VISUAL IMPACT ASSESSMENT

KINGS FOREST SERVICE STATION

PREPARED BY
PLANIT CONSULTING PTY LTD
DECEMBER 2014

PLANIT
CONSULTING

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A	10.12.2014	Internal Draft	JB	AS
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Terms & Abbreviations

Aesthetic	A general term referring to visual appearance and its human perception.
Baseline conditions	Description of the existing situation in the area of interest.
Cross Section	A vertical view drawn at right angles to the control line, showing the existing ground and various elements that make up the landscape.
Fauna	Refers to animals, both individually and collectively.
Flora	Refers to plants, both individually and collectively.
Landscape	A holistic term that encompasses visual, ecological and cultural values of the physical landscape.
Native Plants	Plant species that are indigenous to the local area, or to Australia.
Nature	All aspects of nature, including but not limited to: a. ecosystems and their constituent parts b. all natural and physical resources c. natural dynamic processes, and d. the characteristics of places, however large or small, that contribute to their biological diversity and integrity, or their intrinsic or scientific value
PDH	Proposed Dwelling Height, the maximum height AHD proposed for structures within the subject site
Scenic Amenity	A measure of the relative contribution of each place in the landscape to the collective appreciation of open space as viewed from places that are important to the public
Screen Planting	The intentional use of landscape planting to visually screen adjoining uses and structure or views of these.
Visual Amenity	The degree of positive or negative factors associated with viewing a particular structure or proposal.
Visual Catchment	Visual catchments are areas bound by a shared viewing exposure from a particular vantage point or location on the ground plane.
VIA	Visual Impact Assessment
VCP	Visual Catchment Plan
The Site	Lot 7 on DP875447 also referred to “the subject site”

1.0 Introduction

Planit Consulting has been commissioned by Project 28 Pty Ltd to prepare a Visual Impact Assessment relating to the proposed Kings Forest service station to be located within Kings Forest Precinct 1. The development is located on land identified as Lot 7 DP875447, Tweed Coast Road, Kings Forest and is accessed from Tweed Coast Road. These lands comprise the "site" for the purposes of this VIA.

This report identifies the potential visual impact of the proposed service station and identifies treatments that will assist in mitigating any potential adverse visual impacts these may have to the surrounding visual catchment areas.

2.0 Limitations and Assumptions of Study

This report examines the current landscape and visual amenity of the study area. A field inspection of the study location and identified area of interest was conducted to determine amenity values and potential visual impacts. This inspection exercise was to gain familiarity with the location and its landscape character and amenity values.

Whilst various data and information sources were utilised in association with this report, various data limitations are present in such documents. As such, these limitations would also be transferrable to the information within this current report.

In this way, although Planit Consulting has taken every precaution in the report preparation process to ensure data accuracy, Planit Consulting makes no representations or warranties about report suitability, accuracy or completeness for any particular purpose and disclaim all responsibility and all liability for all expenses, losses, damages and costs which may be incurred as a result of data being inaccurate or incomplete in any way and for any reason.

3.0 Objectives and Methodology

The objective of this report is to assess the potential impact of the proposed service station in context with the scenic amenity of the local region. Key visual catchment zones will be identified through both topographic, vegetation and on site photographic studies. The potential visual impact of the development on the identified catchments will be assessed and evaluated against recognized visual assessment principals. Recommendations as to treatments including species list (in accordance with all relevant guidelines) will be proposed to reduce any potential visual impact.

The impact of the proposed service station will be assessed through detailed topographic studies including the generation of view shed analysis presented in both 2D and 3D mapping to clearly illustrate findings.

A list (summary) of findings and recommendations will conclude this report outlining design principals to enhance the visual quality and minimize any potential adverse impacts related to the proposed service station.

4.0 Site Location

The development is located within Lot 7 on DP875447 and is accessed from Tweed Coast Road within the suburb of Kings Forest. This allotment shall be hereafter referred to as 'the site'. The allotment has frontage to Tweed Coast Road; it is irregular in shape and provides a total area of 7.5876 hectares. The site is currently vacant with no infrastructures present.

The subject site abuts wetlands to the east, Tweed Coast Road to the west and an existing plantation on agricultural land to the north. The land has been cleared in the past and presents as a grassed paddock with minor regrowth and weed infestation. The site currently sits approximately 1m lower than that of Tweed Coast Road however future road works will result in the generally flat site being at the same level as that of the Tweed Coast Road.

Fig. 1 Site Context Plan 01

5.0 The Proposal

The proposal is for development of a service station. The service station will comprise a technically defined two (2) storey building with a total GFA of 2026m2. This GFA includes a station shop, six (6) food premises tenancies and associated dining area. Two (2) of the food premises tenancies provide drive through facilities.

The service station will provide eight (8) car fuelling points under a technically defined two (2) storey canopy and two truck filling points under a technically defined two (2) storey canopy. The service station will sell the full range of fuels including E10 unleaded, 91 octane unleaded, 95 octane unleaded, 98 octane unleaded, diesel, premium diesel and autogas.

6.0 Building | Structure Heights

The potential visual impact of the proposed service station will be largely determined by the heights of the proposed structures within the site. The structure can generally be separated into two groups, 1) the building elements which comprise of a service station building and associated steel framed canopy roof and a proposed car wash, and 2) tenant / service station signage.

