Scenic Landscape Protection Policy

TWEED SHIRE COUNCIL

Tweed Shire Council wishes to acknowledge the Ngandowal and Minyungbal speaking people of the Bundjalung Country, in particular the Goodjinburra, Tul-gi-gin and Moorung – Moobah clans, as being the traditional owners and custodians of the land and waters within the Tweed Shire boundaries. Council also acknowledges and respects the Tweed Aboriginal community's right to speak for its Country and to care for its traditional Country in accordance with its laws, customs and traditions.

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1 Preamble

The Tweed sits in a World Heritage listed landscape unique for its Gondwana rainforests, one of the most ancient types of vegetation remaining in Australia. This area represents outstanding examples of major stages of the Earth's evolutionary history, ongoing geological and biological processes, and exceptional biological diversity.

Geological history extends over 360 million years with two distinctive volcanic periods occurring some 200 million years apart. These and the forces of erosion over the past 20 million years combined to create one of the largest erosion calderas in the world. High altitude topographical features were often the focus of social and spiritual custom and the location of many Aboriginal sites directly reflects the connection and significance value of these places. Descendants of traditional custodians maintain that connection and support initiatives to protect and preserve these heritage sites and places.

The Tweed landscape continues to inspire and tell a rich and complex story of the country, or jagun, as known by the Bundjalung people, the traditional custodians of this land. Stories about Tweed's landscape help us understand this place, help us understand who we are in that place and who we are to that land.

Increasingly, landscape values are being recognised through cultural heritage conservation, land use planning, environmental management and native title mechanisms. The common notion of these initiatives is that just as former Tweed communities contributed to the landscape we inherited, our role as custodians of the land is central to the way it will be passed on to the future generations. Recognising this role, Tweed Shire Council has developed this policy seeking integration of the importance of landscape values into the land use planning framework.

The purpose of this policy is to ensure that the Tweed's exceptional and unique scenic landscape qualities are recognised, enhanced and protected, to the greatest extent possible in the context of new development or land use activity. Tweed Shire Council will apply this policy in plan making and development assessment, in pursuit of caring for our land (the jagun) for current and future generations.

2 Policy context

Tweed Shire has the third highest biological diversity in Australia, five sites recognised by UNESCO as ancient Gondwana rainforest and the Tweed shield erosion caldera which is one of the best-preserved erosion calderas in the world. Along with the towering central peak of Wollumbin / Mt Warning, the caldera forms a dramatic visual backdrop from almost all vantage points in the Shire.

Recognised in the Tweed Shire Local Strategic Planning Statement 2020 is the need to protect these important and internationally significant landscapes along with local visual character. This requires a robust management framework to guide decisions that affect or are likely to affect the built or natural environment. Over the next 20 years the Council is committed to achieving this by ensuring the Tweed's landscape values are both acknowledged and considered in the decision-making process concerning new related Council policy, or development or land use, when approval is being sought.

This policy is not about protecting biodiversity or wilderness but is complimentary to those that do. This policy acknowledges that natural landscapes, as they are seen or perceived, are highly valued by the community. It recognises that it is the diversity of landscapes in the Tweed, including their highly modified urban or suburban landscapes, cleared rural or agricultural land and the interface between them all, that contributes to the Tweed's local character. Together these embody the Tweed's unique identity as one of Australia's Great Landscapes, the "Green Cauldron – an eclectic melting pot". Inherent in the aims of this policy is acceptance of this landscape diversity and the need for their considered management and protection.

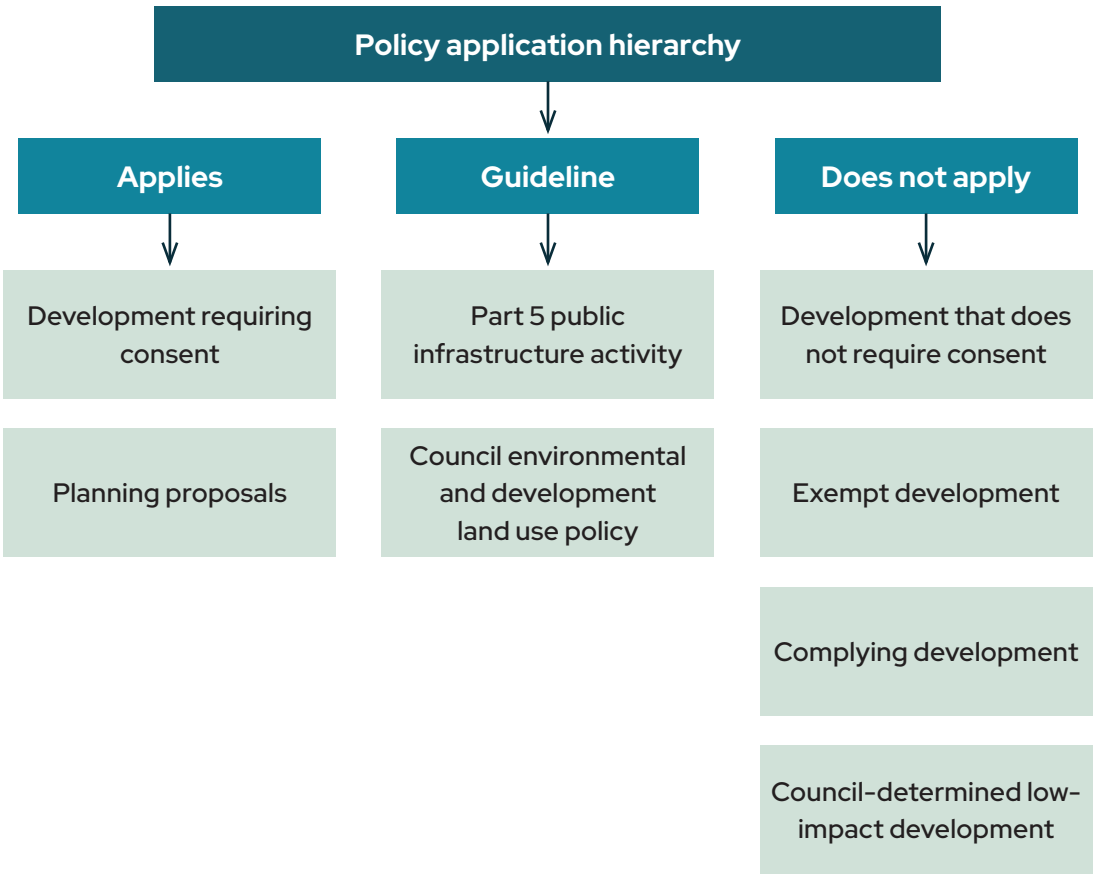
Preserving the integrity of Tweed's scenic landscapes will secure the significant benefits enjoyed by residents and visitors alike, not only by way of unparalleled aesthetic values and their contribution in defining the character of settlements, but also through current and emerging opportunity for public health and well-being. They are a source of appreciation for natural heritage and cultural identity, and with it present enormous local economic opportunity through nature-based tourism.

The value of the Tweed's scenic landscapes is worthy of being recognised, enhanced, and protected. This will be achieved through informed Council decisions regarding land-use and development, as well as Council policies that have the potential to impact or enhance scenic landscape values; and beyond which, ongoing efforts need also be pursued to educate, promote and raise awareness about the importance of scenic landscapes.

3 Development to which this policy applies

This policy applies to all development within the local government area of Tweed, except were otherwise stated. More specifically, it applies to:

i. development requiring consent or approval from Tweed Shire Council
ii. planning proposals
iii. any Council policy that affects or is likely to affect or lead to a material change or alteration in the built or natural environment.
iv. this policy is a guideline consider potential impacts on scenic landscape as part of: to:
    a. Part 5 public infrastructure activity
    b. Council environmental and development land use policy
v. this policy does not apply to:
    a. development that does not need consent
    b. development that is exempt or complying development under an environmental planning instrument
    c. development listed under section 4 of this policy



4 Where the policy does not apply

Regardless of Section 3, the following types of development are considered exempt from this policy:

i. development located within an existing residential or employment zone where it is shrouded by other like development and is consistent with the height and scale of that development
ii. residential accommodation on urban zoned land that is compliant with the applicable Local Environmental Plan provisions
iii. residential accommodation (or ancillary structures) on urban zoned land that does not involve:
    - the removal of trees, where such removal requires a permit under Development Control Plan, and
    - retaining walls higher than 1.2 m.
iv. residential accommodation (or ancillary structures) on non-urban zoned land below a ridgeline if:
    - is no greater than 2-storeys in height, and
    - does not include the removal of trees, where such removal requires an approval under Local Land Services or Development Control Plan, and
    - does not involve retaining walls higher than 1.2 m.
v. farm buildings on non-urban zoned land when located below a ridgeline and:
    - less than 200m² GFA, and
    - does not involve the removal of trees, where such removal requires an approval under Local Land Services or Development Control Plan.
vi. swimming pool that does not involve:
    - the removal of trees, where such removal requires an approval under Local Land Services or Development Control Plan, and
    - retaining higher than 1.2 m.
vii. internal renovation or change of use of premises that does not involve any additional structures or increase the external façade area of buildings
viii. roadside stalls
ix. signage or advertising structures in urban areas that are not illuminated or protrude above the dominant skyline, when viewed from ground level within a visual catchment of 1 km
x. subdivision that does not include subdivision works that would result in changes to ground level
xi. when determined by Council to be of low impact.

For all other development, activity or use of land, this policy serves as a guideline and may assist those undertaking other development or use of land when considering the potential impact on their neighbours or wider community.

5 Purpose and objectives

The purpose of this policy is to ensure that the Tweed's exceptional and unique scenic landscape qualities are recognised, and steps are taken to enable their identification, protection and enhancement, to the greatest extent practicable in the context of new policy, development or land use.

The objectives of this policy are to:

1. Recognise the visual elements and qualities of the Tweed's landscape character and scenic views that are valued and important to the community.
2. Define a policy mechanism ensuring that local landscape characteristics are properly identified and inform design of new development.
3. Action a framework and matters for consideration for scenic landscape protection and enhancement through visual impact assessment and mitigation.

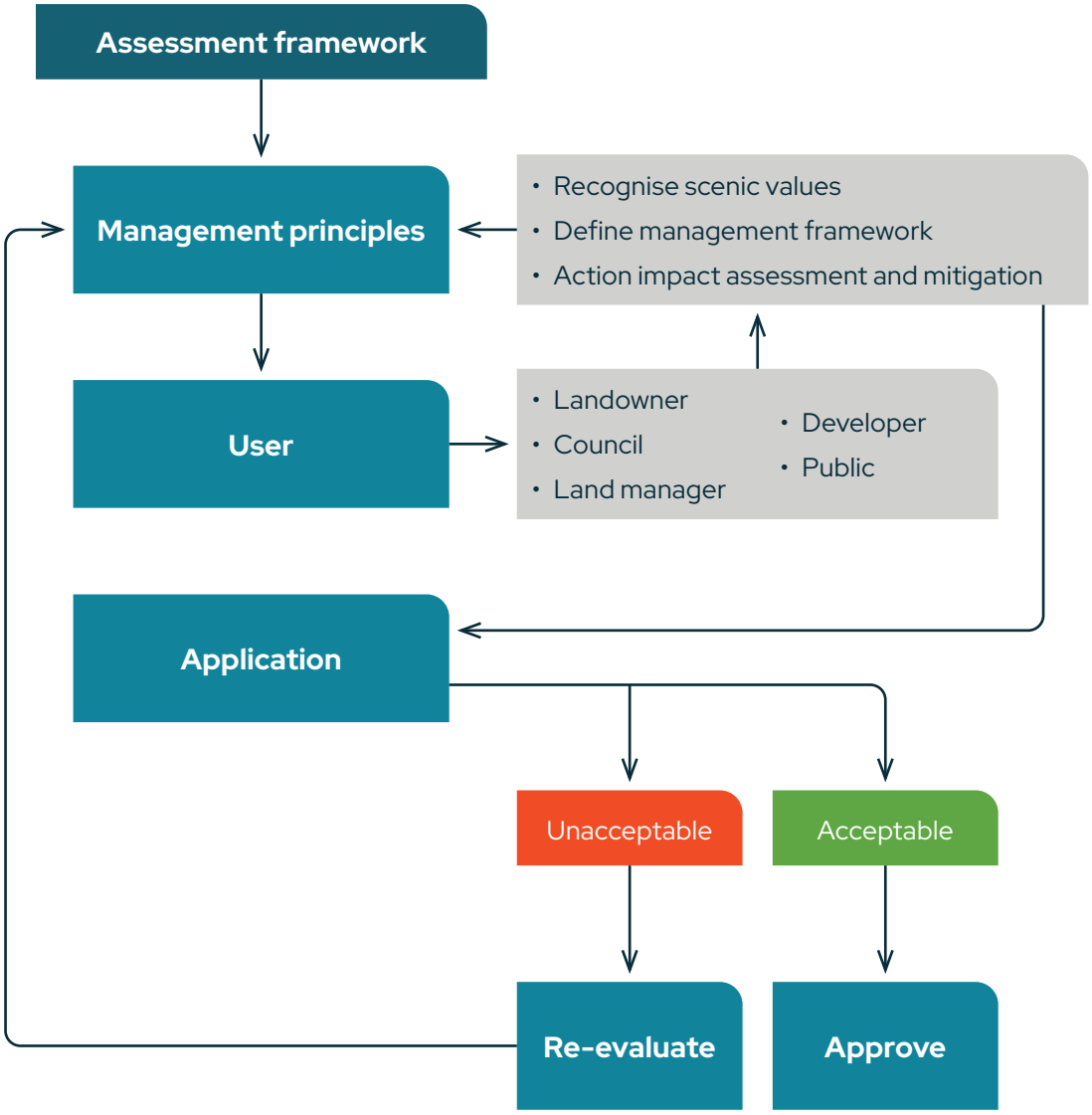
To achieve these objectives, the policy establishes an assessment framework and a suite of management principles to guide Council, landowners, land managers, developers, business and community. The policy is to be used to enable more informed decisions about the suitability of land use, and the design and placement of new development within the landscape.

