that exceed conductor safe raising heights will require shutdowns to permit the removal and replacement of conductors. The uses of corridor routes with no, or very high, carriageway conductors are preferred, wherever available.
2. Determined on the basis of low voltage carriageway conductors along the proposed route being at (or less than) the minimum regulatory height of 5.5 m. If existing conductor heights are known to have a safety margin over the minimum, this margin may be added to the trigger height

2. References

The following documents are referred to in this Guide:

- Electricity Act 1992
- Electricity Industry Act 2010
- Electricity (Safety) Regulations 2010
- Health and Safety at Work Act 2015
- Land Transport Rule: Vehicle Dimensions and Mass 2016 (Rule 41001)
- New Zealand Electrical Code of Practice 34 (ECP 34) *Electrical Safe Distances*
- NZS 7901:2008 and NZS 7901:2014 Electricity and gas industries – Safety management systems for public safety
- New Zealand Transport Agency – Vehicle Dimensions and Mass Permitting Manual - Vol 1 Part C - Overdimension Permits.

3. Definitions, Abbreviations and Acronyms

The words, phrases, abbreviations and acronyms listed in this section and used in the Guide should be taken to have the following interpretations ascribed to them throughout the Guide.

Carriageway conductors	Electrical conductors (network or service) that run above and across the road to be traversed by the high load. For the purposes of this Guide, such conductors should be taken as including pole support strain wires and catenary supported aerial communication cables that are supported by poles owned and/or used by the electricity network operator
Conductor height	Height of a carriageway conductor crossing over a road to be traversed by a high load, measured at the point of the road at which the distance between that point and the conductor running over it is a minimum.
ECP 34	New Zealand Electrical Code of Practice 34 Electrical Safe Distances
EEA	Electricity Engineers' Association
ESRs	Electricity (Safety) Regulations 2010 and its amendments
ESR#	ESR# of the Electricity (Safety) Regulations 2010 and its amendments
Escorting	The accompaniment of a high load by a network operator's representative for the duration of its travel through an electricity network area to assist a haulage contractor to satisfactorily control any electrical and mechanical hazards arising from the presence of the network identified either prior to or during the journey

Guide	This *Guide for the Transport of High Loads Through Electricity Network Areas in New Zealand*
Haulage contractor	The contractor that transports the high load through the electricity network area
High Load Corridor	Route along which a high load may be transported that is free of carriageway conductors that might require action under this Guide
Network operator	Enterprise responsible for the operation of the electricity network in the area through which any high load requires to be transported
NZHHA	New Zealand Heavy Haulage Association
NZS 7901	NZS 7901:2008 or NZS 7901:2014 *Electricity and gas industries – Safety management systems for public safety*
NZTA	New Zealand Transport Agency
Other Network	Network of wires or overhead cables not owned or operated by the network operator but which may be attached to assets for which the network operator is responsible
Over-dimension Load	Transport load that has dimensions (inclusive of the towing vehicle) that exceed 4.3 m in height, 2.55 m in width or other (defined) limits in length
Overdimension Permit	Permit, complete with any conditions, that is granted by the OPIA or NZTA in response to any application for the same by a haulage contractor requiring to transport an over-dimension load that needs such a permit
OPIA	Over-dimension Permit Issuing Authority, which issues permits on behalf of New Zealand Transport Agency for the movement of those over-dimension vehicles and loads that require permits to exceed the dimension limits
Permission	Written Permission, complete with any conditions, that is granted by a network operator in response to a Request from a haulage contractor to be permitted to transport a load of more than 5 m or specified trigger height through the network area
Piloting	The accompaniment, with suitable lighting and signage, of an over-dimension load for the duration of its travel as may be required by the OPIA or NZTA to ensure the safety of other road users

Procedures	Actions to be taken by the network operator on and after receipt of a request for Permission of the transport of a high load through the electricity network area, including actions taken to ensure the safety of the load and the network during the travel period
Request	Request for a Permission required to be lodged with a network operator by a haulage contractor wishing to transport an over-dimension load of more than 5 m in height or above the trigger height, through the network operator's area
Road level	Level of the road to be traversed by the high load under carriageway conductors crossing the road and should be taken at the point of the road at which the distance between that point and any carriageway conductor crossing over the road is a minimum
Route	Road route along which the high load requires to be transported
Rule	Land Transport Rule: Vehicle Dimensions and Mass 2016 and its amendments
Safety distance	Distance that will exist between the highest point of the high load while being transported and any carriageway conductor under which it will pass, which should not be less than the minimum value set out in this Guide
Skid	Length of non-conductive smooth timber, PVC pipe, etc. placed at the high point of a load in the travelling direction to lift and guide LV conductors and/or catenaries as the high load passes under them.
Trigger height	Travelling height of an over-dimension load at which any network operator decides to initiate a more rigorous procedure for the safe transport of the load along the specified route through its network area.

4. Introduction

4.1 Background

The New Zealand Transport Agency (NZTA) requires the impending passage of any over-dimension load greater than 5 m in height to be notified to the network operator of each area to be encountered along the transport route. The haulage contractor that will transport the load must obtain a written Permission from each network operator and comply with any conditions placed on the transport operation, including the payment of any fees to cover each network operator's costs.

Depending on the declared height of the load, its stated route and the specified time of travel, each network operator may choose to:

(i) simply issue written Permission without any other action being necessary; or

(ii) carry out a check along the specified route to ensure that heights of carriageway conductors have not been changed by any external influence from those that have been measured and known in the past; or

(iii) provide an escorting vehicle complete with provision for lifting carriageway conductors; or

(iv) where lifting carriageway conductors is not practicable or sufficient, provide in the escorting party a vehicle equipped for the isolation or temporary removal of carriageway conductors to allow safe travel.

Currently, each network operator has its own procedures that it follows on receipt of high load transport requests. The heights that initiate (trigger) checks, simple escorts, or escorts with shutdowns will vary from operator to operator, depending on the known heights of carriageway conductors along the proposed route and, where lifting these is involved, their tensions and spans. The form and content of Permissions will also vary, as do operators' policies on charging for services supplied.

In the case of (iv) above, the transport of a high load through a network area will necessitate (because of the need to temporarily remove conductors or to simply isolate and earth conductors to ensure safety) the loss of supply to some of the operator's served connections. Where this applies, the operator may choose to negotiate a period of travel that minimises the degree of inconvenience to the affected end users.

Variation among network operators as to high load policies, procedures, Request and Permission forms, charges, etc., causes inconvenience and uncertainty for haulage contractors, especially those that transport high loads infrequently. The NZ Heavy Haulage Association (NZHHA), to which most of the haulage contractors belong, has, for a considerable period, been requesting the adoption of a national and consistent approach by network operators to the transport of high loads. The Association is a self-disciplining body and may be helpful to network operators in the negotiation of the use by its members of high load corridors where these have been established.

4.2 Objectives of the Guide

The objectives of this Guide are to:

- Identify, and enhance compliance with, the legislation relevant to the transport of high over-dimension loads.
- Enable the safe transport of high loads in close proximity to electricity network assets
- Define the individual responsibilities for achieving that safe transport.
- Promote consistency in the policies, procedures and forms used by network operators in relation to the transport of high loads through their areas.
- Improve the understanding, safety awareness and compliance of haulage contractors.

4.3 Application

This Guide sets out what is considered to be good practice in terms of principles, processes and minimum recommended procedures for network operators and heavy haulage contractors, to promote the safe transport of high loads in relation to electricity networks. It recommends that network operators set trigger heights for initiating appropriate actions to ensure safe transport. Other procedures, specific to particular transport situations, may also be needed.

While the emphasis is on over-dimension loads that are over-height, the principles and processes may also be applied to over-width loads in situations where these dimensions may have implications for the temporary removal of structures such as wood poles along any transport route.

4.4 Responsibilities

During any high load transport operation, the haulage contractor remains the project manager and must remain responsible for engaging and competently managing such resources as may be necessary for the safety of the operation and to safeguard persons in its vicinity.