Proposed Structure Heights (PSH):

- Service station building and associated steel framed canopy roof
  13.25 AHD | 7.0m above ground level
- Car wash
  10.25 AHD | 4.0m above ground level
- Signage
  15.25 AHD | 9.0m above ground level

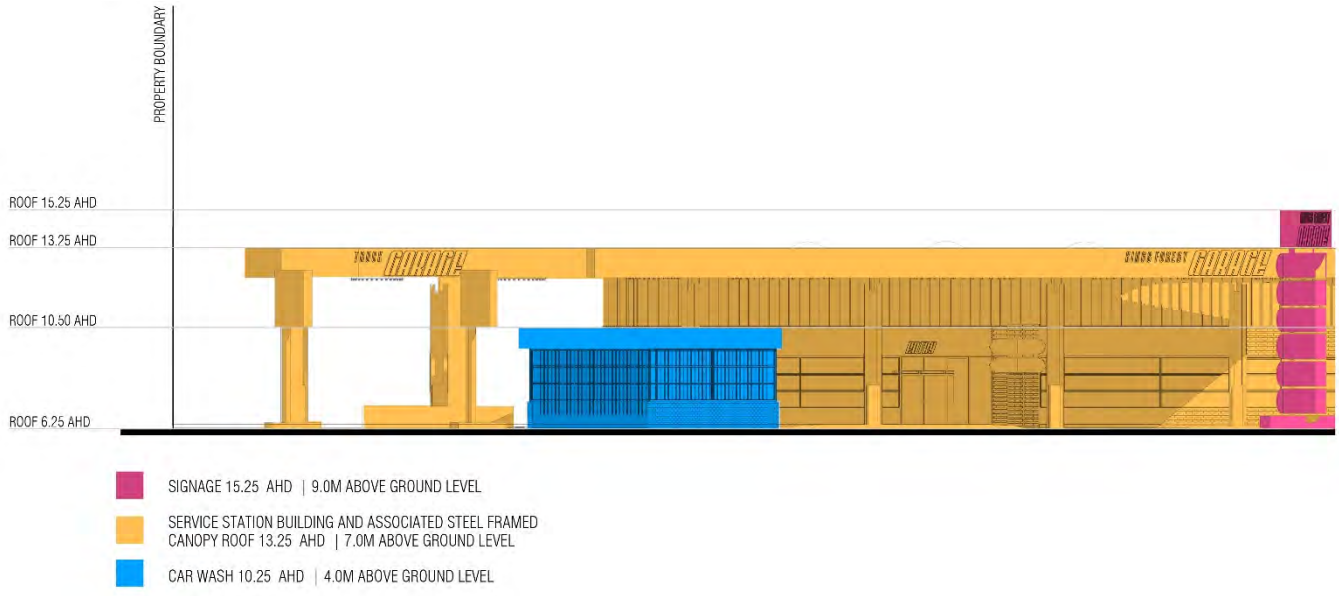

Fig. 2 Proposed Structure Heights

This height data has been used to establish the potential visual impact the structures will have on the surrounding visual catchment areas (VCA's) and will be referenced throughout this report when investigating key vantage points surrounding the subject site.

7.0 Visual Catchment Areas

Visual catchments are areas bound by a shared viewing exposure from a particular vantage point or location on the ground plane. Visual catchment areas are defined largely by topography, the height of a particular point on the ground plane, relative to the surrounding area. This is best illustrated in Figure 3 below.

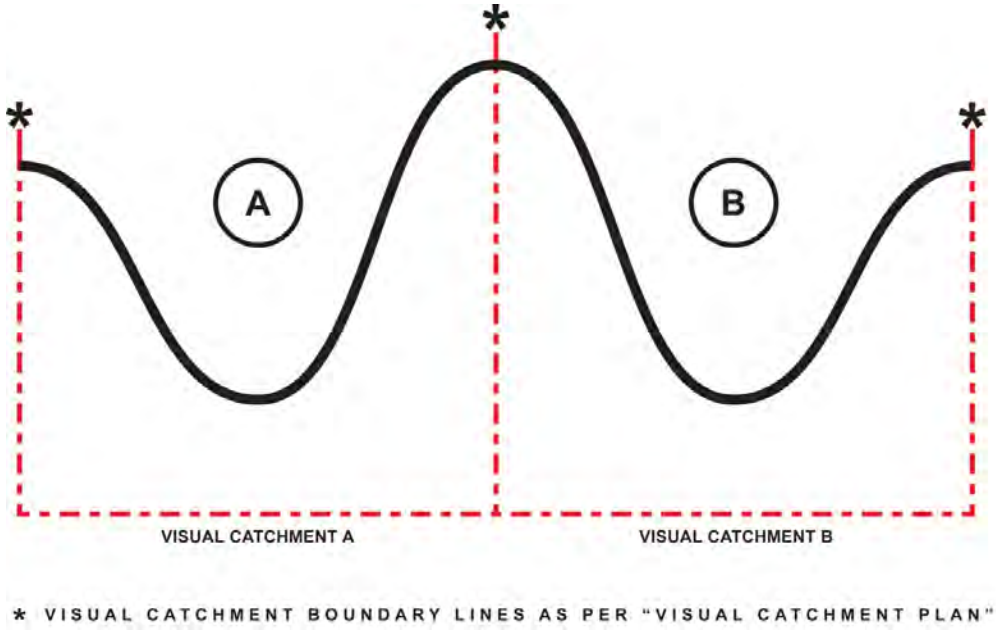

Figure 3: Visual Catchment Graph

This cross-sectional view illustrates two distinct Visual Catchments 'A' and 'B'. A particular land-use or structure that exist within Visual Catchment area A is likely to be contained within the confines of Visual Catchment Zone A. Further, its impact may be visually obscured (or its impact lessened) from Visual Catchment B by the central rise in topography. The dominant ridgelines form the extents of a visual catchment (illustrated as an '*' on the above diagram). This methodology for establishing visual catchment boundaries has been applied over the Kings Forest Service Station study area. The result is a plan which separates the study area into a number of distinct Visual Catchments.

