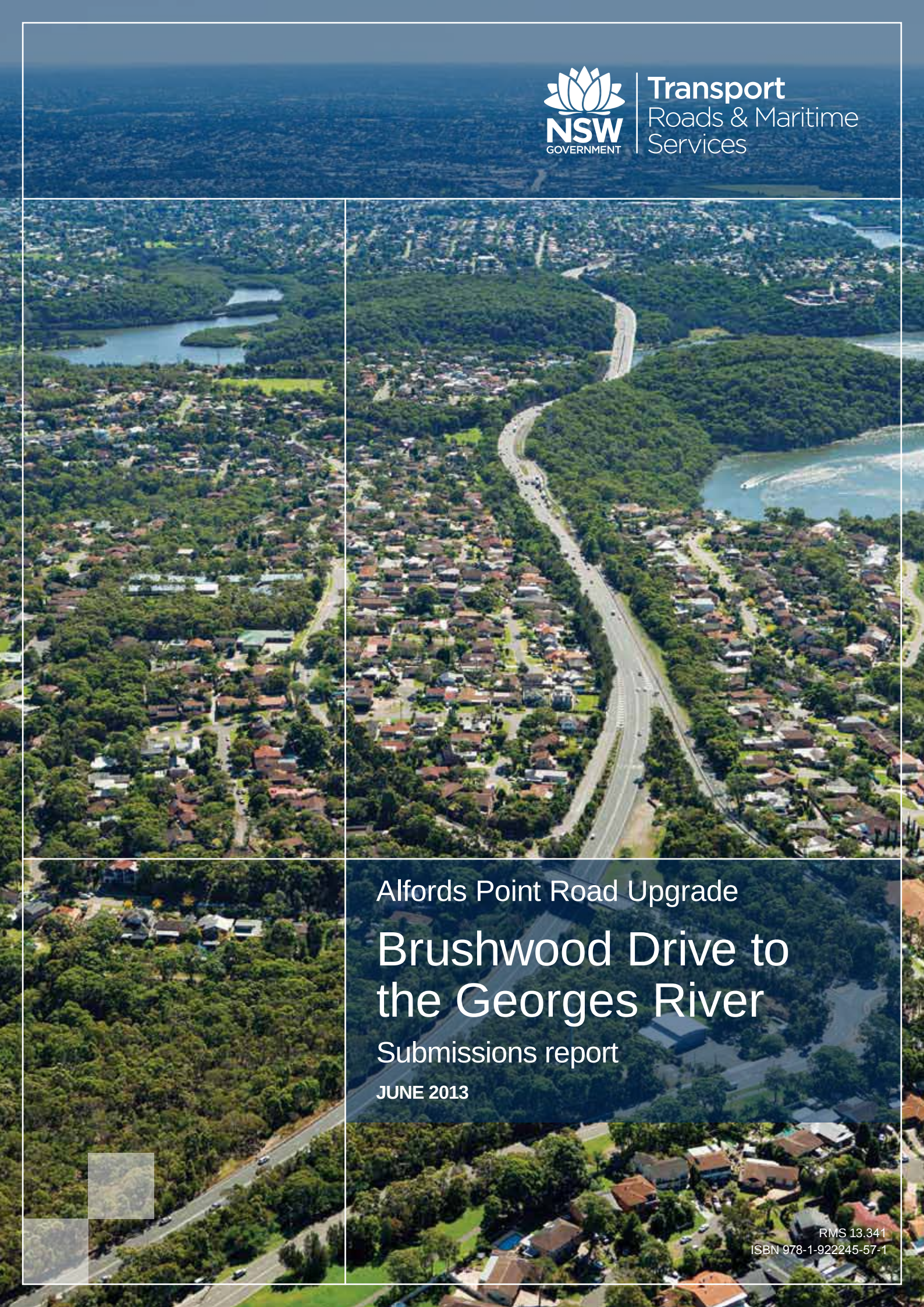


Transport
Roads & Maritime
Services

NSW GOVERNMENT

Alfords Point Road Upgrade

Brushwood Drive to the Georges River

Submissions report

JUNE 2013

RMS 13.341
ISBN 978-1-922245-57-1

Roads and Maritime Services

Alfords Point Road upgrade, Brushwood Drive to the Georges River

Submissions Report

June 2013

This Report has been prepared by GHD for Roads and Maritime Services (RMS) and may only be used and relied on by RMS for the purpose agreed between GHD and RMS as set out in Section 1.1 of this Report.

GHD otherwise disclaims responsibility to any person other than RMS arising in connection with this Report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this Report were limited to those specifically detailed in the Report and are subject to the scope limitations set out in the Report.

The opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the date of preparation of the Report. GHD has no responsibility or obligation to update this Report to account for events or changes occurring subsequent to the date that the Report was prepared.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD described in this Report. GHD disclaims liability arising from any of the assumptions being incorrect.

Executive summary

NSW Roads and Maritime Services (RMS) is proposing to upgrade about 2.1 kilometres of Alfords Point Road between Brushwood Drive and the Georges River at Alfords Point. The proposal is located at Alfords Point about 30 kilometres south-west of the Sydney central business district. Alfords Point is within the Sutherland Shire local government area and the RMS Sydney region.

The proposal forms part of a broader plan to improve traffic flow along Alfords Point Road and through the southern region of Sydney. Alfords Point Road is a key arterial road in southern Sydney, providing access across the Georges River for motorists, cyclists and freight vehicles travelling between the commercial and employment areas of Miranda and Bankstown. The proposal is needed to improve traffic capacity and address congestion issues and would complement the completed duplication of Alfords Point Bridge and its northern approach.

Roads and Maritime Services prepared a review of environmental factors to assess the environmental impacts of the proposal. The REF was placed on public display from 28 February 2013 until 5 April 2013 at three locations across Sutherland, Menai and Padstow. The REF was placed on the RMS internet website and made available for download. A total of 25 submissions were received in response to the public display of the REF comprising three from government agencies (Sutherland Shire Council, Office of Environment and Heritage, Heritage Council of NSW) and 22 submissions from the community.