The network operator is responsible for satisfactorily controlling the safety related risks posed to the high load, the transport operation itself, persons associated with the operation and any members of the public and their property that arise from the presence of carriageway conductors in particular or any other electricity network encountered during the operation.

The Guide is not intended to supplant or over-ride the provisions of any local arrangements or agreements entered into by network operators with the owners of Other Networks, e.g. telecommunication networks that may be secured to the electricity network's poles. The Guide should not be interpreted as placing any responsibility on the network operator for the safety of the assets of any Other Network. If any high load transport operation is likely to interfere with such assets, the haulage contractor must approach the owner of the Other Network separately and make any necessary arrangements to safeguard those assets.

4.5 Grounds for Departure

It is recognised that there may be grounds for departure from the recommended procedures, e.g. in cases where an emergency situation exists, and it is necessary to transport a high load through an electricity network area urgently. However, it is in such situations that the inadequate identification and management of safety related risks is more likely to occur, with a resulting increase in risks of harm to persons and/or damage to property. Accordingly, it must be recognised that the deliberate short-cutting of procedures raises the levels of risks to be managed. Network operators faced with emergency situations need to ensure that the normal level of care and attention to detail is not decreased by the exigencies of the circumstances.

5. Legislation, Rules and Codes

5.1 Health and Safety at Work Act 2015

Network operators and haulage contractors engaged in the transport of high over-dimension loads through network areas must remain conscious of their obligations under the Health and Safety at Work Act 2015 (HSW Act) to ensure that their workers and any members of the public who may be in the vicinity of the operation as it proceeds are at all times safeguarded from harm. Generally, this will be accomplished by the use of suitable procedures designed to identify all the safety related risks that may reasonably be foreseen and apply appropriate mitigating measures to the risks such that any residual risk of harm is minimal. The HSW Act also places duties on both the network operator and haulage contractor to consult and co-operate in the discharge of each party's duties.

The risks of harm or damage (safety related risks) associated with the transport of high loads are many. This Guide is primarily intended to assist network operators and haulage contractors with the identification and satisfactory management of the risks posed by the presence of carriageway conductors that may be encountered during the journey. The employees of the network operator and the haulage contractor engaged in the operation must be fully competent to undertake the necessary tasks and functions to ensure that they are accomplished safely, and the members of the public encountered along the way, including other traffic, are not exposed to any unacceptable safety related risks at any time during the journey.

5.2 Electricity Act 1992

The principal statute that governs the electricity supply industry in respect of the safety of the public with respect to its networks is the Electricity Act 1992. This Act was amended in 2006 by the Electricity Amendment Act 2006. This amendment included, in particular, a new section 61A that required electricity supply industry companies having assets over a defined capacity to design, implement and maintain a safety management system (SMS) to ensure that the presence or operation of their assets do not pose risks of serious harm to members of the public, or significant damage to property other than that of the company.

This new requirement triggered the development of a New Zealand Standard NZS 7901:2008 Electricity and gas industries – Safety management systems for public safety, the contents of which anticipated the promulgation of new Electricity (Safety) Regulations 2010 (ESRs). These regulations set out more detailed requirements for each SMS and cite compliance with NZS 7901:2008 as a means of compliance with the Act and the ESRs.

In accordance with the Act and ESRs, electricity supply industry companies have since put in place SMSs compliant with NZS 7901: 2008 and have them annually audited as the ESRs and the Standard require. In 2014, NZS 7901 was revised to become NZS 7901:2014 but the original version remains cited in the ESRs as the Standard with which company SMSs must currently comply.

In general, the SMS checks that ESI assets are designed, constructed, operated and maintained to a suitable standard by competent persons such that, over their life, they will exhibit a low probability of failure. However, foreseeable outside influences such as weather, flood, tree strike and vehicle strike may leave assets in a condition that is unsafe, and it follows that any network operator should take steps to periodically inspect the condition of its network and take prompt remedial action where significant hazards are found. The SMS requires network operators, among other things, to take steps to ensure that their assets, including carriageway conductors and their supporting poles, do not present any undue risk to members of the public, including those travelling along roads. Accordingly, carriageway conductors should be regularly checked to ensure that their safety distances to the road do not breach regulatory requirements.

5.3 Electricity Industry Act 2010

The Electricity Industry Act 2010 was enacted to govern the commercial activities of the electricity supply industry (ESI) as opposed to the safety of the public, which continues to be governed by the Electricity Act 1992 and its amendments.

It is worthy of mention in this Guide only because its section 106, among other things, provides that the supply of line function services may be suspended for reasons of safety. Hence a network operator may invoke s106 if it becomes necessary to cease the supply of electricity to electrical installations due to the passage of a high load provision where the continuance of supply would impose unacceptable risks of harm or damage.

5.4 Land Transport Rule: Vehicle Dimensions and Mass 2016

The movement of traffic on roads in New Zealand is governed by various Land Transport Rules that, among other requirements, place a general responsibility of care on road users and drivers and place a responsibility on drivers to watch for safety related risks and obstructions along the roadway and take appropriate action to avoid harm to persons or damage to property. The operation and use of over-dimension vehicles/loads are governed primarily by the requirements of the Vehicle Dimensions and Mass Rule 2016 as amended over subsequent years. Special requirements are imposed by the Rule on vehicles and loads that exceed statutory limits of 2.55 m in width, 4.3 m in height and specified lengths depending on vehicle and trailer configuration.

This Rule contains the conditions for the operation of all over-dimension vehicles/loads. It delegates authority to the Director or a road controlling authority to issue specific written permits for the movement of those larger loads that are required by the Rule to be permitted. In all cases, conditions may be set and must be observed during their operation. The Rule provides that conditions may relate to the route and the times of operation. Other conditions may include limits as to dimensions, travel times, provision of piloting or warning devices, and the giving of notice to the Director, or the road controlling authority of the intended use of the vehicle on the road.

Accordingly, the Rule confers authority on the Director or on a controlling authority to place conditions on the operation or transport of any over-dimension vehicle or load; such conditions may include a requirement to notify and seek Permission from network operators in respect of the transport of over-height loads. This, in turn, opens the way for the network operator of any area through which an over-height load will pass to impose such reasonable conditions as are necessary to ensure the safety of the load transport operation, commensurate with the continuing integrity of the network.

The NZTA requires that any person wishing to transport an over-dimension load of more than 5 m in height through an electricity network area must, as a condition of an over-dimension permit, gain written Permission for such passage from the operator of that network. In addition, for any load between 4.3 and 5.0 m in height, a haulage operator must seek a written Permission of the owner of any overhead obstruction that the vehicle or load cannot clear.

In general, network operators will not be overly concerned with the transport of over-length or over-width vehicles/loads, except where their travel around bends and elsewhere might threaten overhead line poles situated close to the road. There is no requirement in the Rule for the passage of such loads to be notified to network operators and it is left to the haulage contractor to satisfactorily deal with such situations should they occur.

It should be noted that NZTA has a supplementary publication Vehicle Dimensions and Mass Permitting Manual, of which Volume 1 Part C – Overdimension Permits, sets out the procedures involved in seeking and granting permits for the transport of over-dimension vehicles and loads. Reference to this publication may be useful if a network operator has any questions or doubts concerning the granting of any over-dimension permit presented by a haulage contractor.

5.5 Electricity (Safety) Regulations 2010

The continuing safety of electricity supply assets, amongst other matters, is primarily governed by the Electricity (Safety) Regulations 2010 and its amendments. ESR 14 requires that all works, electrical installations, fittings and electrical appliances must be designed to be electrically safe. ESR 15 requires that persons who own works, electrical installations, fittings or electrical appliances must not use, or allow any other persons to use, such assets if they are electrically unsafe. There is an implication that there is a spectrum of acceptable risk of harm or damage between assets that are “electrically safe” and those that are “not electrically unsafe”.

Typically, new assets designed and constructed to current regulations, codes and standard and best engineering practice will be deemed to be electrically safe. Assets that were designed and constructed to older regulations, codes and standards and to then current engineering practice may present an increased risk of harm or damage than those that are new but, provided they continue to comply with the design and condition criteria, the risk of continuing to use them will usually be acceptable. However, risks of serious harm or significant damage increase markedly once assets degrade in condition or are damaged and no longer comply with their original criteria.

