Section 1 - Introduction

Contents

1 Introduction

1.1 General

This Document is designed to give effect to Western Bay of Plenty District Council District Plan by providing acceptable design solutions to Developers and Asset Managers within Western Bay of Plenty District Council area. The Document is split into two volumes, known as the Development Code: Design and Development Code: Construction, and known simply as The Code.

This document replaces the Western Bay of Plenty District Council document known as the Code of Practice for Subdivision and Development.

The Code provides a means of compliance when designing and constructing engineering works that are required to fulfill conditions imposed by a Resource Consent or Building Consent (or works that fall within the requirements of the District Plan if a consent is not required i.e. as a permitted activity condition).

The Code is to be used for all aspects of developments that are permitted activities within the District Plan.

1.2 Statutory Requirements

The provisions of this Code shall be read subject to the provisions of the District Plan and to any applicable statutes, regulations and bylaws.

The main over arching legislative instrument that requires the necessity for this Development Code is the Resource Management Act., while the Code is also required for use in the following statutes:

i. Building Act 2004
ii. Local Government Act 2002
iii. Land Transfer Act 1952
iv. Unit Titles Act 1972
v. Property Law Act 1952
vi. LGOIMA (1987)

Requirements from each legislative document provide Consent Authorities with the powers and functions to request, provide, and supply information pertaining to the land.

1.3 Applicability

The standards outlined in this Code are applicable to:

- all assets that will be vested in Council
- any impact on existing or future planned Council assets from a proposed development
- physical works as required by a Resource Consent or Building Consent

For all development works undertaken on Crown owned land administered by NZTA and/or within land designated by NZTA in accordance with the Resource Management Act 1991, the works shall be designed to meet current standards and requirements of NZTA, and not the standards contained within this Code.

And the following types of development:

- subdivision
- all construction works (including upgrading of existing infrastructure) not covered by the Building Act 2004
- land modification and associated works, except within the boundaries of an active quarry (Note: the Code still applies to quarry access)
- the installation and upgrade of network utility services

The intention of this document is to encourage quality developments, both in the urban and rural sectors. An overview of the definition of quality urban development design is provided below, but is equally applicable to rural residential and rural development.

1.4 Design Overview

1.4.1 Overview of Quality Urban Design

High quality urban design is about getting the building blocks of development right, designing them to get the best urban form practicable. High quality environments cannot be achieved without good subdivision. Subdivision cannot be measured as a product or a process simply being undertaken today, but has to be considered as a long term component of the urban form. Therefore new subdivisions must be designed to be robust and flexible enough to also suit the generations to come.

Traditional approaches to land subdivision have emphasised lot yield efficiency, engineering, and surveying requirements. These elements are important but the primary objective of planning and design is ultimately to create livable communities that are safe, sustainable and rich in amenities for users.

This chapter sets out how neighbourhoods can be structured and the layout of streets, lots and networks designed in ways that achieve maximum benefits to the subdivider, end-resident, and

community. It is largely aimed at urban subdivision, however most of the core design principles can also be applied to rural and rural residential development.

The approach emphasises responsive and innovative design as opposed to rigid adherence to existing development doctrine. Developers are encouraged to look beyond the minimum standards and consent requirements of the District Plan and to explore opportunities that deliver improved community environments.

Council offers a pre-application design process in order to work with the subdivider to achieve high quality development that will be successful in the short term and for generations to come.

This chapter is intended to illustrate high quality urban design by providing basic best practice principles of subdivision design. If a subdivider proposes that there is a divergence from the statutory requirements, Code standards and levels of service, a very strong design rationale must be illustrated using the core design principles and those found in the New Zealand Urban Design Protocol, Western Bay of Plenty District Council Built Environment Strategy, and other relevant strategies and policies.

1.4.2 Core Design Principles

There are a range of key issues that need to be addressed in the development of new neighbourhoods and subdivisions. They directly relate to the quality of environments we create:

- **Rationale** should underpin all design. Good subdivision is more focused on a clear rationale as to why and how decisions have been made about the design elements, rather than whether they strictly comply with statutory requirements.

- **Context** in which the subdivision is located must be taken into account in the design including the existing urban, landscape and social setting.

- **Integrate** with surrounding neighbourhoods, through the roading and open space networks. Encourage pedestrian and cycle activity around convenient access and routes.

- **Layout** should contribute to the local identity of the Western Bay of Plenty, responding to site characteristics, the surrounding environment, notable features, views, and identified region-wide strategic initiatives.

- **Reinforce** existing local focal points in the community, ensuring that residents are in walking distance of a range of amenities. Provide new nodes and focal points logically on the movement network.

- **Variety** of lot sizes and other compatible uses encourages a diverse community.

- **Connect** movement networks including street, cycle and walkways to provide accessibility and choice in the local area, reducing travel distances, vehicle emissions, and money spent on petrol that could cumulatively help the local economy and increase accessibility to public transport.

- **Convenient** designs ensure residents have convenient access to public parks, open space and community facilities.

- **Open Spaces** need to be safe, legible, cost effective to maintain and capable of providing a variety of recreation uses.

- **Safe** developments are based on lots fronting the road and public open spaces, providing informal surveillance of the public realm.

- **Low impact** approaches to managing stormwater run-off and other resource use helps maintain the long-term environmental quality of the sub region.

- **Ecological and heritage features** should be protected and enhanced. This can be achieved in a manner that adds value and uniqueness to subdivisions.

- **Consultation** should be undertaken with stakeholders and affected parties prior to the design process being initiated. In particular in discussion with Tangata Whenua cultural landscape values should be recognised and applied.

- **Strategic planning** sets the framework for the City and District. Any subdivision should be undertaken within the parameters of this planning to ensure that the overall direction for the Western Bay of Plenty is achieved.

1.4.3 Subdivision-wide Considerations

The considerations are as set out below:

- Neighbourhood context and site analysis
- Designing with the environment
- Movement and access
- Neighbourhood design
- Infrastructure
- Power lines including high voltage transmission lines

1.4.4 Neighbourhood Context and Site Analysis

The added value flow-on effect from careful neighbourhood context and site analysis can directly benefit future residents through better quality outcomes.

It is important to identify the opportunities available on the site and any likely constraints early. There will be an overriding rationale for every subdivision scheme, particularly where appropriate and sustainable outcomes are identified. Involvement of the Council as early as possible to help identify, provide information and refine this rationale will help to clarify the objectives and avoid misunderstandings and differences at later stages in the application process.