6 Methodology

The preparation of this policy involved the following steps:

- **Step 1:** Data collection; Literature review; Assessment of scenic landscapes; Community engagement; Mapping landscapes.
- **Step 2:** Data analysis, policy and drafting; Development of scenic management principles; Drafting of Visual Impact Assessment (VIA); Development of landscape character unit narratives.
- **Step 3:** Public exhibition.
- **Step 4:** Post exhibition review.
- **Step 5:** Reformatting the draft document into a policy format.

Appendices included at the end of this document provide further details and contextual information on the methodology behind the mapping components of the policy.



7 How to use this policy

Development assessment and planning proposal pathway

Stage 1: Identify landscape character unit applicable to your land.

- Access mapping tool: data-scenic-landscape-tweed.opendata.arcgis.com
- Select "Landscape Character Units" mapping layer (legend to the left).
- Identify landscape character unit applicable to your land.

Stage 2: Assess your proposed development against the applicable landscape character unit.

- Review landscape character unit narrative applicable to your land (section 12 of this policy).
- Analyse consistency of your proposal with the applicable landscape character unit narrative.
- Analyse the proposal with the applicable landscape character unit mitigation measures.
- Refer Stage 3 if the proposal is considered consistent with the applicable narrative and mitigation measures.
- Refer Stage 3a if the proposal is considered inconsistent with the applicable narrative and mitigation measures.

Stage 3: Demonstrate consistency of the proposal with the landscape character unit narrative.

- Through the Statement of Environmental Effect (SEE) document (DA pathway) or through the planning proposal request (Planning Proposal Pathway) demonstrate consistency of the proposal with the applicable landscape character unit narrative.
- Assess against mitigation measures provided in section 12 for each landscape character unit.
- Submit the SEE or the planning proposal request to Council for assessment.

Stage 3a: Inconsistent development.

- Undertake a Visual Impact Assessment (VIA) in accordance with section 11 of this policy.
- VIA to assess proposal against applicable landscape character unit mitigation measures.
- VIA to demonstrate consistency of the proposal with scenic management principles identified in section 9 of this policy.
- Submit VIA to Council for assessment.

The above procedure is to be applied when preparing masterplans, structure plans, development control plans and locality plans.

Masterplans, structure plans, development control plans, locality plans

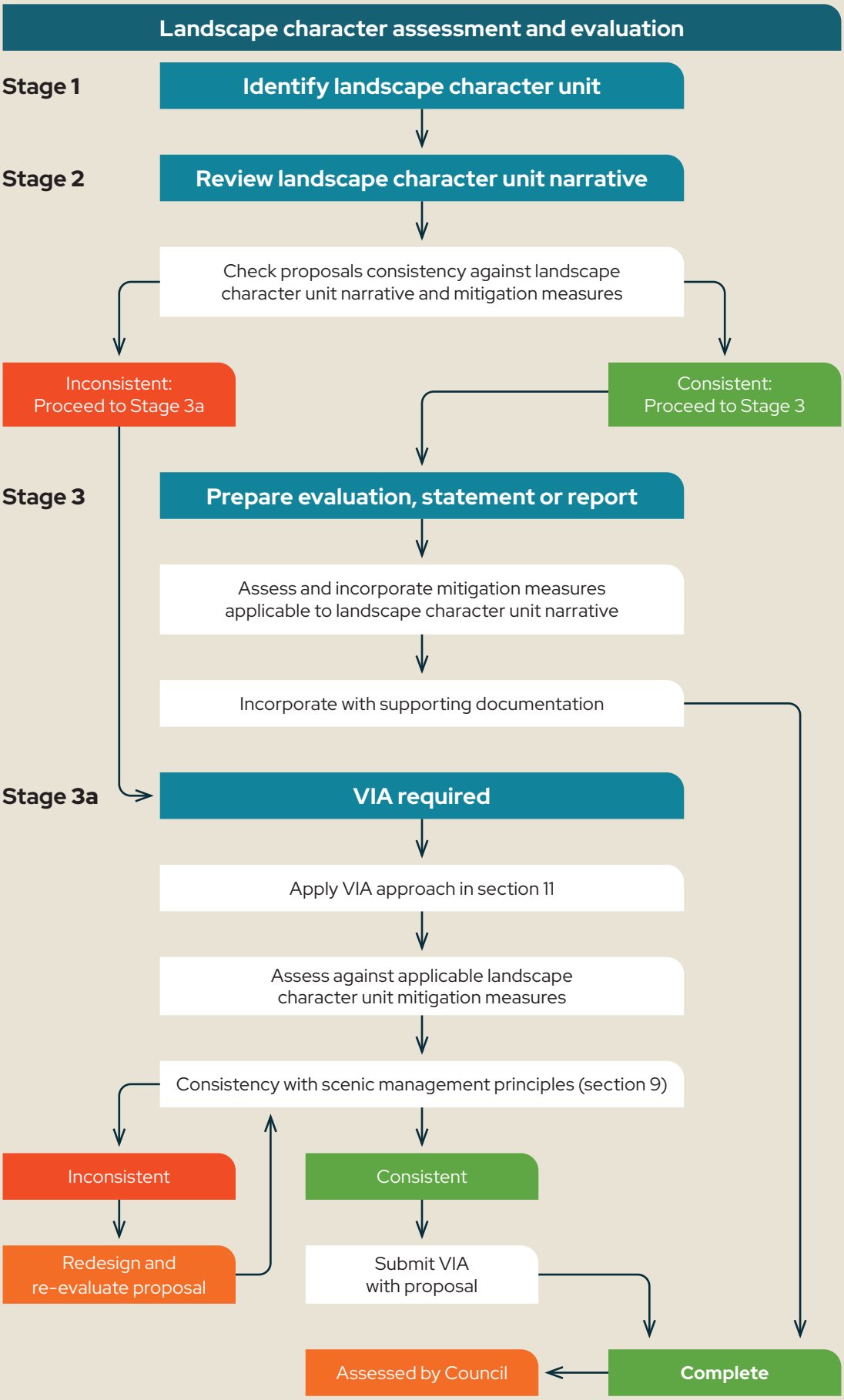
The policy should be applied as per the planning proposal pathway.

Council strategies, plans and infrastructure impact assessment

(Section 5.5 of the *Environmental Planning and Assessment Act 1979*)

This policy, particularly scenic management principles and mitigation measures sections are to inform dealing with a range of land use and development from the field of urban planning, tourism, local economic development, infrastructure, cultural, recreational, social, environmental and open space matters.

This policy is to inform ongoing Council and community efforts to educate, promote and place value on the importance of scenic landscapes


Landscape character assessment and evaluation
Stage 1
Identify landscape character unit
Stage 2
Review landscape character unit narrative
Check proposals consistency against landscape character unit narrative and mitigation measures
Inconsistent: Proceed to Stage 3a
Consistent: Proceed to Stage 3
Stage 3
Prepare evaluation, statement or report
Assess and incorporate mitigation measures applicable to landscape character unit narrative
Incorporate with supporting documentation
Stage 3a
VIA required
Apply VIA approach in section 11
Assess against applicable landscape character unit mitigation measures
Consistency with scenic management principles (section 9)
Inconsistent
Consistent
Redesign and re-evaluate proposal
Submit VIA with proposal
Assessed by Council
Complete

8 Key definitions

Static viewing situation – locations from which a single unchanging view or scene is appreciated where the viewer is for the most part stationary.

Viewing situation – locations from which people experience and enjoy views. This policy recognises dynamic, static and priority viewing situations.

Dynamic viewing situation – any route (i.e. roads, cycleways, walking trails, waterways) along which an observer appreciates a sequence of views from a series of locations over time as they move through the landscape.

Priority viewing situation – a viewing situation that is of recognised significance, is promoted, that attracts a significant number of visitors, is easily accessible, highly trafficked, or repeatedly identified through community consultation as having high scenic value, quality or preference.

Priority viewshed – viewshed associated with the identified priority viewing situations.

Ridgeline – has the same meaning as in *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Scenic quality – the combination of natural and cultural elements within the landscape and level of satisfaction or appreciation it creates.

Scenic landscape – a landscape that displays aesthetic qualities or values that an observer finds appealing. The combination of a) landscape character and b) scenic quality.

Viewshed – the entire area that is visible from a particular viewing situation. It is the combination of all available lines of sight along which an observer has an unobstructed view, and is directly related to terrain, elevation and obstructions, including vegetation or structures.

Visibility – the extent to which a site or development is visible from publicly accessible viewing situations. The measure of visibility is the number (or incidence) of viewsheds that a given location falls within.

Landscape character – the distinct, recognisable and consistent pattern of physical elements within a landscape which, when combined, give a setting it's 'sense of place' and make one landscape character different from another.

9 Scenic management principles

This policy puts forward four scenic management principles. Each principles is underpinned by strategies assisting in visual impact assessment considerations.

The principles seek to protect and manage the condition and quality of the Tweed's valued landscape character, scenic qualities, as well as the viewing experiences of the community, by avoiding or minimising to the greatest extent possible any adverse visual impacts caused by new development.

Principle 1: Protect views from public places

Strategies:

1. New development located in the foreground of priority viewing situations is to be designed to not adversely impact views and scenic amenities.
2. Ensure building materials, colour, reflectivity, and illumination of structures are sensitive to the existing environment visible from affected viewsheds.
3. Avoid siting structures in the central line of sight to landscape features visible from public viewing situations.

Principle 2: Restore and create views from public places

Strategies:

1. Design park facilities and amenities such as lookouts, viewing platforms and shelters to maximise safe access, comfort, and enjoyment of views.
2. Create new viewing opportunities from roads, footpaths and cycling trails, employing landscape measures to improve degraded viewing situations and screen visual detractors.
3. Design new facilities to take advantage/maximise opportunities for new public views to scenic landscape and major visual features of the Tweed.

Principle 3: Protect landscape character, including distinctive caldera features and coastal formations

Strategies:

1. Ensure the design, siting and management of new development contributes to or blends with existing visual elements of the landscape and avoids disruption or dominating established elements of the landscape character.
2. Consider cumulative visual impacts and avoid development that may fragment the uniformity and cohesion of the natural environment and built components in an overall integrated pattern.
3. Manage edge effects to avoid adverse impacts on the scenic integrity of adjoining or nearby landscapes.
4. Avoid development that penetrates the skyline or horizon. Where avoidance is not possible, implement measures to minimise the contrast and visibility of the penetrating structure.
5. Ensure architectural form, massing and articulation of buildings or structures complements or adds to the elements enhancing the scenic quality of the local area.
6. Avoid or minimise change to the existing topography or compensate for impacts through design that complements the form and scenic quality of the natural terrain.
7. Protect the natural form of waterways and water bodies. Consider the natural alignment and gradient of streams and rivers or the shape of native ponds and lakes in the design of buildings.

Principle 4: Manage the vegetation cover as one of the key elements of scenic landscape

Strategies:

1. Maintain and improve visibility of scenic qualities through landscape space and vegetation management in proximity of a priority viewing situation.
2. Protect the consistency and integrity of vegetated areas, in particular:
    i. vegetated ridgelines to minimise visual interruptions and contrast in colour and form
    ii. coastal shorelines and waterway embankments to soften and improve edge effects of banks and shorelines and provide viewing opportunities.
3. Consider the cumulative visual impact of vegetation removal, either native or exotic, at lot scale, particularly in towns and villages characterised by distinctive tree canopy or vegetation cover (including understorey).
4. Consider the impact of revegetation on existing landscape character unit.

10 What to include in the Statement of Environmental Effects

The basic requirements for considering visual impact are contained within Council's SEE. The following matters should be considered in preparing a SEE:

- clear and detailed description of the proposal
- a brief description of the existing environment and its surroundings considering the applicable landscape character unit narrative
- a statement of the steps that have been taken to mitigate any likely adverse environmental impacts (including visual impacts)
- justification as to how the development will be consistent with the applicable landscape character unit narrative.

11 Composition of the Visual Impact Assessment report

When an application for development or land use activity is deemed as "inconsistent development" in meaning of section 7 stage 3a of this policy , Council will require preparation of a VIA.

A VIA is to be prepared by suitably qualified and experienced person, such as a landscape architect or similar professional with experience in evaluating landscape character and visual impact.

