

4. Proposal description

4.1 Alignment and main features of route

The proposal comprises upgrading of the existing highway from Korora to South Woolgoolga to dual carriageway and the Option E bypass of Woolgoolga. The total length of the route from the end of the dual carriageways near Nautilus Resort at Sapphire to the northern limit near Upper Corindi Road is approximately 25.2km.

The upgrade has been developed as a motorway standard (or Class M) project with an access road for local traffic alongside or near the Korora to south Woolgoolga section of the proposal. The Class M concept was developed partly in response to Coffs Harbour City Council's resolution of 16 December 2004, and also followed input from the Sapphire to Sandy Beach Community Focus Group (CFG).

Council's resolution was for a commitment to the provision of a local access road parallel to the highway where possible in the Korora to Hearnese Lake (south Woolgoolga) section of the upgrade.

The local road proposal will facilitate access for the communities along the route, including school buses, and enable residents to take local trips without having to use the highway.

Highway design standards

The general standard for design of the proposal is based on the Pacific Highway Design Guidelines (RTA, 2005) to ensure that a consistent form and quality of road asset is delivered along the whole Pacific Highway corridor from the F3 to the Queensland border. A preliminary design of the whole length is included as Figure 4.1. Figures 4.2- 4.5 also show the preliminary design, and indicate features of the design and the surrounding area including urban areas, nature reserves and heritage sites.

The design development process for the Sapphire to Woolgoolga proposal was continuing at the time of preparation of this report. While the overall alignment is expected to remain essentially as shown and described below, it is likely that further localised refinements will be made in response to the findings that will become available from a range of investigations now under way (eg. geotechnical, urban design development, assorted environmental studies) as well as consideration of local development proposals and ongoing property owner consultations. The refined design will be assessed in the Environmental Assessment for the project.

4.2 Southern section – upgrade along existing corridor

This section of the upgrade maximises the use of the existing highway asset and road corridor.

Sapphire to Moonee

The 4.5 km southernmost section of the highway from Sapphire to Moonee would involve an upgrade along the existing highway to a high standard dual carriageway. This section would include grade separated interchanges at Gaudrons / Split Solitary Roads and at Moonee Beach / Hoys Road to facilitate integration of the new highway with the local road network and land use in that area and to cater for the predicted traffic volumes associated with existing and planned urban development.

Through this section the existing road corridor varies between 55m and 145m wide approximately. The minimum width of the proposed road corridor would be approximately 80m with localised widening to accommodate cut and fill batters, interchanges and other facilities. The maximum width of the proposed road corridor through this section would be approximately 220m at the Gaudrons / Split Solitary Road and Moonee Beach / Hoys Road interchanges.

