

# Pacific Highway Upgrade: Oxley Highway to Kempsey

Sancrox Traffic Arrangement Urban Design and Landscape Plan

Prepared for:  
Roads and Maritime Services

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HBO+EMTB Urban and Landscape Design

February 2014 | Issue 1  
HBO+EMTB



Project:  
Pacific Highway Upgrade: Oxley Highway to Kempsey  
Sancrox Traffic Arrangement Urban Design and Landscape Plan  
Project number:  
SYU-002902  
Client:  
Roads and Maritime Services  
Prepared by:  
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Issue/Revision.	Date of Issue.	Revision Description.	Author.	Check.	Approval.
A	06.09.13	Draft	DM/GB	GB	DM
B	18.10.13	Draft	DM/GB	GB	DM
C	24.10.13	Draft	DM/GB	GB	DM
D	25.10.13	Draft	DM/GB	GB	DM
E	14.11.13	Draft	DM/GB	GB	DM
F	18.11.13	Draft	DM/GB	GB	DM
G	02.12.13	Draft	DM	GB	DM
H	19.12.13	Final	DM	GB	DM
I	04.02.14	Final	DM	GB	DM

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# 1 INTRODUCTION

## 1.1 BACKGROUND

The *Oxley Highway to Kempsey – Upgrading the Pacific Highway - Environmental Assessment* Roads and Traffic Authority (RTA) 2010 assessed the impacts of construction and operation of the Project on the local environment.

The proposed upgrade of the Pacific Highway between the Oxley Highway and Kempsey (OH2K) is part of the Pacific Highway Upgrade Program. This program is a joint commitment by the New South Wales (NSW) and Federal Governments to provide a continuous dual carriageway on the Pacific Highway between Hexham (near Newcastle) and the Queensland border. The OH2K Project is approximately 37 kilometres in length, from its southern extent, approximately 700 metres north of the Oxley Highway interchange, to its northern connection to the Kempsey Bypass, just south of Kempsey.

The Pacific Highway is both the major eastern coastal route linking Sydney to Brisbane and also an important part of the regional road network, particularly for travel between major coastal towns.

## 1.2 PURPOSE OF THIS REPORT

This Urban Design and Landscape Plan (UDLP) has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the Roads and Maritime Services (Roads and Maritime) Statement of Commitments (SoC), the mitigation and management measures listed in the Oxley Highway to Kempsey Environmental Assessment (EA) and all applicable legislation.

The purpose of this Plan is to describe how the urban design and landscape design elements of the OH2K Project will be managed for the following component:

- Sancrox Traffic Arrangement - Stage 1 (hereafter referred to as Sancrox Traffic Arrangement).

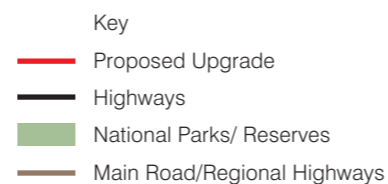


Figure 1.1 Regional Context

### 1.3 PROJECT STAGING

As described in the Oxley Highway to Kempsey Pacific Highway Upgrade Project Staging Report (February 2013), the Project is being delivered in stages. Due to the Project's length and funding models available, the Project will be essentially delivered in two main sections – from the Oxley Highway to Kundabung (approximately 24 kilometres) and from Kundabung to Kempsey (approximately 14 kilometres). The delivery of these two sections will be undertaken in four stages. The stages are presented in their corresponding chronological order of construction. Due to funding, it is likely that the first three stages may all be under construction at the same time.

- Stage 1 - Sancrox Road Traffic Arrangement (detailed design developed and delivery to be via a construct only contract).
- Stage 2 - Kundabung to Kempsey (class A detailed design developed and delivery to be via a construct only contract).
- Stage 3 - Oxley Highway to Kundabung (refined concept design developed and delivery to be via a detailed design and construct contract; class M with class A elements).
- Stage 4 - Class A sections upgraded to Class M (refined concept design developed and delivery model to be determined).