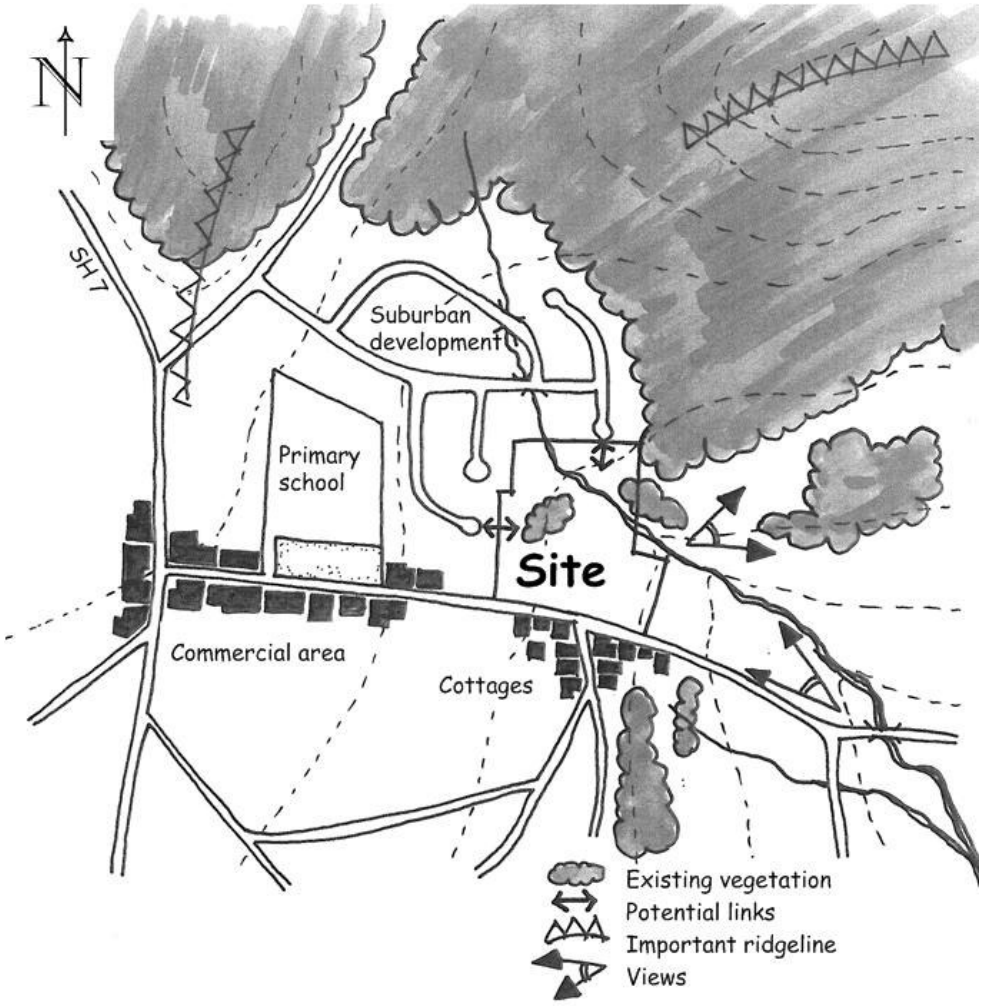


Figure 1 Neighbourhood Context Analysis

i. Neighbourhood Context Analysis

The following matters should be considered in the neighbourhood context analysis, in terms of both constraints and opportunities:

The pattern of development in the neighbourhood:

- Movement networks (arterial roads, local roads, cycle and pedestrian routes)

- Opportunities for direct routes and walkable catchments ('pedsheds')
- Open spaces, parks and linkages

The built form, scale, amenities and character of the surrounding neighbourhood:

- Existing and planned local centres, community facilities (schools, parks), public transport and direct routes to these
- Existing and planned residential areas, surrounding subdivision lot density, housing types or styles, parks and networks
- Existing infrastructure and reticulated services (including overhead power lines), available connections and capacity
- The scale and density of existing development

Notable features or characteristics of the neighbourhood:

- Landscape or landform features such as dunes, wetlands, streams, rivers, vegetation and heritage features
- Significant views and aspect

ii. Site Analysis

A detailed analysis of the site and its surroundings facilitates the design of appropriate subdivision responses. The following matters should be considered:

- Topography and landforms
- Flora and fauna
- Natural features, wetlands and streams
- Soils and groundwater
- Coastal landforms
- Views and orientation, solar access, wind and climatic considerations
- Existing buildings and structures
- Heritage and cultural sites and features
- All possible vehicle access points
- Opportunities for street connections to neighbouring sites
- Any existing or proposed opportunities for cycleway, walkway and bridleway linkages
- Overland flow paths and stormwater catchments
- Historic or existing contamination
- Local sources of noise, dust, odour, vibration, light glare
- Natural hazards
- Character and land uses of surrounding areas

The site analysis should be discussed and collaborated with Tangata Whenua, neighbours, interested groups and Council staff to identify all of the relevant issues.