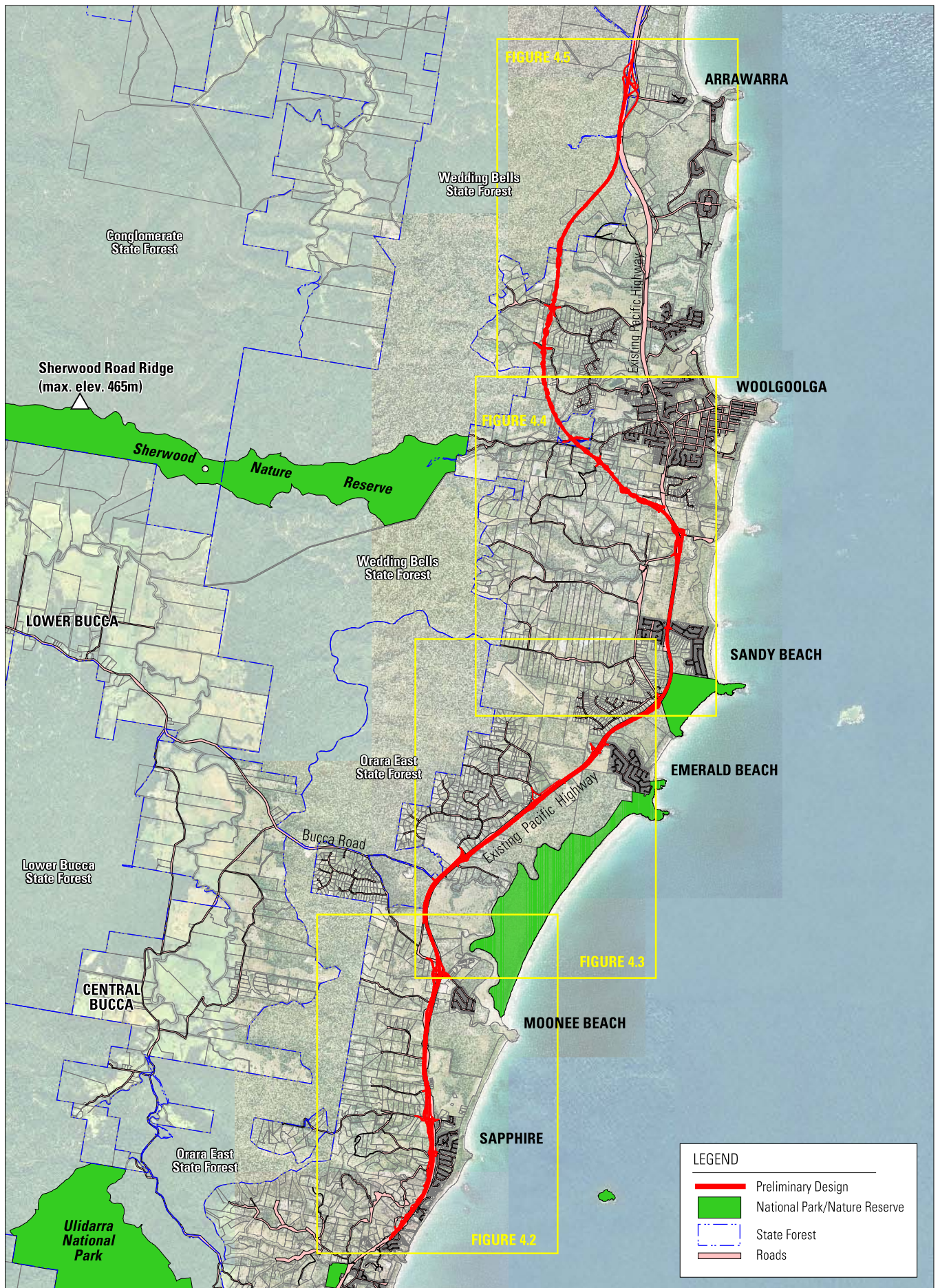
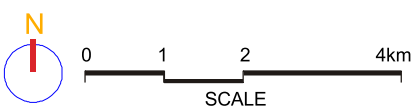


Figure 4.1

Preliminary Design (Sapphire to Arrawarra)

Source: Aerial photography 2005 (Roger Dwyer & Assoc.)