### 1.4 PROJECT OBJECTIVES

The Sancrox Traffic Arrangement has been identified as an early works package to accommodate the current and future developments located in the vicinity of Sancrox Road. The following project objectives have been developed and are to be applied to all stages of the Sancrox Traffic Arrangement design development:

- To provide a safe and effective local road network to service the Sancrox Traffic Arrangement to cater for the forecast traffic growth in the region.
- Improve safety and access for both local and through traffic.
- Improve safety for motorists by:
  - » Reducing the number of uncontrolled turning movements; and
  - » Constructing a central median to separate opposing traffic flows on the Pacific Highway.
- Allow provisions for the future upgrade of the Sancrox Traffic Arrangement service roads as required, enabling modification in the event of future development.
- Adopt an urban design theme that is consistent with, and reflects, the adjoining sections of the Pacific Highway.

## 2 LEGISLATIVE AND PROJECT REQUIREMENTS

### 2.1 RELEVANT GUIDELINES

The following reference documents outline the requirements for the design:

- The Environmental Assessment (Part 3A) dated September 2010 and the associated Final Submissions and Decision Reports.
- Upgrading Program beyond 2006: Pacific Highway Design Guidelines Roads and Maritime (April 2012).
- Roads and Maritime PSC Description of Services (the 'Brief').

The following standards are applicable to the design:

- RTA publications including the RTA Road Design Guide.
- Austroads Guides.
- Australian Standards AS 4419 Soils for Landscape and Garden Use.
- Australian Standards AS 4454 Composts, Soil Conditioners and Mulches.
- Roads and Maritime Construction Specifications including R178 Vegetation and R179 Planting.
- RTA, Beyond the Pavement, RTA Urban Design Policy, Procedures and Design Principles, 2009.
- Roads and Maritime, Bridge Aesthetics, July 2012.
- RTA, Landscape Guideline, April 2008.
- RTA Shotcrete Design Guidelines, June 2005.

Unless stated otherwise the order of precedence of design reference documents for the Project is:

- Roads and Maritime PSC Description of Services (the 'Brief').
- Upgrading Program beyond 2006: Pacific Highway Design Guidelines (April 2012).
- Roads and Maritime publications.
- AUSTROADS (previously NAASRA).
- Council Standards.
- Australian Standards.
- Standards Australia handbooks.
- Other sources, as agreed with Roads and Maritime's Representative.

### 2.2 MINISTER'S CONDITIONS OF APPROVAL

The CoA relevant to this Plan are listed Table 2-1 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 2-1 Conditions of Approval relevant to the UDLP

CoA No.	Condition Requirements	Document Reference
B20	The Proponent shall prepare and implement an Urban Design and Landscape Plan for the project. The Plan shall be prepared in consultation with the relevant council and shall present an integrated urban design for the project. The Plan shall include, but not necessarily be limited to:	This plan  Section 5
	(a) a principal goal of achieving the urban design objectives outlined in Table 17-4 of Volume 1 of the EA;	
	(b) location of existing vegetation and proposed landscaping (including use of indigenous and endemic species where possible) and design features;	Sections 8, 9 and Appendix A Plant Schedules
	(c) graphics such as sections, perspective views and sketches for key elements of the project (including, but not limited to built elements such as retaining walls, cuttings, embankments, bridges, and noise barriers);	Section 7
	(d) a description of locations along the project corridor directly or indirectly impacted by the construction of the project (eg temporary ancillary facilities, access tracks, watercourse crossings, etc) and details of the strategies to progressively rehabilitate regenerate and/ or revegetate the locations with the objective of promoting biodiversity outcomes and visual integration. Details of species to be replanted/ revegetated shall be provided, including their appropriateness to the area and considering existing vegetation and habitat for threatened species;	Section 6.2 Section 8 generally Section 8.5 Section 8.7 Appendix A Appendix B - Section 3.8
	(e) an assessment of the visual screening effects of existing vegetation and the proposed landscaping. Where residences and businesses have been identified as likely to experience high visual impact as a result of the project and high residual impacts are likely to remain, the Proponent shall in consultation with affected receptors, identify opportunities for providing at-receptor landscaping to further screen views of the project. Where agreed to with the landowner, these measures shall be implemented during the construction of the project;	Section 3 Section 8.6 Appendix D
	(f) strategies for progressive landscaping of other environmental controls such as erosion and sedimentation controls, drainage and noise mitigation;	Section 8.7
	(g) location and design treatments for any associated footpaths and cyclist elements, and other features such as seating, lighting (in accordance with AS 4282-1997 Control of the Obtrusive Effect of Outdoor Lighting), fencing, and signs;	Section 7.3 Section 7.4 Section 7.5
	(h) evidence of consultation with the relevant council and community on the proposed urban design and landscape measures prior to its finalisation; and	Section 3 Appendix D
	(i) monitoring and maintenance procedures for the built elements, rehabilitated vegetation and landscaping (including weed control) including performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail.	Appendix B