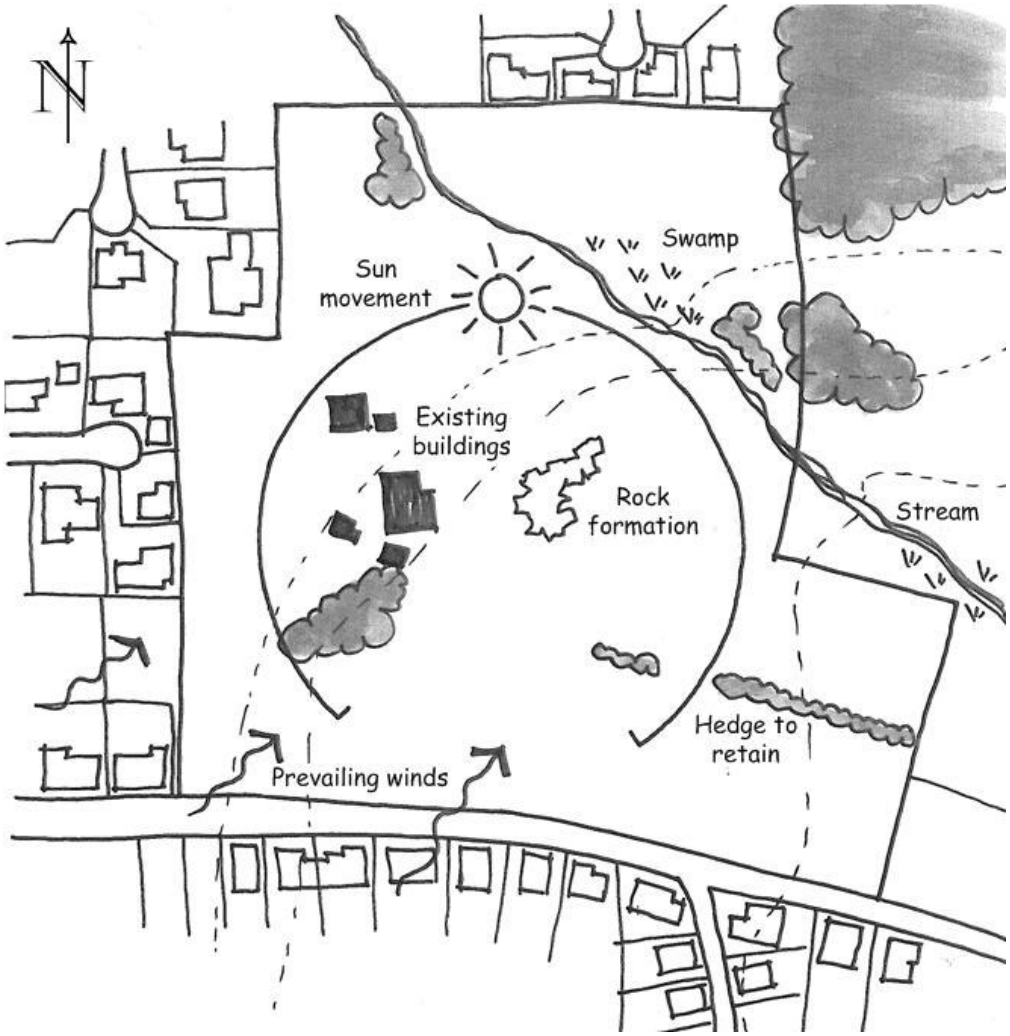


Figure 2: Site Analysis

1.4.5 Designing with the Environment

Subdivision has often historically involved the wholesale clearance of these features, and piping of water courses. Subdivisions are now increasingly being designed to take advantage of features

within a site to create and build on identity, and to reflect increasing community interest in environmental issues.

In the Western Bay of Plenty, public access to and enjoyment of the coastal and harbour environment is a very important component to the people living in the area. Coastal and harbour ecology can be significantly affected by residential development through the disturbance of natural erosion and accretion processes, loss of sand dunes and disturbance of bird nesting areas and such like.

i. The Landscape

Features such as vegetation, landforms and waterways can add character and interest to the subdivision and provide benefits in terms of maintaining established natural ecosystems.

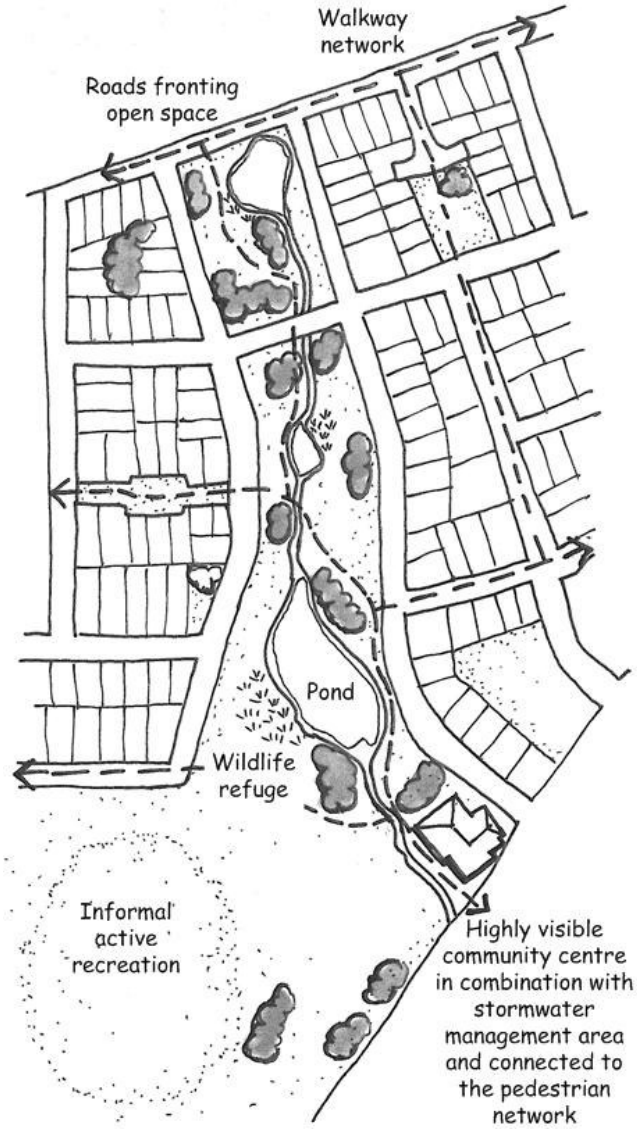


Figure 3: Stormwater Management Area

Design Elements

- Incorporate streams and vegetation into the design of subdivisions through the provision of open spaces where they can contribute to recreation networks and/or maintain ecological values.
- Connect publicly accessible open spaces with streets, ensuring these spaces are visible to and overlooked by adjacent sites and dwellings. This allows adjacent sites and subdivision to capture some of the value of this open space.
- Retain and restore stream networks by planting stream banks in suitable indigenous species. Seek the assistance of an ecologist or talk with the Council to identify the most appropriate method to restore a stream.

ii. The Coastal and Harbour Landform

Development near the coast needs to respond to the existing ecology and its protection, coastal hazards and the maintenance of public access.

Design Elements

- Preserve dune systems, other coastal features and habitats.
- Consider the use of restrictive covenants or other techniques that can prohibit pets in sensitive habitat areas.
- Restore areas of degraded coast and harbour through suitable indigenous plantings, and, where necessary, protective fencing.
- 'Front' beaches, dune systems and harbour with public roads, maintaining public access to them.
- Incorporate public parks with any esplanade reserves to increase the amenity and utility of these spaces.
- Provide car parking and public amenities for visitors.

iii. Managing Earthworks

Earthworks for subdivision and dwelling development can have substantial and cumulative effects on the aquatic receiving environment, silting streams and estuaries, and altering catchments. They can also significantly alter topography, which could otherwise add to the local character and identity of the subdivision.

Earthworks are often a considerable expense to the developer and can have adverse effects if poorly managed. Design solutions which limit the extent of earthworks, reducing opportunities for erosion and sedimentation, and retaining the site's natural features, should be pursued.

There may be fundamental incompatibilities between the landform and desired 'end market' for a subdivision, especially if the land is 'lumpy' and nothing but flat sites with single-level homes are envisaged.

Design Elements

- Limit earthworks (volume and area), avoiding disturbance to the natural landform, steep slopes and adverse effects on aquatic environments. Only excavate areas required for structures and access.
- Design the layout of roads and lots to work with the natural characteristics of the site.
- Retain the site's topsoil, allowing the landscape to develop with new dwellings and avoiding the need to dispose large volumes of spoil to cleanfill sites.
- Avoid subdivision that results in significant post-development earthworks on each lot to construct dwellings and driveways.