The resultant Visual Catchment Plan (VCP) (refer to Figure 4) provides a base that will aid in determining the potential visual impact or exposure that the proposed residential development will have to surrounding view catchments.

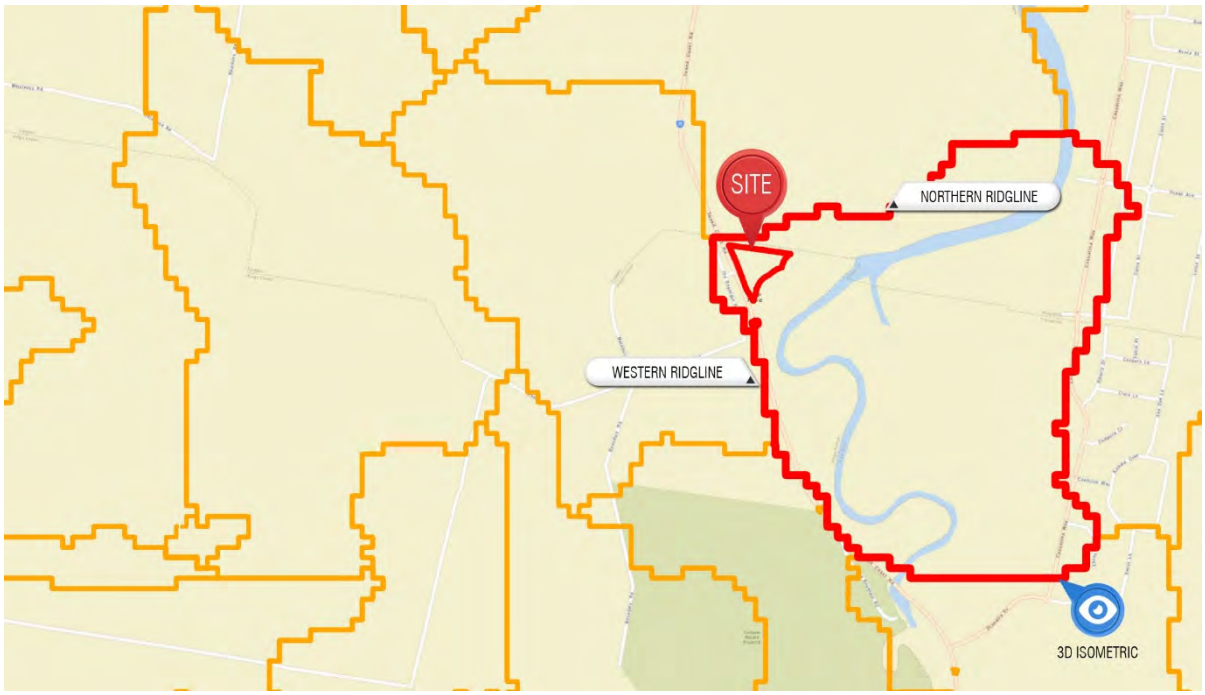

Figure 4: Visual Catchment Plan

The resultant Visual Catchment Plan (refer to Figure 4) provides a base that will aid in determining the potential visual impact or exposure that the proposed residential development will have to surrounding view catchments. The4 various visual catchments determined through topographic analysis are illustrated in orange, these lines represent the dominant ridgelines that form the extents of each visual catchment.

As illustrated in the VCP the subject site is located within a clearly defined visual catchment area (illustrated in red). The boundaries of this VCA are defined by prominent ridgelines which act to confine any potential views of the subject site from areas outside this VCA. The impact of topography in defining potential visual impact can be more clearly demonstrated through isometric topographic modelling Figure 5 below:

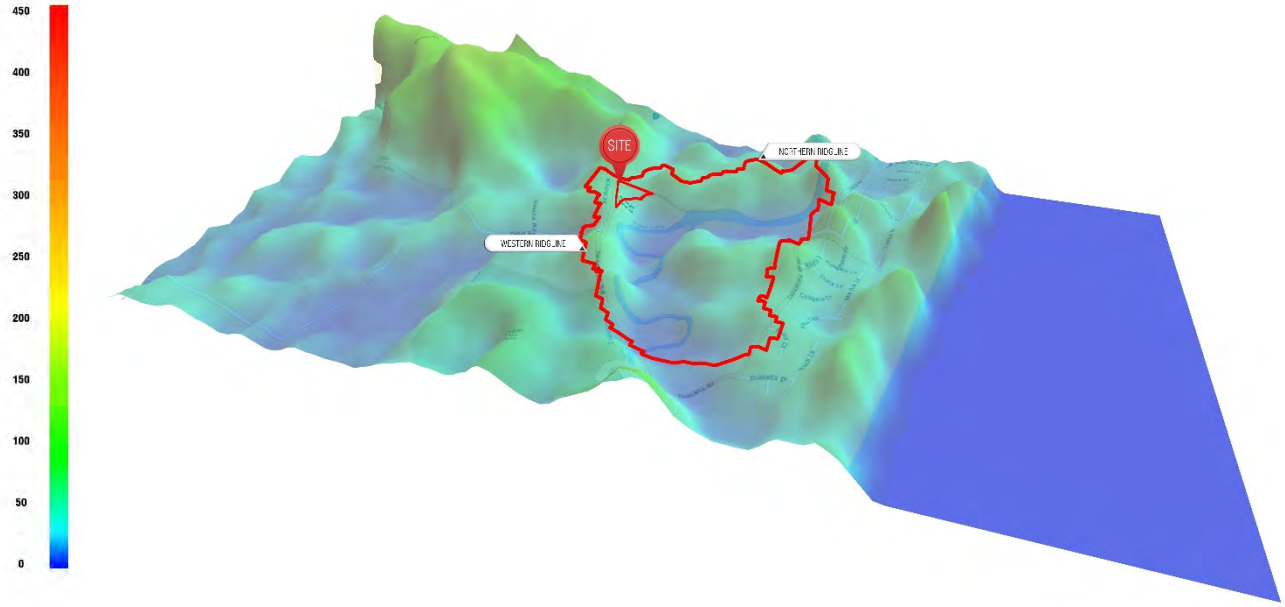

Fig. 5 View Shed Analysis – Isometric 3D

8.0 Topographic Modelling | View Shed Analysis

As noted in section 6.0 of this report, the PSH within the subject site will be restricted to 13.75AHD for the service station building and associated steel framed canopy roof and 15.25 AHD for the tenancy signage. This height data has been used to generate a view shed analysis of the proposed dwellings within the VCA. Elevation data (ASTER GDEM Elevation Data 2013) has been used to determine the potential view shed for these elements. This is illustrated graphically in Fig. 6.

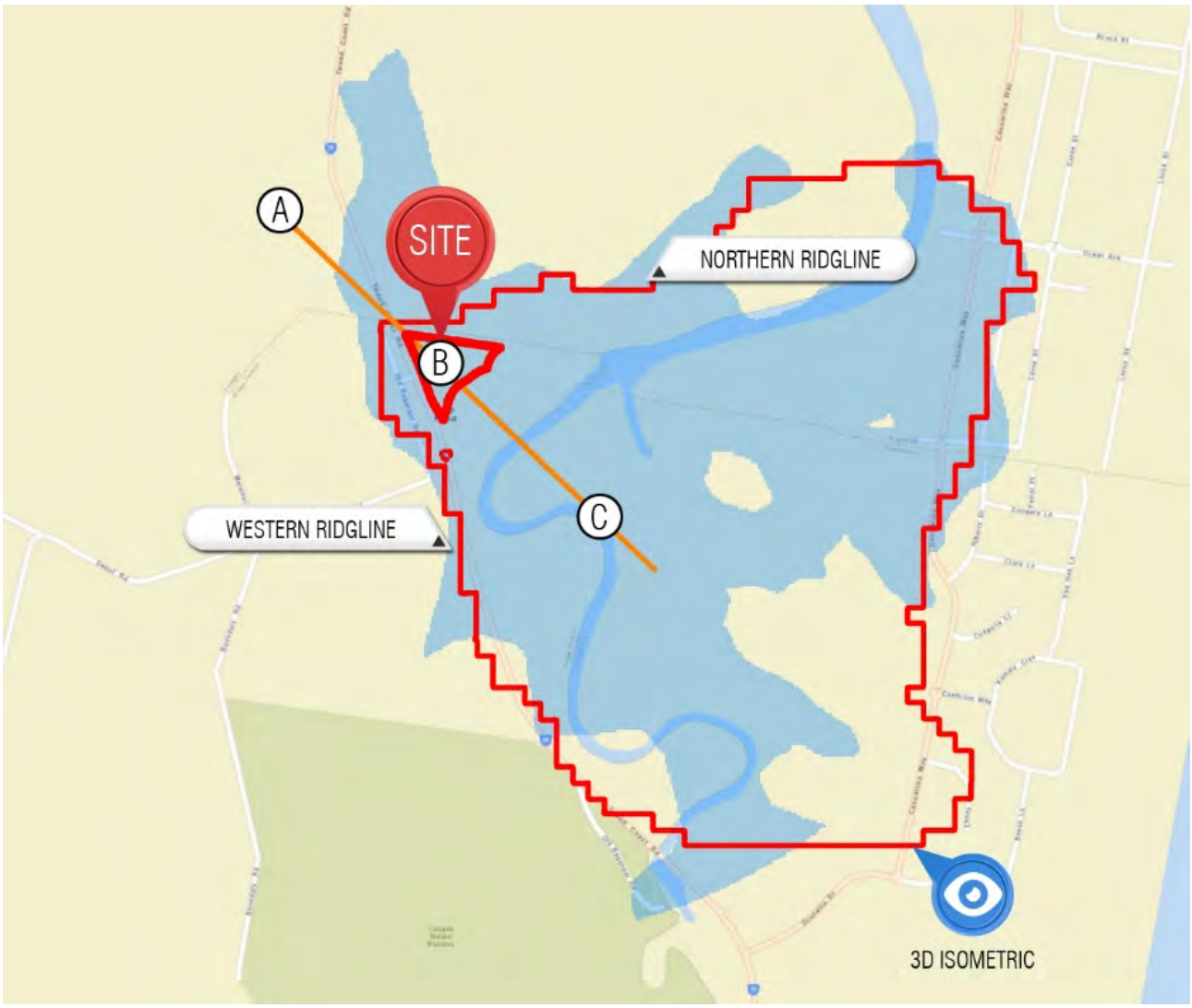

Fig. 6 View Shed Analysis

As illustrated in Fig 6, the view shed of the proposed structures is contained almost entirely within the Visual Catchment Area as defined by topographic modelling. The primary northern and western ridgelines provide a visual barrier to the surrounding areas to the north and west. Although not accurately illustrated in topographic modelling, the view shed is further contained to the south and east through large stands of environmental retained bush land associated with Cudgen Creek Environmental Protection (Wetlands & Littoral Rainforests).