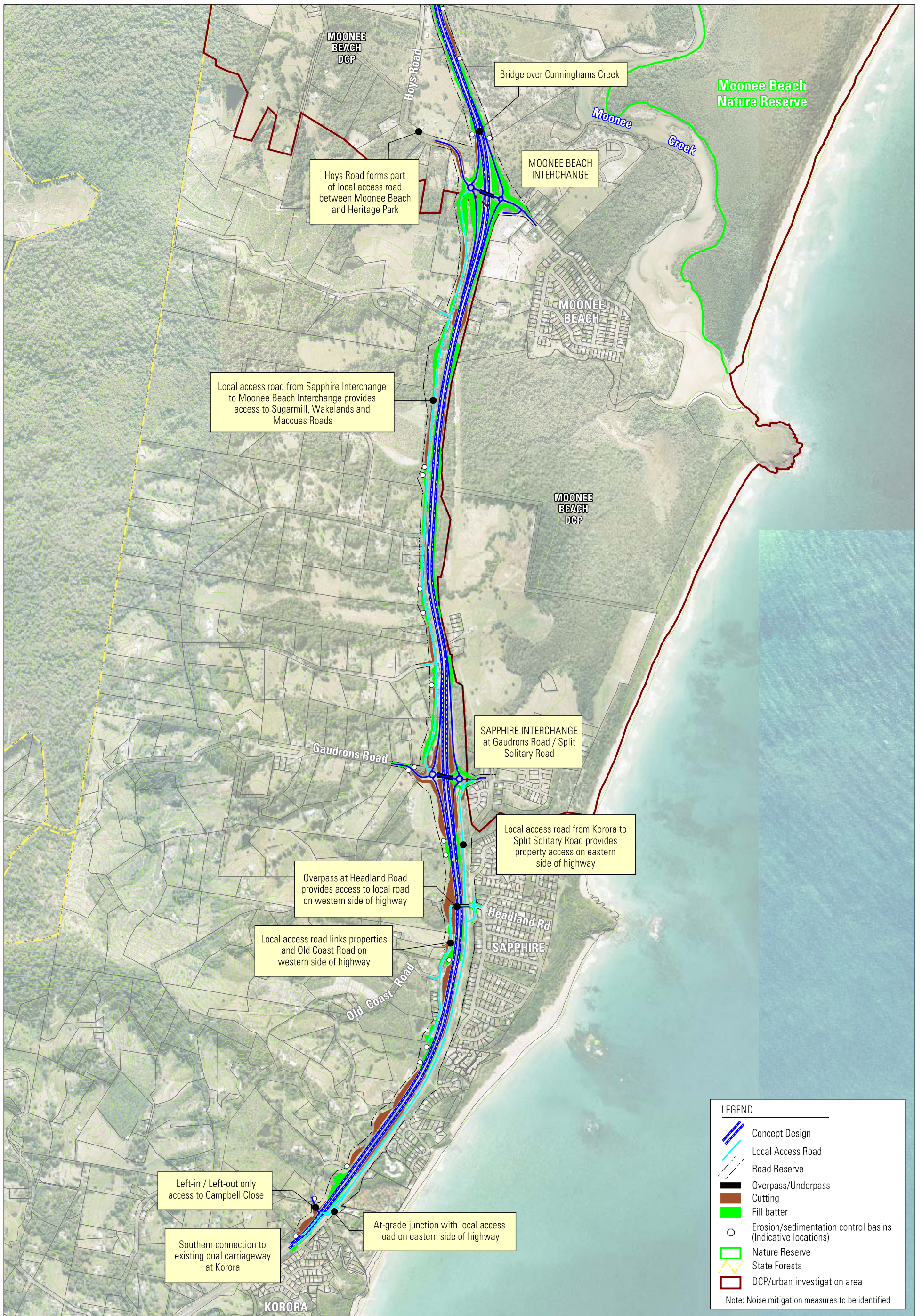