ESR 17 refers to maintaining safe distances when working near electric lines, requiring that they be in accordance with ECP 34 (see 5.6 below).

5.6 Electrical Code of Practice 34 (ECP 34)

The New Zealand Electrical Code of Practice 34 Electrical Safe Distances (ECP 34) provides various tables of minimum distances that must apply between electrical conductors and persons, other fittings or structures. It includes, as mentioned above, minimum safe distances for persons working close to exposed live parts of electric lines, minimum safe distances from overhead electrical conductors to other nearby conductors or buildings, and minimum safe distances to ground surfaces, including roads, over which the overhead conductors pass. These distances are considered to be in accordance with good engineering practice and provide an acceptable degree of safety for persons who may work near live parts or nearby conductors, and members of the public who may be in the proximity of conductors, in buildings close to overhead conductors or who are travelling within normally dimensioned vehicles using the roads.

In respect to the safe transport of high loads, interest centers on three sections of ECP 34, being those dealing with minimum approach distances (MADs) for persons, minimum approach distances for vehicular / mechanical plant working near conductors, and minimum safe distances between conductors and the ground under them.

However, it should be noted that sub-clause 1.1.4(a) states that ECP 34 does not apply to distance limits for large loads travelling down a road.

Table 4 in Section 4 sets out the minimum vertical distances to be maintained between electrical conductors crossing any road (carriageway conductors) and the surface of the road below them and is reproduced in Appendix 1 of this Guide. This Table specifies that any conductor crossing a road must have a minimum height of 5.5 m (i.e. from the road surface).

Note that the minimum distance for the purposes of the Table may not necessarily occur at the centre (crown) of the road since this would assume that the centre of the crossing span (its lowest point) is vertically above the crown. On a straight section of road, the actual minimum distance may occur anywhere between the road crown and the centre of the span; on a well cambered bend, where the outside road edge will be at a higher level than the road centre, the minimum vertical distance may well occur elsewhere.

By reason of sub-clause 1.1.4(a) noted above, ECP 34 is silent as to the safe distance that should be observed between carriageway conductors and loads passing under them. Sub-section 5.7 below of this Guide deals specifically with this distance.

Section 9 of ECP 34 sets out the minimum safe approach distance limits (safety distances relating to personal proximity to electrical conductors) for persons working near exposed live parts and distinguishes between non-competent (taken to be the public) and competent (trained to act appropriately in the proximity of live parts) persons.

Flashover distance is not the primary consideration since the flashover distance in dry air is about 30 kV/cm. At lower voltages in particular, the safe distances set out in Table 9 of Section 9 for non-competent persons and Table 10 for competent persons incorporate a considerable safety margin to allow for the possibility of inadvertent movement of persons, parts of a person or the tools that they may be using. However, those distances are not relevant to the safe distance that should be maintained between live carriageway conductors and loads passing beneath them, since there is little likelihood of the large inadvertent upward movement of any travelling load.

5.7 Recommended Safety Distances for High Loads

It is possible to argue that the distances set out in Table 9 of ECP 34, which sets out minimum safe approach distances for non-competent persons from exposed live parts, should also be used to apply to the safe travel of loads passing under live carriageway conductors. However, loads travelling on well-maintained road surfaces are in a unique situation in that inadvertent movement upward to any great degree is unlikely.

Accordingly, it is possible to apply a mix of a risk management approach and good engineering practice to arrive at satisfactory safety distances for such situations. The distances must certainly avoid any possibility of flashover in the worst weather conditions, even where there may be small upward movements of loads as they proceed along the road. They also need to include a further allowance for the fact that the regulatory minimum height of the carriageway conductors is related to the contour of the road surface and not to the position of any vehicle/load that travels on one or the other side of the road; this is especially important on well cambered bends on high speed stretches of road.

After due consideration of the above factors and allowing a small margin for error in height measurements, the EEA recommends that network operators apply and maintain the following safe distances for the travel of high loads under live (not isolated and earthed) carriageway conductors.

Strain wires at nominal earth potential	200mm
Catenary supported aerial communications cables	200mm
Conductors of line voltage not exceeding 1000V	300mm
Conductors of line voltage not exceeding 22kV	500mm
Conductors of line voltage not exceeding 66kV	800mm
Conductors of line voltage not exceeding 110kV	1200mm

The table does not include safety distances for overhead lines exceeding 110 kV since such lines will have been constructed with safety distances to roads that are much greater than the heights of any permitted high load passing beneath them.

Note that the above listed safety distances apply to the measured heights of loads and the actual (re-measured if necessary) heights of carriageway conductors.

If the unassisted transport of a high load will infringe the above applicable safety distance, then the network operator should apply a procedure that will make the transport operation safe. Suitable procedures might include:

- placing an insulating cover or skid over the load (for low voltage carriageway conductors only)
- temporarily lifting the carriageway conductors by some safe means
- isolating and earthing the carriageway conductors and, if necessary, removing them to permit safe travel.

6. Governing Authorities

6.1 New Zealand Transport Agency (NZTA)

The New Zealand Transport Agency (NZTA) is the current Government body that is charged with the responsibility to undertake activities that contribute to the objectives of the Land Transport Strategy. Amongst these activities, the NZTA and its predecessors have formulated various Land Transport Rules that have taken the place of the Traffic Regulations 1976 (see sub-section 5.4 above).

Amongst its other activities, the NZTA controls and, through the Police, monitors the travel along public roads of over-dimension vehicles/loads and other mechanical plant. It has set up routine procedures to deal with such travel with the objective of presenting the least inconvenience to other road users and the safeguarding of other assets that legitimately exist beside or over roads. In the event that dimensions of a vehicle/load are greater than those routinely provided for, the NZTA itself considers the application and imposes such conditions that it considers fit.

6.2 Over-dimension Permit Issuing Authority (OPIA)

The OPIA is managed by NZTA to facilitate the issue of routine permits for those over-dimension vehicles, loads and mechanical plant items that are of such over-dimension as to require permits. Within defined over-dimension limits, over-dimension vehicles, loads and other equipment may use roads without any permit, subject to compliance with various conditions imposed by the Land Transport Rule: Vehicle Dimensions and Mass 2016 (the “Rule”). These conditions include being accompanied by pilot vehicles carrying defined signage and avoiding travel at peak traffic periods (defined for various areas of the country).

For those over-dimension vehicles, loads and plant items that exceed the defined limits, an overdimension permit is required for public road travel. Again, up to defined limits, these are routinely issued by the OPIA subject to the observance of conditions contained in the Rule for the category of load specified on the permit. These include accompaniment by pilot vehicles and avoidance of peak traffic periods as for smaller over-dimensions. Other conditions also apply for high loads over a defined limit. These include the requirements to obtain Permission from other road controlling authorities, e.g. NZTA, or local councils, and, for high loads over a defined limit, from electricity and telecommunication network operators.

The conditions attached to OPIA permits are specified on an automatic basis depending on the dimensions of the vehicle, load or mechanical equipment. If the dimensions are such as to exceed defined limits, the facts and circumstances of the transport operation are referred back to the head office of NZTA, which deals with the operation on an individual basis.

6.3 Network Operator

The conditions of any permit issued by the OPIA or the NZTA for the transport of high loads that are more than 5 m in height, will include the condition that the prior written Permission of network (both telecommunication and electricity) operators be obtained. In considering a Request for Permission of the transport of such a high load, the network operator has the right to attach to its Permission any conditions that are reasonable in the circumstances. Hence, effectively, the network operator is another authority with which a haulage contractor must deal when transporting such high loads.

In general, the network operator will apply the appropriate procedure for each high load transport operation as its previously established trigger heights indicate. However, the network operator should always remain conscious of its primary function of electricity carriage to its connections and, accordingly, should consider the interests of any end users that will be affected by the transport operation. In particular, should it be necessary to temporarily disconnect supply, the network operator should seek to negotiate a travel period with the haulage contractor that will be the least disruptive to any affected production process.