Consideration	Requirements
Stage: Define the study area	
Description of proposed development	Describe the visual features of the proposal including new structures, shape, colour and scale of the development.
	Describe proposed modifications to the site including land forming, cut or fill and any removal of vegetation that may alter the overall character.
Visual character and quality of surrounding landscape	Consult the online mapping tool to identify the applicable landscape character unit(s).
	Identify the visual elements and characteristics of the site and surrounding landscape.
	Identify any additional locally relevant details.
Regulatory context	Consider the regulatory context, where applicable.
Stage: Inventory of visual elements	
Landscape character	Describe the qualities of the landscape character using the landscape character unit narratives.
Views to and from the development site	Identify the number of viewsheds the subject site falls within.
	Identify views to significant landscape features that the proposal may affect.
Viewing experience	Identify the affected viewers.
	Consider the affected viewing situation by location and type (linear or static).
Impact on viewer experience	Does the development alter any existing views, if so identify which viewpoints?
	Does the development obscure or affect views to significant landscape features?

Consideration	Requirements
Stage: Inventory of visual elements (continued)	
Impacts on landscape character	How will the visual landscape change?
	Consider how the development will dominate or complement existing the existing landscape.
	Consider contrasts in profile, height, scale, form, density, colours and reflectivity of materials.
Stage: Management	
Mitigation measures	What measures have been used to avoid and minimise impacts identified?
	Consider options for re-siting, re-sizing, colours and reflectivity of materials, or screening.
	Identify visual enhancements that will be incorporated in the proposal.
Scenic management principles	Describe consistency of the above measures with the scenic management principles.
Stage: Other	
Visual aids	Prepare 3D renders of the proposed development in the context of the streetscape.
Author's experience	Provide the name, specialised skills, qualifications or experience of the author.

12 Landscape character unit narratives

This section presents a descriptive narrative for discrete landscape character units identified across the Tweed Shire. For the purpose of this policy, landscape character is defined as the distinct, recognisable and consistent pattern of physical elements within a landscape which, when combined, give a setting it's 'sense of place' and make one landscape character different from another. The corresponding narratives offer a thorough description of landscape features and suggested mitigation measures. The landscape character units were identified in accordance with a mapping methodology summarised in Appendix 1 of this policy.

Section 7 outlines how the landscape character unit narratives and mitigation measures should be used when applying this policy.

Beaches and headlands

Description of landscape features

Beaches and headlands form one of the most significant and recognisable landscape character units, dominated by stretches of sandy coastal foreshore and punctuated by creek mouths and rocky headlands. The interface between land and ocean, which forms the most distinctive visual feature of this landscape unit, is one of the most dynamic landscape scenes in the Shire.

Bold, narrow and predominantly parallel linear boundaries between the land and the ocean contrast with the shoreline and edge effect of coastal forests. Beaches are the most dynamic landscapes changing with the rising and falling tides, wind and sun exposure. Views from the beach can include adjacent vegetated areas, headlands and urban landscapes. Multiple public parks and reserves flank the beaches close to the coastal settlements and provide public access and viewing points.

Dreamtime Beach, Fingal Headland, Cook Island Nature Reserve and Razorback hold important cultural significance to the Bundjalung people as landscape features associated with cultural storylines.

Headlands provide opportunities for elevated and panoramic views of the coastline. Natural rock formations and man-made structures along the coastline form distinctive visual intrusions into the ocean. Fingal Head, Hastings Headland and Norries Headland at Cabarita are considered to be visually prominent landform features that provide sweeping views from elevated positions of the wider coastal area and beyond toward Wollumbin / Mt Warning and the Caldera volcanic shield.

Mitigation measures

- Maintain scenic quality and integrity of the beaches, headlands, coastal vegetation, ocean and sky.
- The design and siting of buildings or structures should consider the unique landscape and the interface between the beaches, headlands and the ocean.
- Limit visibility of development from all headlands and all major beach entries.
- Development should consider the interface between beaches, headlands, and the ocean. The design and siting of buildings should avoid interrupting views from headlands.
- The character of the natural landform should be acknowledged in the design of buildings and infrastructure.
- Incorporate natural building materials and colours that reflect the existing landscape. The use of reflective materials should be avoided.
- Maintain the integrity of the coastline and dune system by including adequate setbacks and buffer strips from edges.
- Improve amenity of public open spaces of Point Danger, Hill Park and provide walkway or pathways linkages to Queensland.
- Design carparks to include landscaping and vegetation to complement existing native species and extend visual buffers between natural attributes and roads.
- Continue dune and coastal foreshore revegetation programs.
- Limit pedestrian access to beaches and headlands to formal access paths, with appropriate low key signage restricting public access to dune/vegetated areas.

Figure 1: The design and siting of buildings or structures should consider the unique landscape and the interface between the beaches, headlands and the ocean.

Rivers and creeks

Description of landscape features

The extensive system of rivers and creeks across the Tweed are key to the identity of the Shire and broader Northern Rivers Region. The upper Tweed River, Rous River and Oxley River headwaters in the west of the Shire flow east to join and form the lower Tweed River, flowing north-east towards Tweed Heads and out to the Pacific Ocean. Coastal creeks including Cudgen Creek, Cudgera Creek and Mooball Creek flow in a general northerly direction adjacent to the coast. The networks of inlets towards the north of the Tweed include Terranora, lower Tweed Estuary and Cobaki Broadwaters.

The Tweed's rivers and creek landscape character holds significant values and comprises the local and regional cultural identity of the Northern Rivers Region. Creeks transition through adjacent coastal forest and beach landscapes which are characterised by a linear pattern and enclosing vegetation forming undulating edges. Rock walls used to mitigate erosion form hard textures and edges along the water. Coastal riparian vegetation is predominately mangrove and casuarina communities whilst inland riparian vegetation comprises more woodland and floodplain ecosystems. Sections of waterways have limited views of urban and residential development. Typically, the mouth of waterways are characterised by modified urban environments including boat harbours, residential development, bridges and modified foreshore areas.

Mitigation measures

- Ensure development is designed to protect and maintain the unique ecological and physical characteristics of waterways.
- Minimise development visible from waterways by maintaining building height to, or below, the existing or anticipated tree line.
- Maintain the integrity of land adjacent to waterways and ensure development is adequately setback from waterway edges.
- Use materials, colours and finishes that reduce the visual impact of structures or works, on or near rivers and creeks. Encourage visual integration of structures associated with water-based activities through design and complementary materials.
- Protect existing view lines and viewing points.
- Retain or establish new native vegetation landscape treatments to mitigate the visual impact of structures and works.
- Avoid hard surfaces such as vehicle parking immediately adjacent to publicly accessible waterways. Ensure areas for vehicle parking allow for generous buffer from the shoreline.

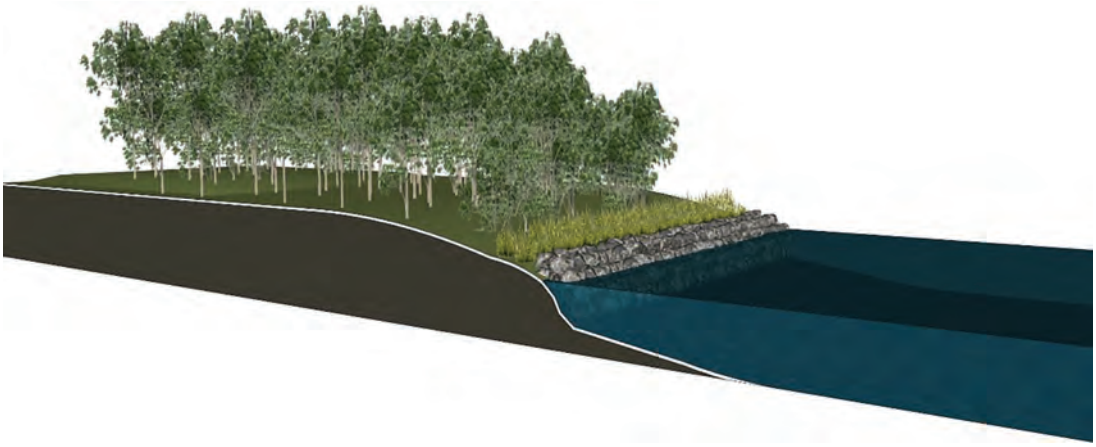


Figure 2: Retain or establish new native vegetation landscape treatments to mitigate the visual impact of structures and works.

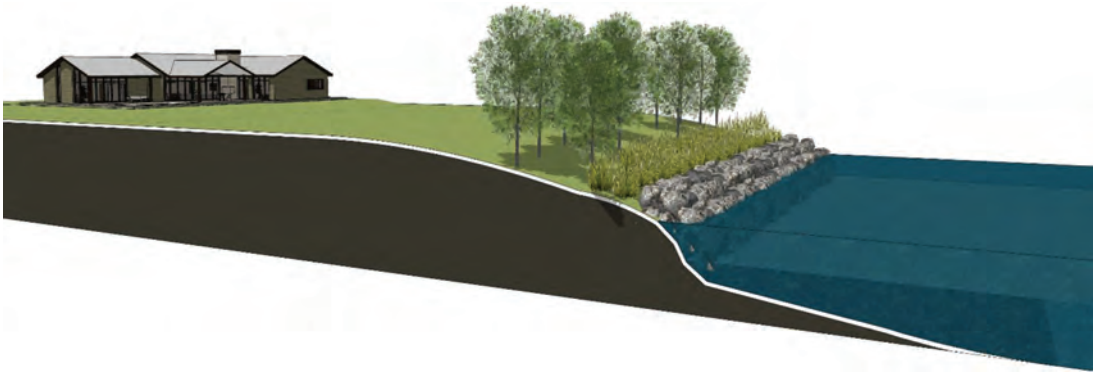


Figure 3: Maintain the integrity of land adjacent to waterways and ensure development is adequately setback from waterway edges.

Coastal forest

Description of landscape features

This landscape character unit is found in fragmented pockets along the length of the Tweed Coast. It has been significantly altered due to clearing for farming and coastal development. Relatively intact examples can be found on Letitia Spit, Stotts Island, Cudgen Nature Reserve, Pottsville wetlands and Wooyung, with smaller pockets along the banks of the coastal creeks, lower Tweed River estuary and in low lying areas inland of the coastal villages.

Coastal forests include remnant littoral and lowland rainforests, Wallum and Melaleuca wetlands, sclerophyll forest, heath, sedgeland and swamp forest. All are in proximity to coastal estuaries, rivers or creeks. When viewed from a distance, this landscape character unit appears dense with continuity of vegetation, overall integrity of colour and texture creating a solid shape. When viewing the landscape from within the unit, the spatial scale is canopied and enclosed. The terrain in coastal forests is generally low lying, with moderate sloped areas framed by adjacent beaches and headlands, and rivers and creeks landscape character units.

Despite its fragmented occurrence, the visual prominence of this landscape unit is a valuable asset and acts as a natural divide between nearby urbans forms and rural areas. Segmented portions of coastal forest are found along the entire length of the coastal zone in the Tweed Shire, including Cobaki and Terranora Broadwaters and along the banks of the coastal creeks, lower Tweed River estuary and in low lying areas inland of the coastal villages. Coastal forest forms a scenic and environmental 'gateway' to the Tweed Valley when traveling from the urban areas of Coolangatta/ Tweed Heads.

Mitigation measures

- Maintain the natural setting of coastal creeks and inland islands through minimising vegetation removal and visual intrusions into continuous tracts of coastal forest.
- Development in proximity to the lower Tweed River is to consider the Stotts Island Natural Reserve Plan of Management (NPWS 2001).
- Ensure the height of buildings or structures does not adversely impact the low-lying characteristics of the vegetation and natural landscape of the coastal forest.
- Maintain integrity of coastal vegetation when appreciated from walking tracks or waterways.
- Avoid fragmentation of coastal forest and maintain the continuity of the vegetation by avoiding excessive building bulk.
- Screen new development by using vegetation to mitigate any potential fragmentation of the landscape character.
- Incorporate building materials and colours that reflect the local landscape setting.

Figure 4: Ensure the height of buildings or structures does not adversely impact the low-lying characteristics of the vegetation and natural landscape of the coastal forest.

Coastal agriculture

Description of landscape features

This landscape unit is predominantly located within the Cudgen/Duranbah plateau. It is characterised by gently undulating terrain featuring often bare fertile volcanic red soils, which contrast in texture and colour in comparison to nearby vegetated and urban areas. Generally characterised by smaller rural landholdings of intensive horticulture crop production which creates a visual patchwork of contrasting lines, colours and textures. Occasional built structures including dwellings and farm buildings dot the landscape.

The dry-stone walls at the intersection of Cudgen Road and Tweed Coast Road create a definite visual boundary to the farmlands of the Cudgen Plateau. Views from and across the Cudgen Plateau are recognised as some of the most iconic landscapes of the region, representing extraordinary geological and cultural heritage values.

