

Appendix B Grafton runway safe heights limitation diagram

GRAFTON AIRPORT

PROJECT'S LOCATION: 30° 30' S, 150° 00' E
 COORDINATE AND AZIMUTH IN
 LEVELS AND OTHER SURVEILLANCE DATA
 APPROXIMATE ELEVATION: 6 METERS ASL (19.685 METERS RL)
 ELEVATION OF SURFACE: 1.00 METERS ASL (11.98 METERS RL)
 MAXIMUM ELEVATION: 1.00 METERS ASL (11.98 METERS RL)

RUNWAY NUMBER 18-36 CODE 3 RUNWAY

LENGTH: 1000 METERS (3280 FEET)
 WIDTH: 60 METERS (196 FEET)
 CENTERLINE ELEVATION: 100.00 METERS ASL (119.80 METERS RL)

TAXIWAY SURFACE

NUMBER OF TAXIWAYS: 10
 LENGTH: 100 METERS
 WIDTH: 10 METERS
 CENTERLINE ELEVATION: 100.00 METERS ASL (119.80 METERS RL)

APPROACH SURFACE

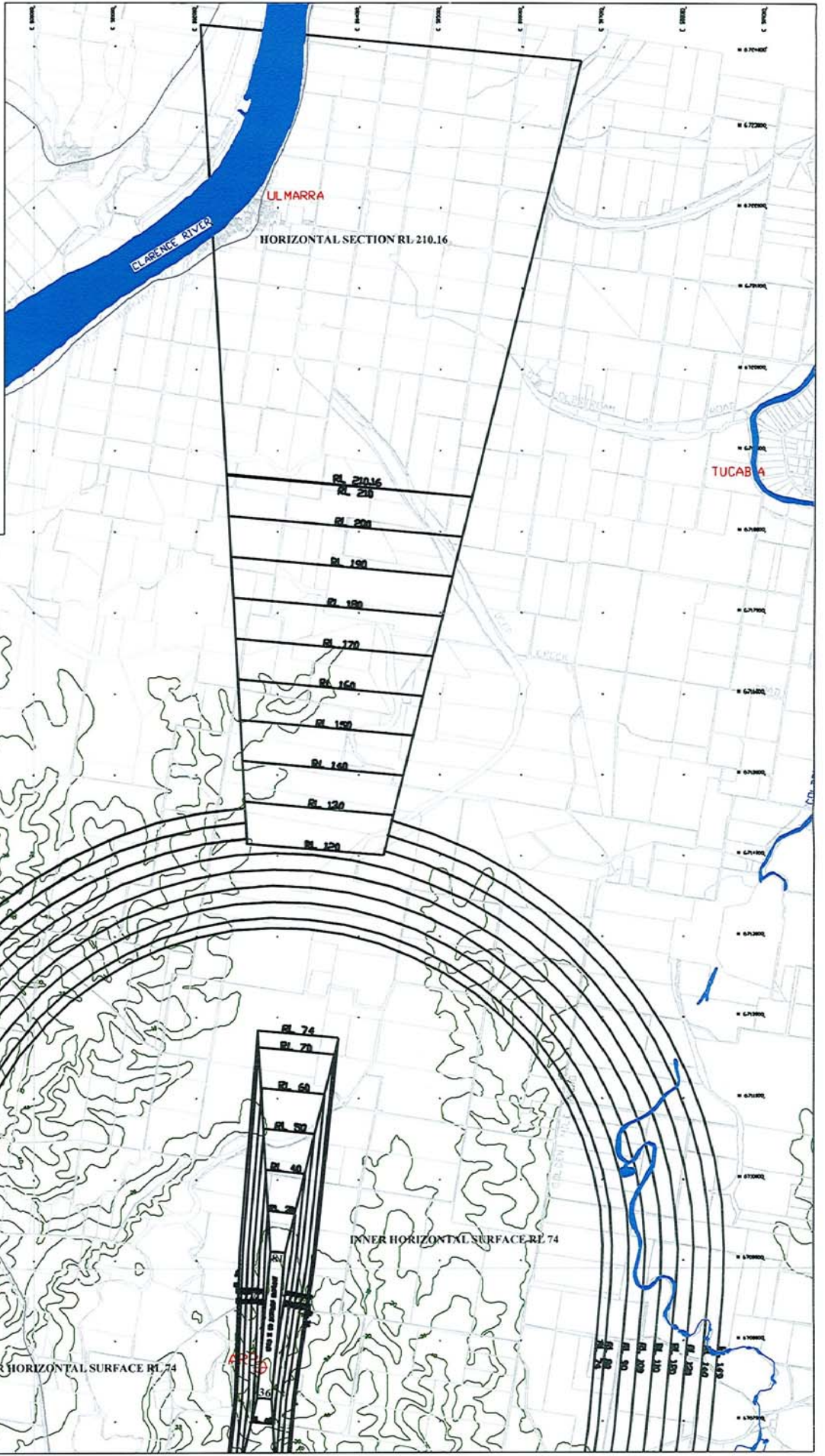
NUMBER OF APPROACH SURFACES: 2
 LENGTH: 100 METERS
 WIDTH: 10 METERS
 CENTERLINE ELEVATION: 100.00 METERS ASL (119.80 METERS RL)