7. Requests and Permissions

7.1 Notice of Travel

Some of the procedures associated with the transport of high loads through a network area require the making of necessary arrangements well prior to the travel period. These include, as may be necessary, escorting, accompaniment by a lines vehicle and the programming and notification of shutdowns where the carriageway conductors must be isolated and/or removed. Accordingly, it is very desirable that the haulage contractor lodge its Request for Permission as early as possible before the required travel date.

The notice that various network operators require may be up to ten working days where there is a need to institute shutdown procedures. This is because it will usually need to issue shutdown notices through the electricity retailers that have supply contracts with the consumers. However, it should be less, say one working day only, where it is known by all parties that a high load corridor will be used or that the load height is such as to provide the recommended safety distance from any conductors at regulatory height and the operator does not require any prior check of the route to be made. For loads that will require escorting but no shutdowns, the notice must be such as to enable the timely organisation of the escort, which is often provided by a contractor. Three to five working days' notice would be expected where 11 kV or higher voltage conductors need to be lifted using safety equipment to allow the safe passage of the load.

Where it is known that there will be consecutive transport over a short period of more than one load of identical height, it may be possible for the network operator to shorten the notice for the second and subsequent loads; nevertheless, if the dates of travel cannot be provided at the outset, the original required notice may have to stand, simply for work planning purposes and to provide due notice of any shutdowns.

7.2 Content of Request

Requests for Permission of the transport of high loads in excess of 5 m in height should provide the following minimum details, duly entered on the network operator's official Request form.

Details that would normally be required by the network operator include:

- name and business address of the haulage contractor
- name of haulage contractor's contact person and 24-hour contact details of that person
- contact details of haulage contractor's "on-site move supervisor", if different from contact person
- type of load, e.g. house, part of house, transformer, silo

- height of load when secured on the low loader and moving along a road, measured from the road surface
- width of load at its widest point and width of load at its highest point
- route to be followed
- date of travel required and estimated time of arrival of load at the (incoming) boundary of network area
- estimated travel period
- details of haulage contractor's pilot.

In addition, the network operator will usually require the applicant company to declare that the information provided on the Request is correct and agree to indemnify the network operator from liability for any damage, follow the instructions of any escort provided and pay any charges that the network operator makes in respect to the transport operation.

7.3 Conditions of Permission

The network operator, on receipt of a Request for Permission of the transport of a load of more than 5 m in height, has the right to impose conditions on the haulage contractor. In general, these will be those that are fair, reasonable, justifiable and necessary to ensure both safe travel for the load and the safety of any parts of the network or any services that may be affected in the course of the transport operation.

There should be an expectation that the height of the load has been lowered to the extent practicable and that a haulage contractor is not simply trying to avoid any further dismantling, which could be carried out rather than subjecting the network operator, and possibly its connections, to avoidable inconvenience.

Normally, only carriageway conductors along the route of the load would be affected but any necessary temporary disconnection of such conductors will result in the temporary loss of the function of those conductors, whatever that might be. If they feed one or more network connections, then end users will probably lose supply for a short period. If they are 11 kV network conductors, as opposed to consumer service conductors, their loss will lower the normal security level for part of the network.

The conditions, if any, that may be placed on the load transport operation will normally depend primarily on the height of the load and the procedure that the network operator must implement to ensure safety (discussed in Section 8 below). If, for example, a high load corridor exists through which the load may be satisfactorily routed, it would be sufficient to direct the haulage contractor to take that route in the event that it has not already been entered on the Request form.

Conditions that might be placed on the haulage contractor include:

- measurement of the height of the load in its road running condition (usually required)
- route to be followed by the load, if differing from that on the Request
- time of commencement of travel, if differing from that on the Request
- written Permission, subject to a satisfactory check, prior to the travel period, of all carriageway conductors along the route (to ensure that their spans have not been recently lowered by any outside influence, such as a vehicle strike on poles or by the transport of an unauthorised high load that has snagged and lowered conductors)
- where safety distances may not otherwise be maintained, Permission subject to the presence of a network escort vehicle during the transport of the load to ensure that any necessary precautions (e.g. using skids or insulating covers, lifting low voltage conductors) are taken
- where safety distances will definitely be infringed, or the conductors pose an obstruction, Permission subject to the presence of a network escort vehicle and a network lines vehicle, complete with competent persons, to carry out all necessary lines work (e.g. lifting high voltage conductors, disconnection, removal and later reinstatement of conductors)
- payment of all charges reflecting the work carried out by the network operator.

Where the network operator is confident and satisfied as to the competence of the haulage contractor to deal safely with the carriageway conductors that will be encountered along the route, it might grant Permission for the transport to be performed without any escort. However, in such circumstances, it would reasonably require the haulage contractor to use such skids and other safety measures as might be necessary and to meet the costs of remedying any damage to the network that the transport operation might cause.

7.4 Model Request and Permission Forms

Model Request and Permission forms are set out in Appendix 2 of this Guide. It is recommended that, for convenience, the forms and procedures be designed so that:

- the information provided by the haulage contractor appears on the Request form
- the written Permission given in response clearly relates to the Request by use of applicant's name and date of the request
- each of the network operator and the haulage contractor has a copy of both the Request and Permission forms to lower the probability that a failure of communication occurs between the parties.

The Request form should be provided on the network company's web-site, which can be completed and submitted on line, printed off, completed by the haulage contractor and then either faxed, or else scanned and e-mailed, to the network company. The network company should consider the implications of the Request, complete the written Permission and send it back to the haulage contractor by fax or e-mail. That procedure will ensure that each part has a copy of both the Request and the Permission. Copies of the two documents should be carried by the haulage contractor and any escort provided for on-site reference if required during the transport operation.

8. Carriageway Conductor Database

Dealing with the transport of high loads will be better carried out when the network operator possesses a database of all the carriageway conductors in its network that are likely to frequently impact on or interfere with the transport of high loads through the network area. The information held should include the physical positions of these conductors related to known landmarks (or their GPS co-ordinates) and their installed heights from the surface of the road beneath them. It would be desirable for carriageway conductor height measurements to be carried out in the season and at the time of day when the carriageway conductors may be expected to have maximum sag due to current loading, high ambient temperatures or a combination of both.

Note that, for the purposes of inclusion in the database, carriageway conductors should include any strain wires (nominally at earth potential) and aerial communications cables (carrying only communications voltages) of the catenary wire supported type. Although strain wires and catenary aerial communications cables do not present an electrical hazard of any consequence, they do present a very real physical hazard to poles of a distribution network to which they are attached if they are snagged by a high load travelling at any speed. In general, they are designed to have a high breaking strain and, when attached firmly to poles, any strain to which they are subject will place a high bending moment on the poles; this may well result in pole failure and, consequently, safety related risks of harm or damage.

Minimum heights for communications cables are specified in the Telecommunications Act 2001, namely a minimum of 5.5 metres where it crosses a road, and a minimum of 4.25 metres elsewhere (section 149 (2)).

However, in addition to that legislative requirement, minimum heights above carriageways of communications cables are set by the authority controlling the road concerned rather than by regulation. Minimum heights for communications cables running over state highways are set by NZTA but those for such cables running over local council controlled public roads may vary from town to town. If electricity network operators do permit their poles to be used as supports for catenary communication cables, they must either treat those cables as being similar to strain wires for high load transport purposes or else insist on the use of “weak” catenary fastenings that will fail, in the event of any cable snagging, well before endangering the poles.

If such a carriageway conductor database does not already exist, it should gradually be built up, recording first those carriageway conductors that run over the preferred routes for the high loads that frequently pass through the network. Once these are registered, data should be added in respect to conductors over roads that are more likely than others to be routes to high load pick-up or drop off sites.

Any database, once established, should be periodically updated with additions and removals and any permanent lifting of conductors undertaken so that it reflects the true position of carriageway conductors over routes; otherwise, reliance on it may cause unexpected problems. In particular, the database should not be relied on to provide the actual height of any carriageway conductor along a transport route at any point in time; that height may have been affected for a variety of reasons since being measured and may only be established by a check made along the route immediately prior to the transport operation.

