NSW GOVERNMENT | Planning & Infrastructure

MODIFICATION REQUEST:
Pacific Highway Upgrade
Tintenbar to Ewingsdale

Construction and operation of a tunnel control centre at St Helena Road, McLeods Shoot

Director-General's
Environmental Assessment Report
Section 75W of the
Environmental Planning and Assessment Act 1979
April 2013

Cover Photo – Tunnel Control Centre — Artist's impression [RMS April 2013]

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Department of Planning & Infrastructure

EXECUTIVE SUMMARY

The Pacific Highway Upgrade – Tintenbar to Ewingsdale Project (07_0051) was approved by the then Minister for Planning in January 2010 under Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act). The approved project, referred to as the Tintenbar to Ewingsdale section of the Pacific Highway upgrade, is approximately 16.3 kilometres in length, starting at the northern end of the Ballina bypass at Ross Lane and extending to the Ewingsdale interchange.

The project is being delivered in two stages. The first stage, the tie-in with the Ballina bypass at Ross Lane, was opened to traffic in March 2011. Construction of the second stage, the balance of the project, commenced in September 2012 and is expected to be completed in the second half of 2014.

The Roads and Maritime Services (RMS) has submitted a modification request (07_0051 MOD 6) under section 75W of the Act to modify the approval to allow construction and operation of a tunnel control centre on St Helena Road at McLeods Shoot associated with the St Helena hill tunnel.

The department placed the modification request on its website. The proponent conducted consultation with Environmental Protection Authority, Department of Primary Industries, Rous Water, and Byron Shire Council, who raised no objection to the proposal.

The Department has undertaken a comprehensive assessment of the modification request and considers the modification to be acceptable. The Department is satisfied that the modification request is justified and therefore has recommended its approval.

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1. BACKGROUND

The Pacific Highway Upgrade – Tintenbar to Ewingsdale Project (07_0051) was approved by the then Minister for Planning in January 2010 under Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act). The approved project, referred to as the Tintenbar to Ewingsdale section of the Pacific Highway upgrade is approximately 16.3 kilometres in length, starting at the northern end of the Ballina bypass at Ross Lane and extending to the Ewingsdale interchange.

The project is being delivered in two stages. The first stage, the tie-in with the Ballina bypass at Ross Lane, was opened to traffic in March 2011. Construction of the second stage, the balance of the project, commenced in September 2012 and is expected to be completed in the second half of 2014.

The project location and layout is shown in **Figure 1**.

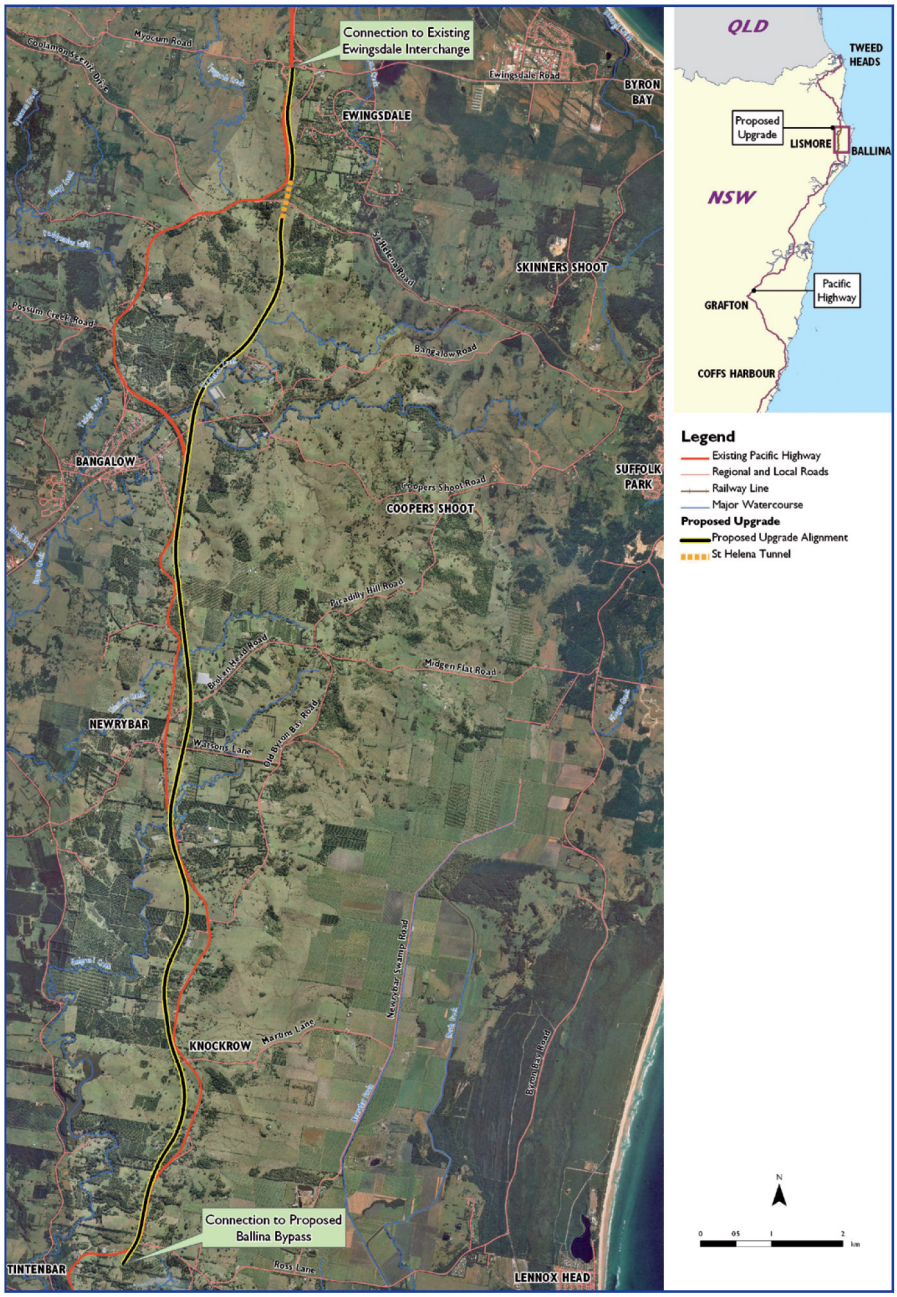


Figure 1 Project location (Source: EA — Arup 2008)