OBSTACLE LIMITATION SURFACES

NUMBER OF SURFACES: 10
 LENGTH: 100 METERS
 WIDTH: 10 METERS
 CENTERLINE ELEVATION: 100.00 METERS ASL (119.80 METERS RL)

TERMINAL SURFACE

NUMBER OF TERMINAL SURFACES: 1
 LENGTH: 100 METERS
 WIDTH: 10 METERS
 CENTERLINE ELEVATION: 100.00 METERS ASL (119.80 METERS RL)



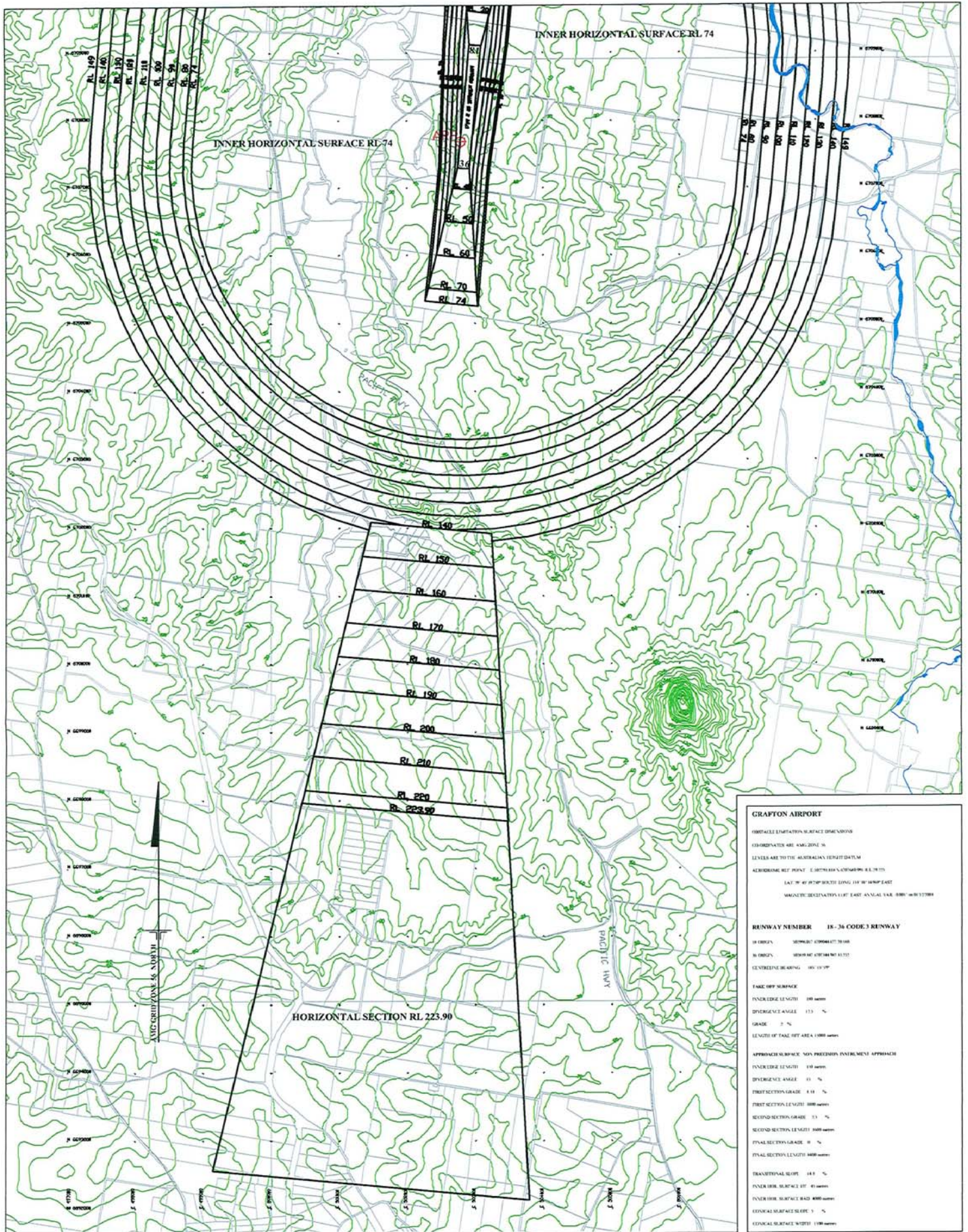
DRAWN	P FITZGERALD
DATE	18 MARCH 2004
SURVEYED	B FITZGERALD
DATE	2 DECEMBER 2003
APPROVED	GFW/CCL/2003
DRAWING No.	GFN/001
	Sheet 1 of 2 Sheets