However, knowledge of all the network carriageway conductor positions will enable the network operator, on receipt of any Request for Permission of the transport of a high load, to quickly assess the amount of work that will be necessary to ensure the safe transport of the load.

Note that a database will not include the normal overhead conductors that may cross the front of any property inside the network area from which the high load is being taken or to which it is being delivered. The presence of such conductors and the need to treat them similarly to carriageway conductors should not be overlooked, especially as the regulatory safety distances to ground will be lower.

9. Route Corridors

Action by network operators in connection with high loads can be avoided altogether where the loads are routed along roads ("high load corridors") that either have no carriageway conductors or else have carriageway conductors at heights that will not normally have any impact on the transport of high loads. Examples of the latter would be 220 kV conductors carried on transmission towers; these conductors would only need to be considered whenever extraordinarily high loads (e.g. silos transported vertically) are involved.

The carriageway conductor database held by the network operator will quickly indicate the presence or otherwise of obstruction-free high load corridors, including those having sufficiently high conductors (meaning that they can be ignored for all but extraordinarily high loads).

Such high load corridors should be used preferentially for the transport of high loads and they should be added to by any undergrounding of overhead conductors as the development of the network allows.

10. Procedures

10.1 Trigger Heights

It is not the intent of this Guide to set down the various heights of high loads that cause a network operator to initiate more stringent precautions and actions to ensure safety. It is accepted that the heavy haulage industry would prefer levels of trigger heights to be agreed on a national basis. However, that might not be in the commercial interests of the haulage industry where, say, carriageway conductors have been constructed throughout a network area with safety distances to road surfaces well in excess of regulatory requirements.

Each network operator will have accumulated knowledge of the carriageway conductors along commonly used haulage routes within the network area and have the installed heights, spans and line voltages of these conductors recorded for use in arranging the safe transport of high loads along such routes. Heights may well vary from the minima set out in ECP 34 to the extent that minimum safety distances can, short of adverse effects on conductors and poles from outside interference, be assured up to certain load heights.

Where an intended high load route differs from those commonly used, e.g. when a pick-up or delivery is to be made within the network area, the network operator may need to carry out some prior checking of the route and possibly some measurement of carriageway conductor heights in order to make a decision as to trigger heights.

10.2 Load Height Measurement

Whenever a Request form is received, the network operator will need to make a judgement as to whether reliance may be placed on the information entered on it, and whether the stated height will be fully representative of the load height in its road rolling condition. This is especially important where the load is a type that requires upward jacking from an overnight resting configuration. Previous experience with a haulage contractor may suffice to discard the need for an initial measurement; alternatively, a measurement of a particular load may be passed on by an “upstream” network operator that has already measured the load on the road.

In general, in the absence of very reliable information, the network operator should always take the trouble to have the height of the load checked as it enters its network area; there will always be a possibility that an incorrect figure has been entered on the Request form. Again, it is also possible that a vehicle or trailer that was carrying the load at the start of the journey has been changed for another somewhere along the route, with the result that the road rolling height has changed.

Trailers that haulage contractors use to transport over-dimension loads also have the capability to lift from their normal travelling height. For example, the deck of the typical house haulage trailer can lift by more than 2 metres to enable the load to clear roadside hindrances, bridge side rails and other obstacles.

Network escorts should communicate with the haulage contractor to ensure that the trailer's deck height is the appropriate height prior to measuring the load.

10.3 No Route Check

If the network operator is able to require that any high load proceed along an available high load corridor, all that is required is the issue of an written Permission, conditional on this route being taken. In the absence of a suitable high load corridor for the entire route through the network area, the declared or measured height of the load may nevertheless be such that the network operator will be confident that it will not infringe any safety distances from carriageway conductors along the declared route. All that is then required is the issue of the written Permission conditional on adherence to the stated route.

If the load height represents no threat to any carriageway conductors, network or service, on any route that might be taken, the written Permission should be issued unconditionally. It is the expectation of haulage contractors that, unless there are special circumstances, this situation should apply to high loads up to 5.2 m in travelling height.

10.4 Route Check

The declared or measured height of the load may be such as to exceed a trigger height 1, where the safety distances from the load to the known (and documented) carriageway conductors along the declared route are close to the recommended safety distances. In these circumstances, the network operator may choose to carry out a check along the route to establish that there has been no downward movement of the carriageway conductors since any last check was carried out.

While movement of carriageway conductors over a period is unlikely, there is always the possibility that, unbeknown to the network operator, there has been a vehicle strike on a pole carrying carriageway conductors or an unauthorised high load has proceeded along the route and snagged the conductors, pulling them downward. Pole degradation and line sag are also other issues that may cause the conductors height to be less than expected.

It would be sufficient to have such a check carried out prior to rather than during the travel period, provided that the interval between the check and the travel period is relatively small, e.g. a couple of days.

If the check reveals that there has been no change in carriageway conductor heights, the network operator may choose to issue the Permission with no conditions as to escorting.

10.5 Load Escorting Only

The height of the load may be such as to exceed a trigger height 2, where the safety distances between the high load and carriageway conductors will be infringed by the transport operation; however, the infringements may be sufficiently small that they may be managed by simply lifting the conductors using insulated supports as the load passes under them, the lifting carried out only by the network operator.

Alternatively, in the case of conductors not exceeding 1000 V (may be covered or bare), the problem of possible contact may be managed by providing an insulating cover or skids on top of the load (provided this raises the conductors in a ramping action and does not push them together to cause a fault). Note that covered LV conductor cannot be classified as insulated conductor and therefore, for safety purposes, should be treated similarly to bare conductor. However, the use of covered conductors does lower the risks of harm through inadvertent contact or of incurring a conductor to conductor fault.

In these circumstances, the network operator should provide an escort vehicle and safety equipment with sufficient personnel to identify carriageway conductors along the route and carry out any necessary precautions.

The transport pilots that accompany the load are trained and licensed by NZTA to carry out traffic control in such situations and they are competent to keep other road traffic at a safe distance from the load and network operator personnel carrying out the operation.

10.6 Load Escorting with Accompanying Network Operator Vehicle

The height of the load may be such as to exceed a trigger height 3 where there is no choice but to disconnect and temporarily remove carriageway conductors to permit the load's safe travel. In these circumstances, the network operator must arrange for the conductor disconnection and removal, repeated as necessary along the route, to be safely carried out.

As already mentioned above, the network operator also has to provide due notice, usually through electricity retailers, to any end users who will be affected by the temporary disconnection of supply. To this end, it may have to carry out some early negotiation regarding the timing of the shutdown period and, consequently, the load's travel period.

The minimum load accompaniment provided by the network operator would be an escort vehicle and a lines vehicle, staffed as necessary to carry out the carriageway conductor identification, isolation, earthing, disconnection, temporary removal, and replacement once the load has passed. Depending on the network configuration and the nature of the carriageway conductors, the use of a roving operator to carry out conductor isolation might also be necessary.

10.7 Multiple Load Transports

The transport of very high loads, involving disconnection and removal of most, if not all, of the carriageway conductors along routes that are not high load corridors, is inevitably an expensive operation for the haulage contractor and hence the owner of the load. Accordingly, it makes sense, where the operation has to be repeated, to arrange, whenever possible, for the transport of several such loads to be carried out in extended convoy. Sufficient space should be maintained between loads to minimise inconvenience to other road users travelling in the same direction as the loads.

It is sufficient that haulage contractors, knowing the costs involved, make high load owners aware of the savings that can be made by the use of extended convoys through network areas.

NZTA is also comfortable with over-dimension loads travelling in convoy as this can reduce the level of risk to other traffic using the road from a road safety point of view. The Rule permits such convoys provided there are extra pilots engaged.

10.8 Communications among Convoy Vehicles

It is essential that the people in all the vehicles in the high load convoy are able to communicate clearly among themselves while travelling along a route. In particular, the network escort must be able to immediately warn the piloting vehicle and the high load vehicle of any carriageway conductor ahead that will require either care in negotiating or removal to allow safe passage.

