

# 1. GENERAL PROVISIONS

## 1.1 Introduction

The Engineering Standards are intended to apply to all land development and infrastructural projects within the Kaipara District. The Engineering Standards should be read subject to the provisions of the District Plan and any applicable statutes, regulations and bylaws, including (but without limitation):

- The Resource Management Act 1991
- The Local Government Act 1974
- The Local Government Act 2002

The Engineering Standards specify engineering standards for the design and construction of public services and set standards for the design and construction of private infrastructure services. In this way a uniform minimum engineering standard is achieved through the District.

Providing guidance allows for forward planning and a consistent approach to development and allows Council to take over an asset that maintains the level of service the residents and visitors to the Kaipara area expect.

The Engineering Standards apply to new development and are not intended to be retrospective. Existing accesses and infrastructure do not need to be upgraded to comply with the Engineering Standards unless the use of those assets changes.

This document is based on NZS 4404:2010 other relevant engineering standards and Council’s policy decisions.

These standards apply equally to Council’s own work and to work carried out by private Developers. They are consistent with current Council practice for new and upgraded Council assets (for example seal extensions and area wide pavement treatment). However, it is recognised that there may be practical issues in applying the standards on some sites. In these cases, Council will exercise its discretion and adopt an appropriate standard. Where the standard is related to a District Plan rule then Council will exercise its discretion through the resource consent process.

While this document specifies minimum standards for subdivision and development, Developers are encouraged to adopt higher standards provided they are consistent within the development, appropriate to the environment and an efficient use of resources.

**The following table summarises how the Engineering Standards 2011 will apply:**

Activity where compliance with Engineering Standards is required	Method of assessing departure from standards
Subdivision and land development requiring resource consents	Resource consent (RMA)
New dwellings and buildings with similar or greater effect on traffic and services	Resource consent (RMA)
Private development of Council asset such as forming a public Road	Council resolution
New and upgraded Council works	Design report, safety audit, Council Asset Manager approval, or Council resolution

## 1.2 Mandatory Standards and Guidelines

The Engineering Standards 2011 contain both standards that must be complied with under the rules of the District Plan and general guidelines for development appropriate to Kaipara District.

Standards using ‘shall’ or ‘must’ need to be complied with to satisfy the corresponding rule in the District Plan or condition of a consent granted under the Resource Management Act 1991. Standards are written in normal type.

Sections headed ‘Guidelines’ or ‘Guidance Notes’ and text using ‘should’ or ‘may’ are intended as general guidelines and are not mandatory. Alternative methods may be utilised to achieve the desired outcome. Guidelines are written in *italic* type.

### 1.3 Definitions

<b><i>Annual Exceedance Probability (AEP)</i></b>	The probability of a storm event being exceeded within a period of one year. (1% AEP is equivalent to 100 year ARI).
<b><i>Approved</i></b>	Kaipara District Council’s approval in writing.
<b><i>Applicant</i></b>	Person(s) or a company seeking Council’s approval or resource consent to undertake the activities applied for.
<b><i>Arterial Road</i></b>	Major roads with high traffic volumes or a significant component of through traffic. These include major roads into and through the District and roads servicing significant areas of development. Arterial roads are identified in the District Plan.
<b><i>ARC</i></b>	Auckland Regional Council.
<b><i>ARI</i></b>	Average Recurrence Interval for a storm event – also known as return period. (1% AEP is equivalent to 100 year ARI).
<b><i>Asset Manager</i></b>	Council’s manager with the responsibility for managing Council’s infrastructure and includes those acting for and on behalf of that Council manager.
<b><i>Berm</i></b>	A flat area beyond a road Watertable or kerb and channel that is normally grassed and mown.
<b><i>Business Area</i></b>	For the purposes of this standard, this is generally land contained within Industrial and Commercial zones in the Operative District plan (February 1997) and the Business: Commercial and Industrial and Estuary Estates sub zones: Business Zone 1, Business Zone 2 and Service Zone 7 in the Proposed District Plan notified in 2009. However, other areas may be added by changes to the District Plan.
<b><i>Bridge</i></b>	A structure spanning a river or ravine with a waterway area of 3.5m <sup>2</sup> or more.
<b><i>Carriageway</i></b>	The road width normally traversed or occupied by vehicles. This is illustrated in Drawings S01 and S02 of this document
<b><i>CBR</i></b>	(California Bearing Ratio) a measure of subgrade strength in accordance with NZS4402.6.1:1986.
<b><i>Collector Road</i></b>	Roads that collect traffic from specific areas, or link important roads or major traffic generators. Collector roads are identified in the District Plan.
<b><i>Construction Management Plan</i></b>	A construction management plan prepared in accordance with section 3.3 of these Engineering Standards.