NOTE:
 This Obstacle Limitation Surfaces Plan defines the highest AHD Levels to which obstacles may project into the Airport airspace.
 The background detail was provided by Grafton Shire Council

GRAFTON AIRPORT OBSTACLE LIMITATION SURFACES

1 : 25,000

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GRAFTON AIRPORT	
OBSTACLE LIMITATION SURFACE (PLAN) DATA	
COORDINATES ARE AMSL/2004 IN	
LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM	
AERODROME REF POINT E 507500 N 6254000 M A.S.L. 10.775	
LAT: 30° 40' 37.00" SOUTH LONG: 153° 16' 30.00" EAST	
MAGNETIC DEVIATION (1975) EAST ANNUAL VAR: 0.00" W 1975/2000	
RUNWAY NUMBER 18-36 CODE 3 RUNWAY	
IN (M)	5000.00 (16404.37) TO 600
OUT (M)	5000.00 (16404.37) TO 1175
CENTRELINE BEARING 180.00 0°	
TAKE OFF SURFACE	
INNER EDGE LENGTH	100 metres
DIVERGENCE ANGLE	1.5 %
GRADE	3 %
LENGTH OF TAKE OFF AREA 1000 metres	
APPROACH SURFACE - MAX PREVIOUS PAVEMENT APPROACH	
INNER EDGE LENGTH	100 metres
DIVERGENCE ANGLE	3.3 %
FIRST SECTION GRADE	4.14 %
FIRST SECTION LENGTH	800 metres
SECOND SECTION GRADE	3.3 %
SECOND SECTION LENGTH	800 metres
FINAL SECTION GRADE	0 %
FINAL SECTION LENGTH	800 metres
TRANSITIONAL SLOPE 14.9 %	
INNER HOB SURFACE HT	40 metres
INNER HOB SURFACE RAD	400 metres
OBSTACLE SURFACE SLOPE	3 %
OBSTACLE SURFACE WIDTH	100 metres

DRAWN	P FITZGERALD
DATE	18 MARCH 2004
SURVEYED	B FITZGERALD
DATE	8 DECEMBER 2003
ARCHIVED	GFN/DLC/2003
DRAWING No.	GFN/001
	Sheet 2 of 2 Sheets

NOTE:
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The background detail was provided by Grafton Shire Council

GRAFTON AIRPORT OBSTACLE LIMITATION SURFACES

1 : 25,000

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Appendix C Key issues emanating from value engineering workshops

- **Table C–1 Summary of key issues raised at the value engineering workshops and how these have been addressed as part of the concept design process.**