1.4.6 Movement and Access

The way in which movement networks are laid out is one of the most influential 'drivers' of urban form and how successful a place will be. This is because, unlike land uses and allotments, roads and networks can not be easily moved, changed, or removed.

The movement networks will also determine the way in which developments provide better or worse opportunities for safety, community, and social contact, privacy, and areas of intensity that will support local shops or amenities.

i. Connected Roads

A connected network of roads, lanes and paths, as opposed to a series or hierarchy of unconnected cul-de-sacs, increases accessibility for residents, allows for safer and more efficient movement of vehicular and non-vehicular traffic, and enables more efficient infrastructure provision. Over the longer term, it also delays the need for substantial arterial route widening to manage poorly distributed peak traffic flows.

While subdivision applications are submitted on a site by site basis, there needs to be consideration of future connections, to ensure the neighbourhood and future developments are integrated and accessible. This includes the provision of roads, footpaths, cycleways, open space linkages and community facilities.

Design Elements

- Provide a road layout (including cycleways and walkways) with as many links to adjacent sites and surrounding roads as possible. This results in a choice of routes and transport

modes from a highly interconnected road pattern. Collaboration with adjacent landowners is a valuable tool.

- Design a road, cycleway, and walkway pattern that allows integration and easy direct access to and from bus stops, shops, schools, employment, parks and other amenities based on how people will logically seek to move through a space, including walking and cycling.
- Connected roads forming urban blocks (of less than 120m length) are better than a pattern of many cul-de-sacs and few through roads.
- Cul-de-sacs are appropriate to use only when they are short and other roading patterns would result in streams being piped or vegetation being cleared, where adjoining developed land prevents a through road, or where the topography is too steep to allow a safer connection. Pedestrian and cycle links should be provided from the cul-de-sac head to an adjacent road or park, and be at least 7.0m legal width.
- Private right-of-ways, driveways and private ways should only be used to reach pockets of land that are inaccessible from a road. These should serve no more than 2 or 3 allotments.
- Intersections should be designed to facilitate reduced turning speeds, reducing safety risks to other users.

ii. Public Transport Network

Bus Routes

Bus route planning for new and/or extended bus services will require sub-regional or development area planning. Environment Bay of Plenty will assist developers to incorporate wider bus networks into their proposals.

Specific elements to consider when planning new urban development are set out in Design Standard DS 4 Transportation.

iii. Street and Block Orientation

The layout of urban blocks, their size and length is important in maintaining a walkable neighbourhood. Blocks that are too deep or long limit the number of connected routes within a neighbourhood and increase the distances residents need to travel to services and amenities. This lowers the feasibility of pedestrian movement, and can add unnecessary vehicle kilometres travelled.

The orientation of roads and blocks should also ensure that lots receive adequate sunlight in a manner that will allow dwellings and other uses to provide a public 'front' to the road and a private 'back' for amenity.

iv. Street and Block Design Elements

Maximise opportunities for sunlight access by:

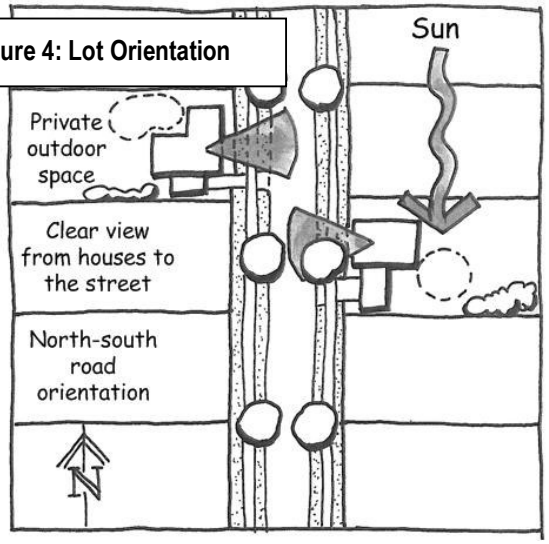
- Aligning roads north/south and lots east/west where possible.
- Providing south facing lots with north facing backyards for outdoor living.
- Ensuring sunlight access to roads, including the selection of appropriate trees to provide sunlight penetration through winter.
- Limit the size and length of urban blocks to increase the choice of routes, and allowing for increases in residential density close to town centres.
- Avoid rear lots as they inherently and unavoidably generate public/private conflict along the sides of front and adjacent lots, and don't provide connection to the road, community, or amenities. They should only be used as a clear by-product of seeking to retain landscape/landform, or a similar objective.

v. Lot Design

Maximise opportunities for sunlight access by:

- Aligning roads north/south and lots east/west where possible.
- Provide lots with sufficient area and dimensions to meet user needs. Ideally lots should be rectangular in shape.
- Arrange lots along the road fronts. Avoid developing rear lots within a block.
- Design urban blocks for lots to have fronts facing fronts and backs facing backs.
- Orientate lots to ensure sheltered microclimates can be delivered.
- Ensure a variety of different sized lots.
- Incorporate the principles of Crime Prevention through Environmental Design (CPTED) in the development of subdivisions.

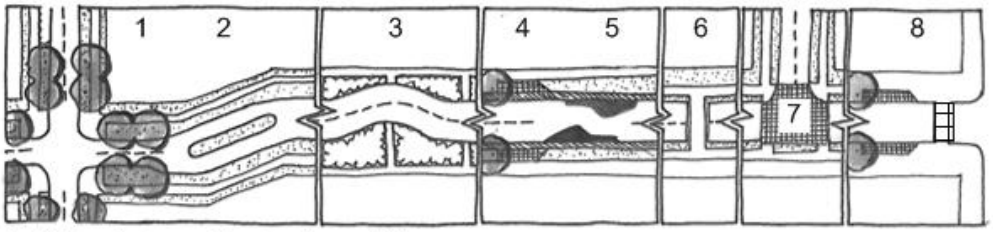
Figure 4: Lot Orientation



vi. Road Design

Carriageways, berms, cycleways, footpaths, car-parks, and sometimes stormwater infrastructure all need to share the road reserve. While roads need to be designed to cater for traffic and infrastructure services, they also have a large role in determining the character of the subdivision as a whole. Road widths, cycleways, footpath styles and materials, berm location and width, in combination with tree planting can all be used creatively to deliver variety, interest and identity into neighbourhoods.

In residential areas well designed, connected roads can provide the best features of cul-de-sacs, such as quiet traffic and safety for children playing near the road - whilst promoting accessibility. The road layout potentially lasts hundreds of years longer than buildings yet in the past have had little design attention in regard to how they may service future redevelopment.