The project traverses mostly rural land uses between Tintenbar and Ewingsdale. The Project is designed to separate local traffic and highway traffic by providing a continuous alternative local road link. However the project runs in close proximity to Bangalow and Ewingsdale townships.

The project has been modified five times:

- MOD 1 (July 2010) to extend the hours in which construction of the tie-in with the Ballina bypass can take place
- MOD 2 (November 2010) to modify the definition of construction to permit certain pre-construction activities
- MOD 3 (November 2012) to modify the definition of an ancillary facility and the approval process for minor ancillary facilities
- MOD 4 (November 2012) to make changes to condition 2.22 in regards to heritage site H29 and H39
- MOD 5 (March 2013) to modify the blasting hours, airblast overpressure and ground vibration levels for works at the St Helena hill tunnel.

2. PROPOSED MODIFICATION

2.1 Modification Description

The RMS (the Proponent) has submitted a request (07_0051 MOD 6) under section 75W of the Act to allow the construction and operation of a tunnel control centre at St Helena Road at McLeods Shoot.

The tunnel control centre comprises a 300m^2 single storey building housing the safety systems for the St Helena hill twin tunnels. The tunnel control centre provides a central point for monitoring the operation of the tunnel systems, including power, communications, and lighting. The site is also the location of underground deluge tanks that would store up to 2,600kL of water to supply the fire safety systems in the tunnels in the event of fire. The site would be accessed by vehicles and personnel entering and exiting the tunnel control centre during emergency situations in the St Helena hill twin tunnels.

The tunnel control centre would be accessed by a short loop road, with entry and exit via St Helena Road. The loop road would provide adequate alignment to provide for access by a Fire & Rescue NSW fire engine. The area would provide two dedicated parking spaces for staff to access the site during routine maintenance. A concrete hardstand area would provide sufficient area for additional light and heavy vehicle parking in the event of an emergency in the twin tunnels.

The tunnel control centre would operate unmanned, with safety systems remotely monitored by RMS and Transport for NSW. No permanent staff would be stationed at the site. The tunnel control centre would be staffed during routine maintenance (every four months) and during emergency events. To provide for these events, basic amenities (kitchenette and toilets) would be provided in the design of the tunnel control centre.

A site locality map showing the tunnel control site is provided in **Figure 2.** A site plan of the tunnel control centre is shown in **Figure 3**. Elevations are provided at **Figure 4**.