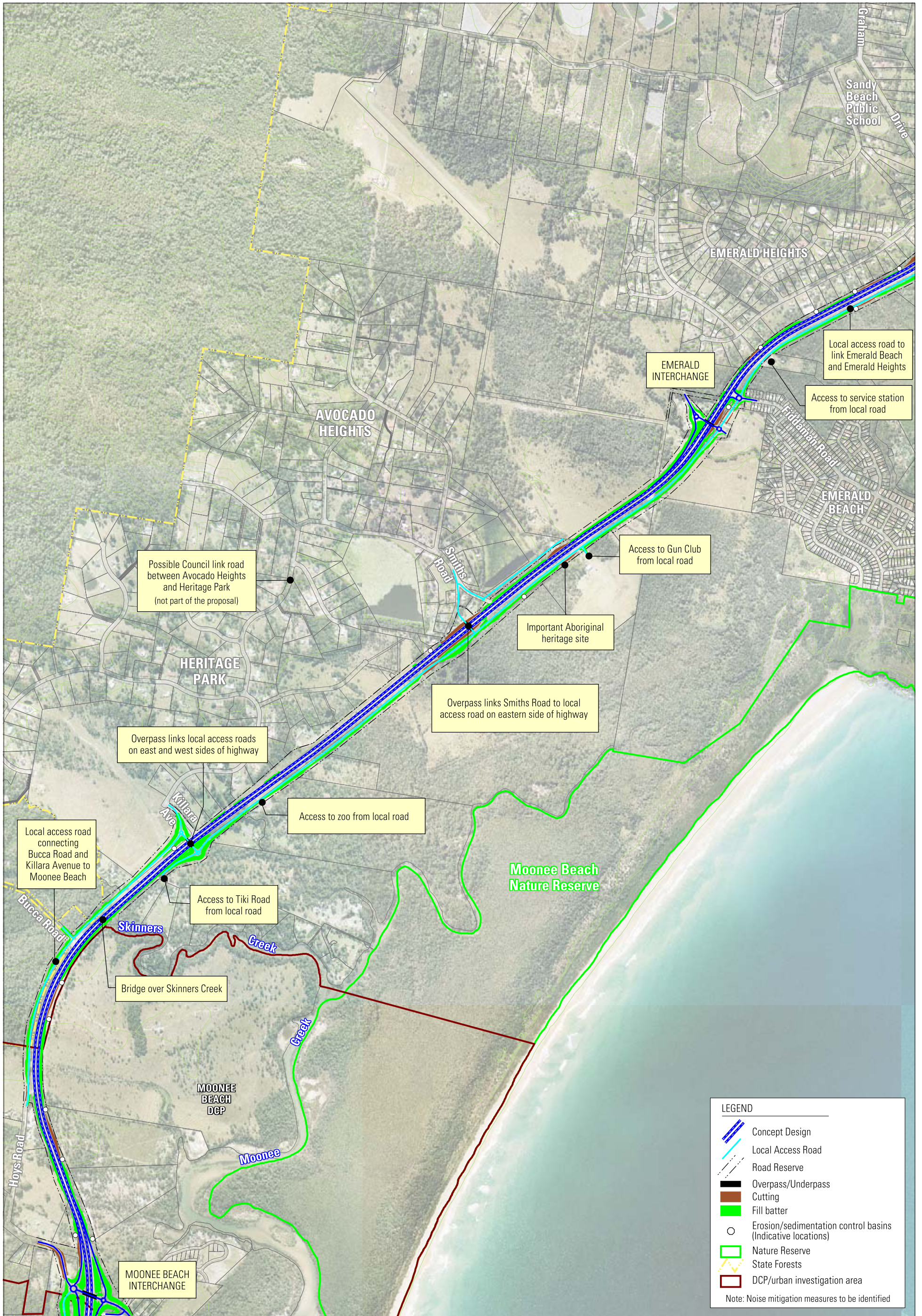