1. Tighten intersections to slow vehicles
2. Include islands or raised berms to narrow, for planting and aid pedestrians
3. Use bends to slow traffic
4. Incorporate chicanes or narrowing to slow movement
5. Incorporate planting and parking bays to visually narrow road
6. Use platforms or tables to aid pedestrian crossing and slow traffic
7. Use material differentiation to signal changes in land use i.e. schools
8. Speed humps may be used however they have a nuisance value for adjacent users

Figure 5: Road Design Elements

vii. Road Design Elements

- Create identity for the neighbourhood through the design of quality roads.
- Design for attractive roads, incorporating appropriate carriageway widths, landscaped berms and street trees, car parking, lighting and adequate footpaths.
- Design roads according to the anticipated traffic volume and desired vehicle speed. Determine the role of each route based on the wider environmental movement context, either as a local road or collector/ arterial road, and ensure the design is appropriate for that purpose.
- Road design should encourage appropriate driver behaviour, reflecting the local purpose of many neighbourhood streets. Traffic calming can be achieved by carriageway widths, tighter kerbline radii, traffic islands (which can double as pedestrian refuges to assist crossing), localised narrowing, planting and changes to the street surface.

- Narrower roads, where small traffic volumes are anticipated, help to slow and calm traffic, but they must have enough width for safe and efficient access for emergency services and service vehicles. Avoid situations where on-road parking blocks the movement of other vehicles, including 90-percentile trucks.
- Ensure adequate eye-to-eye visibility is maintained for road users and pedestrians at intersections and driveways.
- Design tight intersections to slow and control traffic. Intersections need to be designed for the safety of pedestrians, cyclists, and mobility scooters.
- Roundabouts can be unsafe for pedestrians and cyclists and should only be used after other intersection designs have been explored.
- Provide dedicated cycle lanes on roads with higher traffic volumes.
- Footpaths should be provided on both sides of the road unless a clear case to the contrary exists.
- Consider providing rear lanes or slip lanes for vehicle access and parking adjacent to heavy traffic routes, avoiding multiple driveways compromising the road's function.
- Provide bus-stops on public transport routes and ensure that these stops are overlooked by adjacent housing and other activities. Ensure that every lot is within 10 minutes walk of a bus stop and adjust the road network to provide direct routes.
- Avoid placing groups of dwellings on private ways, rights of ways, or common access ways. Common driveways don't provide the same amenity or privacy as roads.

viii. Traffic Calming

The management of vehicular movement to maintain amenity is an increasingly important aspect of movement networks. This is because the efficient through movement of traffic needs to be reconciled with the need to provide safe, high-amenity settings for residential areas.

A range of techniques exist, ranging in significant to very small-scale 'spot' treatments to manage the flow of vehicles.

Traffic Calming Design Elements:

Design interventions include:

- Delineate different mode space with different materials - use colour and material to make vehicular carriageway, footpaths and cycle ways, parking bays and manoeuvring areas clearly legible.
- Tighten intersection corners to ensure slower vehicle movements.
- Look to incorporate islands or raised berms as they can be used for landscaping or to help aid pedestrian crossing as well as slowing vehicles.
- Avoid long stretches of straight local residential roads by using the road reservation width to allow for regular bends or 'shifts' in the carriageway.
- Incorporate chicanes or 'chokers' at key points to slow movement. The use of mountable kerbs can allow wider radii for large and emergency service vehicles.

- Incorporate landscaping into parking bays to help make the carriageway seem psychologically narrower to drivers.
- Develop tables (essentially large, flat speed humps) with material differentiation to aid pedestrian crossing without relying on formal crossing points.
- Raising intersections and using material differentiation can make these points more prominent while helping to slow vehicles.
- Speed bumps (up to 1.0m wide) or humps (essentially a long speed bump up to 4.0+m wide) can also effectively manage vehicle speeds. However, due to the nuisance they can create for adjacent users, these should be considered as representing the least desirable form of intervention.

ix. On Road Car Parking

The District Plan requires off-street parking to be provided for every dwelling. There is also a demand for some on-road parking for visitors and short-term parking. This parking needs to be provided in a manner that maintains the amenity of the street.

On Road Car Parking Design Elements:

- Parallel kerbside parking evenly distributed throughout the subdivision is good for visitor and resident parking.
- Parking can be concentrated alongside parks to promote public use to relieve parking in nearby residential roads.
- Parking bay materials to contrast with traffic lanes and make the streetscape more appealing (as well as reducing vehicle speeds).
- Where parking bays are provided, prevent driveways from crossing the bay and negating the function of the space.
- Be aware of facilities that may have parking congestion issues at particular times.
- Ensure street trees have sufficient area to grow.

x. Pedestrians and Cyclists

The provision of footpaths and cycleways enables and encourages people to walk and cycle around their neighbourhood. This facilitates social interaction, and casual contact between residents, and an active, safer road. Quality design for pedestrians and cyclists can help make non-vehicle local trips viable, reducing energy consumption, pollution and traffic congestion. This in turn can result in health benefits. Safe roads can also make it attractive for children to walk and cycle to school.

Pedestrian and Cyclist Design Elements:

- All roads should be designed to cater for cyclists and pedestrians, including children, the elderly, the disabled, and parents with prams.
- Intersections should provide pedestrian crossing points.
- Separate cycle and pedestrian paths may be appropriate where an attractive longer route can be achieved without intersections e.g. along an esplanade reserve.

- Footpaths take precedence over vehicle crossings - the gradient and material of the footpath should be uninterrupted.
- Walkway and cycleway links, between roads, should be at least 7m legal width. To ensure user safety, their location should be integrated with street lighting and landscaping and also provide clear visibility from both ends. The placement of street trees also is important as trees can over time block light and visibility.
- Consider where schools, sports uses, and other facilities are located to determine where walkway and cycleway connections are optimally suited.

1.4.7 Neighbourhood Design

i. Access to Community Services and Facilities

Residents require access to community facilities in order to meet their daily needs, and to participate in community activities. Where community services and facilities (such as shops, schools, libraries, and health facilities) already exist, new subdivisions should be well connected to them with a logic based on providing convenient access.

Facilities within walking distance of residents can encourage walking and reduce the use of motor vehicles. This also allows those who are non-drivers (children, the elderly, and those with disabilities) opportunities to independently access community facilities.

Opportunities for residents to work locally will minimise travel distances and avoid creating dormitory suburbs, as well as strengthen the economic and general vitality of town centres.