It is strongly recommended that the haulage contractor or its pilot supply the escort with a transceiver switched to a dedicated bandwidth to facilitate immediate communication as may be required during the escorting exercise.

10.9 Use of Skids[1]

Skids, which must have insulating qualities, are used on high loads to ensure overhead conductors are lifted clear of any obstructions on the load. They ensure that obstructions do not snag the conductors or cause a short between conductors with a resultant arc flash.

If conductors were to become entangled in the skid board or load, all people must remain clear of the vehicle and load. The transport supervisor must then advise the escort and have them isolate and remove the conductors from the load.

Whilst the load is passing below any overhead conductors, all persons must remain clear of the load and vehicle.

[1] The use of skids incorporates advice provided by the NZHHA

10.1.1 Skids are fitted:

- on houses being transported, to all roof ridges, roof hips and roof edges that may possibly make contact with overhead conductors.
- to the highest point of any other loads that may protrude upwards and possibly contact overhead conductors.

10.1.2 Limitations of skids when used as an insulating cover

- Skids are widely used as an insulating cover to lift low voltage conductors when being escorted and supervised by network operator staff or contractors.
- It is generally considered safe to allow covered LV conductors (which have their coverings in apparently good condition) to contact an insulating skid provided the speed of travel under the conductors is limited to a crawl.
- In the case of bare LV conductors and the skids are not adequately insulating, e.g. wet timber, the conductors should be lifted or de-energised if it is likely they will contact the skid.
- For all conductors exceeding 1000 V, the wires must be lifted or de-energised if the recommended safety distances are not met.

10.1.3 Considerations

- While most overhead conductors cross a road at right angles to the traffic lane, some overhead lines may cross the road at a different angle. In these circumstances thought needs to be given to where the conductors may contact the load.
- Skids must extend down low enough to pick up the lowest conductor on the planned transport route
- Skids should also extend sufficiently rearward of the load to ensure the overhead conductors do not “drop off” the skid, potentially causing the conductors to clash.

10.1.4 Materials for skids

- Timber is commonly used on the roofs of houses. Alkathene or PVC pipe are mostly used on other high loads such as silos and steel structures.

- Timber used for skids should be smooth, free from knots, and have rounded edges. However, it should be remembered that timber, after being soaked by rain, will not provide good insulation in the event of contact with bare live conductors.
- Timber, where used, should be strong enough to support the weight of the overhead lines being lifted or have intermediary supports to ensure the skid does not deflect or break under load. (90mm x 18mm pinus radiata is most commonly used).

10.10 Fitting

- Skids should be fitted to ensure that the skid at the front part of the load laps on top of skids fitted to the rear part of a load.
- Skids fitted to metal roofs can be attached with nails through the roof cladding. Blocking material may be required to ensure the skid sits above the roof point with which overhead conductors are likely to make contact.
- Skids for high loads other than houses can be secured using rope and/or heavy duty PVC tape.
- When nails are used to attach skids, it is essential that all nail heads are driven below the skid surface, to ensure conductors are not caught and their covering damaged, potentially clashing the wires and/or arcing to the roof surface.
- Skids should be adequately secured to ensure they do not move when contacted by an overhead conductor.
- Skids hanging over the front of high load should be pulled down and secured with rope.
- Roofs with the ridge running parallel with the road can typically be covered with a skid on top of the ridge.
- Roofs where the ridge runs perpendicular or at right angles to the road will require a skid on top of the ridge and skids running up to and away from the ridge running parallel with the road. These skids need to be adequately spaced to ensure conductors do not sag between them, thus possibly contacting the roof surface.

11. Travel Period

The travel period through the network area of any high load should ideally be as short in duration as possible. It should take place at a time when minimum inconvenience will occur to other road users on the one hand and any affected connections served by the network on the other. On the face of it, a quick night passage will be the optimum if a suitable high load corridor is available. On many travel routes around NZ, haulage contractors are permitted by the Rule to travel at night only so that the impact on other road users is minimised.

The choice of the travel period must be made taking account of the need to minimise the overall risks posed by the exercise and, in particular, to identify and control any hazards that may be encountered along the route. The nature of the exercise is that the major hazards that will be encountered are the presence of carriageway conductors at heights that may not permit the maintenance of the minimum safety distances (see sub-section 5.7 above) between the conductors and the load passing under them.

In general, the positions of carriageway conductors along the chosen route will be well known from the network operator's database or from previous route checks and escorting work; in good daylight conditions, they will be immediately apparent to escorting personnel. In conditions of dawn and twilight, the sure detection of carriageway conductors may become difficult and, in night conditions, may necessitate a slow convoy speed, so causing an increased hazard to other traffic.

Where the safe transport of the load dictates the removal of carriageway conductors and the prior temporary disconnection of those conductors, the network operator must consider the effect of the cessation of supply to its service connections and their end users.

It will be over to the network operator and the haulage contractor to resolve any identified conflicts through a consultation process. In the end, the travel period decided upon should be the least unsatisfactory, commensurate with ensuring the safety of the operation.

12. Advance Notice

The network operator needs to be given sufficient notice of an impending transport operation so that it can make all the arrangements in good time for any escort required through the network and any shutdowns of sections of the network that may be required. In general, the greater the trigger height exceeded, the more notice that the network operator will need.

Given the height of the load, if the route to be followed is included in the carriage conductor database, a check on safe distances between load and any carriage conductors on the route can quickly be made by a “desk top study”. If the route is not included in the database, it will usually be necessary to check the route and measure the actual height of conductors that appear to be close to those set out in ECP 34 so that any necessary action for each carriageway conductor crossing is established in advance.

Practices vary among network operators; some employ their own staff for such operations while others use contractors, the work for which would normally be planned weeks in advance. Also, where shutdowns are needed, advance notice has to be given to affected consumers.

At the same time, it is appreciated that haulage contractors may not always be able to provide an exact date and time to the network operator a couple of weeks in advance. As soon as a haulage contractor becomes aware that one or more high load transports will be necessary, it should inform the operators of the networks concerned and provide a window period of two or three days in which it reasonably expects the transport through each network to be made. Then it should firm up that information and provide the date and time of entry to the network and the estimated time of passage at the earliest practicable time. It should be mindful that, where the need for an escort is likely, the network operator will have to make arrangements for this, often with a contractor of its own.

It is difficult to make recommendations as to what notice periods should apply across the board because the characteristics of each network and the circumstances of its operator do vary. However, the following notice periods are indicative:

- For high loads not exceeding trigger height 1, where no escort should be necessary, or where a high load corridor is to be used, one working day
- For high loads exceeding trigger height 1 but not trigger height 2, one to three working days
- For high loads exceeding trigger height 2 but not trigger height 3, three to five working days
- For high loads exceeding trigger height 3, and involving shutdowns of sections of network, ten working days.

For the information of haulage contractors, common industry practice among network companies is to set trigger height 1 at 5.0 m, and trigger height 2 at 5.2 m where there will be encounters with low voltage carriageway conductors at regulatory height. Trigger height 3 will vary with the route to be taken since it is dependent on how far conductors may be lifted to clear the load (the tension and span of the conductors influences this) but it might be arbitrarily set at 6.0 m, dependent on local conditions and practice. The actual trigger heights set by each network owner for the proposed haulage route will determine the conditions set out in the written Permission that is issued.

13. Charges

A network operator may choose to provide high load escort services from its own resources or else use an approved network services contractor for the purpose. In either case, when charging haulage contractors to recover costs incurred in assisting the transport of a high load, it should charge costs that are fair, reasonable and justifiable, including the appropriate overhead cost allowances, directly attributed to the transport operation. In particular, after a route check, any resulting work needed to reinstate regulatory safety distances to allow the load to pass should not be chargeable.

The haulage industry has an expectation that, where a load's height does not impinge on the relevant approach distance guidelines, Permission should be provided at no or minimal cost to the haulage contractor. Should the network operator opt to provide a high load escort simply because it is aware or suspects that its carriageway conductors are lower than regulatory safety distances, such escort should be provided at no cost to the haulage contractor.