Note, in relation to items:

- B20(c) There are no retaining walls or noise barriers in the Sancrox Traffic Arrangement.
- B20(d) All three stages have been considered in regard to the Urban and Landscape objectives to ensure integration across the Project. The majority of the Pacific Highway corridor works within the Sancrox Traffic Arrangement area will be undertaken during Stage 3.
- B20(e) There are no residences identified as likely to experience visual impacts.

### 2.3 STATEMENT OF COMMITMENTS

Relevant SoC are listed Table 2.3.1 below. This includes reference to required outcomes, the timing of when the commitment applies, relevant documents or sections of the environmental assessment influencing the outcome and implementation.

Table 2.3.1 Statement of commitments relevant to this UDLP

Outcome	Ref #	Commitment	Timing	Reference Document
	VAD1	A detailed urban and landscape design plan would be developed during the detailed design phase. The detailed design and implementation of built elements (such as new carriageways, bridges and roadside furniture) and landscapes, and the mitigation of residual impacts will be undertaken in accordance with the visual and design objectives and principles of the Proposal.	Detailed design	This plan Section 5, Section 7, Section 8, Section 8.6 Section 9.1
	VAD3	The schedule of species to be used in the landscaping treatments will include self-sustaining native and locally indigenous plants that will be selected in consultation with a qualified landscape officer.	Pre-construction, construction	Section 8. Appendix A
	VAD4	Disturbed areas will be progressively revegetated with consideration to related controls such as erosion and sedimentation controls, drainage and future road user safety requirements.	Construction	Section 8.7
	VAD5	Design criteria will be applied during detailed design to reduce any potential adverse visual impacts to the existing landscape character and visual amenity.	Detailed design	Section 4 Section 8.6
	VAD6	Landscaped or rehabilitated areas will be monitored and maintained for a minimum of two years after opening.	Construction, operation	Section 9.2 Appendix B Appendix C

### 2.4 ENVIRONMENTAL ASSESSMENT REQUIREMENTS

Urban design objectives and principles for the Project are presented in Chapter 3 of the Environmental Assessment document: "Urban and Regional Design/Landscaping Plan – Working Paper". They are restated in Section 5, with modifications to the principles based on site inspections and previous experience on Pacific Highway Upgrades.



### 3 CONSULTATION

The SMEC/Hyder Joint Venture held a meeting with Port Macquarie-Hastings Council on 15 August 2012 to discuss urban design and landscape issues for the Sancrox Traffic Arrangement. Refer to Appendix D for minutes and actions of this meeting. The following issues were raised:

Issue	How/where addressed
It was explained that good access is necessary at bridge abutments, with tiered areas, and handrails and steps used to allow safe and easy access for maintenance. It was explained that these features were often initially included, then later omitted at the request of the urban designers based on looks. SHJV to investigate.	Access to the bridge abutments is provided by maintenance access stairs and a tiered area or bench. These features have been maintained through to the IFC drawings.
Preference for bottle brushes as low shrubs for planting, due to their hardness.	No Shrub planting is used in the Project, except within private property.
Keep median planting to a minimum height of 3m – low shrubs and grasses.	There are no medians in the project. Roundabouts are planted with Lomandra – a tussock-type plant to 1.2 metres tall.

Additional meetings were held with Council on 17 December 2012 to discuss proposed changes to the Sancrox Traffic Arrangement concept design. Information describing the revised concept design was also placed on public exhibition from 3 December 2012 to 18 January 2013. Community, government agency and other Project stakeholders were invited to provide comment on the proposed design refinements.

This UDLP will be placed on public exhibition. The community and other stakeholders will be able to view an electronic version of the plan via the Roads and Maritime website and view hardcopies at a number of locations (eg Council chambers). During this exhibition period, Roads and Maritime will also meet with Port Macquarie-Hastings Council to discuss the issues raised previously and how these have been addressed.