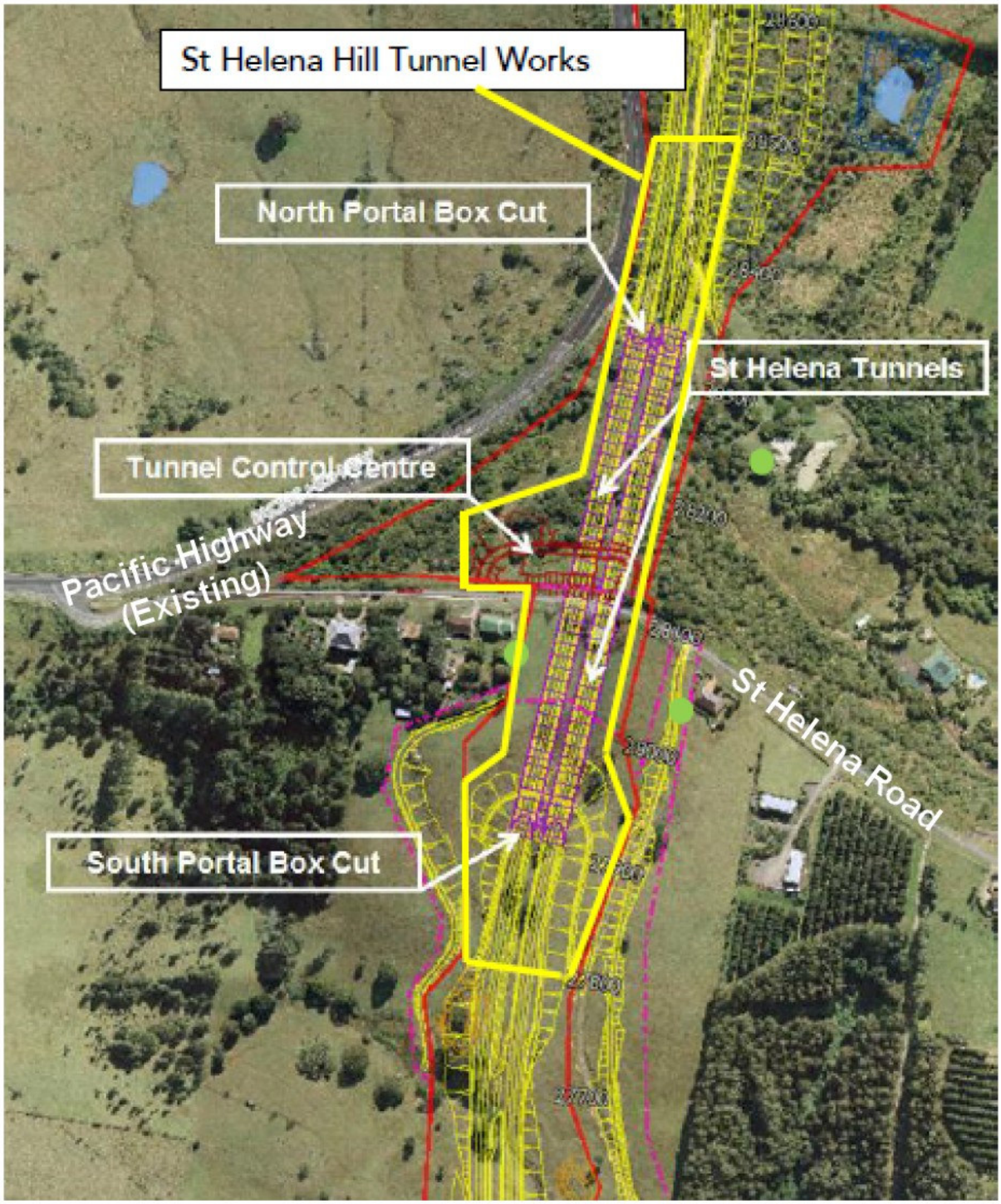


Figure 2 Tunnel Control Centre — Site Locality (Base Map Source: 07_0051 MOD 6 – RMS April 2013)

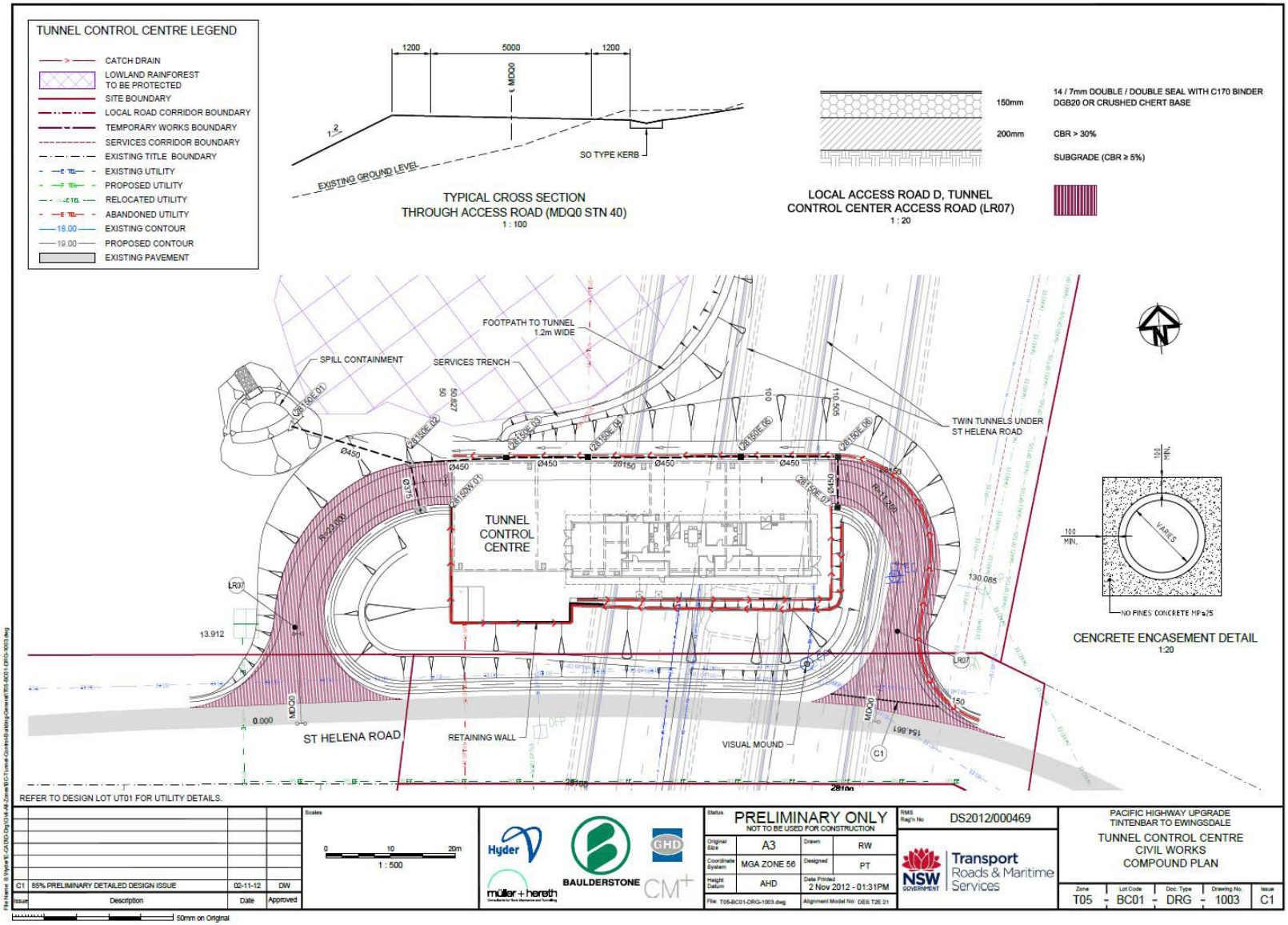


Figure 3 Tunnel Control Centre — Site Plan (Source: 07_0051 MOD 6 – RMS April 2013)