The impact of topography in defining potential visual impact can be further illustrated through cross sectional analysis:

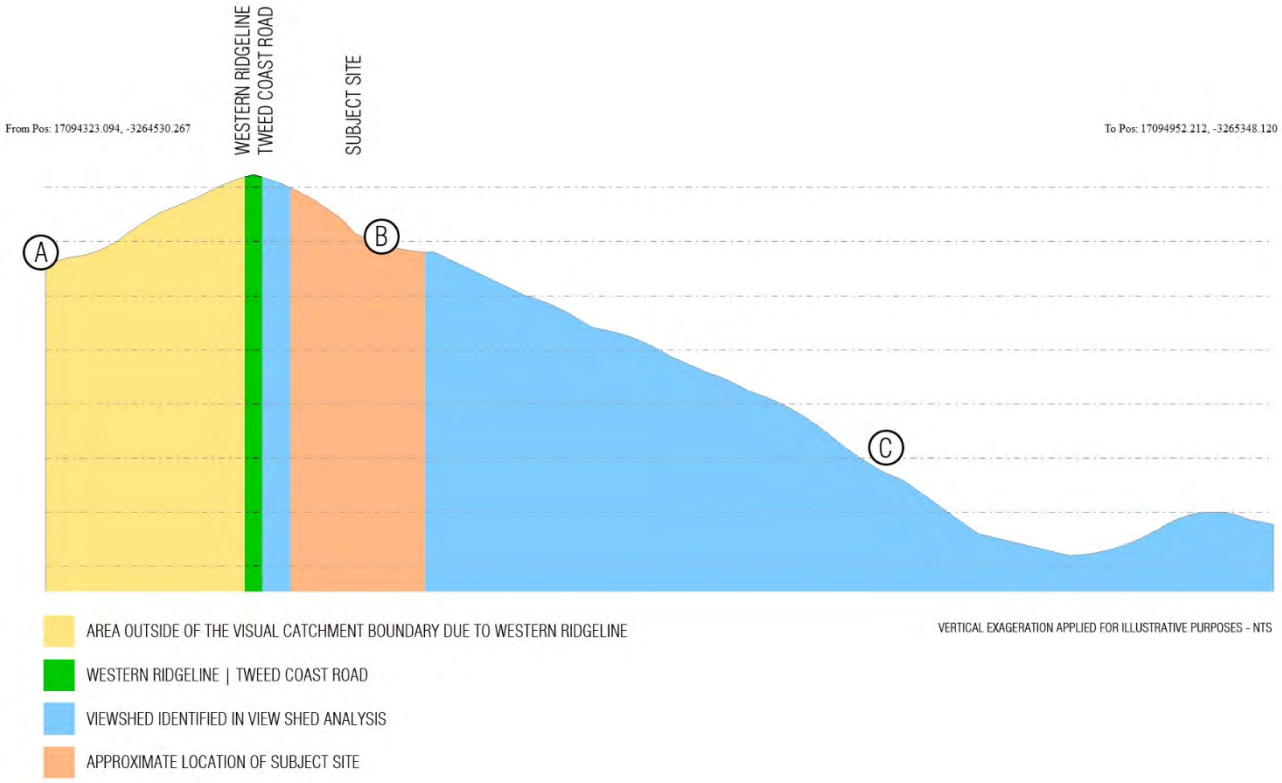

Fig. 7 Typical Cross Section A

The above Cross Section A (refer to fig 6 for location) further illustrates the impact the topographic features of the site and its surrounds have on the resulting view shed. Areas to the west of the Tweed Coast Road ridgeline fall outside the view shed (A) with the primary view shed located to the east (C). It is noted that lands identified within this catchment 'C' are predominately Environmental Protection (Wetlands & Littoral Rainforests) and retained bushland.

9.0 Key Vantage Points of Investigation

Within the established Visual Catchment Area, 5 key vantage points have been selected for further investigation. These vantage points have been selected based on several factors including:

a) Distance to subject site
b) Location along main roads / entryways
c) Areas of elevated topography
d) Photographic and site investigation

Fig. 8 Key Vantage Points

9.1 Key Vantage Point 01: Tweed Coast Road

Location: 28°16'59.49"S | 153°33'41.31"E

Vantage Point 01 is located along the existing Tweed Coast Road and represents the view toward the subject site when travelling south towards the site along Tweed Coast Road. Vantage Point 1 is located approximately 305.00m north from the most northern point of the subject site.

Image 1. Viewing south from Vantage Point 1

As illustrated in Image 1, an existing stand of large Eucalyptus species located on the eastern side of Tweed Coast Road obscure any potential views into the subject site.

9.1 Key Vantage Point 02: Tweed Coast Road

Location: 28°17'7.05"S | 153°33'43.94"E

Vantage Point 02 is located along the existing Tweed Coast Road and represents the view toward the subject site when travelling south towards the site along Tweed Coast Road. Vantage Point 1 is located approximately 91.00m north from the most northern point of the subject site.

Image 2. Viewing south from Vantage Point 2

As illustrated in Image 2, a scattered stand of Eucalyptus species exists on the eastern side of tweed Coast Road providing filtered views into the subject site. The land to the immediate east of this stand of trees is currently used for the propagation of tree stock. The trees in this plantation were felled at the time of this report. Any future plantation growth to this portion of land will greatly reduce any potential views into the subject site.

9.3 Key Vantage Point 03: Tweed Coast Road - Hamlet

Location: 28°17'11.28"S | 153°33'47.32"E

Vantage Point 03 is located immediately west of the subject site along Tweed Coast Road viewing in a westerly direction toward a hamlet of 12 existing dwellings. These dwellings have access to Tweed Coast Road through a gap in the acoustic fencing (1) to Old Bogangar Road.

Image 3. Viewing west from Vantage Point 3

As illustrated in Image 3, a large stand of existing vegetation (2) screens views to the existing dwellings. Glimpses are visible through the gap in the acoustic fence (1) where access to Bogangar Road is achieved. It is noted that the existing fence is to be upgraded as part of the Kings Forest development.