No	Issue Description	Issue Status	Comment and Further Actions*
General			
1.1	Convene a meeting with Council to discuss the access and interchange strategy.	Completed	This meeting was undertaken on 26 March 2008
1.2	Develop a recommendation in relation to Ulmarra — whether or not to retain the bypass corridor.	Pending	Although highlighted at the VEW, this action falls outside the scope of the current project and thus was referred to the appropriate people.
1.3	Review the access arrangements planned for individual properties to see if they can be further rationalised.	Completed	These have been reviewed and rationalise where appropriate. It will be considered further at the environmental assessment and detailed design stage.
1.4	Develop guidelines for landowner discussions regarding property accesses to ensure consistency.	Noted	This issue to be considered and addressed during the environmental assessment and detailed design.
1.5	Review the number and need for temporary and permanent sedimentation basins.	Completed	This has been undertaken as part of the design review process, although further consideration would be required as part of the environmental assessment and detailed design.
1.6	Discuss further with the appropriate specialist the specific height requirements for emu underpass crossings as 6 m is unlikely to be feasible. Consider undertaking trials to confirm the height requirements.	Completed/ Noted	<p>Upon further consultation the emu specialist it was indicated that the specific height requirements were unknown at this stage, and trials would need to be undertaken to confirm the minimum height requirements. It was acknowledged that the height requirements would reduce as the emus became more conditioned to using the crossings.</p> <p>In terms of the concept design, it has been decided to size the emu crossings at 3.6 m vertical height, except where the height of the crossing is higher due to other considerations e.g. local road. The height requirement has been identified as an issue that will need to be considered and addressed further during the environmental assessment and detailed design. This could include undertaking trials with live birds.</p>
1.7	Investigate options for minimising/ rationalising the use of fauna fencing. Ensure optimal and efficient use of fencing.	Noted	Some rationalisation of fauna fencing has occurred in the development of the concept design. This is an issue that will need to be further considered and addressed during the environmental assessment and detailed design.

No	Issue Description	Issue Status	Comment and Further Actions*
1.8	Evaluate combining the functions of overpasses, underpasses, culverts etc for drainage, fauna movement access, etc.	Completed/ Noted	The fauna crossing arrangements reflected in the concept design have taken this integration of function into consideration. The design distinguishes between dedicated (designed specifically for fauna movement), combined (designed for drainage and enhanced to encourage fauna movement) and incidental fauna crossings (designed for drainage and provide for incidental movement of fauna). This will need to be further developed during the environmental assessment and detailed design.
1.9	Obtain more advice as to where squirrel gliders would cross the corridor and consider wider vegetated medians in these areas. Consider combining glider crossings with creek bridges.	Noted	Potential squirrel glider crossing opportunities would need to be considered in Section 2, specifically between Firth Heinz Road and Wooli Road and between Six Mile Lane and Pheasant Creek. Consideration should be given to the number and type (canopy bridges/ vegetated medians) during the environmental assessment and detailed design.
1.10	Discuss emergency access locations along the route with Emergency Services and Police.	Pending	This has not occurred, and will need to be considered and addressed during the environmental assessment and detailed design
1.11	Note in the concept design report that further refinement of the route will occur during the environmental assessment and detail design.	Completed	This has been noted in the Concept Design Report.
1.12	Consider opportunities to maximise wildlife connectivity at specific locations (spill through abutments, etc).	Completed/ Noted	The current strategy for fauna movement has identified crossing requirements, optimal locations for crossing movements and opportunities to combine functions of structures. This will, however, need to be further developed during the environmental assessment and detailed design.
1.13	Develop a soft soil/pavement strategy for the project and outline this in the concept design report. Effect to be given to this strategy in the detailed design.	Completed/ Noted	A soft soil/ pavement strategy is included in the Concept Design Report with a note that this will need to be further developed during the environmental assessment and detailed design.
1.14	Note that further investigation of cane pads will be required as part of environmental assessment process (that is, need, access, relocation, etc).	Noted	This has been noted in the Concept Design Report.
1.15	Ensure an allowance is made for extra fill to allow for surcharge (settlement) of wick drains.	Noted	This will need to be considered and addressed during the environmental assessment and detailed design.
1.16	Consider an allowance for importing specialised material.	Noted	This will need to be considered and addressed during the environmental assessment and detailed design.