Mitigation measures

- Retain agricultural uses to ensure character is preserved.
- Maintain the integrity of vegetation and natural topographic features of the landscape.
- All dry stone rock walls that have a public interface are not obscured from view.
- Development should avoid excessive cut and fill.
- Ensure retaining walls and engineered elements do not adversely impact the landscape character.
- Ensure development responds to the local landscape setting and its unique natural features.
- Create visually appealing built form in terms of scale, proportions and location within the landscape.
- The use of reflective materials should be avoided.

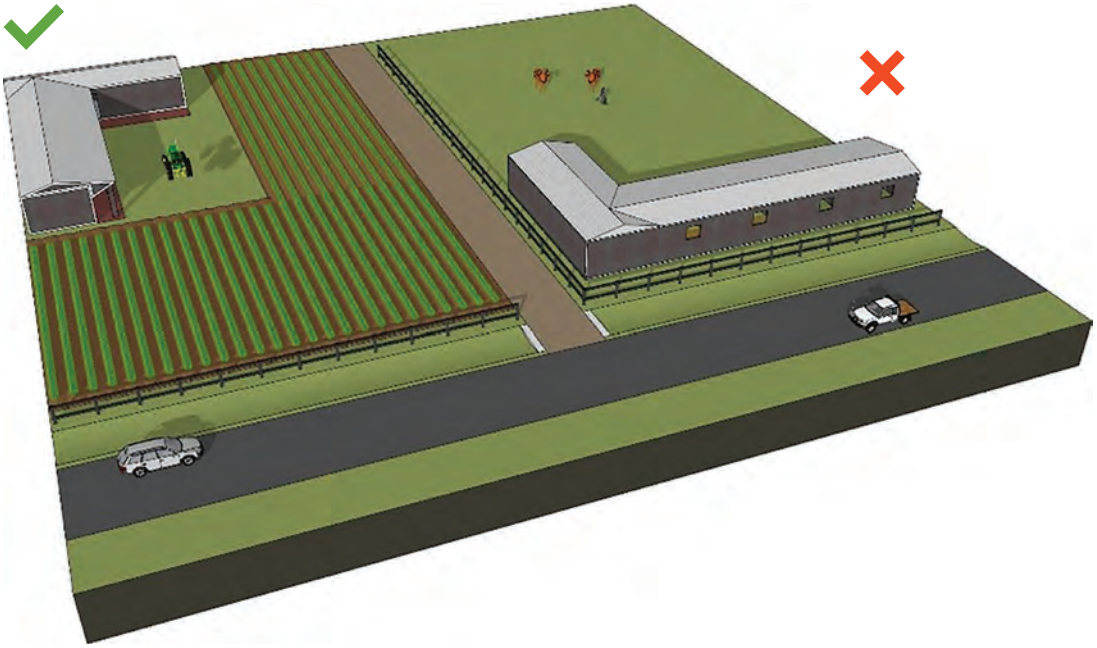


Figure 5: Create visually appealing built form in terms of scale, proportions and location within the landscape.

Sugar cane

Description of landscape features

The transformation of the sugar cane fields across the seasons is a defining visual characteristic of this landscape character unit. The cane grows into lush green mature plants that are burnt before harvesting to reveal rich brown earth.

The defining visual attributes of this landscape character unit include scattered homesteads, rural buildings and work sheds set amongst the rectangular patters of cropping lines and cane drains. The colours are predominantly lush greens and vibrant yellows, with carpeting grassy textures occasionally intersected by lines of brown earth. Seasonal crop cycles with changing heights, patterns and colours of sugar cane create a dynamic visual landscape framed by forested hills and ridgelines of the caldera.

Dynamic nature of the cane crop cycle creates a unique experience when viewed from within the unit. The Condong Sugar Mill sits at the centre of this unit, with its white steam plumes visible through the landscape character unit and broader across the Tweed Valley. Travelling along roads that traverse cane fields, the viewing experience can be short and enclosed by full height cane, or wide and sweeping across freshly harvested fields.

Mitigation measures

- Protect the vast horizontal spatial scale and avoid the disruption of long distant sight lines of the landscape character unit. Maintain views to identifiable features of the landscape such as the Condong sugar mill.
- Maintain long distant sight lines by avoiding the placement of structures and signage in the foreground that would result in the obstruction of views.
- Consider the unique characteristics of the landscape by establishing appropriate and visually appealing built form in terms of scale and proportions.
- Incorporate building materials and the use of colours that integrate with the existing landscape. The use of reflective materials should be avoided.
- Maintain minimal roadside vegetation, signage or other structures on roads that traverse cane fields.
- Maintain a sense of entry to the Tweed Shire along the Pacific Highway, Tweed Valley Way and other key roads within the landscape character unit.
- Safeguard the raising of dwelling houses above the flood planning level.

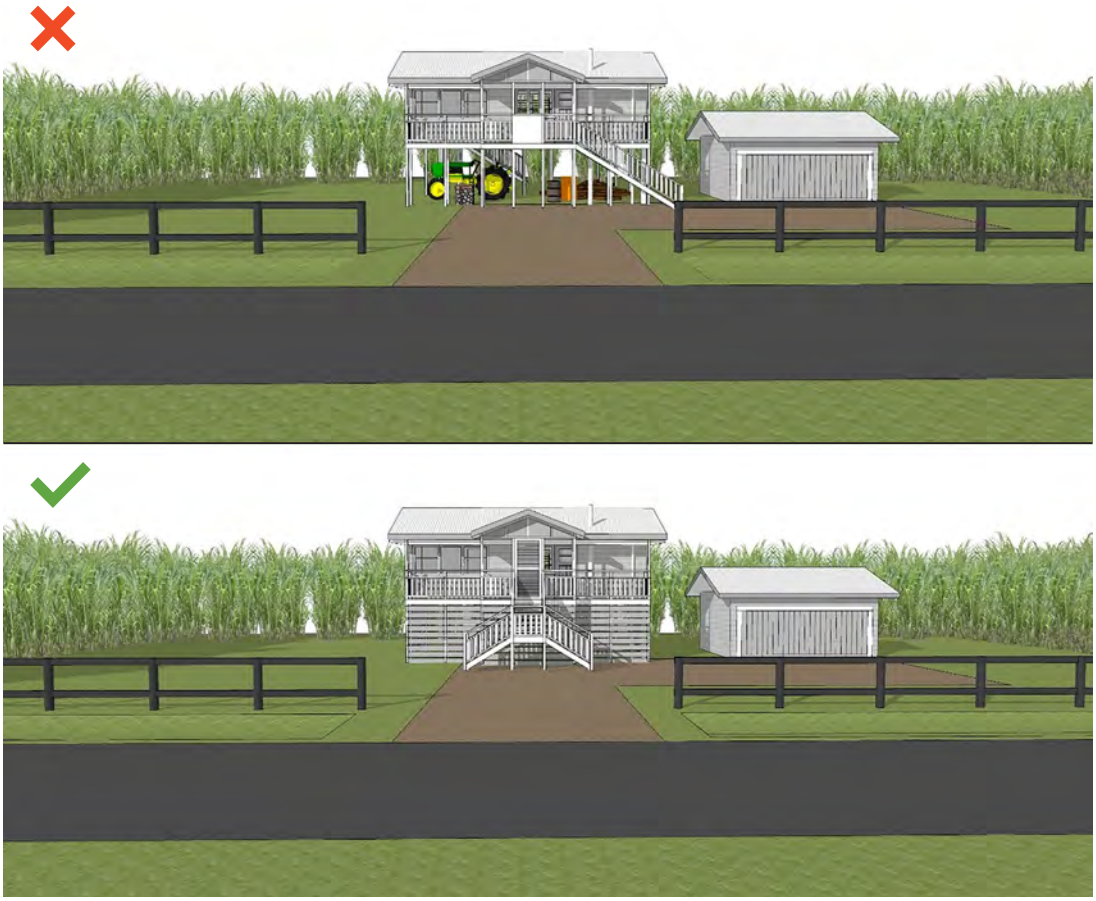


Figure 6: Incorporate building materials and the use of colours that integrate with the existing landscape. The use of reflective materials should be avoided.

Rural villages

Description of landscape features

With the exception of Tumbulgum, Tweed's rural villages have been established in low valleys, along with the local waterways, at the backdrop of vegetated hills and agricultural landscapes. The valley floors, where the villages are located, are extensively cleared, excluding riparian vegetation along the local waterways.

The rural villages reflect the European settlement pattern which in the Tweed valley typically originates with the cedar-getters followed by dairy and crop farming settlers. The villages were established to provide essential services to the local community in the early 20th century, with school, shops and trading facilities located in proximity to the rivers used as transport corridors. While the built character of the rural villages is typical of settlements in the Tweed and Northern NSW generally, the form of the villages is representative of their immediate local environment.

Rural villages are generally characterised by their compact and well defined centre, formal street grid pattern and wide main streets. The surrounding farmland, hills and valleys provides a strong visual connection to the surrounding environment. Heritage structures are important visual elements that contribute to the scenic and cultural identity of the villages.

The village of Tumbulgum has different scenic landscape features than the other rural villages due to its location at the junction of the Rouse and Tweed Rivers. The built form of the village and the street layout is distinguished by its response to the location adjacent to the river, managing flood risk, through elevated, predominantly timber buildings on narrow lots addressing the river. The setting of the village site at the junction of the Rouse and Tweed Rivers makes the settlement to be a landmark at the interface between the sugar cane and rural hills landscape character units.

Mitigation measures

- Protect the natural and cultural heritage values of each village.
- Development should reflect the established subdivision pattern: narrow lots with minimal street curtilage along main streets, and larger lot subdivision pattern with generous gardens in the outer residential precincts.
- Development should be integrated through appropriate scale and height, reflecting the main ridge-line heights and floor levels of original surrounding buildings or structures.
- Development should retain and reinforce the streetscape character of the villages and encourage a sympathetic composition of old and new without being overly imitative.
- The use of materials and colours that maintain the integrity and character of heritage buildings and streetscapes. Alterations, additions, infill development and new residential areas outside the main villages centres should respect the existing character through continuity of design.

- Maintain gardens, open spaces and tree planting in the village streetscape.
- Ensure planting does not compromise important views to, from and within villages.
- Where relevant, proposed development or land use shall address village specific objectives for future character as described in the Tweed *Rural Villages Strategy 2016*. Any further objectives for desired future character as contained within existing village specific locality plans as they are prepared and adopted.

Rural hills and valleys

Description of landscape features

This landscape unit is generally located on gently to moderately sloping land where the gradient of the land allowed practical vegetation clearing and farming practices above the floodplain. Cleared rural hills and valleys generally extend to the foothills of the caldera where the gradient increases and land becomes too steep to farm. The rural hills and valleys support a mix of rural pursuits, ranging from cattle grazing, banana growing, dairy grazing, intensive horticulture production, large lot residential, extractive, and industrial land uses.

The landscape is characterised by gently to moderately sloping terrain featuring extensive areas of cleared grazing land with fragmented pockets of native and exotic vegetation.

Productive horticultural farms with uniform rows of fruiting trees may dominate large lots, creating dense spatial arrangements. Exotic tree species have regenerated aggressively in some previously cleared areas, with species such as camphor laurel displaying distinctive form, texture and seasonal colour. Farmhouses, shed, fences and yards, climate control structures and machinery are located within cleared landscape and screened by vegetation. Similarly, roads, powerlines, fences and edges of vegetation form linear patterns across the landscape.

The diverse landscape attributes including undulating terrain, native and exotic vegetation, variable lot sizes and cultural structures supporting productive agricultural lands creates views of high scenic diversity and interest in terms of colour, spatial qualities and textures.

Mitigation measures

- Preserve the existing proportions, patterns and visual relationships between forested areas, grassland and cropland.
- Development or land use should aim to contribute to the aesthetically pleasing landscape.
- Avoid siting of buildings or structures on highly visible sites such as ridgelines.
- Minimise the visual impacts of driveways, property fencing, retaining walls and hardstand areas.
- Use setbacks and buffer strips to screen visually prominent structures.
- Ensure the site conditions are considered and avoid cumulative impact of built form and bulk on the sloping terrain.
- Incorporate building materials and the use of colours that complement the surrounding landscape.
- Avoid or minimise the cumulative impact of urban development by maintaining vegetated screens and buffers against urbanised, industrial land uses or development.
- Development or land use affecting land adjoining the rivers and creeks landscape unit is to consider mitigation measures of that landscape unit.