Figure 4.2

Current Concept Design
(Sapphire to Moonee Beach)

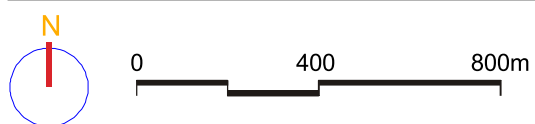
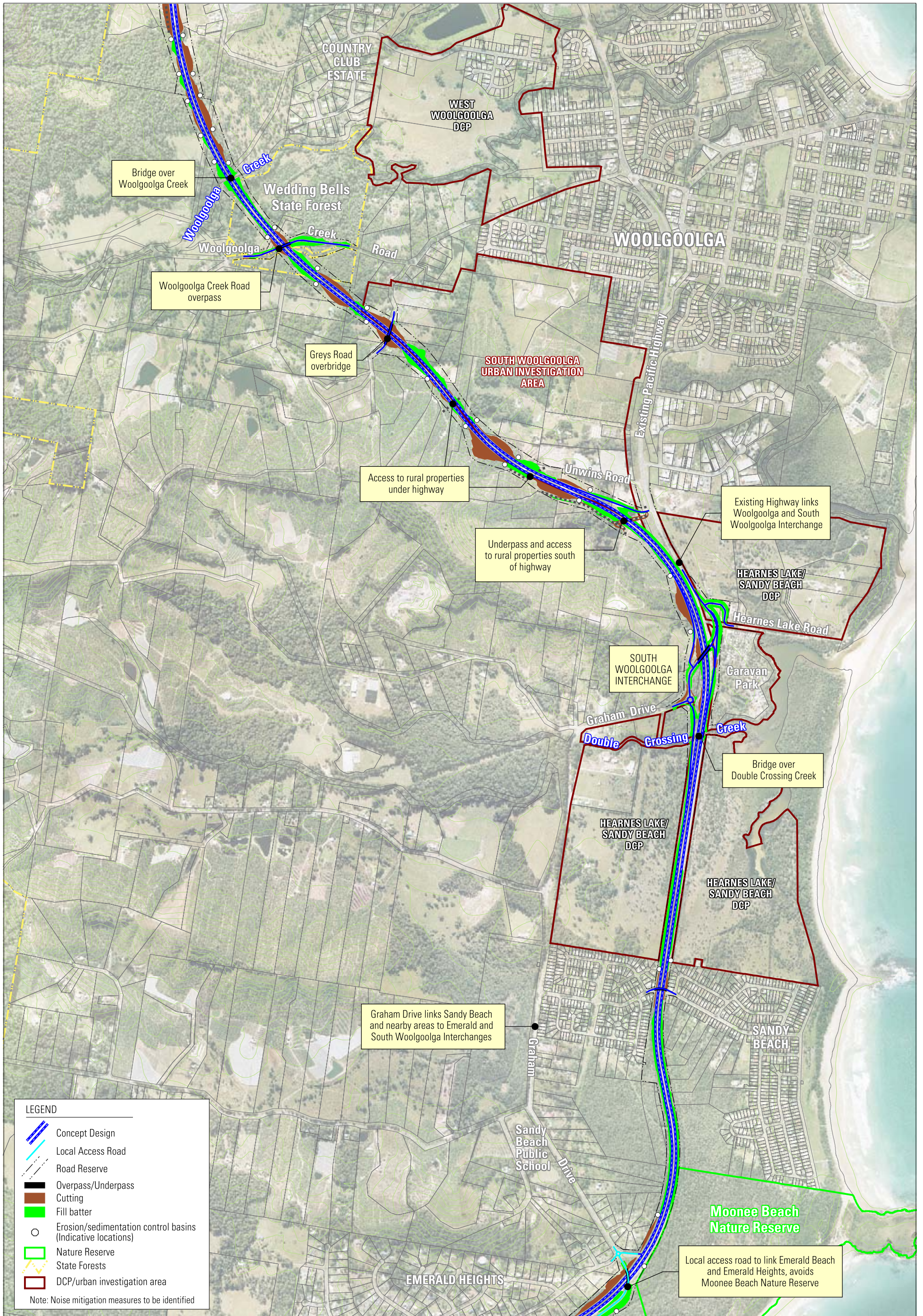