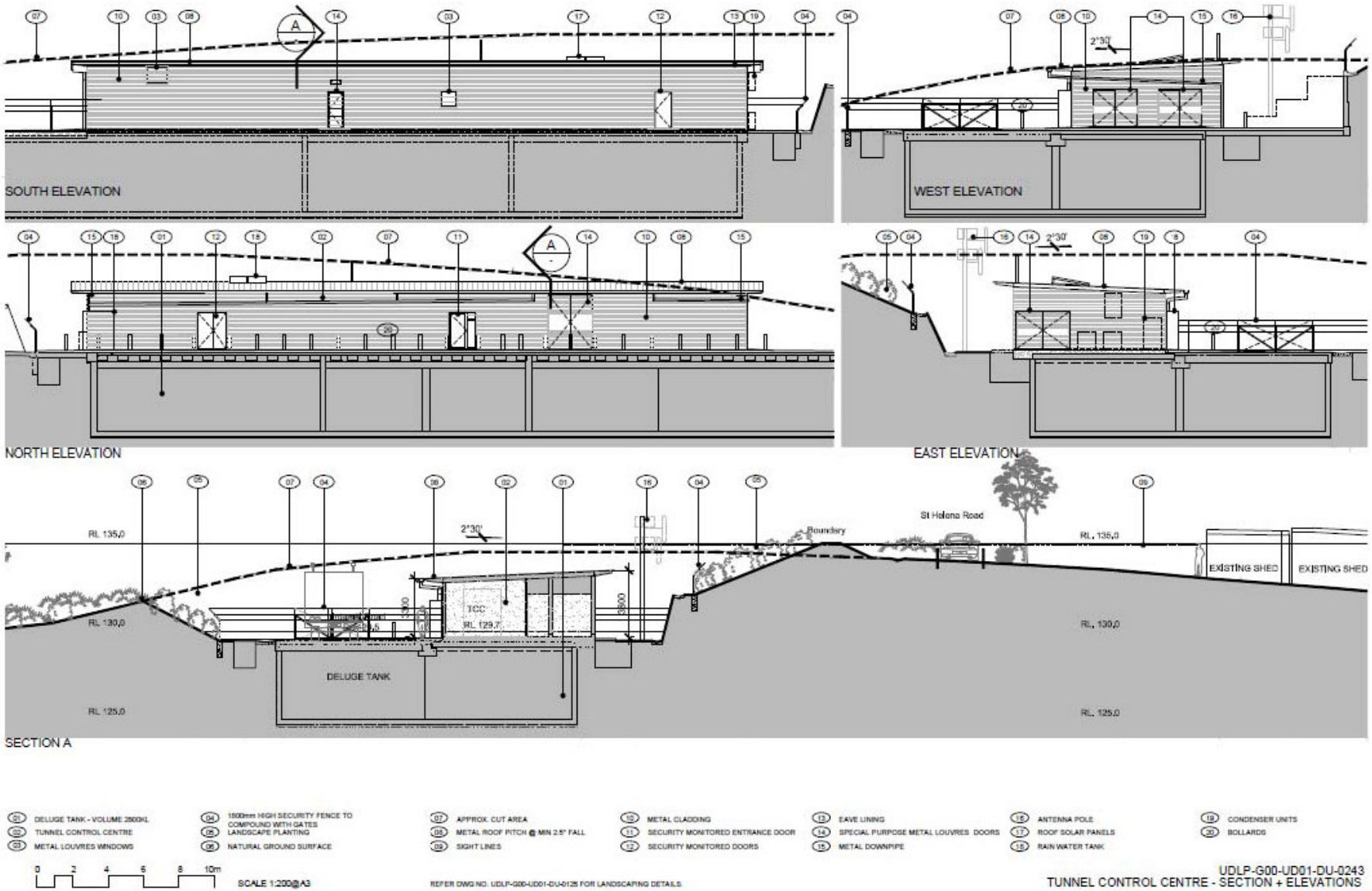


Figure 4 Tunnel Control Centre — Elevations (Source 07_0051 MOD 6 – RMS April 2013)

RMS has identified that establishment of the tunnel control centre will require excavation through basalt. RMS advises that tunnel control centre construction period would be 30 days with controlled blasting. Construction of the tunnel control centre would be staged concurrently with construction of the St Helena twin tunnels. To facilitate the delivery of the tunnel control centre, RMS has also requested that the tunnel control centre be subject to the increased blasting hours and criteria applicable to the tunnel works. All blasting would be undertaken in accordance with appropriate risk management procedures and plans, including a *Drill and Blast (Above Ground) Construction Management Plan* prepared in accordance with *AS 2187.2-2006 Explosives — Storage and use*.

3. STATUTORY CONTEXT

3.1 Modification of the Minister's Approval

In accordance with clause 3 of schedule 6A of the Act, section 75W of the Act as in force immediately before its repeal on 1 October 2011 and as modified by schedule 6A, continues to apply to transitional Part 3A projects.

Section 75W of the Act provides that a proponent may request the Minister to modify the approval of a transitional Part 3A project. The Minister's approval is not required if the project, as modified, will be consistent with the original approval. The subject modification is not consistent with the approval, but does not constitute a project in its own right, and therefore a modification in accordance with section 75W of the Act is considered appropriate.

3.2 Delegated Authority

An application to modify a transitional Part 3A project approval may be determined by the Director, Infrastructure Projects of the Department of Planning and Infrastructure under delegation from the Minister for Planning and Infrastructure, dated 14 September 2011, where the local council does not object, a political disclosure statement has not been made in relation to the application, and less than 10 objections are received. This proposed modification meets the terms of this delegation, and may be determined by the A/Director, Infrastructure Projects.

4. CONSULTATION AND SUBMISSIONS

4.1 Exhibition

Under Section 75X(2)(f) of the Act, the Director General is required to make the modification request publicly available. Accordingly, the Department placed a copy of the modification request on its website.