In the event that the physical disconnection and subsequent reconnection of carriageway conductors, with a consequential interruption of supply to some consumers, is necessary to permit the passage of the high load, the question of compensation for the loss of supply may arise, as may the loss of revenue to their supplying energy retailers. Shutdowns, where necessary, should be arranged by negotiation among the haulage contractor, the network operator and the electricity retailers supplying electricity to the affected consumers.

The network operator is entitled under paragraph (b) of sub-section (2) of section 106 of the Electricity Industry Act 2010 to suspend the supply of line function services (to network connections) for reasons of safety or in order to carry out maintenance or upgrading work. This paragraph is not intended to do more than facilitate maintenance or upgrading of the network but can be applied if necessary to assure the safety of persons and property associated with the transport of high loads. However, such shutdowns, unless under urgency, may only be carried out after due notice and should be made at the least inconvenient time for the affected end user, commensurate with the required travel period.

A situation may arise where the shutdown of supply to a particular connection becomes frequent, due to the preference of a nearby route for the transport of high loads. In such an event, the network operator should consider options of providing an alternative means of supply during the travel period or else under-grounding the carriageway conductors. However, it should not look to recover the problem avoidance costs from the heavy haulage industry.

14. Dispute Resolution

From time to time, a dispute between a network operator and a haulage contractor may arise as to which party is liable in the case of any incident, accident or property damage, the reasonableness of charges etc.

It is advisable that the network operator, in any terms and conditions pertaining to the transport of high loads through the network area, provide for any dispute that arises before during or after the transport operation to be referred for resolution to an independent mediator or arbitrator. Appointment of such mediator or arbitrator should be by agreement of both parties. This will enable the dispute to be put to one side pending its resolution and not affect the continuing relationship between the parties for any other transport operations.

Depending on the monetary amount involved, the matter might be referred to a local Disputes Tribunal or to some other independent person who would determine the facts and either recommend a settlement or make a binding decision as the parties may agree.

Network operators with concerns about practices of haulage contactors are encouraged to contact the NZHHA. Members (most haulage contractors) of NZHHA are bound by its constitution, and NZHAA has undertaken to consider any suggestions network operators might make to improve haulage industry practices in relation to over-height loads and to circulate to its members any recommendations that arise from such consideration.

15. Attachments to the Guide

- Appendix 1: Extract from ECP 34
- Appendix 2: Model Request and Permission Forms
- Appendix 3: Model Procedures
- Appendix 4: Model Check List
- Appendix 5: High Load Transport Permission – Decision Tree

Appendix 1: Extract from ECP 34

Section 4: Safe distances of conductors from the ground and water

4.1 General

4.1.1 This section sets the minimum safe clearance distances for conductors from the ground and water, including minimum safe distances for any excavations or other alterations.

4.1.2 Unless specifically identified, the requirements of this section do not apply to traction system conductors or to telecommunications lines, substations and generating stations.

4.2 Minimum safe distances of conductors from the ground and pools

4.2.1 Conductors of any overhead electric line, including any switching connections and transformer connections mounted on poles or structures, shall have distances from the ground not less than specified in Table 4.

4.2.2 Table 4 does not apply to existing overhead electric line conductors, or their replacement, where those conductors complied with the Regulations in existence at the time of their installation.

4.2.3 Conductors shall not be installed less than 5 m above the water level of any swimming pool.

4.3 Material deposited under or near overhead electric lines

4.3.1 No material shall be deposited under or near an overhead electric line so as to reduce the conductor distance to ground to less than the distances required by Table 4 of this Code.

Table 4: Minimum safe distances of conductors from the ground

Circuit voltage	Vertical distance to ground (m)			Radial distance (m)
	Across or along roads or driveways	Any other land traversable by vehicles (including mobile plant) but excluding across or along roads or driveways	Any land not traversable by vehicles (including mobile plant) due to its inaccessibility (e.g. steepness or swampiness)	In any direction other than vertical on all land
Not Exceeding 1 kV and insulated	5.5	4.0	2.7	2
Not Exceeding 1 kV	5.5	5.0	4.5	2
Exceeding 1 kV but not exceeding 33 kV	6.5	5.5	4.5	2
Exceeding 33 kV but not exceeding 110 kV	6.5	6.5	5.5	3
Exceeding 110 kV but not exceeding 220 kV	7.5	7.5	6.0	4.5
Exceeding 220 kV a.c. or d.c.	8.0	8.0	6.5	5

NOTES:

(a) Voltages are a.c. except where specified as d.c.

(b) The term ground includes any unroofed elevated area accessible to plant or vehicles.

(c) Distances specified in Table 4 are for conductors that have fully undergone mechanical creep (permanent elongation). This is deemed to have occurred after 10 years in service.

Appendix 2: Model request and permission forms

OMEGA NETWORK LTD **Ω**

Request for Permission of Transport of High Load through Network Area

Request date: _____

Applicant company: _____

Business address: _____

_____

Ph. No: _____ Fax No: _

E-mail: _____ Ph. No: _

Contact person: _____

On-site supervisor (if not contact person): _____

On-site supervisor's mobile Ph. No: _____

Type of load: _____

Load height from road: _____ metres Load length: _____ metres

Load width at widest point: _____ metres Load width at highest point: _____ metres

Desired travel route (attach map if desirable):

_____

Contractor's pilot: _____ Pilot's mobile Ph. No: ____

Portable radio available for escort? Y/ N

Date of load travel: _____

Estimated time of entry into network area: _____ am/pm

Estimated travel period in network area: _____ hours

The company making this Request:

- agrees that any Permission granted will be valid only for the date and times entered on this Request
- declares that the information entered on this Request, including date, time of entry and maximum height, is correct
- agrees, if the information entered is incorrect and as a result damage is suffered, to indemnify and keep indemnified Omega Network Ltd against such damage, including consequential damage and legal and other costs associated with the same
- agrees to take all due care, whether or not the load is escorted
- understands that the issuing of an Permission by Omega does not exempt the Permission holder from liability arising from damage to Omega's network caused by the load, whether it is escorted or not
- agrees to abide by the directions of Omega's escort in respect to the safeguarding of Omega's network conductors and associated equipment during the transport of this load
- agrees to pay all charges made by Omega in connection with the transport of this load.

Applicant's Authorised Officer: _____ (print name) _____ (sign) _____ (date)

Fax this form when completed to Omega Network Ltd at Fax No:

OMEGA NETWORK LTD **Ω**

Permission of Transport of High Load through Network Area

Applicant Company:_____Request Date: _

Omega's Permit No: ___

Permission conditional on measurement by escort of running height of load? _____

Preliminary check along route required? _____

Escort to supervise safe transport only? _____

Escort including lines vehicle and crew to effect safe transport? _____

Escort including lines vehicles and crew to conduct supply shutdowns and the removal and replacement of conductors? _____

Shutdowns necessary?

Required travel route (if different from route entered on Request):

_____

_____

_____

Date/time of commencement of travel period (if different from date/time entered on Request):

Date _____ Time__am/pm

Escort contact details: _____

Escort Ph. No:_Escort mobile Ph. No: __

Transport accompaniment conditions: _____

_____

_____

_____

Estimate of total cost to be invoiced to applicant company: $_____

Permission is granted by Omega Network Ltd subject to the agreements and declaration on the above referenced Request and observation of the conditions entered above.

Omega's
Authorising Officer: _____ (print name) _____ (sign) _____ (date)

Copy to applicant at Fax No: ___ ☐

Copies of Request and Permission to Control Room ☐

Copies of Request and Permission to escort ☐

Notice given to electricity retailers that shutdowns will be necessary ☐

Appendix 3: Model procedures

A3.1 Creation of Database of Carriageway Conductors

A3.1.1 Construct and maintain a database of all carriageway conductors in the network, registering their positions as accurately as possible and their minimum heights from the surface of the road beneath them. Note that minimum height measurements should be carried out in the season and at the time of day when the carriageway conductors may be expected to have maximum sag due to current loading, high ambient temperatures or a combination of both.