Source: Aerial photography 2005 (Roger Dwyer & Assoc.)
Cadastre Feb' 2006 (Coffs Harbour City Council)



Source: Aerial photography 2005 (Roger Dwyer & Assoc.)
 Cadastre Feb' 2006 (Coffs Harbour City Council)

Figure 4.3
 Current Concept Design
 (Moonee Beach to Emerald Beach)



Source: Aerial photography 2005 (Roger Dwyer & Assoc.)
Cadastre Feb '2006 (Coffs Harbour City Council)

Figure 4.4
Current Concept Design
(Emerald Beach to Woolgoolga)

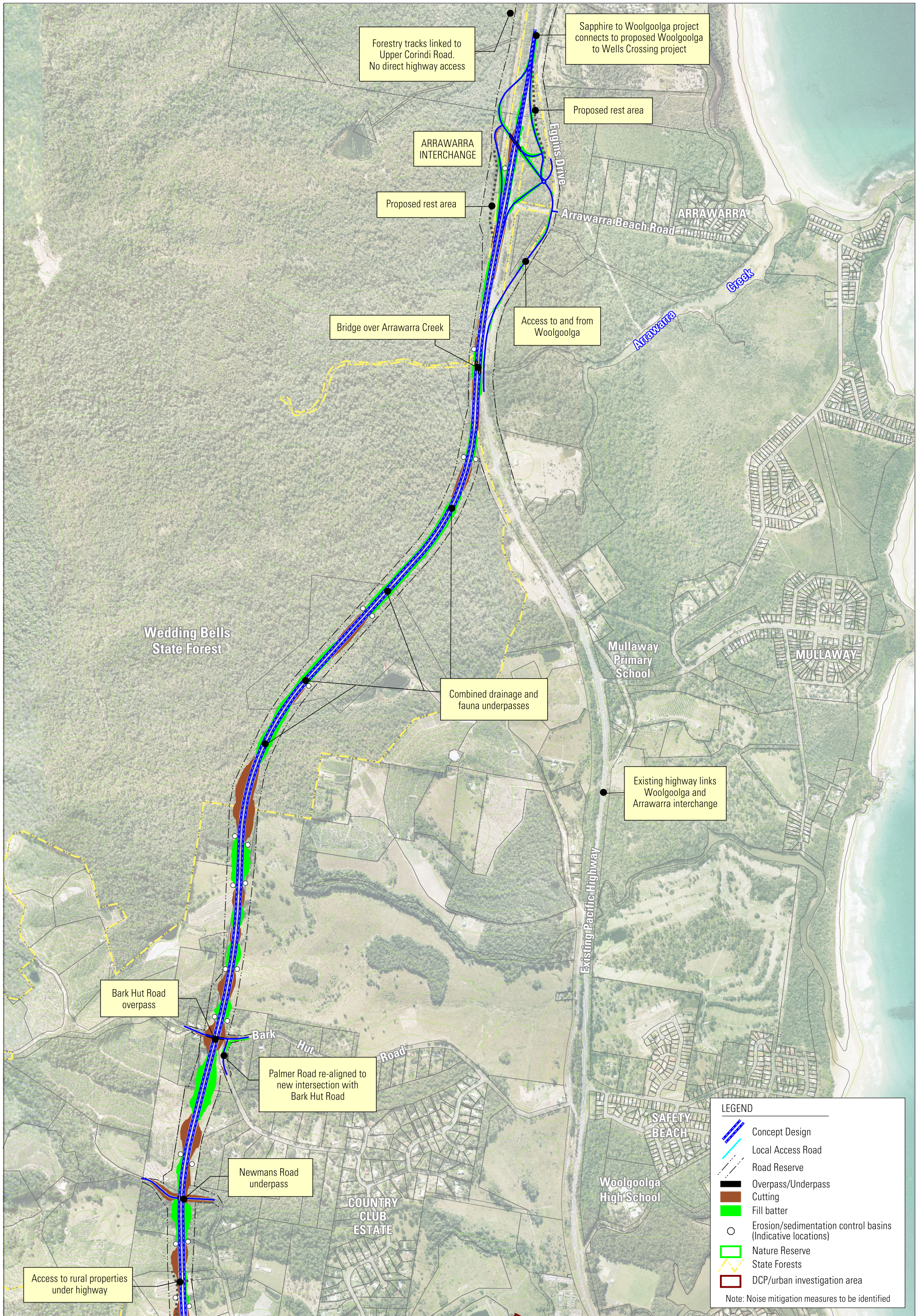
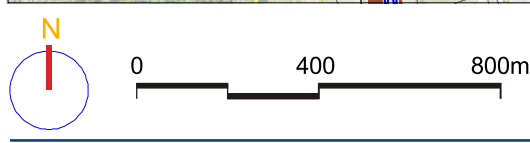


Figure 4.5

Current Concept Design
(Woolgoolga to Arrawarra)



The proposal ties into the existing dual carriageway at Korora, with a left-in/left-out intersection at Campbell Close on the western side and a left-out/ right-in intersection with the eastern local access road (the existing highway) opposite Campbell Close. A motorway standard of construction (Class M) would begin north from Campbell Close with all access to and from the highway to be via grade-separated interchanges.

There are numerous local roads and private properties through this section which currently have direct access to the existing Pacific Highway. As part of the proposal, these access arrangements would be replaced by connection to new local roads including the following:

- on the western side of the highway to access various properties in the vicinity of Hunter Close and Mountain Way as well as Old Coast Road. This link would extend northwards to a new overbridge near Headland Road.
- on the eastern side of the highway from near the Nautilus Resort entry and extending northwards to the Gaudrons / Split Solitary Road interchange, with a connection to the Headland Road overbridge. This local road would largely use the existing highway alignment and it would service access all development in the Sapphire area on the eastern side of the highway
- on the western side of the highway from the Gaudrons / Split Solitary Road interchange to the Moonee Beach interchange and providing a connection for Sugarmill, Wakelands and Maccues Roads

Several individual properties on the eastern side of the existing highway opposite Sugarmill Road and Maccues Road currently have direct access onto the highway. Under the Council planned Moonee Beach DCP, access to these properties will be available via an internal collector road which will provide connections to the proposed interchanges at Moonee Beach and Sapphire.

Moonee to South Woolgoolga

In the section northwards from the Moonee interchange to the interchange at the southern approach to Woolgoolga, the existing highway would be retained as one carriageway of the dual carriageway upgrade. The upgrade would include a new carriageway constructed parallel to and variously on the western and eastern sides of the existing highway.

An interchange would be established near Emerald Beach to facilitate access from the highway to Emerald Beach, Emerald Heights and Sandy Beach and provide an off highway connection between these communities.

At the northern end of this section there would be a full grade separated interchange in the vicinity of Graham Drive North and Hearn's Lake Road. It would provide for all turning movements to and from the highway at this location where the highway deviates to the west around Woolgoolga (see below).