During development of the tunnel control centre proposal, RMS has undertaken consultation with nearby residents and the community in general. The department notes that RMS has provided information about the construction and operation of the tunnel control centre during ongoing community consultation conducted in accordance with the *Communications Strategy for Controlled Blasting at St Helena Tunnel and Tunnel Control Centre*. Further, targeted consultation conducted in April/May 2012 included presentations to the community and one-on-one meetings to

enable discussion of the increased blasting criteria and the tunnel control centre proposal.

The department notes that members of the environmental review group for the project, including Environment Protection Authority, Rous Water, Department of Primary Industries, and Byron Shire Council have been provided the opportunity to review and comment on the proposal, during development of the proposal and the draft modification request. Following review of the draft modification request, all agencies have indicated they offer no further comment.

5. ASSESSMENT

5.1 Noise and vibration

Vibration

As discussed at section 5.4, RMS has identified that the tunnel control centre site is located on hard rock of the Lismore Basalt unit, and would require controlled blasting for site establishment. As a result, RMS has requested that the modification be subject to the relevant blasting criteria and working hours specified in project approval MP07_0051.

The project approval includes two sets of criteria to control the vibration impacts of blasting from the project: airblast overpressure and ground vibration/peak particle velocity criteria. Airblast overpressure limits are intended to protect human comfort and annoyance due to blasting, and are based on guidelines prepared by the Australian and New Zealand Environment and Conservation Council for the assessment of blasting impacts. Peak particle velocity (PPV) ground vibration limits are specified to protect structures from damage from ground movement following blasting, and are based on the ground vibration levels recommended by *AS 2187.2-2006 Explosives — Storage and use* (AS 2187.2-2006) for assessment of damage to buildings. Together, these criteria specify the maximum permissible vibration impacts at sensitive receivers. The criteria are shown in **Table 1.**

Table 1 Approved standard blasting criteria (conditions 2.17 and 2.18)

Condition 2.17 Airblast Overpressure (dBL)	**Condition 2.18 Ground Vibration—Peak particle velocity (mms^{-1})**	**Conditions 2.17 and 2.18 Allowable Exceedence**
115	5	5% of a total number of blasts over a 12 month period
120	10	Never

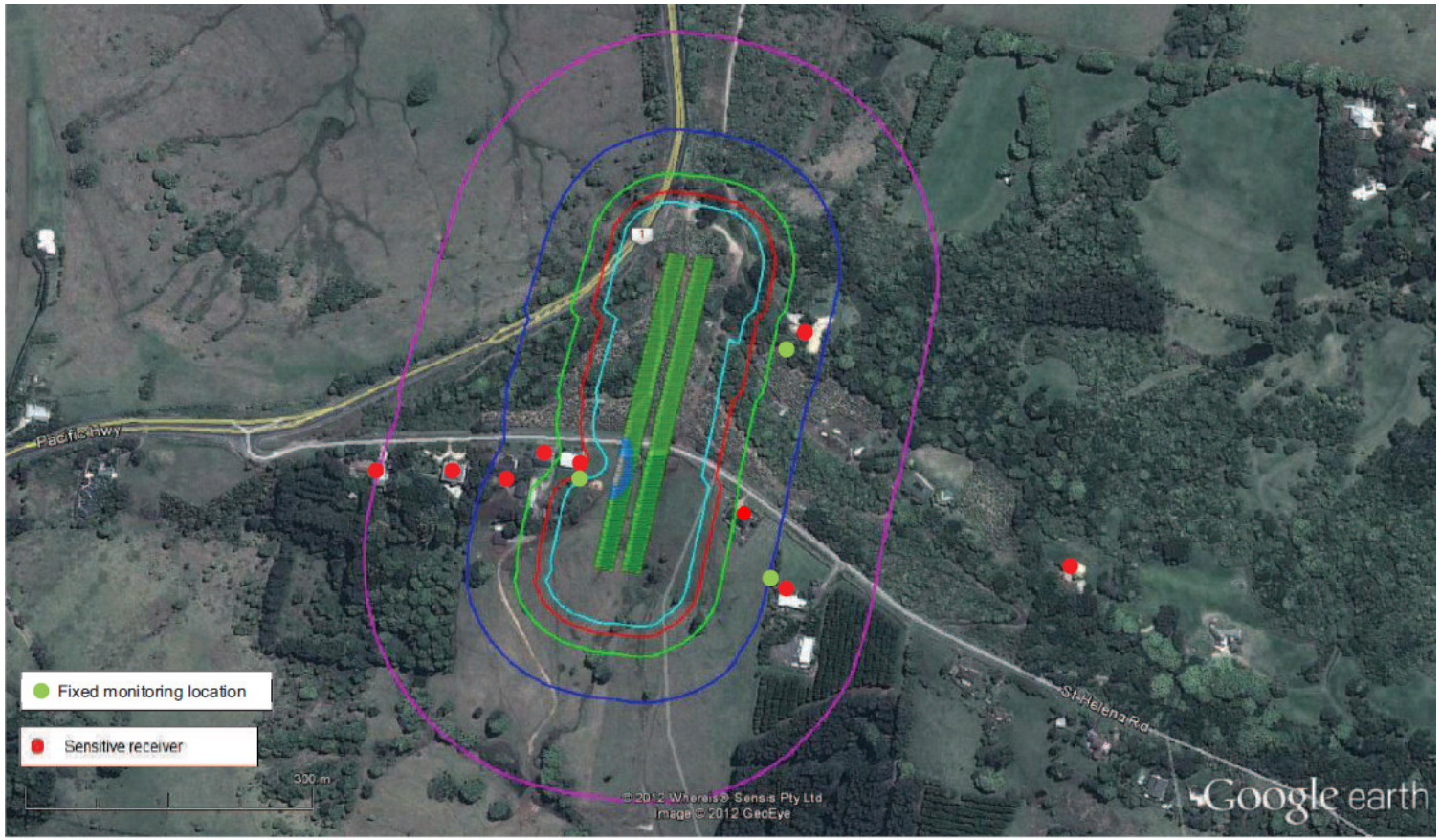
As stated in section 1, the department approved an increase in these criteria for works relating to the construction of the St Helena hill tunnel (MOD 5). These increased criteria only apply where written approval has been obtained from affected landowners. The increase in vibration criteria enables RMS to conduct larger blasts at the St Helena twin tunnels, facilitating a substantial reduction in the blasting program. RMS has requested that the works for the tunnel control centre be subject to the increased criteria approved in MOD 5.