Roads and Maritime have held on-site meetings with affected property owners in the vicinity of the Sancrox Traffic Arrangement. The Urban Design and Landscape team has also consulted with business owners whose properties have an immediate interface with the alignment upgrade in preparation of designs for the Sancrox Intersection via phone and email correspondence. Further assessment of impacts and proposed mitigation measures are included in Section 8.6. The following issues were raised:

Property	Date of meeting	Issues raised	How/where addressed
Lot DP: 1//222740	9 October 2012	Owner would like input to planting choice to complement internal property landscaping. Landscaping inside property to be provided by owner. Proposed hedging inside fence line. Owner would like to keep existing red cedar tree (possibly relocate) and fig tree inside property.	The landscape designers for the Sancrox Traffic Arrangement have consulted directly with the winery landscape designers and reached agreement on planting choices for verges and roundabout in the vicinity of the winery entrance.
Lot DP: 31//255774	9 October 2012	None raised.	
Lot DP: 5//100080	9 October 2012	Request for screening to buildings off new entry road – prefer semi mature plantings. Requested new access at north end to be similar to existing, including tree planting.	The landscape designers for the Sancrox Traffic Arrangement have consulted directly with the owners of H.F. Hand and have agreed the tree species for the new entry road.

The outcome of these consultations is directly reflected in the design interface and plant selection associated with these properties and includes landscape works within some of the subject properties. Refer to Appendix D for further evidence of consultation.

### 3.1 PROPERTY ADJUSTMENTS

There are a number of property works that are to be undertaken in the vicinity of the Sancrox Traffic Arrangement. These works include:

- Property acquisition.
- Property adjustments (including modification of access arrangements).
- Internal property reconfiguration.

Property adjustments are to be carried out at numerous locations. Replacement of accesses, provision of access roads and provision for future property accesses for proposed sub divisions have been included in the final detailed design.

Internal reconfiguration works are subject to negotiations between Roads and Maritime and the individual property owners. Details of the works to be undertaken by Roads and Maritime have been documented in the property adjustment drawings.

The exception to this is the Roads and Maritime Depot, where SHJV has undertaken the reconfiguration works required.

Consideration has also been given to the placement of planting in regard to the businesses' signage and exposure to passing traffic.

Table 3.1.1 outlines affected property details and proposed modifications.

Table 3.1.1 Affected Properties

Property	Acquisition Works	Adjustment works
Lot DP: 1//222740	Additional property acquisition required at the Sancrox Rd / Service Rd 3 roundabout. Reduction in property acquired between Station 2310 and Station 3460 (M110) to allow for the retention of the weighbridge Property boundary line adjusted at Cassegrain Winery Access Road to return a small portion of the land back to the property owner	Ultimate Class M design access to be adopted as part of the Sancrox Traffic Arrangement works to minimise: Disruption to the operations of the winery The amount of redundant works in the vicinity of the Sancrox Traffic Arrangement Utility relocations to be carried out by Roads and Maritime Fencing and gate to be provided Location of the property access and the access configuration has been modified to cater for required turning movements.
Lot DP: 55//747427	There has been a slight modification to the concept design property acquisition line, where additional land was acquired in the vicinity of the Fernbank Creek roundabout in exchange for the return of property where possible along Sancrox Service Rd No3	Provision made at the Service Rd 3/ Service Rd 1 roundabout Provision made for a secondary access, opposite the Roads and Maritime Depot, which has been relocated since the concept design submission. Fencing to be provided
Roads and Maritime Depot (Lot DP: 55//747427)	Property acquisition required on the northern property extent to allow for a culvert headwall.	Fencing is provided internally and along the property boundary line as negotiated with Roads and Maritime Depot personnel Internal road provided to restore depot and Driver Reviver functionality Kerb, gutter, and drainage provisions made as required Utility relocations made as required
Lot DP: 5//100080	Service Rd 1 has been shifted to the west to minimise land contribution required by HF Hand	The existing retaining wall located adjacent to Expressway Spares will prevent the main line encroaching on the access road owned by HF Hand. This will enable a private agreement between the parties to proceed, with a land swap to take place. Access has been extended through Expressway Spares' Property, joining the access off Service Road No 1 (just west of the Sancrox Overbridge) through to HF Hand's property. Fencing and gates have been provided Landscaping has been provided
Lot DP: 31//255774	Western shift in Service Rd 1 reduces the property acquisition required on the western boundary of Expressway Spares. Western property access has been regraded to address drainage issues. Location of the property boundary line has been revised to retain clear zone, but return property to land owner where possible  The shift of Service Rd 1 to the west; this has resulted in additional property acquisition. The property boundary line has been refined in order to minimise the amount of land take required.  No change from concept design stage.	Fencing and gate to be provided. Owner to build concrete apron and headwall that fall within his property. Proposed levels are to be provided to SHJV for interface.  Access to be provided. Fencing and gate to be provided for the property.  Provision is made for the future access into this property. Fencing and gate provided.
Lot DP: 30//255774	The shift of Service Rd 1 to the west has resulted in additional land take from this property.	Fencing has been provided across the eastern extent of the property.