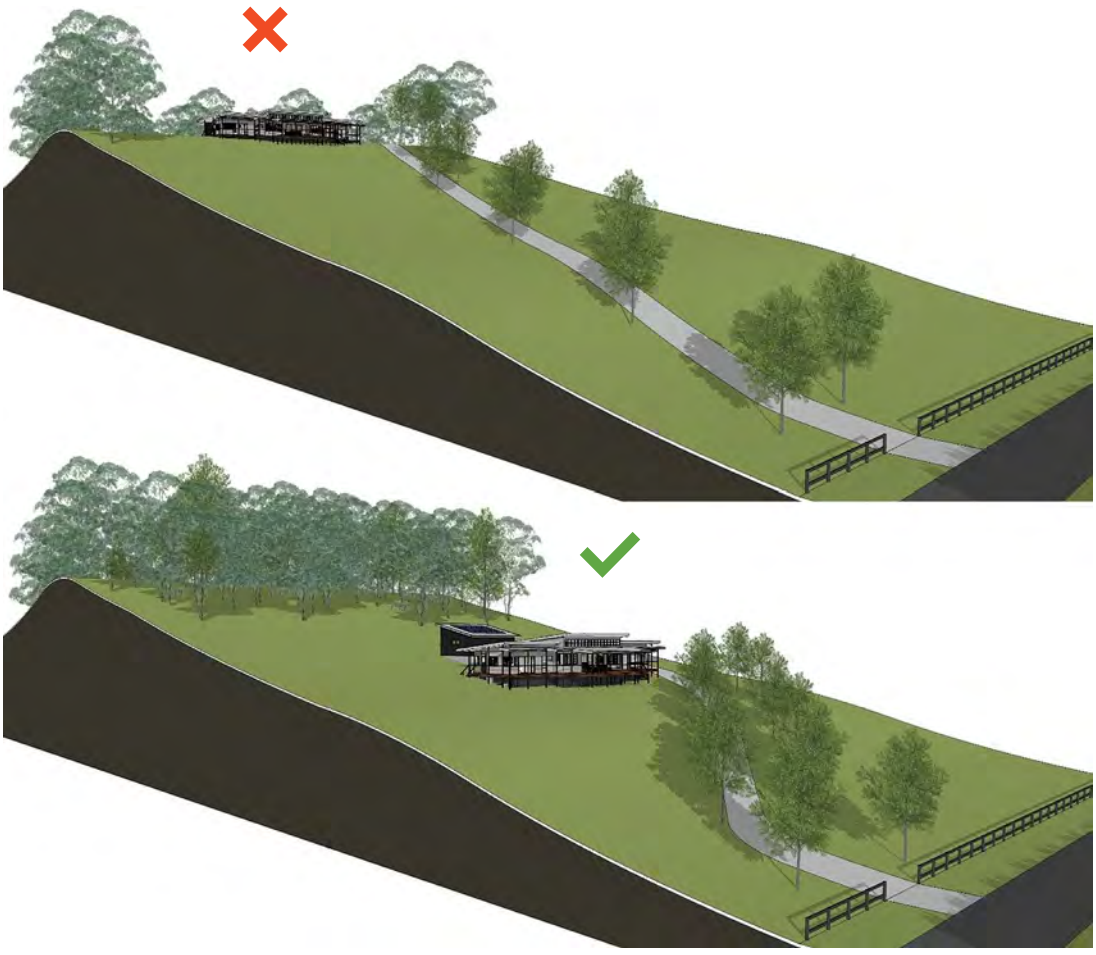


Figure 7: Avoid siting of buildings or structures on highly visible sites such as ridgelines.

Forested hills

Description of landscape features

Elevated forested areas are integral to the Tweed's landscape character and form the most significant defining spatial features within and around the Tweed Valley itself. This landscape character unit forms a strong and dominant visual backdrop to almost all panoramic views within the Shire, with the only exception being views eastwards and out to sea. Terrain and vegetation are the dominant visual elements of this landscape unit. The caldera rim creates a uniform linear edge that contrasts visually against the sky, particularly dramatic on cloudless days. Steep slopes, rocky outcrops and in places sheer cliffs are characteristics of the upper hills and create sharp silhouettes against the sky. Vegetated areas present a more uniform and softer texture across vast tracts of this landscape character unit. The silhouette line of Wollumbin / Mt Warning, and other peaks such as The Pinnacle, is often concealed by cloud formations.

Few built structures or manmade visual intrusions exist in this landscape unit, except for electrical or telecommunications facilities, roads and signage, and occasional cleared pockets or isolated residential development.

Mitigation measures

- Elevated forested areas are integral to the visual environment of the Tweed Valley. Preserve the dominant visual backdrop of densely forested landscape and maintain the relatively homogenous and visually intact nature of forested hills.
- Maintain uniformity of forested ridgelines, avoiding vegetation clearing or structures that interrupt the skyline.
- Avoid key feature disruption particularly to Wollumbin / Mt Warning and the caldera rim.
- Protect or enhance forested slopes that act as (or have the potential to become) distinctive visual green belts.
- Development should be designed and sited in a way that minimises their visual dominance against the landscape.
- Appropriate and visually appealing design considering scale and proportions should be established to avoid built form that dominates the landscape.
- Materials and colours shall be selected to minimise visual contrast with the surrounding vegetation.
- Screen by using native vegetation species. Maintain the defining canopied and enclosed landscape.

Figure 8: Maintain uniformity of forested ridgelines, avoiding vegetation clearing or structures that interrupt the skyline.

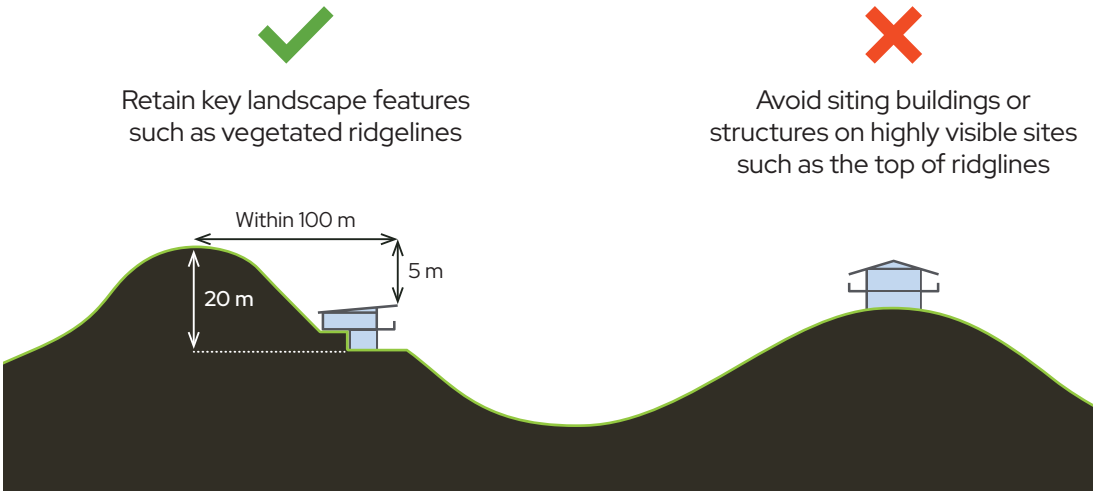


Figure 9: When building within 100 m of a ridgeline, set the building down 200 m from the top of that ridgeline. The overall building height should be 5 m below the height of the ridgeline.

Urban

Description of landscape features

The urban landscape character unit includes Murwillumbah, the northern greater Tweed Heads area and coastal settlements.

This landscape character unit captures all land uses typically found in urban areas, such as housing estates, major infrastructure, industrial areas and business parks, structured recreation, commercial and retail areas.

Urban landscape is based on the interplay between the buildings, streets, and natural environment. All these elements accommodate the evolving social, economic and cultural needs of the local residents and visitors.

The urban landscape is highly diverse. Its visual character is dominated by manmade structures which create geometric and angular shapes, banded lines and changing spatial scales. Colours, textures, shapes and forms of buildings and structures vary individually and create a busy and sometimes chaotic visual environment. Some consistency is identifiable however across spatial scales, reflecting the limits to development put in place by planning regulations. For example, the more commercialised higher density areas of Tweed Heads are characterised by taller buildings and a grid street networks, while low density residential areas such as Seabreeze are limited to single storey development with similar external materials and more curved street configuration responding to the undulating landscape.

Signage and advertising play a significant role in the visual experience of some urban landscapes. This urban landscape character unit contains pockets of land that are not available or suitable for urban development such as areas of protected vegetation and foreshores. These areas, coupled with dedicated public open space, are of high visual importance within the altered landscape as they give viewers access to important view corridors.

Tweed Development Control Plan includes assessment of the character of key settlements located within this scenic landscape unit.

Mitigation measures

- Address relevant, site-specific sections of Tweed Development Control Plan 2008 to seek consistency with the local visual qualities of the urban landscape.
- Demonstrate a clear aesthetic intent that is attractive and engaging with the landscape.
- Building height should positively contribute to the prevailing urban character.
- Maintain and promote the separation of highly urbanised areas with the pockets of natural areas including beaches, rivers, creeks and coastal forests.
- Built form/massing and dimensional envelopes should be appropriate to the context in terms of scale, proportions, and configuration.
- Consider the cumulative impact of signage in commercial areas. Aim to minimise advertising and emphasise wayfinding.
- Design should respond to the local landscape setting and contribute to a distinctive defined urban character.
- Built elements and structures should achieve balanced composition of colours, textures, finishes and landscaping.
- Maintain and promote large and mature trees as distinctive visual features within the urban landscape.
- Develop green edges to major roadways of regional significance to screen views of urban development.

Development or land use on land adjoining the rivers and creeks landscape unit and beaches and headlands landscape unit is to consider mitigation measures of that landscape unit.

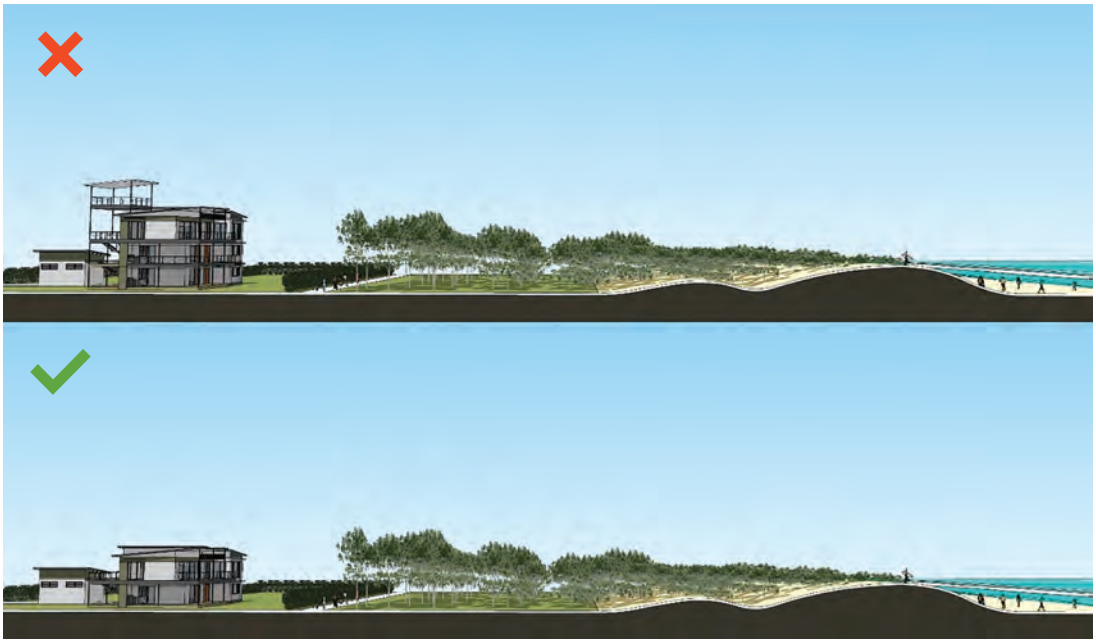


Figure 10: Maintain and promote the separation of highly urbanised areas with the pockets of natural areas including beaches, rivers, creeks and coastal forests.

Future urban land release

Description of landscape features

Future urban land release areas include Kings Forest, Cobaki Lakes, Bilambil Heights, Wardrop Valley, Dunloe Park and West Kingscliff.

This landscape character unit currently covers approximately 2,296 ha or 1.7% of the Tweed Shire. These areas are for the most part undeveloped at this point and are predominately rural in character. However, their visual character is expected to change dramatically in the future through anticipated or planned large scale urban development. The resulting visual landscape in these areas is not yet known.

Specific planning options are required to address the more prominent visual impacts that may be caused by such large scale urban developments and warrants separation of these areas and the application of specific management priorities during their planning phases. Identifying this landscape unit as a separate category will enable intended future use to undertake acceptable levels of visual impact.

Mitigation measures

- Demonstrate a clear aesthetic intent that is attractive and engaging with the landscape.
- Building height should positively contribute to the prevailing urban character.
- Maintain and promote the separation of highly urbanised areas with the pockets of natural areas including beaches, rivers, creeks and coastal forest.
- Built form/massing and dimensional envelopes should be appropriate to the context in terms of scale, proportions, and configuration.
- Consider the cumulative impact of signage in commercial areas. Aim to minimise advertising and emphasise wayfinding.
- Design should respond to the local landscape setting and contribute to a distinctive defined character in the local area.
- Built elements and structures should achieve balanced composition of colours, textures, finishes and landscaping.

Appendix 1 – Mapping methodology

Council undertook mapping of scenic landscapes across the Shire. The spatial assessment consolidates and builds on past works by Bower 1995 and Corkery 2004 and contributing to the contemporary assessment and description of the Tweed's visual landscapes.

The mapping comprises of four components:

- identification of key spatial components within the landscape referred to as landscape character units, which have a distinctive combination of topographic, land cover, land use and water elements which are relatively consistent in visual character
- key viewing situations within the Shire
- viewshed maps for each viewing situation
- visibility maps identifying the number of viewsheds applicable to each cadastral lot within the Shire.