<b>Council</b>	The Kaipara District Council or any Committee, Sub Committee, Council Officer or person to whom the Council's powers, duties and discretions under the Act have lawfully been delegated pursuant to the provisions of the Act or any other statute.
<b>CPEng</b>	Chartered Professional Engineer.
<b>Developer</b>	In relation to resource consent application, is an individual, owner, trust, company, legal entity or organisation having the financial responsibility for the development project.
<b>Regulatory Manager</b>	Council's manager with the responsibility for processing resource consents and includes those acting for and on behalf of that Council manager.
<b>Developer's Professional Advisor</b>	The person, appointed by the Developer, who shall be responsible for: <ul style="list-style-type: none"> <li>a) The investigation, design and obtaining of approvals for construction;</li> <li>b) Contract administration and supervision of construction;</li> <li>c) Certification upon completion of construction</li> </ul>
<b>Diameter (of pipe)</b>	The minimum internal diameter of a pipe.
<b>District Plan</b>	The operative and proposed plans for the Kaipara District and any combination of them applicable to resource consent applications.
<b>DN</b>	The nominal internal diameter of a pipe (mm).
<b>Drain</b>	A pipe or channel that conveys sewage or stormwater flow. Drainage has a corresponding meaning.
<b>Driveway</b>	A permanently formed access for the use of motor vehicles and pedestrians between a road or street and carport, garage, parking space or loading space on a site.
<b>Dwelling</b>	Any self-contained residence of one or more persons as a single household which in each case contains one kitchen, and includes any dwelling house, flat, home unit or townhouse or papakainga housing on ancestral land, but does not include a sleep out.
<b>Earthworks</b>	Any alteration to the shape of the ground contours, including the excavation, backfilling or recompaction of soil and the removal of vegetation and topsoil that requires a resource consent under the District Plan rules.
<b>Engineering Standards</b>	Kaipara District Council's Engineering Standards 2011
<b>Formation width for roads</b>	The road construction including carriageway, feathered Shoulder and Watertables or kerb and channel.
<b>Geo-professional</b>	A Chartered Professional Engineer (CPEng) or an experienced engineering geologist with recognised qualifications and experience in geotechnical engineering and experience related to land development.
<b>Ground</b>	The surface of the earth whether soil or rock.

<b>Household Equivalent</b>	<ul style="list-style-type: none"> <li>a) A residential dwelling; or</li> <li>b) A development which generates the same demand as four people who reside full time at the location; or</li> <li>c) Any development which generates eight vehicle movements per day following completion of the development.</li> </ul>
<b>Hold Point</b>	A stage during construction where a Council Engineer's inspection is required before proceeding further.
<b>IQP</b>	Independently Qualified Person - a specialist approved by Council and having the appropriate skills and qualification to carry out specific procedures.
<b>KDC</b>	Kaipara District Council. Council has the same meaning.
<b>Legal width</b>	The width between legal boundaries on a public Road or Private Way.
<b>Local Roads</b>	Roads not classified as arterial or collector, whose major function is to provide access to properties rather than provide routes for other traffic.
<b>Manholes</b>	Non-pressurised pipe junctions which provide a person with access to the pipes from the ground.
<b>Metal</b>	An unsealed carriageway surface consisting of pavement aggregate and running course.
<b>NIWA</b>	National Institute of Water and Atmospheric Research Limited.
<b>NRC</b>	Northland Regional Council.
<b>NZTA</b>	New Zealand Transport Agency.
<b>Open Drain</b>	An excavated channel for conveying stormwater. It is normally steep sided and unlined (as opposed to 'Swale Drain')
<b>Overland Flow Path</b>	The path taken by stormwater runoff in excess of the Primary Design Flow so that the required protection is provided to the surrounding buildings.
<b>Owner</b>	In relation to any land or interest in land, includes an owner of the land, whether beneficially or as trustee, and their agent or attorney, and a mortgagee acting in exercise of power of sale; and also includes the Crown, the Public Trustee and any persons, Territorial Authority, board, or other public body or authority however designated, constituted, or appointed, having power to dispose of the land or interest in the land by way of sale.
<b>Paper Road</b>	Unformed legal Road.
<b>Pavement</b>	The layer(s) of road formation above the subgrade, incorporating crushed aggregate, stabilised natural granular or other material or rigid material (such as concrete), including any seal coat.
<b>Poo Pit</b>	Wormall Group's trade name for a molded plastic junction and access point for sewer pipes.
<b>Practical Completion</b>	Shall have the same meaning as given in NZS 3910:2003.