The large stand of vegetation that forms part of the environmental protection area is visible beyond the dwellings (3). This Hamlet has been identified as a key area of investigation due to its close proximity to the subject site and proposed plantings within the subject site have been designed to soften any potential views from the existing dwellings. (Refer to Item 10.0 Recommendations).

9.3 Key Vantage Point 04: Tweed Coast Road

Location: 28°17'17.80"S | 153°33'49.30"E

Vantage Point 04 is located along the existing Tweed Coast Road and represents the view toward the subject site when travelling north towards the site along Tweed Coast Road. Vantage Point 4 is located approximately 183.00m south from the most southern point of the subject site.

Image 4. Viewing north from Vantage Point 4

The existing vegetation associated with the wetlands and ecological buffer largely screen any potential views into the subject site from this vantage point. Views are also obscured due to the curve in Tweed Coast Road on approach to the subject site from this southerly direction.

9.3 Key Vantage Point 05: Tweed Coast Road

Location: 28°17'17.80"S | 153°33'51.22"E

Vantage Point 05 is located along the existing Tweed Coast Road and represents the view toward the subject site when travelling north towards the site along Tweed Coast Road. Vantage Point 5 is located approximately 357.00m south from the most southern point of the subject site.

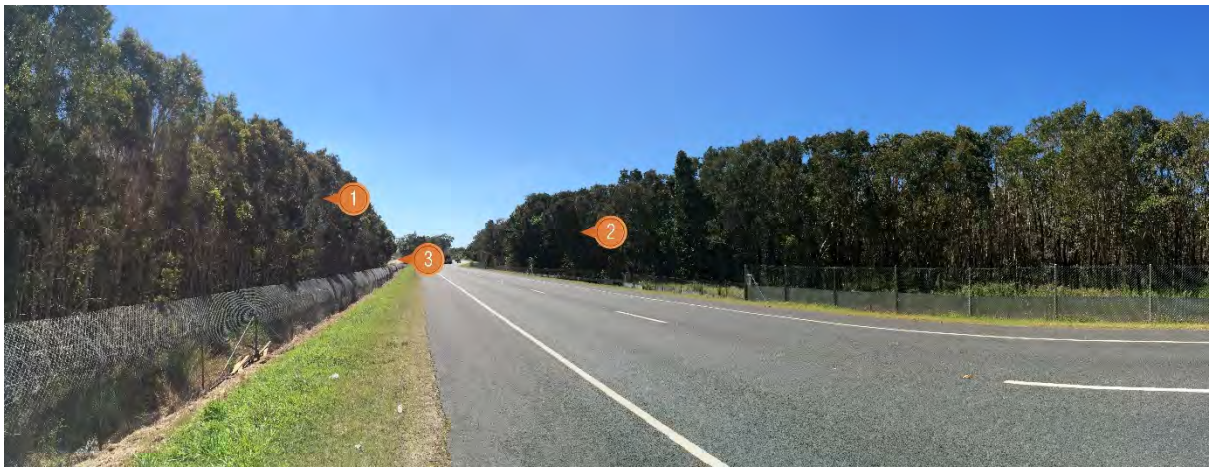

Image 5. Viewing north from Vantage Point 5

The existing vegetation associated with the wetlands and ecological buffer screen any potential views into the subject site from this vantage point (2). Views are also obscured due to the curve in Tweed Coast Road on approach to the subject site from this southerly direction.

The large stand of vegetation that forms part of the environmental protection area is visible on the western side of Tweed Coast Road (1). Glimpses through the vegetation stands to Old Bogangar Road and the hamlet are visible from this vantage point (3).

10.0 Recommendations – Planting Zones

Image 6. Planting Zones

ACCOUSTIC FENCE

10.1 Planting Zone 1 (PZ1) – Northern perimeter planting

Planting Zone 1 is located along the northern perimeter of the subject site. As per Statement of Landscape Intent prepared by Planit Consulting (Refer to Attachment 01), the treatment proposed to this boundary is a 2.5m Colourbond Boundary fence to be of 'neutral colour'. Planting to the service station of this fence will be large hedging species and medium sized tree species that at maturity will be visible above the proposed fence.

Species selection

Tree Species

1. Randia fitzalanii
2. Elaeocarpus eumundii
3. Cupaniopsis anacardioides

Screening Hedge Species

1. Syzygium luehmanni 'Elite
2. Acmena smithii minor

As referenced in VP2, planting associated with the plantation as well as existing stands of native vegetation will largely screen this façade from Tweed Coast Road.

10.2 Planting Zone 2 (PZ2) – Service station garden beds

The planting proposed within PZ2 will assist in screening views to the ground plane (bitumen carpark) through mass plantings of ground cover species.

1. Westringia fruticosa
2. Lomandra obliqua
3. Lomandra longifolia
4. Patersonia sericea
5. Pultenaea elliptica
6. Themeda australis
7. Myoporum elipticum

Clear trunked tree species to the Tweed Coast Road frontage will also provide a visual break to the built form of the service station beyond.

1. Glochidion ferdinandi
2. Angphora costata
3. Cupaniopsis anacardioides
4. Randia fitzalanii
5. Elaeocarpus reticulatus

As illustrated in Image 3, a large stand of existing vegetation (B1) screens views to the existing dwellings. Glimpses are visible through the gap in the acoustic fence where access to Bogangar Road is achieved. It is noted that the existing fence is to be upgraded as part of the Kings Forest development works.

The existing vegetation associated with the wetlands (W1) and ecological buffer largely screen any potential views into the subject site from south of the subject site and provide a tall green back drop to the service station (internal views).