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## 4 PROJECT CONTEXT

The proposed traffic arrangement is located approximately 2.5 kilometres north of the existing intersection of the Pacific Highway and Oxley Highway (commonly referred to as 'the donut'). The proposed traffic arrangement includes modifications between Sancrox Road, Fernbank Creek Road and Pacific Highway.

The existing Pacific Highway runs in a south to north direction, intersecting with Sancrox Road on the west and Fernbank Creek Road on the east. The existing intersection includes right turn bays and non-conforming left turn auxiliary lanes in both directions, allowing vehicle movements in all directions in and out of Sancrox Road and Fernbank Creek Road. Acceleration lanes have not been provided in either direction, causing vehicles join a 100 kilometres/hour sign posted speed zone from a standing start.

The Sancrox area is undergoing development and expansion, with significant heavy vehicle traffic currently generated by this area, with the potential for more. With future industrial subdivisions identified for this area, the existing infrastructure will be insufficient to cater for these developments.

### 4.1 ENVIRONMENTAL ASSESSMENT ANALYSIS OF ROUTE AND CONTEXT

An analysis of the route context for the Project is presented in Chapter 2 of the Environmental Assessment document: "Urban and Regional Design/Landscaping Plan – Working Paper".

The assessment of route context in these documents remains valid and provides the background for the design, in particular for the landscape design. The following is a summary of each analysis diagram and text found in the working paper as it pertains to the Sancrox Traffic Arrangement.

Reference should also be made to the Alignment Overview (Figures 4.2.1) and the Strategy Plan (Figures 4.3.1).

#### 4.1.1 Slope/Topography

The Sancrox Traffic Arrangement is situated in a gently undulating area just south of the Hastings River Floodplain. The area is identified as "medium undulating" with slopes of 10-15 per cent. The topography contains distant views but localised views, for example to the winery, are also available.

#### 4.1.2 Landmarks

Both Expressway Spares, Cassegrain Winery and the Driver Reviver Facility can be considered landmarks on the journey between Sydney and Brisbane.

#### 4.1.3 Fauna

There are no fauna crossings associated with the Sancrox Traffic Arrangement. Two culverts to the south of the Sancrox Overbridge and one just to the north of the early works are just outside the Sancrox Traffic Arrangement extents and will be designed as part of Stage Three. However eucalypts have deliberately been left out of planting at the Winery edges so as not to attract koalas across the highway. No threatened fauna species have been recorded in the Sancrox Traffic Arrangement study area.

#### 4.1.4 Broadscale Vegetation

Four Vegetation Communities occur in the Sancrox Traffic Arrangement area. One (Riparian Forest) is classified as an Endangered Ecological Community. The vegetation communities are:

- **Moist Gully Forest.** Occurs in moist, sheltered gullies in undulating terrain, typically at the base of steeper slopes. Generally associated with ephemeral drainage lines or minor creeklines. A small patch occurs where the existing highway passes H.F. Hand.
- **Moist Slopes Forest.** Occurs on slopes or low ridges with a moist sheltered aspect and good drainage in undulating terrain. This is the most abundant community in the Sancrox Traffic Arrangement area.
- **Riparian Forest.** A small patch of Riparian Forest community occurs north of the Sancrox Road roundabout.
- **Dry Ridgetop Forest.** Occurs on ridgetops and upper slopes in undulating terrain or more elevated and exposed areas above the floodplain in flatter terrain. A small section of this community occurs south of Hunter Expressway Spares on the northbound side of the existing highway. This area is not to be disturbed during early works and therefore no soil from this community will be stripped or stockpiled.

No threatened flora species have been recorded in the Sancrox Traffic Arrangement study area.

Cleared land with exotic pasture cover also occurs.

Refer to Section 8.2 for Vegetation Communities occurring at the Sancrox Traffic Arrangement.