This submissions report summarises the issues raised and provides responses to each issue. No additional studies were required for this submissions report. Design refinements to the proposal as a result of submissions include changed priority at the Brushwood Drive entry ramp to Alfords Point Road.

The main issues raised by respondents included:

- Impacts to traffic flows, safety and access to an existing bus stop.
- Noise and vibration impacts and the location and use of noise barriers.
- Impacts to heritage, biodiversity and soil and water quality.
- Design of certain aspects of the proposal, such as barriers, ramp design and bus stop location.
- Potential impacts to amenity and safety.

In response to the issues raised in the submissions, the safeguards and management measures for the proposal have been revised to include additional measures from that described in the REF. The revised safeguards and management measures are included in this submissions report.

In summary, the proposal as described in the REF, including refinements as documented in this submissions report, meets the proposal objectives, while minimising environmental impacts and appropriately considering community issues.

Table of contents

Table index

Figure index

Appendices

1. Introduction and background

1.1 Purpose

This submissions report relates to the review of environmental factors (REF) prepared for the Alfords Point Road Upgrade - Brushwood Drive to the Georges River (GHD 2013), and should be read in conjunction with that document.

The REF was placed on public display and submissions relating to the proposal and the REF were received by Roads and Maritime Services. This submissions report summarises the issues raised and provides responses to each issue (refer Section 2), and identifies new or revised environmental management measures (refer Section 3).

1.2 The proposal

NSW Roads and Maritime Services (RMS) proposes to upgrade about 2.1 kilometres of Alfords Point Road between Brushwood Drive and the Georges River at Alfords Point. The proposal is located at Alfords Point about 30 kilometres south-west of the Sydney central business district. Alfords Point is within the Sutherland Shire local government area and the RMS Sydney region.