9.0 Visual Impact Summary

A number of Vantage Points have been explored within this report. The below provides a summary of the potential visual impact of the proposed Service Station on the surrounding landuses based on the investigations from these vantage points.

Tweed Coast Road

The views into and of the subject site when travelling along Tweed Coast Road will be minimal due to the large existing stands of vegetation associated with the plantation to the north of the site and the environmental and buffer planting to the south of the subject site. The alignment of Tweed Coast Road at this point (curved) also acts in limiting potential views of the subject site.

The car parking area of the service station will be predominately screened through proposed planting along the road boundary. Clear trunked tree species to the Tweed Coast Road frontage will also provide a visual break to the built form of the service station beyond.

Vegetation stands to the rear of the service station associated with the ecological buffer will provide a vegetated backdrop to the service station and visually link the vegetation stands that exist to both the north and south of the subject site. Planting associated with the plantation will grow over time and provide greater screening to the north over time.

The impact to Tweed Coast road from the proposed service station is considered medium to low, becoming lower as surrounding vegetation and proposed landscaping vegetation reaches maturity.

Hamlet Residences

The majority of the 12 hamlet residences to Old Bogangar Road are screened through the large existing stands of vegetation and an existing acoustic fence. It is noted that this fence is to be upgraded during works associated with Kings Forest Residential development however its level of visual mitigation will remain.

The visual impact to the hamlet residences from the proposed service station is considered low.

Impact on Existing Character

The landscape character of the immediate surrounds of the subject site is predominately rural and is typical of the inland coastal area of the region. The land surrounding the subject site is comparatively low laying with dense riparian vegetation associated with the existing Cudgen Creek.

The subject site will contain a large environmental offset buffer (refer to SLI Attachment 01) that will provide a vegetated backdrop to the service station and visually link the vegetation stands that exist to both the north and south of the subject site.

Image 7. Existing Site – Viewing east from Tweed Coast Road

The subject site itself is predominately clear with no stands of trees along its road frontage resulting in a break from the typical landscape character in this region (refer Image 7.0). Whilst the construction of a service station at this subject site is not particularly sympathetic to the existing landscape character, the proposed landscape treatment that will address Tweed Coast Road is considered an improvement to the existing degraded site and temporary fence currently existing.

10.0 Conclusions

- The general site topographic features reduces the potential visual impact of the Subject Site to a single Visual Catchment Area.
- The potential views of the site when travelling along Tweed Coast Road are reduced due to the existing vegetation stands, topographic nature of the site and alignment of Tweed Coast Road.
- Landscape treatment as recommended in this report will assist in reducing any potential adverse visual impact of the proposed service station.
- The existing road frontage of the subject is predominately clear with no stands of trees along its road frontage resulting in a break from the typical landscape character in this region. The new proposed landscape treatment to this road interface will provide an improvement to the existing boundary treatment.

ATTACHMENT 01

STATEMENT OF LANDSCAPE INTENT

PREPARED BY
PLANIT CONSULTING PTY LTD
DECEMBER 2014

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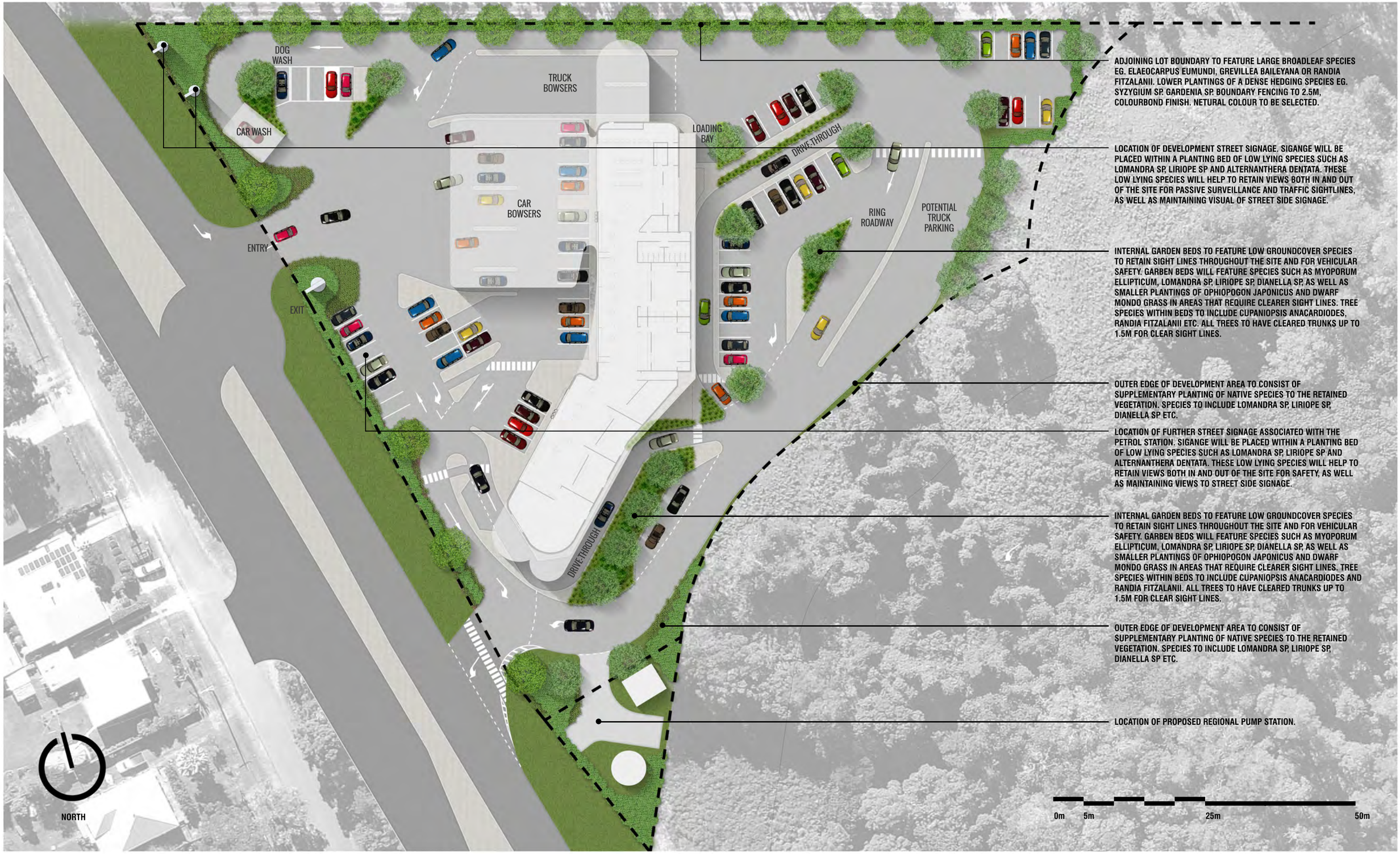