Landscape character units

Landscape character is defined as the distinct, recognisable and consistent pattern of physical elements within a landscape. Elements that contribute to landscape character include:

- physical arrangement of a landscape e.g. topography and geology
- natural features such as vegetation and water bodies
- cultural elements such as the pattern of buildings, roads, infrastructure, agricultural activities, vegetation and other modifications to landscape as evidence of human activities.

The approach adopted by this policy to identify distinct landscape character was guided by the scale of analysis and the volume of data gathered. These distinct landscapes were ultimately defined by the relationship between the land cover, land use, type and extent of vegetation and topographical features. The spatial extent of the landscape character units were mapped and can be seen in figure 11.

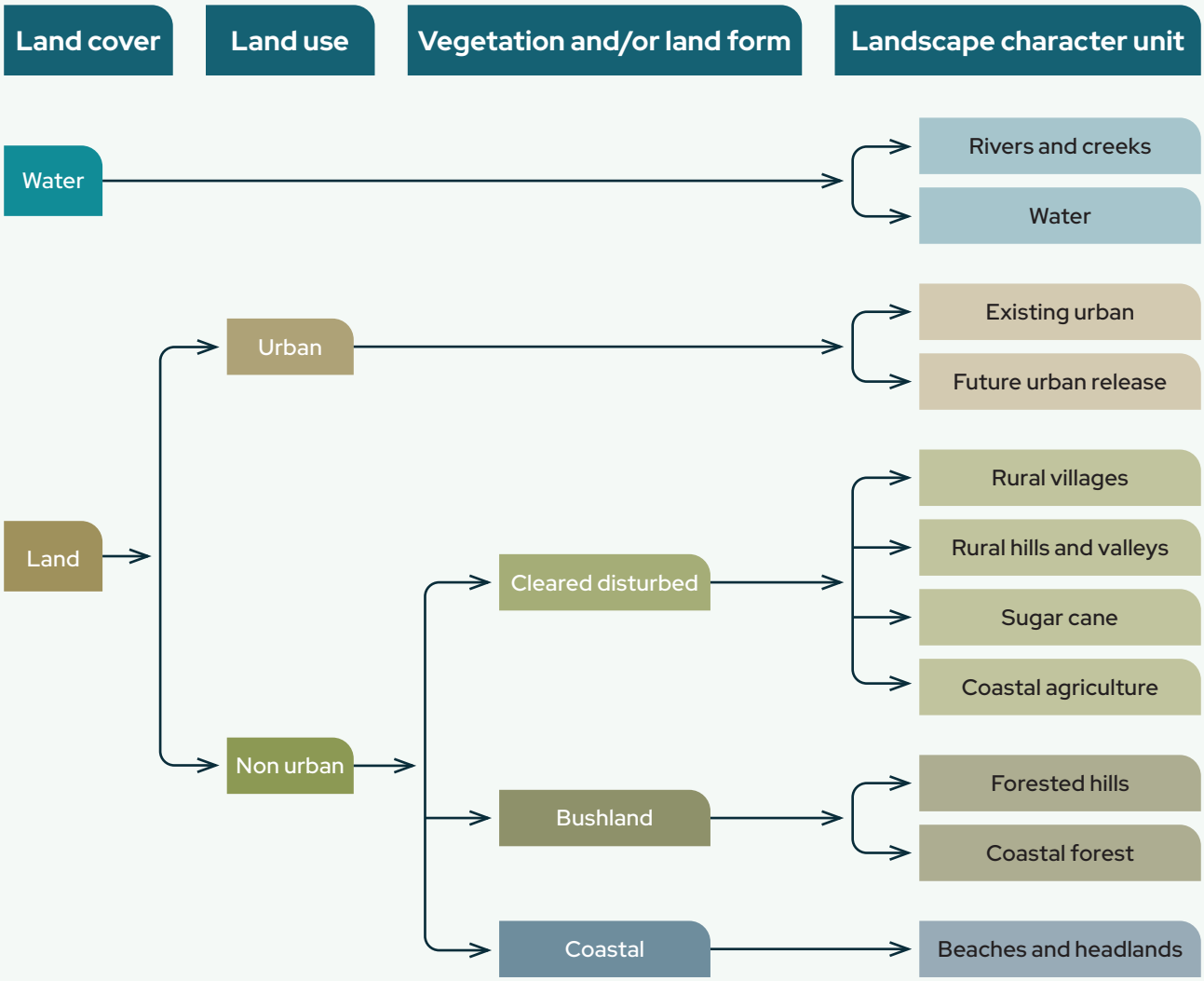


Figure 11: Landscape character unit delineation hierarchies.

Viewing situations

Viewing situations are locations from which people experience and enjoy views. These are identified as dynamic and static viewing situations.

Dynamic viewing situations include roads, cycleways, walking trails, navigable waterways and any other route along which an observer appreciates a sequence of views from a series of locations as they move through the landscape.

Static viewing situations are locations from which a single unchanging view or scene is appreciated and where the viewer is for the most part stationary. They include lookouts, public parks and reserves, beaches, headlands and places of interest such as Tumbulgum Jetty or Tweed Regional Art Gallery.

It is important to distinguish between dynamic and static viewing situations because the way in which an observer is exposed to and experiences a scenic landscape from these situations is different, and this can affect their visibility and appreciation of certain landscape qualities or elements. Similarly, the way in which changes within a landscape affects or impacts the viewer experience is also different.

The dynamic viewing experience has the potential to change dramatically and rapidly as the observer moves through the landscape. More often the observer appreciates the broader vista and larger features as the finer details and foreground are obscured by movement and difficult to focus on. When experiencing views from static viewing situations the viewer is stationary within the landscape.

The view does not change with time or space and the observer has the ability to choose the duration of the viewing experience and appreciate finer details and more intricate components of the landscape. Observers of static views are therefore more likely to be affected by smaller or less obvious changes as they have the time to focus on and contemplate their impact within the broader landscape setting.

In most circumstances it is not practical to identify and evaluate every conceivable viewing situation. This is particularly relevant in the Tweed where spectacular views are experienced across the Shire. The detailed evaluation was focussed on those locations considered to be of cultural value or preferred by the community.

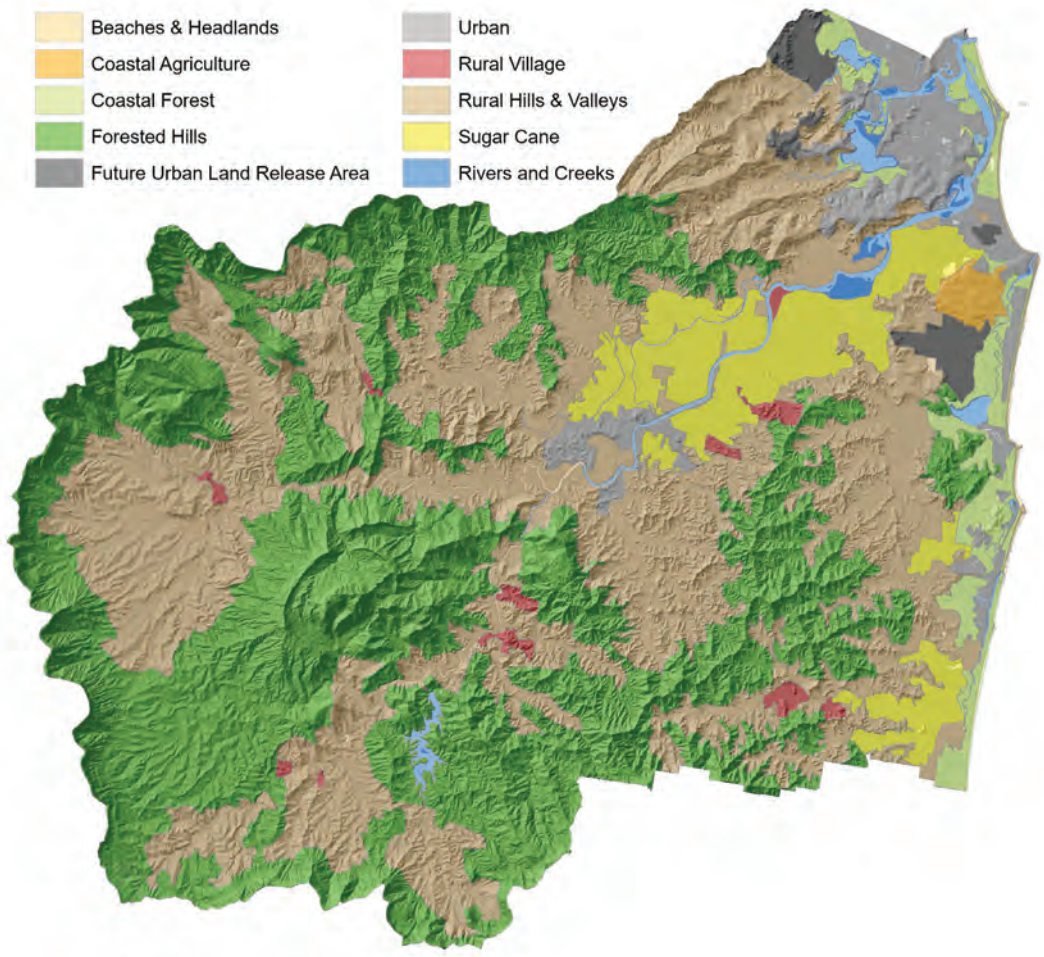


Figure 12: Map of landscape character units across the Tweed Shire.

Identifying viewing situation

109 viewing situations throughout the Shire were identified and prioritised based on community recognition and preference, accessibility, field observations and by reference to cultural and tourism data and resources, including:

- Council asset data of publicly accessible and well-utilised static locations
- highly trafficked and important tourism routes and destinations identified through Destination Tweed, VisitNSW, Australia's Green Cauldron and other data sources
- consultation with community and stakeholders on preferred viewing situations and views of scenic quality, through initiatives such as:
  - 'What's My Scene' Community Conversation drop-in sessions
  - 'What's My Scene' online digital storybook on Your Say Tweed
  - 'Scenic Mappiness' exercises and surveys at local community events (Sustainability Home Expo 2016 and 2017, Tweed River Festival 2016)
  - incidental feedback from the Cultural Plan Community Survey
  - incidental feedback from the Tweed River Management Survey.

Prioritising viewing situations

Viewing situations and their associated viewsheds were then categorised as being regionally or locally significant depending on a combination of factors including accessibility, number of viewers, viewer activity and viewing time, viewer experience and community preference for the associated viewshed.

In order to prioritise the significance of viewsheds, the following ranking system was applied:

- **Priority 1** – national or regional significance, promoted at a regional or national level, that attract a significant number of visitors, are easily accessed, highly trafficked and those repeatedly identified through community consultation as having high scenic value, quality or preference.
- **Priority 2** – regional significance, promoted at a regional or local level, are moderately trafficked and easily accessed or those identified as having high scenic value quality or preference through community consultation.
- **Priority 3** – local significance that are visible from publicly accessible and moderately trafficked locations, and those identified through community consultation as holding local scenic value, quality or preference.
- **Priority 4** – locations with relatively low traffic or patronage and identified as holding local scenic value, quality or preference.

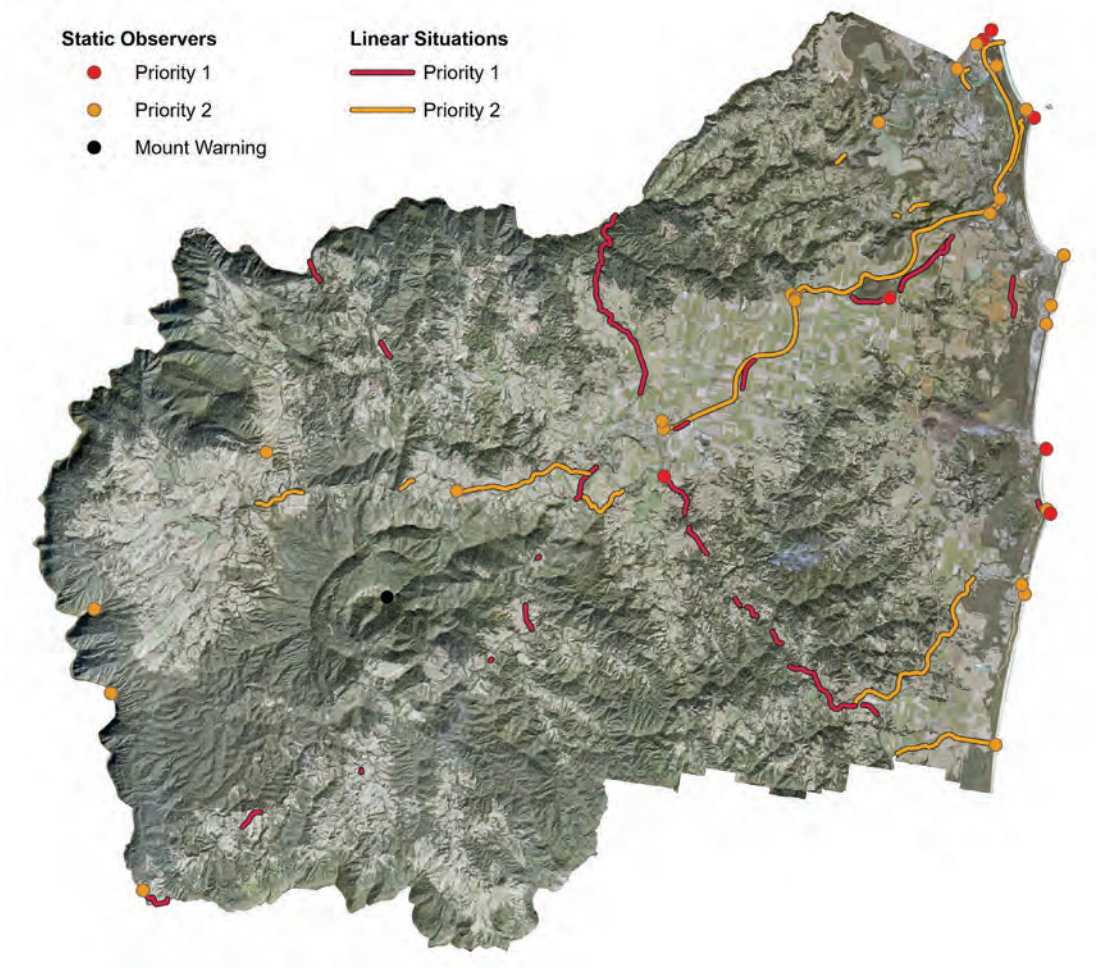


Figure 13: Priority 1 and 2 viewing situations mapped.