Looking west towards Expressway Spares from the Fernbank Creek Road Intersection.



Looking south towards the Roads and Maritime depot at Fernbank Creek Road Intersection



Looking east along Sancrox Road towards the existing Pacific Highway.



Cassegrain winery to north-east of Sancrox Road intersection



Looking west along Sancrox Road



Fernbank Creek, approximately two kilometres north of the Sancrox Traffic Arrangement

#### 4.1.5 Landuse

Land zonings within the Sancrox Traffic Arrangement area include a General Industrial zone to the west of the highway and a Primary Production zone to the east. Industrial land uses to the west which are adjacent to the Sancrox Traffic Arrangement comprises Expressway Spares (earthmoving machinery and equipment) and H.F. Hand (contractors).

To the east, the dominant primary production enterprise is the Cassegrain Winery. The Winery is open to the public and motorists currently enter from Fernbank Creek Road. The Roads and Maritime depot occupies land zoned for primary production immediately to the south of Fernbank Creek Road. During school holidays a driver-reviver facility operates from the site and is accessed from Fernbank Creek Road. South of Fernbank Creek Road on the eastern side of the Pacific Highway is a dense band of vegetation which screens paddocks and most of the RMS depot from view. Similar to the west, vegetation screens land uses from view south of the Expressway Spares property. A quarry is in operation to the west of the Sancrox Traffic Arrangement and is accessed from Sancrox Road.

#### 4.1.6 Views

Views are contained by the topography and forest vegetation throughout the Sancrox Traffic Arrangement area. Views to businesses and signage have been retained where requested.

Refer to section 8.6 Visual Screening

## 4.2 OXLEY HIGHWAY TO KEMPSEY PROJECT DESCRIPTION

### 4.2.1 Alignment

The location of the Sancrox Traffic Arrangement Stage of the OH2K Project is illustrated in Figure 4.2.1. A description of the entire Project is as follows;

The upgrade commences approximately 700 metres north of the Oxley Highway interchange. The existing highway is duplicated on the western side until just past the Sancrox Road/Fernbank Creek Road intersection. The duplication then switches to the eastern side. The upgraded highway then deviates west away from the existing highway and crosses the Hastings River. The new alignment continues north where it rejoins and crosses the existing highway approximately one kilometre south of Blackmans Point Road. The new alignment continues on the eastern side parallel to the existing highway, through Blackmans Point Road to a full grade separated interchange.

Continuing North of Blackmans Point Road, the upgraded highway follows the existing alignment on the eastern side for approximately 1.5 kilometres. An overbridge allows Bill Hill Road to cross the upgraded highway. The upgraded highway then deviates to the east across the Wilson River floodplain, crosses the Wilson River east of Telegraph Point and continues north across the North Coast Rail Line. It rejoins the existing alignment in the vicinity of Haydons Wharf Road overbridge and north facing half interchange. Several major flood relief structures are required across the floodplains.

The upgrade continues North of Haydons Wharf Road to north of Yarrabee Road duplicating the existing highway on the western side. The duplication switches to the eastern side and continues to Mingaletta Road. A cut of approximately 30 metres deep is required through Cooperabung Hill. Between Yarrabee Road and Mingaletta Road there are several major box culverts in the existing carriageway which will require incorporation into the duplicated carriageway.

Duplication of the existing highway alignment continues on the eastern side, along the Kundabung straight to the northern end of Ravenswood Road. Between the end of Kundabung straight and the Maria River, some realignment of the existing highway is required. At the Maria River, the realignment connects to the southern end of the existing section of dual carriageway. A new northbound carriageway extends from the existing carriageways through to Stumpy Creek. There are several major box culverts in the existing carriageway which will require incorporation into the duplicated carriageway.

The OH2K Project requires approximately 255 hectares of land to be acquired of which approximately 50 hectares has been identified as regionally significant farmland. It impacts three state forests, one nature reserve, eight crown reserves, council reserves, a number of state owned parcels of land and 95 private land holdings.

### 4.2.2 Key Project Features

The key features of the OH2K alignment in the vicinity of the Sancrox Traffic Arrangement are illustrated on Figures 4.2.1.