Access to Community Services and Facilities Design Elements

- Take advantage of strategic locations adjacent to collector roads and intersections to develop local centres containing retail, service, employment, education, and community facilities.
- Look to stimulate the provision of new facilities if none exist in the local environment .

ii. Open Spaces[1]

Parks and open spaces are important elements of a neighbourhood. They provide opportunities for recreation and social contact, and their spaciousness can contrast with the built form of urban areas.

They also critically offer a protected view for surrounding sites that if marketed well can add value through their guarantee of never being built-out.

The manner in which a subdivision relates to public spaces such as roads, parks, and streams is very important for visual amenity and safety. Too often parks are inconveniently located,

inappropriately sized or poorly overlooked, being comprised of left-over land from the lot design process.

[1] A best practice guide for neighbourhood reserves is available from Tauranga City Council

Open Spaces Design Elements:

- Locate open spaces where they are highly prominent and accessible within the local area.
- Open spaces should be located within walking distance of all allotments, positively contributing to residential amenity. Typically aim for no more than 400m of actual walking route distance, but 200m wherever possible.
- Provide open spaces based on what type of space would add the greatest value to the neighbourhood. In some instances, high quality ecological corridors or pedestrian linkages are more desirable than neighbourhood reserves if there are existing ones (or similar spaces that can offer the same services) close by.
- The number of parks and open spaces in a neighbourhood and their amenities need to be based on:
  - The needs of the community reflected by population density and demographics
  - The types of users and their requirements
  - The participation rates for selected activities
  - Use and access to facilities, and gaps in amenity provision
  - Opportunities for dual purpose functions (active and passive recreation)
- Parks should not be made of 'left-over' land. The location and design should be informed by the neighbourhood context and site analysis.
- Use open spaces as a design feature, adding value to the lots.
- Parks should be highly visible and be bounded by as many roads as possible – with dwellings fronting them – providing informal surveillance, making them safer.
- Locate and design parks to take advantage of existing trees and features of interest (natural and cultural), adding identity to the neighbourhood.
- Investigate opportunities to connect with other open spaces to form a network.
- Provide walking and cycle paths through an open space network, connecting with adjacent streets.
- Provide amenities within parks, including children's play equipment, landscape areas for passive recreation, public art and flat land for active recreation.
- Ensure the design of parks takes into account future maintenance requirements and costs.
- On-road car parking should be provided adjacent to all parks.
- Avoid creating spaces, pedestrian linkages, or cycleways that are located between the backs' of adjacent sites. These will invariably be less safe. If this is the only option, include mechanisms to ensure there are no high fences.

iii. Streetscaping and Street Trees

The standard and appearance of street trees, plantings, paving, walls, fences, seats and other structures play an important role in establishing the identity, quality, amenity, visual interest and character of a subdivision.

Streetscaping Design Elements:

- The streetscape should reflect the functions characteristics of the road type in the network.
- Incorporate existing significant vegetation where possible.
- Ensure that the streetscape is sensitive to the character of the neighbourhood and preserves important views and vistas.
- Provide street trees generally at 10 metre centres, located to avoid interference with services, driveways and parking bays. Avoid locations where they will need to be removed at a future date.
- Provide adequate grass berms or tree-pits to allow the trees to grow to maturity. This may mean locating the street tree adjacent to the lot boundary.
- Ensure the species is well suited to local conditions, being tolerant of wind, frosts, droughts, wet conditions and salt spray, and are easily maintained.
- Ensure the trees have an appropriate height and canopy for the location, width of street, and for ongoing maintenance. Use larger trees on wider streets to create the impression of an avenue. Avoid low shrubs that block sightlines of pedestrians and vehicles.
- Use locally sourced indigenous (shown in Council's list) trees to enhance biodiversity.
- Hard-landscaping (paving areas etc.) is robust and designed as an option that does not place an onerous long-term maintenance liability on the Council.
- Coordinate planting with seasonal and subdivision development/completion timings in mind.
- Council parks staff, landscape architect and arborists are available to provide information and guidance on tree species.

1.4.8 Infrastructure

i. Stormwater Management and Low Impact Design

Stormwater run-off within a catchment must be carefully managed in order to avoid (often cumulative) problems of flooding, erosion and pollution of water bodies. Stormwater systems should attenuate stormwater flow and optimise interception, detention, and removal of waterborne pollutants from urban run-off prior to their discharge to receiving waters.

If stormwater disposal is managed in a sustainable manner, the impact on the environment is less and longer-term maintenance costs are reduced. Stormwater management can provide attractive amenity features within and adjoining subdivisions.

Paved surfaces should be carefully controlled to reduce the extent of impermeable surfaces and resulting increases in stormwater run-off. Historic engineering practices have led to some local roads having carriageways with widths of 11 metres or more. Using narrower carriageways and semi-permeable paving for on-road parking can help to reduce impermeable surface. Swales and larger grass verges can allow groundwater recharge, slow the movement of water, and reduce pollutants in receiving water bodies.

Stormwater Management and Low Impact Design Elements:

- Ensure that post-development flows are restricted to pre-development levels using a variety of 'treatment train' stormwater methods within lots and throughout the drainage network.
- Reduce stormwater discharge to reticulated networks by the use of street-edge swales and rain gardens to collect stormwater run-off from paved surfaces.
- Improve the quality of stormwater before it reaches streams by allowing it to flow over grass areas (such as swales and through constructed wetlands).
- Consult with an engineer as to the most appropriate solutions to address the site's topography, soil types and ability to dispose of stormwater through groundwater recharge and soakage.
- Encourage the detention and re-use of stormwater within each lot. Rainwater harvesting from dwelling roofs can significantly reduce the amount of stormwater discharged during storm events.
- Encourage single car-width driveways and vehicle crossings, reducing impervious surfaces.
- Carefully design wetlands and ponds to avoid water quality problems.
- Carefully select vegetation as some can become weedy and choke waterways.
- Ensure permeable 'hard' landscaping solutions.
- Ensure that where ever possible, manholes are not located within areas of pavement.
- Ensure that manhole lids are level and not trip hazards.
- Ensure that overland flow paths complement the streetscape.

ii. Electricity Lines including transmission lines

Activities within close proximity to electricity lines have the potential to impact on the integrity of supply of electricity and/or pose safety risks to the people living near the lines and must be taken into account at the subdivision stage. Electricity lines will therefore influence the site layout. By understanding the requirements of the existing lines and "designing-in" the lines, new development can meet the necessary separation distances, accommodate the safety and operational requirements of the lines and minimise amenity impacts.

Low impact Design Principles Associated with Electricity Lines include:

- Locate boundaries and access to ensure that the area under lines are kept free of buildings and structure, and where possible, those areas are kept free for ancillary

activities, such as car parking, open space and or roading. Boundaries that are likely to be fenced should run perpendicular to the direction of the conductors.