The relevant noise and vibration criteria for blasting at the St Helena hill tunnel works approved in MOD 5 are specified in Conditions 2.17A and 2.18A of the project approval. The relevant criteria are shown in **Table 2**.

Table 2 Approved blasting criteria for St Helena tunnel works (conditions 2.17A and 2.18A)

Condition 2.17A Airblast Overpressure (dBL)	**Condition 2.18A Ground Vibration—Peak particle velocity (mms^{-1})**	**Conditions 2.17A and 2.18A Allowable Exceedence**
125	15	5% of a total number of blasts over a 12 month period
130	20	Never

As part of MOD 5, RMS conducted an assessment to identify typical vibration impacts from the larger blasts at nearby sensitive receivers. The assessment identified five residences that would experience ground vibration during blasting over 5 mms^{-1} (in exceedence of condition 2.17) but below 15 mms^{-1} (in compliance with condition 2.17A). Impacts in this range indicate that ground vibration would exceed the recommended levels for human comfort during the intermittent blasting events. The assessment in MOD 5 considered the impacts of controlled blasting for construction of both the twin tunnels and the tunnel control centre; as such, RMS notes that the modification would not affect any additional receivers to those identified in MOD 5. The ground vibration contour for the proposed larger blasts is shown in **Figure 5**.



Explosive Quantities

<1 kilogram	0%
Between 1 and 2 kilograms	0%
Between 2 and 3 kilograms	0%
Between 3 and 4 kilograms	1%
Between 4 and 5 kilograms	5%
>5 kilograms	94%

LEGEND

- Expected 20mm/s Vibration Contour
- Expected 15mm/s Vibration Contour
- Expected 10mm/s Vibration Contour
- Expected 5mm/s Vibration Contour
- Expected 2mm/s Vibration Contour

Figure 5 Increased blasting limits - ground vibration impacts (Source: Modification request 5— Baulderstone 2013)

RMS indicates that consultation with landowners conducted for MOD 5 included information about the potential vibration impacts associated with blasting for the twin tunnels and the tunnel control centre. Further, RMS confirms that all five affected receivers have given written approval for implementation of the increase blasting criteria at their residences.

RMS has indicated that permitting larger blasts and increased blasting hours (see below) would greatly reduce the construction schedule for both the twin tunnels and the tunnel control centre. RMS advises that, were construction of the tunnel control centre be required to comply with conditions 2.17 and 2.18, the construction period would occur over 60 days, requiring 50 days of hydraulic hammering and a total of three blasts. Application of the increased blasting criteria and blasting hours would provide the project team with the ability to increase the number of blasts to four, reducing the period of hydraulic hammering to ten days and decreasing the construction schedule to 30 days.

Noise
RMS also requests that blasting for the tunnel control centre be allowed during the extended weekday blasting hours contained in condition 2.14(d). These hours permit blasting between 7.00am and 6.00pm Monday to Fridays for twelve months from the date of approval of MOD 5. RMS notes that, during consultation for the increased blasting hours, fourteen potentially affected landowners were consulted; eleven indicated they did not object to the increase in blasting hours and three did not respond.

RMS indicates that noise impacts from construction of the tunnel control centre would result in noise impacts at receivers in exceedence of the construction noise criteria, particularly during the period of hydraulic rock hammering. However, RMS has indicated that these impacts are consistent with those assessed for construction works in the area in the approved EA.

Department's consideration
The department acknowledges that permitting blasting for the tunnel control centre in accordance with conditions 2.17A and 2.18A would result in ground vibration levels exceeding the recommended levels for human comfort at five residences. These residences are located between 30 and 200 metres of the tunnel control centre site on St Helena Road; four residences are located on the opposite (south) side of St Helena Road, and one residence located north east of the site. The department notes the limited nature of the impact, in terms of construction duration and extent, and considers that the modification can be undertaken with minimal effects on local amenity.

In recognition of proximity of residents to the site, the department has previously recommended that a number of safeguards be implemented to ensure that the vibration impacts of the proposal are managed appropriately, and with the ongoing agreement of the community. The department reiterates that the increased blasting criteria in conditions 2.17A and 2.18A apply only to residents who have signed private agreements. Should a landowner withdraw their agreement RMS would be required to comply with the existing (more stringent) blasting limits at that residence. Further, the department notes that the increased blasting hours in condition 2.14(d)

have been restricted to a twelve month period, which would provide certainty to the community of the duration of the construction period. The department acknowledges the RMS commitment to ongoing community consultation in accordance with the *Communications Strategy for Controlled Blasting at St Helena Tunnel and Tunnel Control Centre*. This strategy prescribes meetings with residents and community briefings to describe construction activities, notification of directly affected residents prior to blasts, and implementation of a complaints management procedure (including provision of a dedicated complaints telephone line).