No	Issue Description	Issue Status	Comment and Further Actions*
Section 1: Wells crossing to Glenugie			
2.1	Undertake a brief assessment of possible alternative routes to the east and west of the preferred route that would miss the population of <i>Eucalyptus tetrapleura</i> and prepare a discussion of the potential risks and benefits associated with each.	Completed	This investigation determined that preferred route alignment is likely to have the least overall ecological impact, particularly if the width of clearing can be minimised and the route alignment is placed as close to the existing highway as possible.
2.2	Review design for section 1 in accordance with the comments made at VEW.	Completed	The concept design has been amended in line with these comments.
Section 2: Glenugie to Tyndale			
3.1	Compare the costs of constructing section 2 to Class A initially rather than Class M.	Pending	These costs have not been compared. However, a preliminary assessment by the project team indicates that very little saving would be possible through construction of section 2 as Class A. Any savings (through removal of overbridges and inclusion of at-grade intersections) would need to be balanced against possible community pressures to provide additional interchanges where access to the upgrade be removed under Class M.
3.2	Compare the cost of service road against a bridge at Six Mile Lane.	Completed	On the basis of this comparison, a bridge has been provided at Six Mile Lane, and the service roads have been rationalised.
3.3	Adopt the current alignment at Tallowood Lane, rather than the Mitchell Road alternative.	Completed	The current alignment has been retained and is reflected in the concept design.
3.4	Investigate straightening the alignment around Pine Brush State Forest.	Completed	Straightening of the alignment was not adopted due to the potential ecological impacts and topographical constraints.
3.5	Investigate lowering the grade line between Ch 27,500 and Ch 28, 300 in section 2 to provide a better earthworks balance.	Completed	The vertical alignment along the length of the project has been reviewed and revised based on the needs related to access / fauna underpasses / drainage structures.
3.6	Consider changing batter slopes in section 2 to 1:3 to win more fill for section 3.	Noted	This will need to be considered and addressed during the environmental assessment and detailed design. It should be noted that this is one of a suite of actions that will be required to address the cut/ fill balance.
3.7	Review the vertical alignment around Tyndale to determine if it can be lowered to avoid potential noise wall requirements.	Completed	The alignment around Tyndale is determined by the interchange siting and arrangement. The location of this interchange has responded to the nature of the surrounding topography, and it has been designed to reduce impacts on the visual and ambient noise environments.
3.8	Ensure appropriate legible signage is put in place to ensure that drivers do not miss the turn-off to Grafton, as the next interchange is over 30 km away.	Noted	This has been highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.

No	Issue Description	Issue Status	Comment and Further Actions*
3.9	Consider shortening the length of approach road and using more of the existing Crown Road at Ch 13,200 (subject to negotiation with property owner).	Completed	The design has been amended to incorporate this recommendation.
3.10	Consider having Firth Heinz Road (service road) as a right angled intersection rather than a bend.	Completed	The design has been amended to incorporate this recommendation.
3.11	Review the value of the rainforest at Ch 23,600 and the impact of the road footprint to determine if the rainforest area should be bridged.	Completed	This has been reviewed in detail and no specific recommendation was made regarding the bridging of this area. Accordingly, this has not been provided for in the concept design. This could, however, be further developed during the environmental assessment and detailed design.
3.12	Recommended adopting Option 3 for the Tyndale interchange layout as it would likely have less community disruption, it has less new traffic and noise impacts and would facilitate a more logical traffic flow (less user confusion).	Completed	The Option 3 layout has been adopted for the Tyndale interchange.
3.13	Consider tightening the T-intersection with the old highway off the Tyndale interchange (move connection further west and away from existing property).	Completed	The design has been amended to incorporate this recommendation.
3.14	Check the radius of the southbound off-ramp at the Tyndale interchange to determine if the curve can be increased for safety reasons	Completed	Due to the limited space available in this area it is not possible to increase the radius of this curve. However, given that the posted speed will be 60 km/h, the existing radius of the curve is considered adequate.
3.15	Review the local property access under the carriageway near the Tyndale interchange (consider possibly a number of short culverts rather than one long culvert under the carriageway for the access road)	Noted	This has not been investigated at this stage, and will need to be considered during the environmental assessment and detailed design.
3.16	Investigate potential rest area locations (ie Ch 27,800 section 2 for a southbound rest area and Ch 28,100 section 2 for a northbound rest area). Use the opportunity of locating the rest areas to win more fill for use in section 3, and in this regard consideration should be given to dropping the vertical alignment in the vicinity of the proposed rest areas. There is a need to be aware of the proximity of the rest areas to residences (properties within 500 m of aforementioned sites) as well as potential impacts on properties access.	Completed	Northbound and southbound rest area locations have been identified and are reflected on the concept design drawings. These will be reviewed at the environmental assessment and detailed design stage.