Table 1 below presents the dynamic and static viewing situations categorised by priority level. This data collapses multiple sections of a road or route and any capture points identified along the route as a single dynamic viewing situation.

Table 1: Number of viewing situations by priority and type

Viewing situation type	Static	Dynamic	Total
Priority 1	7	6	13
Priority 2	26	12	38
Priority 3	24	5	29
Priority 4	28	1	29
Total	**85**	**24**	**109**

Table 2 below details all 109 viewing situations throughout the Shire by name, location and type, as well as details of the specific data sources that contributed to the priority ranking of viewing situations, including:

- **Tourism:** Highly trafficked and promoted tourism driving routes and destinations were identified through Destination NSW, Destination Tweed, VisitNSW, Australia's Green Cauldron and various other tourism data sources, State Tourist Driving Routes identified on digital maps and GPS devices, various web based tourist websites, books, and brochures.
- **Field survey:** Driving along roads and stopping at viewing situations and performing visual assessment of available viewsheds.
- **Parks data:** Evaluation of Council asset data identified publicly accessible and well static viewing locations where views of surrounding landscapes were possible.
- **Comm:** Identified as of significance through consultation with community and stakeholders.

Table 2: Viewing situations detailed in the Tweed

Viewing situation name	Type	Priority	Data/source
Tweed Regional Art Gallery (observation deck)	Static	1	All
Cabarita (Norries) Headland	Static	1	Comm/tourism
Fingal Headland (Grants Causeway)	Static	1	Comm/tourism
Hastings Point Headland	Static	1	Comm/tourism
Jack Evans Boat Harbour	Static	1	Tourism/parks data
Point Danger	Static	1	Comm/tourism
Wollumbin (Mt Warning)	Static	1	Tourism/field survey
Kyogle Road	Dynamic	1	Tourism (State tourist route)
Numinbah Road	Dynamic	1	Tourism/field survey
Pacific Highway	Dynamic	1	Tourism (State tourist route)
Tomewin Road	Dynamic	1	Field survey
Tweed Coast Road	Dynamic	1	Field survey/tourism
Tweed Valley Way	Dynamic	1	Tourism/parks data
Blackbutt Lookout	Static	2	Comm/tourism
Bluey Hill Park	Static	2	Field survey
Bruce Chick Reserve	Static	2	Comm/tourism
Chinderah Jetty	Static	2	Comm/tourism
Chinderah Pub and foreshore	Static	2	Field survey/Have Your Say
Cudgen Foreshore Reserve	Static	2	Comm/tourism

Viewing situation name	Type	Priority	Data/source
Cudgen sight line	Static	2	Comm
Cudgera Creek Park	Static	2	Tourism/field survey
Fingal Beach	Static	2	Comm
Kerosene Bay	Static	2	Tourism/field survey
Kyogle Road Lookout (Rainforest Way site)	Static	2	Comm/tourism
Lions Lookout	Static	2	Field survey and comm
Oxley Park	Static	2	Comm/tourism/parks data
Pottsville Beach	Static	2	Comm/tourism
Pottsville Bridge	Static	2	Comm/tourism
Razorback Lookout	Static	2	Comm/tourism
Seagulls to Peninsula Drive Rainforest Walk	Static	2	Comm/tourism
The Pinnacle Lookout	Static	2	Tourism/field survey
Travis Campbell Park	Static	2	Comm/field survey
Tumbulgum Jetty	Static	2	Comm/tourism
Tumbulgum Pub and foreshore (Faith Mussing Bandler Park)	Static	2	Comm/field survey/ tourism
Tweed Coast cycleway	Static	2	Comm/field survey/ tourism
Tweed Coast cycleway	Static	2	Tourism/field survey
Tyalgum Lookout (Waste Transfer Station)	Static	2	Comm/field survey
Wooyung Beach	Static	2	Comm/tourism/field survey
Bakers Road	Dynamic	2	Field survey
Bakers Road	Dynamic	2	Comm
Bilambil Road	Dynamic	2	Tourism/field survey
Cane Road and Tumbulgum Road	Dynamic	2	Field survey
Chinderah Bay Drive	Dynamic	2	Field survey/tourism
Fingal Road	Dynamic	2	Comm/tourism
Minjungbal Drive	Dynamic	2	Field survey
Pottsville Road	Dynamic	2	Tourism/field survey
Riverside Drive	Dynamic	2	Tourism/field survey
Terranora Road	Dynamic	2	Comm/tourism/ field survey
Tweed River	Dynamic	2	Tourism/field survey

Viewing situation name	Type	Priority	Data/source
Tyalgum Road	Dynamic	2	Field survey
Wooyung Road	Dynamic	2	Comm/tourism/parks data
Arkinstall Reserve	Static	3	Parks data
Brummies Lookout	Static	3	Tourism/field survey
Budd Park	Static	3	Tourism/parks data
Byrrill Creek	Static	3	Comm/tourism
Crams Farm Reserve	Static	3	Comm /tourism/parks data
Cudgera Beach Reserve	Static	3	Comm/field survey
Doon Doon Road capture	Static	3	Field survey
Dreamtime Beach	Static	3	Comm/tourism
Ebenezer Park	Static	3	Tourism/field survey
Faulks Park	Static	3	Tourism/parks data/comm
Faux Park	Static	3	Parks data
Gruners Lookout	Static	3	Comm
Jack Bayliss Park	Static	3	Tourism/parks data
Knox Park	Static	3	Tourism/parks data
Lyrebird Lookout	Static	3	Tourism/parks data
Murwillumbah Bridge	Static	3	Parks data
Pacific Motorway bridge north	Static	3	Tourism/field survey
Pacific Motorway bridge south	Static	3	Tourism/field survey
Pascoe Park	Static	3	Parks data
Pottsville and Kellehers roads intersection	Static	3	Tourism/field survey
Terranora Chambers Lookout	Static	3	Comm
Top of Smiths Creek Road	Static	3	Comm
Tumbulgum Bridge	Static	3	Tourism/field survey
Tweed Botanic Gardens	Static	3	Field survey
Doon Doon Road	Dynamic	3	Comm/tourism
Dulguigan Road	Dynamic	3	Field survey
Mistral Road	Dynamic	3	Tourism/field survey
Stokers Road	Dynamic	3	Tourism/field survey
Stokers Road town entry	Dynamic	3	Tourism/field survey
Ambrose Brown Park	Static	4	Parks data
Apex Park	Static	4	Parks data
Burringbar capture	Static	4	Field survey

Viewing situation name	Type	Priority	Data/source
Byrrill Creek Road	Static	4	Field survey
Byrrill Creek rock pools	Static	4	Field survey
Frangela Drive Reserve	Static	4	Parks data
George Ord Park	Static	4	Parks data
Gollan Drive riverside local park	Static	4	Parks data
Hardy Park	Static	4	Parks data
Harry Hansen Park	Static	4	Parks data
Hartigan Hill Reserve Lookout	Static	4	Parks data
Harwood Road intersection	Static	4	Field survey
John Fowler Fitzhenry	Static	4	Parks data
Kingscliff Lions Park	Static	4	Tourism/parks data
Mcilrath Park	Static	4	Parks data
Merv Edwards Reserve	Static	4	Parks data
Near Minnows Road intersection capture	Static	4	Field survey
Nicholl Park	Static	4	Parks data
North Cabarita Beach	Static	4	Parks data
Piggabeen Valley	Static	4	Comm
Queens Park	Static	4	Parks data
Remembrance Place	Static	4	Parks data
Sacred Park	Static	4	Parks data
South Hastings Beach	Static	4	Parks data
Stan Sercombe Park	Static	4	Parks data
Sweetnam Park	Static	4	Field survey
Tom O'Connor Recreational Reserve	Static	4	Parks data
Uki Centenary Park	Static	4	Parks data
Byrrill Creek Road	Dynamic	4	Field survey

Viewshed mapping

A viewshed is the entire area that is visible from a particular viewing situation. It is the combination of all available lines of sight along which an observer has an unobstructed view, and is directly related to terrain, elevation and obstructions.

Viewshed maps are an important resource when assessing the visibility of a site or proposed development. They are produced through analysis of detailed LiDAR (light detection and ranging) elevation data.

Many of the Tweed's significant scenic landscapes are highly visible from major roads and tourist routes; therefore, it was important that these view types were accurately and technically mapped.

Council engaged specialist mapping consultants to assist and provide advice on the chosen methodology, which was based on the approach adopted by the US. Department of Transportation *US Guidelines for the Visual Impact Assessment of Highway Projects* (2015). This approach incorporates speed, viewer angle and fixation distance and is a well-established best practice mapping methodology for producing viewsheds from dynamic viewing situations, particularly in terms of assessing visual impacts of development proposals on views from major driving routes.

A trial of this methodology was performed for select dynamic viewing situations; however the complexity of data proved to be an impediment to efficient progress and in many instances was more detail than was required, particularly in terms of the wide panoramic views experienced from many dynamic viewing situations.

In an effort to reduce data and processing time it was decided to remove fixation distance from the analysis and assume a 360˚ viewing angle for each interval point, thereby simplifying the data yet capturing the greatest possible visible extent for both driver and passengers along each route. An additional complexity was the vast distance of roads identified across the Shire that provides views of value. To address this, field surveys were undertaken to locate the specific points or sections along each route where scenic views of the surrounding landscape were plainly visible and to exclude the sections where visibility was obstructed by elevated terrain or other obstacles. Each section was mapped as a separate dynamic viewing situation, the sum of which was combined to produce the overall viewshed from each route or road.

Given the complexity and volume of data to be processed, mapping for the purposes of publication was limited to the viewsheds from Priority 1 and 2 viewing situations. These 51 viewsheds are considered a good representation of what a viewer may experience in the Tweed and capture significant views likely to be experienced regularly by the local community, regular visitors and people visiting the Tweed for the first and perhaps only time.

Figures 14 and 15 illustrate the viewsheds from a static viewing situation (Cabarita Headland) and a dynamic viewing situation (Bakers Road) respectively.