<b>Primary Design Flow</b>	The stormwater runoff which will be piped or contained entirely within defined open channels.
<b>Private Way</b>	An access over private land as defined in section 315 of the Local Government Act 1974. A Private Way is not intended to be used by the general public.
<b>Regional Water and Soil Plan</b>	NRC's Regional Water and Soil plan for Northland.
<b>Residential Zone</b>	An area zoned in the District Plan as Residential.
<b>Rider Mains</b>	All pipes less than 100mm in diameter. Includes associated valves.
<b>Rising Mains</b>	All pipes between a pump station and non-pressurised junction or termination including another pump station, manhole, and reservoir or treatment system.
<b>RMA</b>	Resource Management Act 1991 and its amendments.
<b>Road</b>	Any road as defined in section 315 of the Local Government Act 1974, and roading has a corresponding meaning.
<b>Rural</b>	For the purposes of this standard, this is generally land contained within Rural, Maori Purposes, Rural Residential and Coastal under the Operative District Plan (1997) and Rural, Maori Purposes: Maori Land, Maori Purposes: Treaty Settlement Land and Estuary Estates sub zones: Rural Cluster Zone 5 and Rural Residential Zone 6 in the Proposed District Plan notified in 2009. However, other areas may be added by changes to the District Plan.
<b>Service Lanes</b>	This has the meaning given in Section 315 of the Local Government Act 1974 <i>"any lane laid out or constructed either by the authority of the council or the Minister of Works and Development or, on or after the 1st day of April 1988, the Minister of Lands for the purpose of providing the public with a side or rear access for vehicular traffic to any land"</i> .
<b>Seal</b>	A chip seal or asphaltic concrete (hot mix) pavement surfacing or concrete pavement. Sealed has the same meaning.
<b>Sewer</b>	An enclosed pipe used for conveying sewage by gravity.
<b>Shoulder</b>	A sloping section of compacted aggregate beyond a road carriageway supporting the pavement. Feathered Shoulder has the same meaning.
<b>Soil</b>	An aggregation of mineral and/or organic particles comprising of either peat, clays, silts, sands, gravels, crushed and re-oriented rock fragments, or a mixture of any of the above. The term excludes rock that is intact rock masses whether highly jointed or not.
<b>Stormwater Drainage System</b>	Components installed to capture and convey surface runoff primarily from rainfall.
<b>Stormwater Treatment Pond</b>	A permanent pond, wetland or dry detention basin designed to attenuate peak stormwater flows and provide water quality treatment. Refer Section 6.5.1.

<b>Subdivision</b>	<p>Has the meaning as defined in Section 218 of the Resource Management Act “(1) <i>In this Act, the term subdivision of land means—</i></p> <p>(a) <i>the division of an allotment—</i></p> <p style="padding-left: 40px;">(i) <i>by an application to the Registrar-General of Land for the issue of a separate certificate of title for any part of the allotment; or</i></p> <p style="padding-left: 40px;">(ii) <i>by the disposition by way of sale or offer for sale of the fee simple to part of the allotment; or</i></p> <p style="padding-left: 40px;">(iii) <i>by a lease of part of the allotment which, including renewals, is or could be for a term of more than 35 years; or</i></p> <p style="padding-left: 40px;">(iv) <i>by the grant of a company lease or cross lease in respect of any part of the allotment; or</i></p> <p style="padding-left: 40px;">(v) <i>by the deposit of a unit plan, or an application to the Registrar-General of Land for the issue of a separate certificate of title for any part of a unit on a unit plan; or</i></p> <p>(b) <i>an application to the Registrar-General of Land for the issue of a separate certificate of title in circumstances where the issue of that certificate of title is prohibited by section 226,—</i></p> <p><i>and the term subdivide land has a corresponding meaning.</i></p>
<b>Subgrade</b>	The top 1 metre layer of the road formation below the pavement. Includes any stabilisation, non-granular material or granular material of a lower standard than quarry run aggregate.
<b>Sub base layers</b>	The portion of the pavement between the base and the subgrade.
<b>Sumps</b>	Pits designed to receive storm runoff from the ground, trap grit and convey the runoff into the primary stormwater system.
<b>Supporting Documentation</b>	Documents required by Council’s assets department in support of the request for the department to manage and maintain new engineering services.
<b>Survey Plan</b>	As described in Section 2 of the Resource Management Act 1991.
<b>Swale Drain</b>	A grassed sloped surface channel for conveying stormwater (as opposed to ‘Open Drain’)
<b>Trade Waste</b>	Any liquid with or without matter in suspension or solution, that is or may be discharged from a trade premises in the course of any trade or industrial process or operation, or in the course on any activity or operation of a like nature, but does not include stormwater or domestic sewage.
<b>Ultimate Development</b>	The maximum development intensity allowed as a permitted or controlled activity under the District Plan allowing for associated roads and reserves.