The department acknowledges that nearby residences would experience noise impacts during construction of the tunnel control centre. The construction noise and vibration impact assessment provided by RMS in the project *Construction Noise and Vibration Management Plan* includes an assessment of the noise impacts of construction work in the area, including the concurrent construction of the twin tunnels and the tunnel control centre. This assessment indicates that up to 17 residences would experience noise impacts of between 0-10dB(A) above the noise management level, and up to 5 residences would experience impacts between 10 and 20 dB(A) above the noise management level, during excavation at the tunnel control centre site.

The department notes that, while construction noise impacts in the area would exceed the construction noise goals, the additional noise impacts of the modification would be minimal, given construction works would be staged concurrently with that of the St Helena twin tunnel portals, and the noise impacts of each blast would conclude within seconds. To this end, the department considers that the increased blasting criteria and blasting hours minimising the duration of noise impacts from construction of the tunnel control centre, by facilitating a substantial reduction in the proposed construction timeframes (from 60 days to 30 days).

The department considers that the proposal to allow blasting for the tunnel control centre in accordance with conditions 2.14(d), 2.17A and 2.18A is justified by the increased flexibility it would provide to the RMS to coordinate its construction work at McLeods Shoot for maximum efficiency. Allowing all blasting in the area to be conducted using larger blast charges, and to be conducted across the extended weekday blasting hours, would result in significant time savings in the excavation process and a reduction in noise impacts from the reduced need for hydraulic rock hammering. The noise and vibration impacts of each of the three anticipated blasts are anticipated to last several seconds, and overall would reduce the period of hydraulic rock hammering to 10 days. Further, the department notes the RMS ongoing commitment to undertake the works in accordance with the *Drill and Blast (Above Ground) Construction Management Plan* (CWMS-RW-18) for the project, including implementing appropriate mitigation, monitoring (including structural assessments on properties within 500 metres of the St Helena hill twin tunnels) and post-blast review procedures. As a result, the department has recommended that the conditions of approval be amended to allow the tunnel control centre to be conducted in accordance with the increased blasting criteria and blasting hours in conditions 2.14(d), 2.17A and 2.18A.

5.2 Visual

The tunnel control centre would be located on the St Helena ridge at McLeods Shoot, a locally prominent ridgeline north of the Tinderbox Valley. The St Helena ridge provides uninterrupted views of the Tinderbox Valley to the south and toward the coastal plain, Cape Byron and the ocean to the north east, and itself forms a prominent visual feature from the low-lying coastal valleys.

Modelling of the impacts of a tunnel control centre at the site on local and regional views was conducted as part of the draft Urban Design and Landscape Plan for the project, based on topographic mapping of the region. On the basis of this assessment, RMS contends that the modification would have minimal impacts on visual amenity in the area, based on a number of mitigation measures incorporated in the design.

The proposal incorporates a number of design measures intended to minimise visual impacts from construction of the tunnel control centre on the St Helena ridge. RMS indicates that a deep cut in the hill north of St Helena Road would allow the structure to be built below natural ground level, minimising views to the site from northern vantage points. RMS has committed to painting the tunnel control centre with dark colours to ensure the structure blends with the surrounding environment. RMS asserts that the proposed landscaping (comprising low-lying shrubs and grasses) would provide adequate visual screening while preserving existing views from St Helena ridge towards Cape Byron. Further, RMS contends that landscape mounding and vegetation screening on the north side of the tunnel control centre would reduce offsite impacts at local and regional viewpoints towards St Helena ridge. A number of 3D view studies/digital montages undertaken by RMS demonstrate the anticipated long, medium and short range visual impacts of the tunnel control centre. Four of these 3D view studies are shown in **Figure 6**.

Figure 6 Tunnel Control Centre — 3D view studies (Source 07_0051 MOD 6 – RMS April 2013)

Department's consideration

The department notes the particular visual sensitivity of St Helena ridge, as a visual feature and significant viewpoint. The scenic values and visual diversity of the landscape increase the sensitivity of the region to significant view changes. The department acknowledges that the overall Tintenbar to Ewingsdale Pacific Highway Upgrade will impact on the landscape composition, and considers that some of these impacts are unavoidable. The department, however, is generally satisfied that the tunnel control centre would have minor impacts on views to and from St Helena hill over those associated with the project as previously described, and that these impacts can be appropriately mitigated through consideration of the final design and landscaping.

The department acknowledges that RMS has incorporated a number of design elements in the tunnel control centre proposal to minimise impacts on existing views. The department considers that the recessed foundation of the structure and proposed landscaping treatment would preserve existing viewpoints from the St Helena ridgeline, which is a popular vantage point for locals and tourists. The low elevation and dark coloured exterior walls of the structure would minimise its impacts on offsite significant views towards the escarpment from the north. To ensure these visual treatments are integrated into the overall urban design of the project, the department has recommended condition 6.2 be amended to require RMS to include the design of the tunnel control centre and landscaping of the site in the Urban Design and Landscape Plan for the project. This plan must be prepared in consideration with Byron Shire Council and Ballina Shire Council, and requires the approval of the Director-General of the Department of Planning and Infrastructure.

5.3 Biodiversity

The tunnel control centre is located in an area designated in the EA as a potential wildlife corridor. RMS has indicated that, in consideration of land use in the intervening period and the identification of a potential wildlife corridor immediately north of the site during detailed design, the site is no longer required to maintain fauna habitat connectivity on the St Helena ridge.

Additionally, private land uses on and adjacent to the tunnel control centre site have reduced the desirability of the site for use as a wildlife corridor. In the EA, RMS identified the site as highly modified Lowland Rainforest, an endangered ecological community, providing moderate habitat value, but relatively low quality and extent given habitat fragmentation by the existing Pacific Highway. In the period between completion of fieldwork for the Tintenbar to Ewingsdale Environmental Assessment and ecological working paper and project approval, the then landowner cleared the native rainforest vegetation and established a banana plantation. The site also contains exotic species such as *Cinnamomum camphora* (Camphor Laurel). RMS advises that the banana plants have since been cleared following acquisition of the site in the 2010/2011 financial year. No further clearing of native vegetation is required for construction of the tunnel control centre.