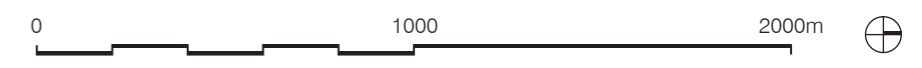
The key features of the entire OH2K alignment are are:

- Approximately 37 kilometres of four-lane dual carriageway (two lanes in each direction) with a wide median to allow for a future upgrade to six lanes.
- Motorway standard from approximately 700 metres north of the Oxley Highway Interchange throughout, to the tie in to the Kempsey to Eungai project.
- A new alignment across the Hastings and Wilson River floodplains and a minor realignment within Maria River State Forest.
- 100 year average recurrence interval flood immunity, with the exception of the Wilson River floodplain which has a 20 year average recurrence interval flood level.
- A bypass of Telegraph Point. Access to and from Telegraph Point is via a new interchange in the area of Blackmans Point Road south of Telegraph Point, and a half interchange in the area of Haydons Wharf Road north of Telegraph Point.
- Overpasses provided south of Sancrox Road, Bill Hill Road and Kundabung Road.
- Provision for north and southbound rest areas for light and heavy vehicles in the vicinity of Mingaletta Road.
- The existing highway maintained and used as a service road for local traffic, where possible.
- Two (2) grade separated interchanges (near Blackmans Point Road full interchange and Haydons Wharf Road half interchange). Two options are included for the Blackmans Point Road Interchange.
- Three (3) traffic arrangements (Sancrox Road/Fernbank Creek Road, Yarrabee Road, Kundabung Road/Rodeo Drive/Smiths Creek Road).
- A new bridge structure crossing of the North Coast Railway Line to the north of the Wilson River.
- Twin 522m long bridges over the Wilson River.
- Twin 567m long bridges over the Hasting River.
- Twin 251m and 276m long bridges over Fernbank Creek.
- Smaller bridges for a number of creek crossings.

- |  |                              |  |   |   |
|--|------------------------------|--|---|---|
| NEW HIGHWAY                                | OVERBRIDGES                  | STATE FOREST   | <i>ENDANGERED ECOLOGICAL COMMUNITIES:</i> |   |
| EXTENT OF WORKS                            | FLOOD RELIEF VIADUCTS        | SEPP 14 REGION   |   | FRESH WATER WETLAND ON COASTAL FLOODPLAIN |
| PROJECT BOUNDARY                           | FAUNA ROPE LADDERS           | VILLAGES + COMMUNITIES   |   | SUBTROPICAL COASTAL FLOODPLAIN FOREST     |
| EXISTING HIGHWAY, LOCAL ROAD, SERVICE ROAD | GLIDER CROSSING POLES        | DEVELOPMENT AREA = AREA 13 THRUMSTER (NEW RESIDENTIAL COMMUNITY) |   | SWAMP OAK FLOODPLAIN FOREST               |
| NORTH COAST RAIL LINE                      | FAUNA CROSSING/CULVERT       | QUARRY   | SWAMP SCHLEROPHYLL FOREST ON COASTAL      |   |
| INTERCHANGES (GRADE SEPARATED)             | HILLS AND HIGHPOINTS         | MODERATE CUTTINGS  |   |   |
| INTERCHANGES (LOCAL COMMUNITY ENTRY)       | REST AREA                    | MAJOR CUTTINGS   |   |   |
| BRIDGES                                    | NATIONAL PARK/NATURE RESERVE |  |   |   |



Figure 4.2.1 Alignment Overview



### 4.3 STRATEGIC PLANS

Chapter 3 of the Environmental Assessment document: "Urban and Regional Design/Landscaping Plan – Working Paper" includes "Strategic Plans" which depict the key design elements of the EA Concept Design. Landscape zones along the route are an essential component of these plans.

As part of the concept design process, an updated Strategy Plan for the entire OH2K Upgrade (Figure 4.3.1) was prepared which identifies "Character Zones" along the route. These can be compared directly to the Working Paper landscape zones. Whilst the overall characterisation of the route remains broadly unchanged, there are a number of differences which refine the diagrams:

- The commencement of the upgrade has been identified as "scattered forest" as opposed to an "open agricultural landscape".
- "Floodplain" landscapes have been identified as being a distinct character zone whereas the Working Paper Strategic Plan includes Floodplain landscapes with "Open Agricultural landscapes".
- "Riparian" character zones of the Hastings and Wilsons Rivers have been identified as being distinct from the "Floodplain" landscape.
- A scattered forest zone to the west of the highway in the vicinity of the tea tree plantation has been identified.
- A transition zone of "Scattered Forest" has been identified from Mingaletta Road to Wharf Road.