<b>Urban</b>	For the purposes of this standard, this is generally land contained within Residential, Rural-Residential, Commercial or Industrial in the Operative District Plan (1997) and zoned Residential, Business: Commercial and Industrial or Estuary Estates sub zones Residential Zone 3 or Parkside Residential Zone 4 in the Proposed District Plan notified in 2009 and any site of less than 4000m <sup>2</sup> in the District.
<b>Vehicle Crossing</b>	The formed and properly constructed vehicle access from the carriageway of any road up to and including that portion of the road boundary of the site across which vehicle access is permitted and includes any culvert, bridge or kerbing.
<b>vpd</b>	Vehicle movements per day. A return trip is two vehicle movements.
<b>Wastewater</b>	Water that has been used and contains unwanted dissolved and/or suspended substances of a domestic nature, excluding trade wastes.
<b>Watertable</b>	An open drain on each side of a road used to drain the pavement and convey stormwater.

#### **1.4 Standards**

Where any apparent conflict exists between any New Zealand Standard and the specific requirements outlined in these Engineering Standards, these Engineering Standards take precedence.

The conditions of any resource consent issued in accordance with the Resource Management Act 1991 shall take precedence over these Engineering Standards.

Any other legislative requirements such as under the Building Act 2004 or regulations made under any legislation shall take precedence over these Engineering Standards, unless these Engineering Standards or the conditions of a resource consent specify that a higher standard is required.

#### **1.5 List of Related Documents**

References are made throughout this document to relevant legislation and other standards and guideline documents.

Specifically this standard is based on NZS 4404:2010 Land Development and Subdivision Engineering and documents referenced therein. The most current version of any publication or standard shall supersede any conflicting requirements of older documents.

The following is a list of related documents. Other documents may also be referred to in these Engineering Standards.

##### **1.5.1 Legislation**

- Health Act 1956 and amendments
- Health and Safety Employment Act 1991 and amendments
- Local Government Act 1974 and amendments
- Local Government Act 2002 and amendments
- Public Works Act 1981 and amendments
- Resource Management Act 1991 and amendments
- The Building Act 2004 and amendments

### **1.5.2 Standards**

AS/NZS 1100:1992 Technical Drawing

NZS 3104:2003 Specification for Concrete Production

NZS 3109:1997 Concrete Construction

NZS 3116:2002 Concrete Segmental Paving

AS/NZS 3725:2007, AS/NZS 2566.2, AS/NZS 2033:2008 Design for Installation of buried concrete, flexible and polyethelene pipes

NZS 4404:2010 Land Development and Subdivision Engineering

NZS/BS 750:1984 Underground Fire Hydrant and Surface Box Frames and Covers

SNZ PAS 4509:2008 New Zealand Fire Service Fire Fighting Water Supplies Code of Practice

### **1.5.3 Other Guideline Documents**

Auckland Regional Council Technical Publication 10 Stormwater Treatment Device Guidelines Manual

Auckland Regional Council Technical Publication 124 Low Impact Design Manual for the Auckland Regions

Auckland Regional Council Technical Publication 58 On-Site Wastewater Disposal from Households and Institutions

Auckland Regional Council Technical Publication 90 Erosion and Sediment Control Guidelines for Land Disturbing Activities

Austrroads, AP 17/92 Pavement Design: A guide to the structural design of road pavements

Austrroads, Guide to the Geometric Design of Rural Roads

Austrroads, Guide to Traffic Engineering Practice Part 12: Roadway Lighting

Austrroads, Guide to Traffic Engineering Practice Part 5: Intersections at Grade

Austrroads, OAD Safety Audit

Kaipara District Council "Catchment Plan for Mangawhai Heads, Mangawhai Village"

Ministry of Health "Drinking Water Quality Management"

Ministry of Health "Drinking Water Standards"

Molesworth Peninsula Urban Capability Study

New Zealand Building Code

Northland Regional Council Operative "Regional Air Quality Plan for Northland"

Northland Regional Council Operative "Regional Coastal Plan for Northland"

Northland Regional Council Operative "Regional Water and Soil Plan for Northland"

New Zealand Transport Agency (NZTA) Manuals and Technical Documents as listed in the NZTA Standards Criteria and Guidelines Manual

US Water Environmental Federation and American Society of Civil Engineers Guidelines Design and Construction of Urban Stormwater Management Systems

## **1.6 Engineering Standard Reviews**

These standards will be reviewed annually to ensure that references are kept up to date and that innovative materials and methods are incorporated where appropriate. These reviews will be undertaken between March and June each year.

An updated document may be made available in each July following the review. Council may resolve that no revision is necessary in any given year.