No	Issue Description	Issue Status	Comment and Further Actions*
Section 3 Tyndale to Clarence River			
4.1	Adopt the current design in terms of its reuse of existing carriageway but consider the stability issues of the riverbank if the road is too close to the river.	Completed	The current design has been adopted with appropriate allowance for riverbank stability considerations.
4.2	Determine how much of the existing asset needs rework if it is to be reused.	Noted	This is an issue that will need to be considered and addressed during the environmental assessment and detailed design.
4.3	Consider constructing the southbound carriageway south of Shark Creek at a level below the 1: 20, taking into account flooding, level of service, access, geotech, cut/ fill balance issues. <i>Adopt the current design in Concept Design Report, but note that this will have to be considered further as part of the detailed design.</i>	Noted	This has been highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.
4.4	Review the need to build the road around the Yaegl Nature Reserve up to 8 m, against the flooding data. Ensure that the existing flood regime is maintained if the existing road is kept.	Completed	The alignment north of the Yaegl Nature Reserve has been modified and lowered in line with the flooding immunities required..
4.5	Consider the need for a drainage structure (maximum possible 1.5 m) around the Yaegl Nature Reserve and combine it with a fauna crossing.	Completed	No drainage structure is required between Yaegl Nature Reserve and Maclean Hill. However, provision has been made for a 2.4 x 2.4 m dedicated fauna crossing.
4.6	Check the overall faunal crossing requirements in section 3 against the concept design. Review whether the number of fauna crossings in section 3 is necessary. Rationalise number and where possible combine drainage culverts and fauna crossings, although there is a need to keep separate cells for fauna.	Completed	The fauna crossing arrangements have been rationalised taking into account optimal locations for crossing movements and opportunities to combine functions of structures. The design distinguishes between dedicated (for exclusive use of fauna), combined (other functions, eg drainage combined with fauna movement) and incidental fauna crossings (use by fauna incidental). This will need to be further developed during the environmental assessment and detailed design.
4.7	Check the need for fauna crossing or emu crossings at Yaegl Nature Reserve and Yamba interchange.	Completed	Provision has been made for a 2.4 x 2.4 m dedicated fauna crossing at Yaegl Nature Reserve. No fauna crossing structure is required at Yamba interchange.
4.8	Consider noise attenuation in the concept design report and in the costings particularly the need for individual house treatments at Maclean Hill.	Noted	This issue will need to be further developed during the environmental assessment and detailed design.