A3.1.2 If such a database does not already exist, commence construction with the carriageway conductors that run over the preferred routes for the high loads that frequently pass through the network. Then add data pertaining to conductors over roads that are more likely than others to be routes to high load pick-up or drop off sites and gradually add data from other carriageway conductors as opportunity presents. Suburban streets not in industrial areas may usually be ignored.

A3.1.3 Periodically review the carriageway conductor records to ensure that they reflect the addition and removal of carriageway conductors and any lifting of carriageway conductors that may take place as the result of single pole replacement or line reconstruction.

A3.1.4 Enter the gathered records into a computer database and use the safety distances recommended in this Guide to calculate the trigger heights that should apply within sub-areas of the network and along routes commonly used for the transport of high loads.

A3.1.5 Note the stated route and declared height of the load set out in any Request for Permission of a High Load Travel. Using the route data and the calculated trigger heights, decide which high load procedure should be implemented to provide safe transport of the load, or whether an alternative route would be preferable for all parties.

A3.2 For Transport of High Loads along Established High Load Corridors

A3.2.1 Issue Permission, conditional on following the high load corridor route.

A3.2.2 Prepare invoice, including all costs incurred, and dispatch it to haulage contractor (if required)

A3.3 For High Loads Not Exceeding Trigger Height 1

A3.3.1 Issue Permission, conditional on the measurement of load running height on entry to network area.

A3.3.2 Measure road running load height on entry to network area and check that it does not exceed trigger height 1 for declared travel route.

A3.3.3 If measured height is as declared, then no further action is required.

A3.3.4 If measured height exceeds the declared height, check measured height against trigger height 1. If it exceeds this trigger height or any other trigger height, implement procedure for trigger height 1, or the other trigger height if appropriate.

A3.3.5 If necessary to impose additional conditions, revoke Permission issued and issue replacement Permission with the required conditions inserted.

A3.3.6 Prepare invoice, including all costs incurred, and dispatch it to haulage contractor (if required)

A3.4 For High Loads Exceeding Trigger Height 1 but Not Exceeding Trigger Height 2

A3.4.1 Issue Permission, conditional on the measurement of load running height on entry to network area and the satisfactory checking of the route prior to the date of travel.

A3.4.2 Inspect the carriageway conductors and their supporting poles along the declared route to check their condition for damage or that the vertical distance of the conductors to the surface of the road has not markedly changed.

A3.4.3 If damage to the conductors or poles is noted, measure the vertical distance of the conductors to the surface of the road to find whether that distance has changed. If so, and practicable in the time remaining before the transport of the load, carry out any necessary repairs to reinstate or increase, even temporarily, the original vertical distance. Otherwise, use a procedure similar to A3.4 or A3.5 below in order to either maintain the safety distances from the lowered conductors recommended in this Guide or else remove the conductors as may be appropriate.

A3.4.4 Measure road running load height on entry to network area and check that it does not exceed trigger height 2 for declared travel route.

A3.4.5 If measured height exceeds the declared height, check measured height against trigger height 2. If it exceeds this trigger height, or any other trigger height, implement procedure for trigger height 2, or the other trigger height if appropriate.

A3.4.6 If necessary to impose additional conditions, revoke Permission issued and issue replacement Permission with the required conditions inserted.

A3.4.7 Prepare invoice, including all costs incurred, and dispatch it to haulage contractor.

A3.5 For High Loads Exceeding Trigger Height 2 but Not Exceeding Trigger Height 3

A3.5.1 Issue Permission, conditional on the measurement of load running height on entry to network area and the accompaniment of the load by a network escort vehicle and network personnel.

A3.5.2 Measure road running load height on entry to network area and check that it does not exceed trigger height 3 for declared travel route.

A3.5.3 If measured height exceeds the declared height, check measured height against trigger height 3. If it exceeds this trigger height, implement procedure for trigger height 3.

A3.5.4 If necessary to impose additional conditions, revoke Permission issued and issue replacement Permission with the required conditions inserted.

A3.5.5 Accompany the load for its entire route through the network area or else for the portion of the network area in which there are carriageway conductors requiring action to maintain safety distances.

A3.5.6 Identify carriageway conductors as the transport of the load proceeds and arrange such action as will maintain the recommended safety distances between the conductors and the load or, for insulated conductors not exceeding 1000 V, prevent contact with the load by placing insulating covers or skids on top of the load. For conductors exceeding 1000 V, arrange for insulated props, designed to keep conductors well separated, to be placed temporarily under the conductors while the load passes under.

A3.5.7 Prepare invoice, including all costs incurred, and dispatch it to haulage contractor.

A3.6 For High Loads Exceeding Trigger Height 3

A3.6.1 Issue Permission subject to conditions. These will include the accompaniment of the load by a network escort vehicle and a network lines vehicle, network personnel and, if necessary, the use of a roving vehicle and operator to carry out any switching required for carriageway conductor isolation and earthing, prior to temporary removal.

A3.6.2 Identify, from the carriageway conductor database, those conductors that will require removal to permit the transport of the load and determine whether their temporary removal will necessitate any loss of supply to network connections.

A3.6.3 For those network connections to which supply will be lost, identify the affected end users and contact them for the purpose of advising them of the load transport and consulting them as to the desired travel period. If necessary, apply a further condition to the Permission amending the travel period stated in the Request to the period agreed after consultation with all affected parties.

A3.6.4 Give notice to the affected end users in respect to the travel period of the load.

A3.6.5 Accompany the load for its entire route through the network area or else for the portion of the network area in which there are carriageway conductors requiring either action to maintain safety distances or temporary removal.

A3.6.6 Identify carriageway conductors as the transport of the load proceeds and arrange such actions as will permit the safe transport of the load. These actions may include the propping of conductors as described in A3.4 above and the isolation, earthing and temporary removal of carriageway conductors by network personnel to permit the load to pass.

A3.6.7 Prepare invoice, including all costs incurred, and dispatch it to haulage contractor.

Appendix 4: Model check list

A4.1: Request Form contains following:

- ❑ name and business address of the haulage contractor
- ❑ name of haulage contractor's contact person and 24-hour contact details of that person
- ❑ name of on-site supervisor if different from the contact person
- ❑ type of load, e.g. house, part of house, transformer, silo
- ❑ height of load when secured on the low loader and about to move along a road, measured from the road surface
- ❑ width of load at widest point
- ❑ width of load at its highest point
- ❑ route desired
- ❑ date of load transport required and estimated time of arrival of load at boundary of network area
- ❑ estimated travel period
- ❑ details of haulage contractor's pilot.

A4.2: Permission Form contains following requirements

- ❑ measurement of the height of the load in its road running condition. If not required, state reason
- ❑ route to be followed by the load, if differing from that on the Request
- ❑ date/time of commencement of travel period, if differing from that on the Request.

Select one of the following as appropriate:

- ❑ Permission, without further conditions
- ❑ Permission, subject to following defined corridor route
- ❑ Permission, subject to a satisfactory check, prior to the travel period, of all carriageway conductors along the route
- ❑ where safety distances may not otherwise be maintained, Permission subject to the presence of a network escort vehicle and personnel during the transport of the load
- ❑ where safety distances will definitely be infringed, and 11 kV conductors require to be temporarily lifted using live line equipment or where any conductors pose an obstruction and must be removed and replaced, Permission subject to the presence of a network escort vehicle, a network lines vehicle and personnel.

A4.3: Procedures

- ❑ check of carriageway conductors arranged for date:
- ❑ escort vehicle with personnel arranged for travel period
- ❑ lines vehicle with personnel arranged for travel period
- ❑ roving operator with vehicle arranged for travel period
- ❑ supply to end users will be interrupted by transport of load
- ❑ affected end users notified and consulted as to travel time
- ❑ shutdown and restoration programmes written and approved for all carriageway conductors to be removed and replaced
- ❑ where an escort is required, both escort and haulage contractor advised of the other's contact telephone numbers for communications purposes.

A4.4: Invoices

- ❑ transport operation costs assembled and entered into invoice
- ❑ invoice sent to haulage contractor.

A4.5: Payment

- ❑ payment of invoiced charges received; or
- ❑ invoice content queried; requires further action.

Appendix 5: High load transport permission – Decision tree