- Position lots so that the density of development is graded to increase with distance from the line (i.e. low lying building or activities are closer to the lines).
- Site building platforms to minimise potential visual effects. For example, position building platforms so that likely vies are under or between towers or poles, rather than at the support structures themselves.
- Locate boundaries and access in order to allow for the continued access to existing network utility infrastructure for the inspection, maintenance and operational purposes.
- Avoid establishing conducive infrastructure systems (power, electricity cables, or gas lines) parallel to the alignment of transmission lines.
- Minimise the need for earthworks under and in close proximity to lines, and in particular to their support structures.
- Ensure that statutory clearance distances can be maintained, including the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) and that the location of landscaping areas and the selection of all vegetation considers the mature height of vegetation so that there is ongoing compliance with the Electricity (Hazards from Trees) Regulations 2003.

Your network utility operator can help you. Transpower New Zealand Limited, for example, has produced a Development Guide: for development near high voltage transmission lines which promotes ways that development can co-exist with existing transmission lines. In all cases, early consultation with the network utility operator is recommended.

1.4.9 Putting It All Together

For each subdivision there will be different parameters for the design rational based on a range of variables such as the context, climatic conditions, site opportunities and constraints. As such the weighting of the core design principles will also vary. The intention of this section is to ensure that each principle is considered as part of the design rationale and that any subdivision design reflects the best combination of these as appropriate to the site and its location, irrespective of the conventional development paradigm.

1.5 Definitions

In this Code, the following definitions shall apply:

Allotment has the same meaning as defined in S218 of the RMA 1991.

Alternative Design means design that does not comply with one or all of the requirements of this Code of Practice.

Accessway has a similar meaning to entranceway and vehicle crossing.

Applicants Representative (Developer's Representative or Consent holder's Representative) shall be a person appointed by the Applicant and be a Chartered Professional or Licensed Cadastral Surveyor or a person with experience and qualifications acceptable to Council.

Approved means approved in writing.

Authorised Officer means the person employed by Council with delegated authority.

As Built means "drawn as constructed" in accordance with the As-built section of this Code.

Bridge means a structure spanning a river or ravine of 2.0 metre clear span or more as defined in the TNZ Bridge Manual, and includes all culverts with a waterway area greater than 3.5m^2.

Carriageway means any the portion of the road used by traffic located between the kerb and channel or edges of seal. Off street parking and berm areas are not included.

Cleanfill means material consisting of natural components, such as clay, soil and rock and other materials such as concrete, brick or similar demolition products (excluding asphalt), which are free of combustible and organic materials, free of voids and which are not subject to biological or chemical breakdown and shall not be capable of leaching chemicals or toxins into the environment.

Cohesionless Soil means a non-plastic soil (sand, gravel) where the strength is derived primarily from interlocking forces between soil particles.

Cohesive Soil means a plastic soil (clay, silt, organic) where the strength is derived primarily from cohesion between the soil particles.

Concept Plan means the plan of a proposed subdivision or development used for consideration of intent in principle.

Consent Holder means person(s) or a company who have been granted Council approval to undertake the activities applied for.

Consent holders representative (Developer's Representative or Applicant's Representative) means the person or persons appointed by the consent holder, and shall be a Chartered Professional Engineer or Licensed Cadastral Surveyor or a person with experience and qualifications acceptable to Council.

Council means the Western Bay of Plenty District Council (WBOPDC).

CPENG means Chartered Professional Engineer

Culvert means a drainpipe or covered channel that crosses under a road or track.

Development includes the establishment of a new activity and includes changes to or intensification of a new or existing land use, which leads to the disturbance and/or excavation of the land surface and/or the provision of services for the purposes of compliance with resource consent approvals or as required to fulfil the obligations of, or progress work with Council approval.

Developer means the person or company undertaking the development, or approved work.

Developer's Representative (Consent Holder's Representative or Applicant's Representative) means the person or persons appointed by the Developer, and shall be a Chartered Professional Engineer or Licensed Cadastral Surveyor or a person with experience and qualifications acceptable to Council.

Drainage means wastewater drainage or stormwater drainage, and "drain" has a corresponding meaning.

Earthworks means any alteration to the contours, including the excavation and backfilling or re-compaction or existing natural ground and the stripping of vegetation and topsoil.

Easement means a legal agreement between two parties identified on the property title plan which permits access and rights for one party over another's property.

EBOP means Environment Bay of Plenty/The Bay of Plenty Regional Council.

Engineering works also means Development works.

Entranceways has a similar meaning to vehicle accessways and vehicle crossings**.**

Footpath means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians.

Ford means a shallow place in a watercourse which may be designated and used for access by vehicles during normal flows.

Ground is a general term used to describe the material in the vicinity of the surface of the earth whether soil or rock.

Household unit or dwelling unit means any building or group of buildings, or part thereof used, or intended to be used principally for residential purposes and occupied or intended to be occupied by not more than one household.

Integrated Transportation Assessment (ITA) means a comprehensive review of all the potential transport impacts of a development proposal. Its purpose is to identify appropriate transport information necessary to better align land use and multi-modal transport and to provide information on how the proposed development will function in terms of accessibility. A key feature of an ITA is the bringing together of all affected parties at the beginning of a development project to discuss and resolve issues.

Land drainage system refers to the flow of surface and ground water but concentrates mainly on peak surface discharges and their regulation under either urban or rural conditions.

Means of compliance means a method by which the minimum requirements of this Code may be complied with. It implies that there may be other methods which may meet the requirements which may be subject to specific consideration or approval.

Moturiki Datum means the vertical datum adopted by Western Bay of Plenty District Council for works within the Council area. (Please note, in the northern areas of Western Bay of Plenty District Council there are two vertical datums in existence. Land Information New Zealand publishes first order data in terms of Auckland Vertical Datum 1946, which for all intents and purposes are very similar to Moturiki datum 1953. However, Council has resolved to adopt Moturiki datum 1953, throughout the Council area).

NZTA means New Zealand Transport Agency (Formally: Transit New Zealand).

New Zealand Standard means a document published by Standards New Zealand, being the operating arm of the Standards Council, a crown entity operating under the Standards Act 1988.

Owner in relation to any land or interest therein, is the same as the Owner as defined by Section 2(1) of the Resource Management Act 1991.

Ponds – Dry means a permanent pond that temporarily stores stormwater runoff to control the peak rate of discharges and provide water quality treatment, primarily through the incorporation of extended detention. These ponds are normally dry between storm events.

Ponds – Wet means a permanent pond that has a standing pool of water. These ponds are, through their normal storage of water, or in conjunction with extended detention, provide water quality treatment. They can, also in conjunction with extended detention, provide protection of downstream channels from frequent storms.