Through this section the existing road corridor is generally 60m wide. The width of the proposed road corridor between Moonee and Graham Drive south would be generally 80m to 100m with localised widening to accommodate cut and fill batters, interchanges and other facilities. The maximum width of the proposed road corridor through this section would be approximately 200m at the Emerald interchange. Except for localised widening for the Diamond Head Road overbridge and the Graham Drive north interchange, the existing road corridor between Graham Drive south and Graham Drive north would accommodate the proposed upgrade.

As with the southern section, there are multiple local roads and private accesses onto the existing highway. Again, a series of local access roads would be developed as part of the proposal and they would supplement existing local roads to provide a continuous off-highway route for local movements along this section. The local road scheme would include the following:

- on the western side from the Moonee interchange northwards via Hoys Road through to Killara Avenue. This would include a connection for Bucca Road.
- an overbridge would be constructed near Killara Avenue, connecting Heritage Park to the access road on the eastern side of the Pacific Highway (see below)
- on the eastern side from the Killara Avenue overbridge northwards to the Emerald Beach interchange, including a connection to the Avocado Heights rural residential area via a proposed overbridge near Smiths Road. This access road would also provide a connection to existing local roads and development such as Tiki Road, Coffs Harbour Zoo and the Coffs Harbour Gun Club.
- on the eastern side from the Emerald Beach interchange northwards to Graham Drive South to provide an effective off-highway local connection between Emerald Beach, Emerald Heights and Sandy Beach – including the Sandy Beach Public School. This includes an overpass of the highway near the current intersection with Graham Drive South which will be especially beneficial for the local community including safe movement of school children.
- The existing Graham Drive would continue its function as a local road through to the proposed grade separated interchange at the southern approach to Woolgoolga. This will enable continuous off-highway access all the way through to Woolgoolga

Alternate access arrangements for several individual properties in this section which currently have direct access to the highway will be finalised during refinement of the concept design.

Independent of the proposal, the provision of a short local road link between the Avocado Heights and Heritage Park rural residential estates would provide improved local access for the community including for school buses and improve road safety for school children.

4.3 Northern section

Woolgoolga bypass

The bypass section of the route deviates away from the existing highway at the proposed south Woolgoolga interchange. The interchange forms the southern entry from the highway to Woolgoolga and provides for movements between Woolgoolga and Graham Drive North without the need for access onto the new highway.

North of the interchange, the bypass traverses in a north westerly direction through rural lands and the south west corner of the South Woolgoolga Urban Investigation Area. It then traverses through a variety of freehold rural and rural residential properties and a section of Wedding Bells State Forest before rejoining the existing highway near Arrawarra Creek.

The proposed bypass section is fully access controlled with no connections to the local road network or to any private properties. All local road crossing would be grade separated, including overpasses at Greys Road and Bark Hut Road and underpasses at Woolgoolga Creek Road and Newmans Road.

There are numerous individual properties as well as State Forest lands in this section where current access arrangements would be affected. The proposal would include provision of either a local road or other private access facility for number of agricultural properties that currently have access via Unwins Road, and another group of rural properties to the west of the new alignment that currently have access via Newmans Road. Discussions have been held with DPI (Forests NSW) in relation to the new access requirements for ongoing forestry operations in Wedding Bells State Forest.

Upgrading at Arrawarra

This northernmost section of the highway proposal extends from the northern bypass merge point near Arrawarra Creek to south of Upper Corindi Road. The upgrade would be focused on the existing highway corridor and include a full grade separated interchange to be located near Arrawarra Beach Road. The interchange would provide ramps for all access movements to and from the highway.

As the proposal would involve closure of several existing direct access points from the highway into Wedding Bells State Forest, a forestry operations track would be extended between the existing tracks near Arrawarra Creek through to the access road at Upper Corindi Road.

On the eastern side of the highway a new local access road would be developed to provide a connection between the interchange and the existing local road network including Arrawarra Beach Road. The access road would extend south from the interchange to join the existing highway south of Arrawarra Creek and it would serve as the connection to and from Woolgoolga.