No	Issue Description	Issue Status	Comment and Further Actions*
4.9	Consider the need for noise walls east and north of the Maclean interchange or potentially lowering the vertical grade at this location. Also, check the footprint of the upgrade around the Maclean interchange to ensure there is sufficient room for potential noise walls near residences	Noted	This issue will need to be further developed during the environmental assessment and detailed design.
4.10	Note the use of the RTA general guidelines for new subdivisions in regards to noise mitigation measures.	Completed	This is highlighted in the Concept Design Report.
4.11	Recommended adopting the Option 2 layout for the Yamba interchange, as it reduces the overall footprint and land take, it avoids any heritage listed sites and any impacts on the James Creek bridge on Yamba Road	Completed	The Option 2 layout has been adopted for the Yamba Interchange.
4.12	Consider shifting the southbound off ramp at the Yamba Interchange further to the north	Completed	The design has been amended to incorporate this recommendation.
4.13	Consider adopting a flatter curve for the northbound off ramp at the Yamba Interchange, although, there is a need to check the potential impact on the adjoining EEC	Completed	The design has been amended to incorporate this recommendation.
4.14	Consider adopting a flatter curve for the northbound on ramp at the Yamba interchange in order to use more of the existing road. This has further advantages in terms of traffic safety and in terms of easing construction by enabling sections of the interchange to be built off-line.	Completed	The design has been amended to incorporate this recommendation.
4.15	Recommended adopting the current design for the Maclean Interchange layout	Completed	The current design has been adopted for the Maclean interchange
4.16	Check the appropriateness of the turning circle for the eastern roundabout in terms of traffic movement from the service road into the southbound on ramp for the Maclean interchange	Completed	The design has been amended to ensure optimal traffic movement from the service road.
4.17	Further investigate the flooding issues around the Maclean Interchange and determine how high Goodwood Road would need to be raised to ensure 1:20 flood immunity. Also consider if Goodwood Road should go over rather than under the upgrade (hydrology, geotechnical and footprint considerations to be checked prior to decision can be made)	Completed	Maclean Interchange and Goodwood Street would need to be raised another metre (Goodwood Street has already been raised by about 1 m as part of the current design) to achieve 1 in 20 year flood immunity.

No	Issue Description	Issue Status	Comment and Further Actions*
4.18	Consider using Jubilee Street bridge and a culvert under the Maclean interchange for a pedestrian/cyclist route.	Completed	The design has been amended to incorporate this recommendation.
4.19	Consider deleting the service road between the Maclean and Yamba interchanges, and use Yamba Road through Maclean as an alternative route under Class M.	Completed	The design has been amended to incorporate this recommendation.
4.20	Considered modifying the proposed T-intersection at Jubilee Street into a priority movement from the service road into Jubilee Street (linked by 50-60 km/h bend, with southbound off ramp tying into bend at 90 degrees). Traffic volumes to be confirmed prior to making this decision.	Completed	The design has been amended to incorporate this recommendation.
4.21	Confirm that there is no other land available for cane production expansion in the Clarence River area.	Pending	Extant cane land within the Clarence Valley is under threat from residential and recreational development. Although, the expansion of cane production into other localities, such as Lawrence, Southgate, Cowper and Ulmarra, is feasible in terms of soil type and landform, this is constrained by the degree of frosting experienced in these areas.
4.22	Continue with assessing the effect of the project on the cane industry as a whole and on individual farms.	Completed	This has been assessed in detail and is summarised in Chapter 13 of this report and in a separate Working Paper. This issue will need to be further considered during the environmental assessment and detailed design.
4.23	Confirm that shortening row lanes will increase the cost of cane farming and harvesting.	Completed	This has been confirmed by research undertaken by the specialist investigations into impacts on the cane industry undertaken Amey Agricultural.
4.24	Define acceptable level of impact with respect to flooding (w.r.t. afflux, duration, velocity of flow, etc). Recognise that these levels may vary from section to section, for example for section 3 may only accept afflux of 50 mm, while for section 2 may accept 200 mm.	Noted	This is an issue that will need to be considered and addressed during the environmental assessment and detailed design.

No	Issue Description	Issue Status	Comment and Further Actions*
4.25	<p>Recommended adopting the current design around Shark Creek, which seeks to provide the minimum disturbance to the existing flood regimes. However, in the longer term: Consider redesigning the access at Shark Creek (to retain 12 ha of first class cane land).</p> <p>Consider moving the proposed road further east by 200-300 m between Ch 3,600 to Ch 6,100 section 3. This may reduce the amount of fill required, or at least cost of placement by eliminating need for double handling. It could also marginally shorten the road. However, this realignment could increase the overall footprint, and hence loss of cane land, and could impact on accesses. There is also uncertainty as to the feasibility of this realignment given the limited geotechnical information available for this section.</p>	Completed	<p>The current design in the region of Shark Creek has been adopted. Consideration of the proposed realignments would need to be addressed as part of the environmental assessment and detailed design.</p>
4.26	<p>Ensure that cane drains remain operational during construction.</p>	Noted	<p>This is highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.</p>
4.27	<p>Investigate having the flood gates on the farm side of the road (eastern side). Consider options that allow the flood gate valves to be accessible for maintenance by farmers. Consider leaving the valve to the flood gates on the western side of the existing road but providing an access bay and ladder to enable maintenance.</p>	Noted	<p>This is highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.</p>
4.28	<p>Adopt the current DECC climate change guidelines. Retain the current design, but recognise that flood immunity could be compromised (1:15 rather than 1:20). Future pavement overlay may be sufficient to improve immunity.</p>	Noted	<p>This is an issue that will need to be considered and addressed during the environmental assessment and detailed design.</p>
4.29	<p>Consider constructing more of the service road under Class A in order to reduce the number of intersections required to access the cane pads. At this stage ensure that this can be accommodated within the road corridor and address the detail as part of detailed design stage.</p>	Noted	<p>This is highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.</p>