Post Construction Settlement means the settlement of the ground surface which takes place after completion of the construction of the earthworks.

Primary design flow is the estimated stormwater runoff selected to provide a reasonable degree of protection to the surrounding land.

Primary Flow Paths will in most cases be piped or contained within relatively narrow confines under public control by reserve or easement.

Private way means any legal right of way for access over private land within the district for persons or entities listed in a legal agreement.

Resource Consent means a consent in accordance with the Resource Management Act 1991.

RMA means The Resource Management Act.

Road means the whole of any land which is defined as 'Road' by Section 315 of the Local Government Act 1974. It includes carriageways, berms and other grassed areas, footpaths and pedestrian accessways, and is the total area from boundary to boundary, customarily referred to as 'road reserve'.

Road Safety Audit means an audit in accordance with Transfund Manual 'Road Safety Audit Policy and Procedures' and is undertaken at the applicants or Contractors cost as required by Council.

Rural area means land zoned 'Rural' or 'Rural Residential' or 'Future Urban' in the District Plan.

Sanitary drainage has the same meaning as "sewerage drainage" as referred to in the Local Government Act 1974.

Scheme Plan means a concept plan attached to a resource consent application which shows diagrammatically in principle what is proposed.

Secondary Design Flow means stormwater runoff in excess of the primary design flow and should be capable of producing a reasonable degree of protection to the surrounding buildings, (normally once in 50 years for commercial, industrial and habitable residential floor levels).

Secondary Flow Path refers to the path taken by stormwater runoff in excess of the primary design flow.

A freeboard above the secondary flow path level is required when determining allowable floor levels. This is to cater for inaccuracies in flow estimation methods, possible failure of the primary system and to ensure that all dwellings built in flow paths are designed so as not to impede the flow of stormwater.

Site means a parcel of land held in a separate Certificate of Title (or two or more titles required to be held in one ownership) or multiple owned Maori land not necessarily held in a separate Certificate of Title and which complies with the minimum standards for a proposed new lot as set

out in the District Plan but does not include a parcel of land which has been or may be disposed of separately as a public reserve of for other public purposes or which is to be amalgamated with existing land.

Soil means the heterogeneous aggregation of particles comprising either peat, clays, silts, sands, gravels, crushed and re-orientated rock fragments, or a mixture of any of the above. The term excludes rock that is intact and rock masses whether highly jointed or not.

Soils Engineer means a person who is suitably qualified to meet Council's policy for acceptance as an approved soils engineer and who is listed on the combined T.C.C/WBOPDC Specialist Soils Reports document.

Category 1,2 and 3 Soils Engineers are indicated and defined in the combined T.C.C/WBOPDC Specialist Soils Reports document.

Stable ground means ground existing in a state which is unlikely to settle, slip, erode or otherwise move to the detriment of superimposed buildings, services, roads or property generally.

Stormwater means water or other runoff resulting from precipitation (rain, hail, snow) and does not include Trade Waste or Domestic Sewage.

Stormwater Drainage means a drain primarily for the reception and discharge of stormwater.

Street has the same meaning as "road" as defined by Section 315 of the Local Government Act 1974.

Shall indicates a requirement that is to be adopted in order to comply with the standard, while the words "should" or "may" indicate a recommended practice.

Survey Plan has the same meaning as that set out in Section 2 of the Resource Management Act 1991.

The Code means this Development Code.

TNZ means Transit New Zealand, an organization which has been replaced by NZTA. Where an existing standard is referred to as a TNZ standard or Transfund Standard, this shall have the same meaning as a standard managed by the New Zealand Transport Agency, and the current standard of this type shall be used.

Trade Waste Discharge is 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 of any activity or operation of a like nature, but does not include stormwater or domestic sewage.

Trench means any excavation for the purpose of maintaining, locating or installing services, and excavations on grassed berms for the purpose of providing or maintaining services to residential sections except shallow excavations for the purpose of constructing vehicle crossings.

Trenching Authority means any Board, Corporation, Government department, or any other legally constituted group or persons or person responsible for providing underground services.

Trencher means any person or persons responsible for actually carrying out the trenching work for or on behalf of a Trenching Authority, or privately.

Urban area means an area identified in the District Plan as Urban which is used or intended to be used solely or principally for residential, commercial, industrial or any other similar urban purposes or any two or more such purposes.

Wastewater means water or other liquid, including waste matter, in solution or suspension discharged from a premises.

Wastewater Connection Pipes 100mm dia privately owned pipeline branch which has no terminal manhole structure. It may however terminate in a rodding eye. Connection pipes connect a property's private drainage to a Council sanitary sewer system.

Wastewater Connection Point The location where a property's connection meets the Councils sanitary sewer system The connection point is maintained by Council from the reticulation system to a point 1m inside the property boundary. In cases where the Council sanitary sewer system is protected by an easement in gross Council maintains the connection point from the reticulation system to a point 1m outside the easement.

Wastewater Drainage means drainage provided for water or other liquid, including waste matter, in solution or suspension discharged from a premises.

Wastewater Reticulation Main/Lateral means a gravity pipeline with an internal diameter of 150mm which terminates upstream at a manhole.

Wastewater Sanitary Sewer means pipes and fittings for the collection and transport of wastewater.

Wastewater Trunk mains means a gravity pipeline with an internal diameter of 225mm or larger.

Water Pipe – Service means the section of water pipe between a water main and the point of supply to the customer. This section of pipe is owned and maintained by the Council. Typical size is 20mm NB or sized according to demand.

Water Pipe - Supply means the section of pipe on the customer's side of the point of supply. This is installed, owned and maintained by the customer. Typical size is 20mm NB or sized according to demand

Water Mains – Bulk means large diameter mains (typically ≥ 250 NB) used to transport water. Bulk mains could be trunk or reticulation mains.

Water Mains – Trunk mains that are used exclusively to transport water from the water source to the treatment plant and/or from the water treatment plant to storage reservoirs. No service connections are made to these mains.

Water Mains – Reticulations means that transport water from the storage reservoir to individual customers via various reticulation mains which include Water Mains – Principal and Water Mains – Rider..

Water Mains – Principal means that typically feed from a service reservoir or bulk main and form the backbone of the distribution network. These are the primary feed to hydrants for fire flow supply. They provide service connections on the principal main side of the road and feed rider mains to supply service connections on the opposite side of the road. In industrial/commercial zones they front on both sides of the road. Typical size 100 – 200 mm NB.

Water Mains – Rider means that provide service connections for areas not serviced by a principle main. Typical size 50mm NB.

Written Approval shall be defined as approval given in a letter produced on Council letterhead or e-mail from Council delegated authority