As part of the RTA's Rest Area Strategy for the overall Pacific Highway, the proposal will also include rest areas for both heavy and light vehicles at the Arrawarra interchange. The current proposal is that the northbound rest area will be located on the western side of the highway immediately south of the interchange and that the southbound rest area will be located on the 'island' of land north of Arrawarra Beach Road between the existing highway and Eggins Drive. More specific plans for the rest areas will be developed as part of the ongoing concept design refinement, and this will be presented in detail as part of the Environmental Assessment.

While outside the scope of this application, opportunities to upgrade the rest areas to a highway service centre in the future will be considered during the development of the design of the rest areas.

4.4 Urban design and landscape

In tandem with the engineering concept design for the preferred route there has been preliminary assessment of urban design objectives. Visual analysis of the corridor has identified numerous sections of the route where sensitive design responses would be particularly important. Most notably, this includes the more highly urbanised southern section up to the proposed Gaudrons / Split Solitary Road interchange where careful integration of the new road development will need a range of tailored design treatments. In this regard, the vertical alignment of the upgrade is proposed to be lower than the existing highway where possible to reduce its landscape prominence and to achieve better acoustic shielding for nearby residential properties.

Another important locality is the very flat area for the proposed Moonee Beach / Hoys Road interchange. With the substantial height of the new interchange formation and the associated clearing of mature vegetation in the immediate area, the detailing of access ramps and associated landscape enhancements will require close urban design attention.

The bypass section to the west of Woolgoolga will involve major cut and fill earthworks as the alignment traverses several ridges / spurs along the eastern flank of the main coastal range. Optimisation of the vertical alignment and careful attention to batter treatments will achieve a road that integrates as best possible with the more rural and natural landscape in that part of the corridor.

4.5 Ongoing refinement of the concept design

The preparation of the concept design for the proposal was ongoing the time of preparing this Project Application. A detailed ground and boundary survey has been completed and geotechnical investigations have been finalised.

Data provided by these and other investigations will be used to further refine the concept design for the proposal during the preparation of the Environmental Assessment. Matters to be addressed during the refinement of the design include:

- Refinement of intersection and interchange layouts
- Further maximisation of the use of the existing highway asset and road corridor between Korora and south Woolgoolga
- Development of the proposed rest area facilities at the Arrawarra Interchange
- Refinement of property access arrangements

- Refinement of property boundaries for the proposed upgrade and hence, definition of land acquisition
- Completion of hydrological and hydraulic studies to enable sizing and preliminary design of bridges and culverts over watercourses and floodways along the route and also to influence the siting, layout and sizing of both temporary and permanent drainage, water retention and water quality control basins / ponds.
- Refinement of the road design to integrate a variety of environmental mitigation and improvement features. This will include acoustic attenuation measures, revegetation and landscaping arrangements and features that respond to local ecological conditions such as protection of key habitat and specific provisions for fauna movement across the corridor.

4.6 Staged construction

While the RTA is seeking approval for the whole highway upgrade proposal as summarised above (viz. for Class M motorway standard), there is clearly potential for the Sapphire to Woolgoolga project to be delivered in discrete stages or packages. At this stage, there are no specific staging proposals and the possible arrangements will be addressed in more detail in the Environmental Assessment. The assessment will address the related benefits of any staging plans and establish mechanisms to effectively manage the potential environmental impacts.

Staging opportunities available for the implementation of the project include:

- Early provision of interchanges to access the existing residential settlements located at Sapphire, Moonee, Emerald Beach, Sandy Beach and Mullaway and to access the future residential areas of Sapphire / Moonee (Moonee DCP) and Hearnes Lake (Hearnes Lake DCP).
- Implementation of Class A/M upgrade;
- Implementation of full Class M upgrade.

The project could also be implemented in discrete sections (eg. Sapphire to Moonee Beach, Moonee Beach to South Woolgoolga, Woolgoolga Bypass, Arrawarra section). A decision on any staging proposal would be influenced by factors such as funding availability and the expected benefits arising from the staged work.

In general terms it is noted that the Sapphire to Woolgoolga project is particularly conducive to staged implementation when compared to many other highway projects. Aside from the Woolgoolga Bypass section which would need to be constructed in its entirety, the proposal is based on upgrading along the existing highway corridor. As such, the typical construction approach would involve building of a new carriageway (possibly including some local access roads) parallel and adjacent to the existing carriageway. As a consequence, there would be no significant traffic changes on the local road network. In this way, it is anticipated that staging proposals could be implemented in a manner that delivers substantial early benefits for the travelling public.