No	Issue Description	Issue Status	Comment and Further Actions*
4.30	Include in the concept design report a statement that access to cane farms will be maintained during construction and cane harvesting. The detail in this regard would be addressed as part of the detailed design.	Noted	This has been noted in the Concept Design Report, and will need to be further considered and addressed during the environmental assessment and detailed design.
4.31	Include in the concept design report a statement concerning the policy of treatment and avoidance of acid sulphate soils.	Noted	This has been highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.
4.32	Consider replacing many small culverts with a few larger longer culverts in soft soils.	Noted	This will need to be considered and addressed during the environmental assessment and detailed design.
4.33	Develop a project strategy for addressing settlement, as well as flooding and drainage across the floodplain, and outlined this in the concept design report.	Noted	This is an issue that will need to be considered and addressed during the environmental assessment and detailed design.
Section 4: Clarence River to Iluka Road			
5.1	Further investigate the environmental, functional and cost implications associated with the high and low bridge options being considered for the Clarence River crossing. Convene a meeting involving the urban designers and engineers to develop a recommendation regarding the way forward.	Completed	The Harwood Bridge risk assessment workshop held on 30 October 2007 highlighted key constraints and opportunities associated with the two bridge options and the need to build adequate flexibility into the concept design at this stage. A separate Working Paper has been prepared highlighting the findings of the investigations and workshop associated with Harwood Bridge.
5.2	Further develop the Watts Change Interchange Class M layout, based on Class A to Class M construction. Also consider deleting the north bound ramps under the Class M scenario and using the old bridge to access Watts Lane interchange.	Completed	Four options were initially developed for the Watts Lane Interchange taking into account the Class A/ M staging and the provision for both high-level and opening span bridge options. These options were subsequently further refined to develop an option suited to both the high and low-level bridges.
5.3	Further develop the intersection layout geometrics for local access roads in section 4.	Completed	This has been incorporated into the concept design.
5.4	Consider flooding impacts in section 4, including: Impacts for Chatsworth Village; Likely impacts of climate change on flooding patterns and implications for design; and Opportunities for improving cross-drainage at the floodway 1km south of Yamba interchange.	Completed	Based on the hydrological modelling, mitigation of the flooding impacts has been incorporated into the concept design. Reference should be made to Section 8 of this report and the Hydrology Working Paper for more information in this regard.
5.5	Investigate options to address emergency vehicle crossovers, in light of level differences.	Completed	Provision has been made for emergency crossovers within section 4.

No	Issue Description	Issue Status	Comment and Further Actions*
5.6	Investigate the possibility of using a five way roundabout on the west side of the Iluka Road interchange	Completed	This option was investigated (and is reflected on the plan for the Iluka interchange). On the basis of this investigation it was decided not to proceed with the roundabout.
5.7	Identify where the fill material would be sourced from and the impact this would have on highway upgrade projects to the North.	Partially completed	Opportunities to balance the cut/ fill quantities across the project have been investigated. In terms of the current concept design, there is likely to be a short-fall of about 500,000 m ³ . This would have to be addressed as part of the detailed design, or the RTA would need to investigate opportunities to source this deficit from other Pacific Highway projects.
5.8	Ensure that cane drains are included as a design consideration.	Noted	This has been highlighted in the Concept Design Report as an issue that will need to be considered and addressed during the environmental assessment and detailed design.

*Despite the issue status of completed, where relevant further studies may be undertaken during the detailed design and environmental assessment stage