The portion of the OH2K Strategy Plan which illustrates the Sancrox Traffic Arrangement has been included here.

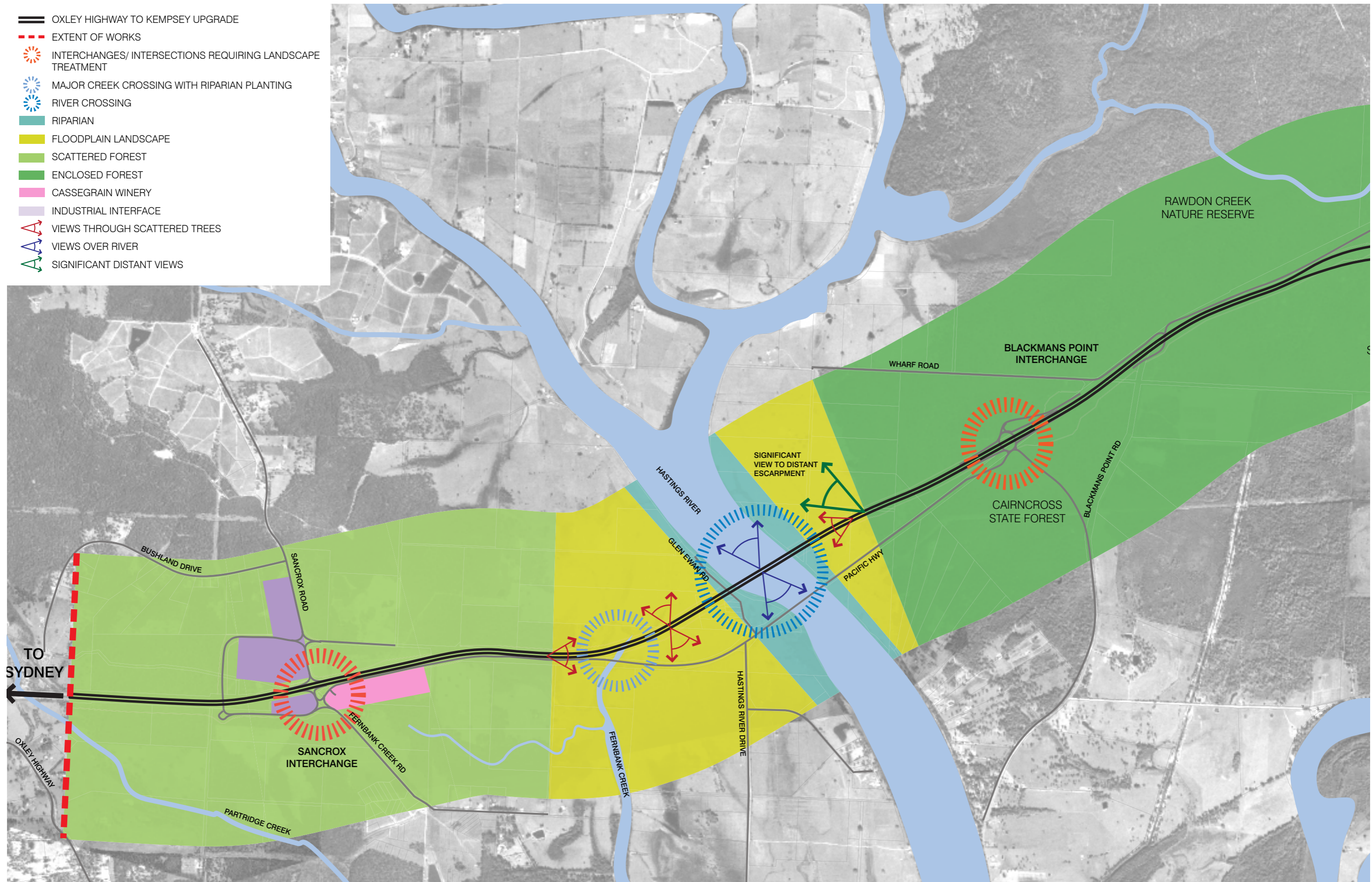


Figure 4.3.1 Strategy Plan - Sheet 1 of 4



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