During detailed design of the project, RMS identified an east to west wildlife corridor passing around the site boundary. This area has been identified as the most likely corridor for the east to west passage of koalas on the northern section of the project alignment. As a result, RMS proposes planting of a mix of representative Lowland

Rainforest species around the site perimeter to further improve the quality and extent of fauna habitat. Further, to ensure fauna are not affected by operations on site, high fencing would be provided to minimise access to the site, particularly from the northern boundary.

Department's consideration
The department notes that due to past land uses the tunnel control centre has been highly disturbed, and currently provides low quality fauna habitat. Consequently, the department considers that the proposed landscape treatment, including planting of representative native species and appropriate fencing to exclude fauna from the tunnel control centre, would provide for improved habitat outcomes at the site.

The department notes the RMS continued commitment to establishing an east to west wildlife corridor at McLeods Shoot, and is satisfied that the modification does not preclude establishment of this corridor as a viable habitat for koalas. The proposal includes removing exotic flora species from the site and progressive rehabilitation of the site. This would include planting of koala feed trees outside a fauna-proof fence line around the tunnel control centre and surrounding hardstand/loop road in conjunction with the establishment of the wildlife corridor. As such, the department considers that the modification would adequately complement this commitment.

5.4 Other issues

Issue	Department's consideration
Geology, soils and water	The Tunnel Control Centre would be constructed on high strength basaltic rock associated with the Lismore Basalt unit. The department notes RMS indicates that blasting or hydraulic rock breaking is required for site establishment, involving the removal of 16,500m^3 of soils and underlying rock, and some remaining banana plants. Spoil would be reused as fill along the project alignment. The department notes the potential for erosion and sedimentation impacts during excavation and site establishment on the site. The department, however, is satisfied that RMS' commitments to a range of appropriate mitigation measures, including progressive site stablisation and vegetation establishment through the construction period, and implementation of the Soil and Water Management Plan, including preparation of an erosion and sediment control plan, would be sufficient to minimise any potential impacts. The department acknowledges that excavation to approximately 10 metres depth would be required to allow for placement of the deluge tanks, with connection to the tunnel by overland pipeline. RMS indicates that no impacts are anticipated on the water table, which is anticipated at 12-13 metres below ground level. The department is satisfied that the hydrological impacts of the modification would be negligible.
Contamination	The department notes that a preliminary investigation was undertaken by RCA Australia (April 2011) to determine soil and groundwater contamination, in accordance with the Contaminated Land Management Plan. The department is satisfied that, whilst the

	report identifies low-level soil and groundwater contamination from past land uses of the site, the proposed use of the site and potential reuse of the excavated rock would result in minimal contamination impacts. The department notes that the site was assessed against the *National Environmental Protection Measure for the Assessment of Site Contamination 2009* Health Based Investigation Level (HIL) F (Commercial/Industrial). The department notes that all samples were compliant with HIL F, which indicates the soil is suitable for commercial/industrial development. Further, RMS has advised that the excavated material would satisfy the requirements of excavated public road material, and therefore may be applied to land within the road corridor in accordance with the *Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A: The excavated public road material exemption 2012*. The department is satisfied that the modification would not be adversely affected by contamination of the site, subject to construction works being carried out in accordance with the Contaminated Land Management Plan
Traffic	The department notes that the proposal would require additional truck movements for removal of excavated rock to a rock crushing site in the Tinderbox Valley. RMS notes that up to four trucks would be required to transport excavated material to a site within five minutes of the tunnel control centre site intermittently during the construction period. The department considers that the additional impacts of truck movements from the modification would be minimal in consideration of existing truck movements associated construction activities in the area, including excavation of the tunnel portals. The department notes that traffic management including stoppages on St Helena Road would be required during blasting adjacent to the road, including during excavation of the deluge tank pit. The department is satisfied that RMS would implement adequate traffic controls on site in accordance with the Construction Traffic Management Plan. RMS are committed to ensuring that any road stoppage is less than five minutes and resultant queue length must not exceed 250 metres. Further, the department acknowledges RMS would seek to establish a consistent time for road closures and engage the community in accordance with the Community Communications Sub-plan, in order to minimise unplanned disruptions to local traffic. The department is satisfied that these measures would minimise impacts to traffic on St Helena Road.

6. CONCLUSION AND RECOMMENDATIONS

The tunnel control centre would provide a central point for monitoring the safe operation of the St Helena hill twin tunnels, including power, communications, lighting and safety systems. It would operate unmanned, relaying data for remote analysis by

RMS and Transport for NSW. In the event of an emergency situation in the tunnel, the site would be accessed by vehicles and personnel entering and exiting the tunnel control centre.

The department notes that there a number of environmental issues associated with the construction and operation of the tunnel control centre that would require careful management, including increased ground vibration and airblast overpressure at nearby sensitive receivers from blasting, impacts on significant views from and towards the St Helena ridgeline, and on the proposed east to west wildlife corridor at McLeods Shoot. The department considers that the RMS' proposed mitigation measures would be sufficient to reduce adverse impacts, and has recommended a number of conditions to further minimise the impacts of the proposal.

Based on its assessment, the department considers that the modification is justified and in the public interest. The implementation of the RMS' commitments and the recommended conditions of approval would ensure that the tunnel control centre can be constructed and operated in a manner to minimise environmental impacts. Therefore, the department recommends that modification 6 is approved, subject to the recommended conditions of approval.

Dominic Crinnion
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Approved by

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