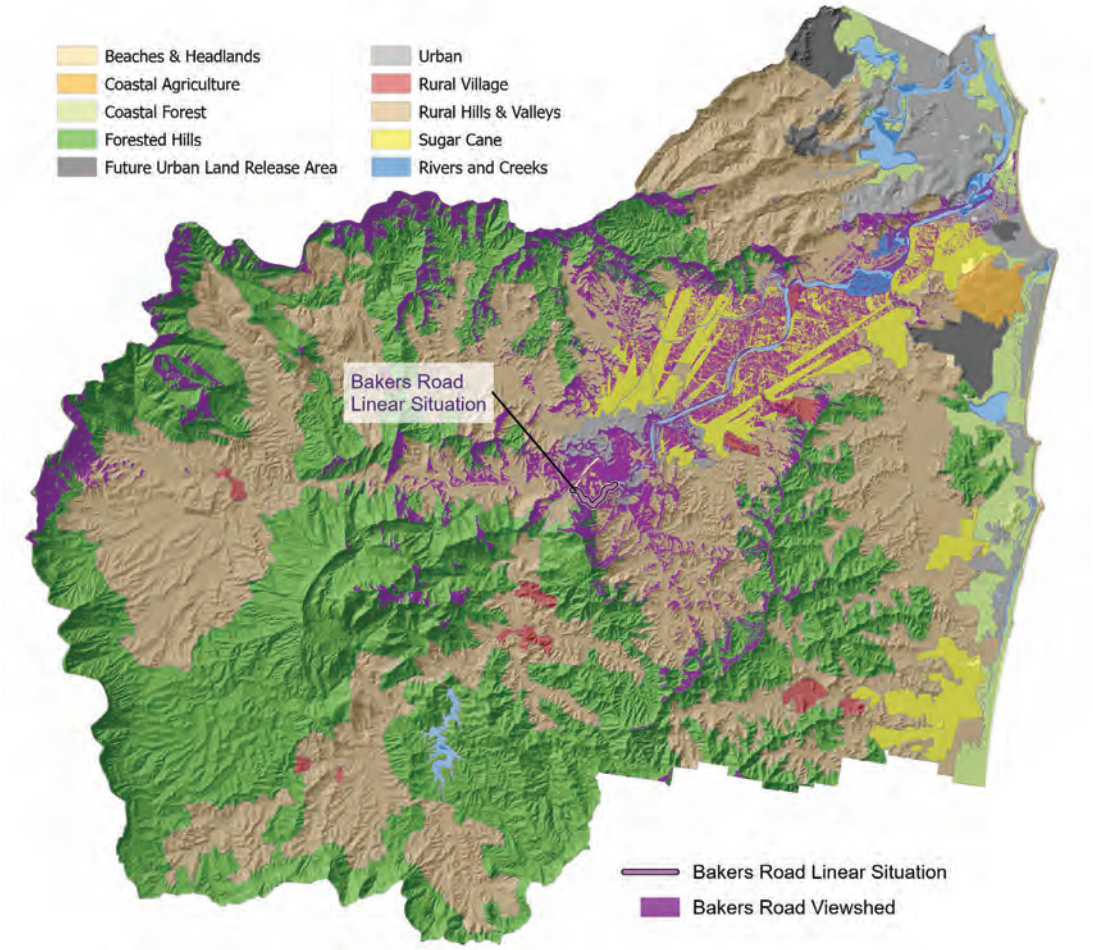


Figure 14: Viewshed of Bakers Road dynamic viewing situation.

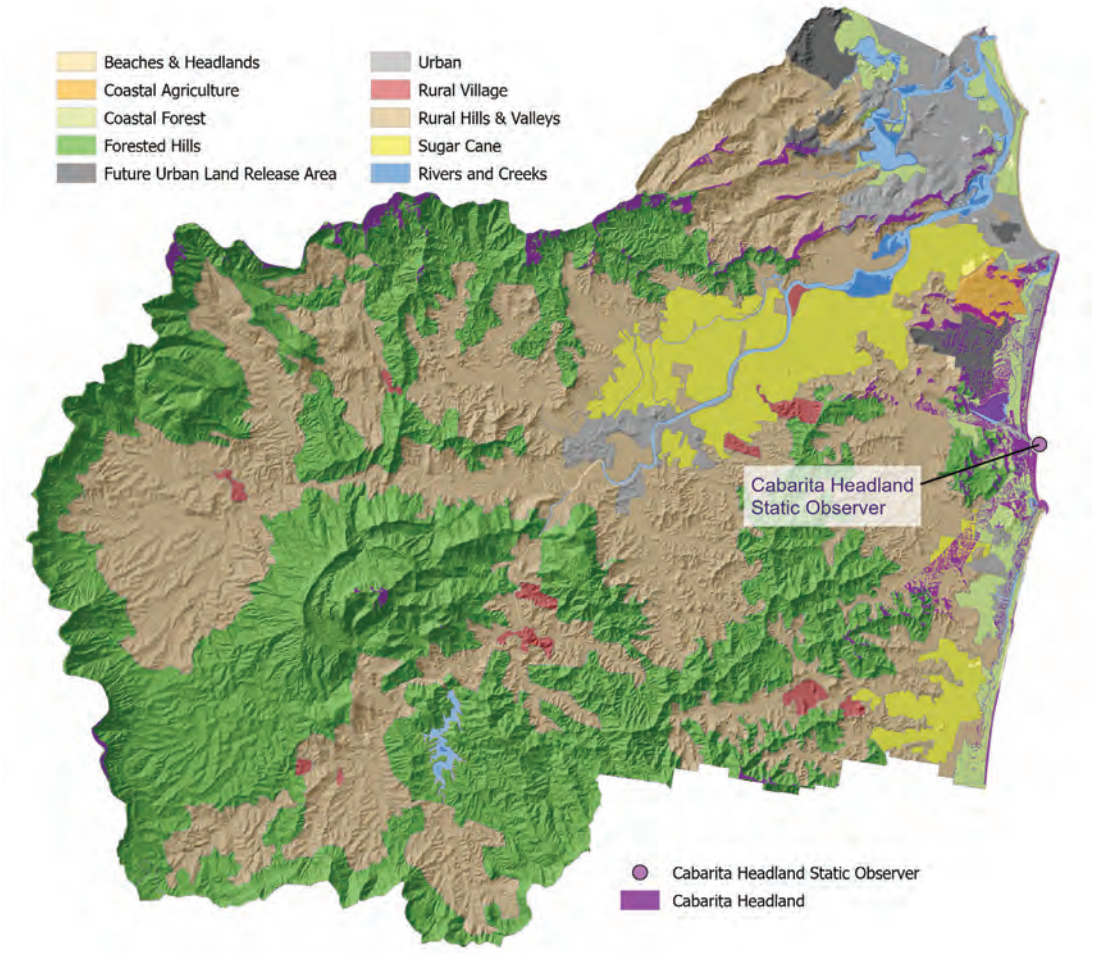


Figure 15: Viewshed of Cabarita (Norries) Headland static viewing situation.

Visibility mapping

The more visible a landscape is (in terms of the number of people who can see it), the more people are likely to be affected by any change or impact that occurs within it. For example, a vegetated hillside such as Razorback Mountain, facing towards a highly urbanised area such as the Tweed Heads city centre, is more visible due to the volume of people within the urban area who are likely to be viewing it at any point in time. It is therefore more sensitive to change than, for instance, a vegetated hillside in the hinterland that cannot be seen from any roads or accessible viewing situations.

It is important to identify the extent to which parts of the Shire are visible from multiple identified priority viewing situations and represent this spatially through categories of visibility.

The visibility map shown in figure 16 was produced through query of the incidence of Priority 1 and 2 viewsheds that any given 5 m × 5 m piece of land falls within, resulting in the following:

- 1 – 2 viewsheds (blue)
- 3 – 5 viewsheds (green)
- 6 – 9 viewsheds (orange)
- 10 or more viewsheds (red)

Of note is the strong and obvious relationship between elevation and visibility. Areas shown in red can be seen from 10 or more viewing situations and are, in general, areas of higher elevation across the Shire. In terms of visibility, table 3 shows the proportions of the Shire that fall within each category, emphasising that whilst being highly visible, only a small proportion (7%) of the Tweed Shire falls within 10 or more priority viewsheds.

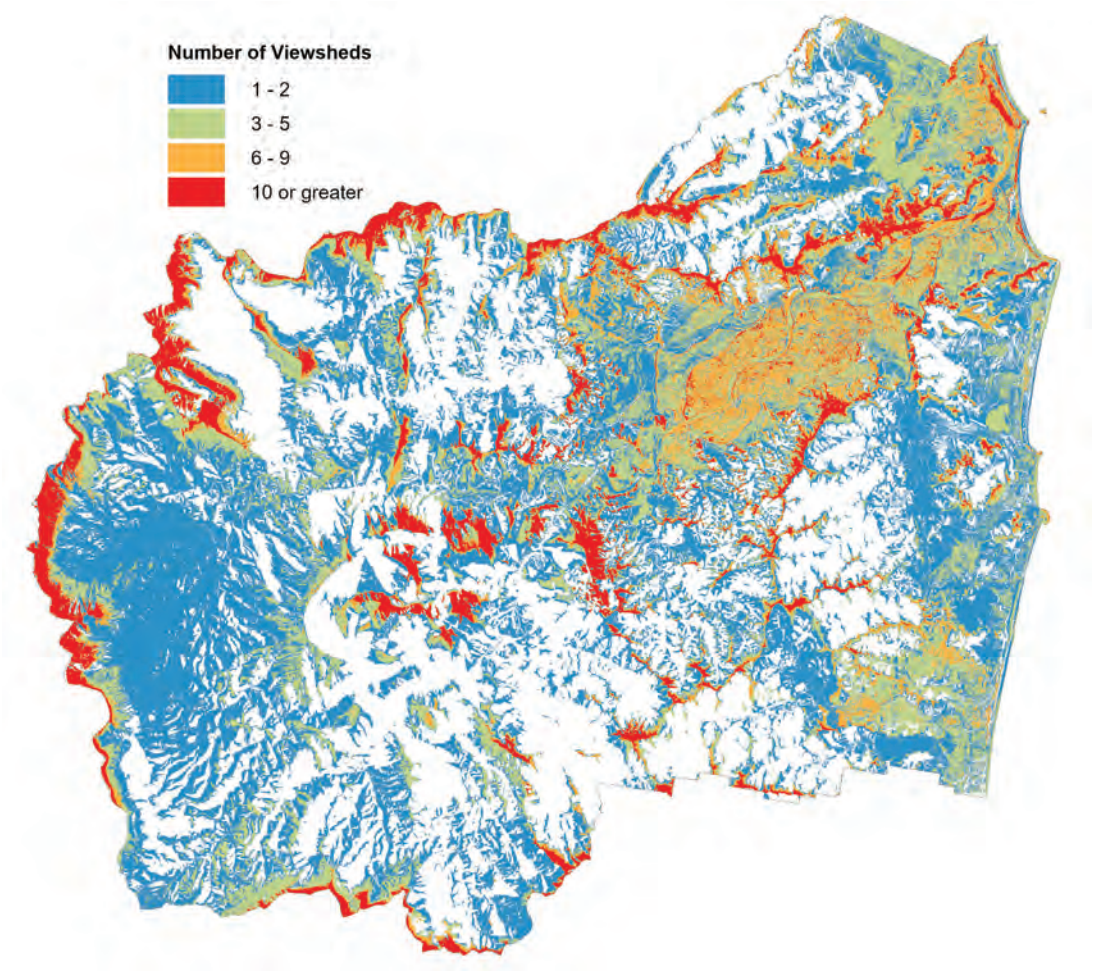


Figure 16: Visibility Map showing most and least visible lands based on all priority views excluding Wollumbin / Mt Warning.

Table 3: Tweed Shire land area and ratio per visibility category

Number of viewsheds	Area of land (ha)	Ratio of Shire (%)
0	51,302	37
1 – 2	43,960	32
3 – 5	22,172	16
6 – 9	10,677	8
10 or more	9,006	7

Mapping limitations/considerations

The visual features that constitute a character type are often continuous across the landscape. Thus, distinct visual boundaries that separate one landscape character unit from the next may be difficult to discern, particularly in non-urban areas of the Shire where patterns of vegetation and land use elements may be interspersed. Therefore in many instances the delineation between character units was made using best available information and a judgement decision based on where the most reasonable change in dominant natural and cultural features was likely to occur.

Further detailed assessment of localised landscape character will be necessary when performing assessment of visual impact of development proposals.

The mapping does not represent urban design or the character or impact of the built environment beyond select important, highly visual or influential structures. In this case, the assessment of urban landscape character has sought to recognise major overlaps of significant natural and built form visual elements such as tall structures in the Tweed Heads CBD adjacent to Jack Evans Boat Harbour or Razorback Mountain. Additional and localised assessment of the interaction between the two elements and their influence on one another is recommended as part of a visual impact assessment.

The spatial extent of mapped viewsheds is fluid and subject to change over time as a result of changes in land-use activities, development and vegetation growth or clearing. These changes may create new viewing situations, or alter the spatial extent of existing viewsheds (reducing or increasing the field of view). The viewshed mapping is therefore not intended to be an exact representation of every viewshed or the visibility of land in perpetuity. It is, however, designed to be conservatively over-inclusive. Viewshed analyses was performed using 'bare ground' data, which represents the actual surface of the earth and excludes above ground structures such as buildings, tree canopies.

The published viewshed and visibility maps thus illustrate the greatest possible extent that could be seen from a viewing situation, regardless of temporal changes in obstructions to view. The view from Wollumbin / Mt Warning, whilst highly significant, is so elevated and vast that much visual detail and change is and can be readily absorbed into the visual landscape. The viewshed from the mountain summit encompasses 49% of the Shire. Given the extent of land that falls within this viewshed, it was not considered practical or appropriate to include it within the visibility map proposed in the VIA framework. The purpose of the visibility map is as a parameter in determining the appropriate level of visual impact assessment.

Finally, the mapping does not include viewsheds that encompass land within the Tweed Shire but are observed from viewing situations outside it. For example, the viewshed from the Best of All Lookout in Springbrook National Park, encompasses sweeping views of the entire Tweed Valley but is located within the boundaries of the City of Gold Coast local government area, Queensland thus falls outside the jurisdiction of this strategy. Notwithstanding, given the regional if not national significance of this viewing situation and others similar to it, locations such as these should be taken in to account when performing high level VIAs for development anticipated to have a high visual impact.

Version	Summary of changes	Date	Effective date
1.0	Adopted by Council	06/06/2024	07/06/2024

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