ADJOINING LOT BOUNDARY TO FEATURE LARGE BROADLEAF SPECIES EG. ELAEOCARPUS EUMUNDI, GREVILLEA BAILEYANA OR RANDIA FITZALANII. LOWER PLANTINGS OF A DENSE HEDGING SPECIES EG. SYZYGIUM SP. GARDENIA SP. BOUNDARY FENCING TO 2.5M, COLOURBOND FINISH. NETURAL COLOUR TO BE SELECTED.

LOCATION OF DEVELOPMENT STREET SIGNAGE. SIGANGE WILL BE PLACED WITHIN A PLANTING BED OF LOW LYING SPECIES SUCH AS LOMANDRA SP, LIRIOPE SP AND ALTERNANTHERA DENTATA. THESE LOW LYING SPECIES WILL HELP TO RETAIN VIEWS BOTH IN AND OUT OF THE SITE FOR PASSIVE SURVEILLANCE AND TRAFFIC SIGHTLINES, AS WELL AS MAINTAINING VISUAL OF STREET SIDE SIGNAGE.

INTERNAL GARDEN BEDS TO FEATURE LOW GROUNDCOVER SPECIES TO RETAIN SIGHT LINES THROUGHOUT THE SITE AND FOR VEHICULAR SAFETY. GARBEN BEDS WILL FEATURE SPECIES SUCH AS MYOPORUM ELLIPTICUM, LOMANDRA SP, LIRIOPE SP, DIANELLA SP, AS WELL AS SMALLER PLANTINGS OF OPHIOPOGON JAPONICUS AND DWARF MONDO GRASS IN AREAS THAT REQUIRE CLEARER SIGHT LINES. TREE SPECIES WITHIN BEDS TO INCLUDE CUPANIOPSIS ANACARDIODES, RANDIA FITZALANII ETC. ALL TREES TO HAVE CLEARED TRUNKS UP TO 1.5M FOR CLEAR SIGHT LINES.

OUTER EDGE OF DEVELOPMENT AREA TO CONSIST OF SUPPLEMENTARY PLANTING OF NATIVE SPECIES TO THE RETAINED VEGETATION. SPECIES TO INCLUDE LOMANDRA SP, LIRIOPE SP, DIANELLA SP ETC.

LOCATION OF FURTHER STREET SIGNAGE ASSOCIATED WITH THE PETROL STATION. SIGANGE WILL BE PLACED WITHIN A PLANTING BED OF LOW LYING SPECIES SUCH AS LOMANDRA SP, LIRIOPE SP AND ALTERNANTHERA DENTATA. THESE LOW LYING SPECIES WILL HELP TO RETAIN VIEWS BOTH IN AND OUT OF THE SITE FOR SAFETY, AS WELL AS MAINTAINING VIEWS TO STREET SIDE SIGNAGE.

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OUTER EDGE OF DEVELOPMENT AREA TO CONSIST OF SUPPLEMENTARY PLANTING OF NATIVE SPECIES TO THE RETAINED VEGETATION. SPECIES TO INCLUDE LOMANDRA SP, LIRIOPE SP, DIANELLA SP ETC.

LOCATION OF PROPOSED REGIONAL PUMP STATION.

KINGSFOREST, SERVICE STATION

STATEMENT OF LANDSCAPE INTENT

SCALE: AS SHOWN
DATE: 12/14
REV: 00

DRAWN: ZP
CHECKED: JB
DRAWN NO: KINGSSERVO_SLI_01

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PLANIT CONSULTING

Dwarf Mondo Grass

Lomandra species (longofolis, hystrix, multiflora)

Dianella species (caerulea, longifolia, revoluta)

Liriope species (Evergreen Giant, Muscari etc)

Ophiopogon japonicus

Hymenocallis littoralis

Iris grandiflora

Syzygium leuhmannii 'Elite'

Gardenia augusta 'florida'

Syzygium leuhmannii 'Boomer'

Metrocideros thmpsonii

Philodendron zanadu

Raphis excelsa

Alpinia zerumbet variegata

Cordyline australis (Red Sensation)

Dracena Species

Crinum pendunculatum

Doryanthes palmeri

Myoporum ellipticum

Zamia furfuracea

Alternanthera dentata

Elaeocarpus eumundi

Elaeocarpus reticulatus

Hibiscus tilleaceus (Rubra)

Cupaniopsis anacardiodes

Syzygium francisii

Grevillea baileyana

Randia Fitzalanii

KINGSFORESTS, SERVICE STATION

STATEMENT OF LANDSCAPE INTENT

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