The key features of the proposal include:

- Upgrade about 2.1 kilometres of Alfords Point Road from a four lane undivided carriageway to a six lane divided carriageway. Alfords Point Road would be widened on the eastern side to accommodate three lanes in each direction.
- Install a continuous concrete type F median barrier from the southern abutment of Alfords Point Bridge to about 1.8 kilometres south to separate the northbound and southbound lanes.
- Provide emergency vehicle access via an opening in the central median barrier at the southern abutment to Alfords Point Bridge.
- Widen the Brushwood Drive northbound entry ramp to accommodate the relocated bus bay.
- Relocate the existing bus stop on the Brushwood Drive entry ramp to about 80 metres south of the existing location.
- Realign and extend the existing footpath to the new bus stop location. To provide pedestrian access to the realigned footpath the existing noise wall opening at Eucalyptus Street would be reoriented from its current north facing direction to a south facing direction (ie the opening would be repositioned seven metres south and the current opening would be closed).
- Widen the single lane section of the Illawong/Alfords Point southbound exit ramp to two lanes for a length of about 300 metres. This would provide additional vehicle storage capacity on approach to the roundabout intersection and prevent queuing onto Alfords Point Road southbound lanes.

- Replace the temporary bitumen shared path with a permanent off-road shared path on the eastern side of Alfords Point Road. The shared path would extend the length of the proposal from Alfords Point Bridge to the roundabout at the end of the Illawong/Alfords Point exit ramp. Where the grades are steep the shared path would be converted into separate cyclist and pedestrian paths for safety reasons. A concrete type F barrier would be installed along the western side of the shared path to separate it from the southbound carriageway.
- Relocate and reinstate the existing pedestrian path between Maxwell Close and the shared path on the eastern side of Alfords Point Road.
- Relocate the existing heavy vehicle inspection bay to a permanent location beneath Old Illawarra Road overbridge (900 metres south of Brushwood Drive on the southbound side of Alfords Point Road). This would include permanent boundary fencing, lockable gates and lighting.
- Provide a vehicle breakdown bay on the southbound carriageway at the location of the existing heavy vehicle inspection bay. The breakdown bay would be an extension of the road pavement and be about 20 metres long and five metres wide.
- Subject to an assessment of feasible and reasonable noise mitigation options:
  - Potentially provide a noise barrier on the western roadside edge of Alfords Point Road for about 700 metres to the north of the existing noise wall.
  - Potentially provide a noise barrier on the eastern side of Alfords Point Road for about one kilometre between Maxwell Close and Brushwood Drive.
- Relocate the existing variable message sign located at the existing heavy vehicle inspection bay to about 500 metres south of the existing location.
- Adjust the pavement drainage along the eastern side of Alfords Point Road and within the median.
- Construct a permanent swale drain and rock check dam at culvert outlets (300 metres and 1620 metres south of Alfords Point Bridge) and a permanent water quality basin 870 metres south of Alfords Point Bridge.
- Relocate the optic fibre cables, light poles and underground electricity on the eastern and western sides of Alfords Point Road to the outside edge of the widened Alfords Point Road. Provide a new utility installation to supply power from Old Illawarra Road to the proposed heavy vehicle inspection bay.

The location of the proposal is shown in Figure 1-1 and an overview of the proposal is shown in Figure 1-2.

1.3 Review of environmental factors display

Roads and Maritime Services prepared a REF to assess the environmental impacts of the proposed works. The REF was placed on public display from 28 February 2013 until 5 April 2013 at three locations, as detailed in Table 1-1.

The REF was placed on the RMS internet website and made available for download. The display locations and website link were advertised in St George and Sutherland Shire Leader on 5, 7, 12 and 14 March 2013, and the Bankstown Torch on 6 and 13 March 2013.

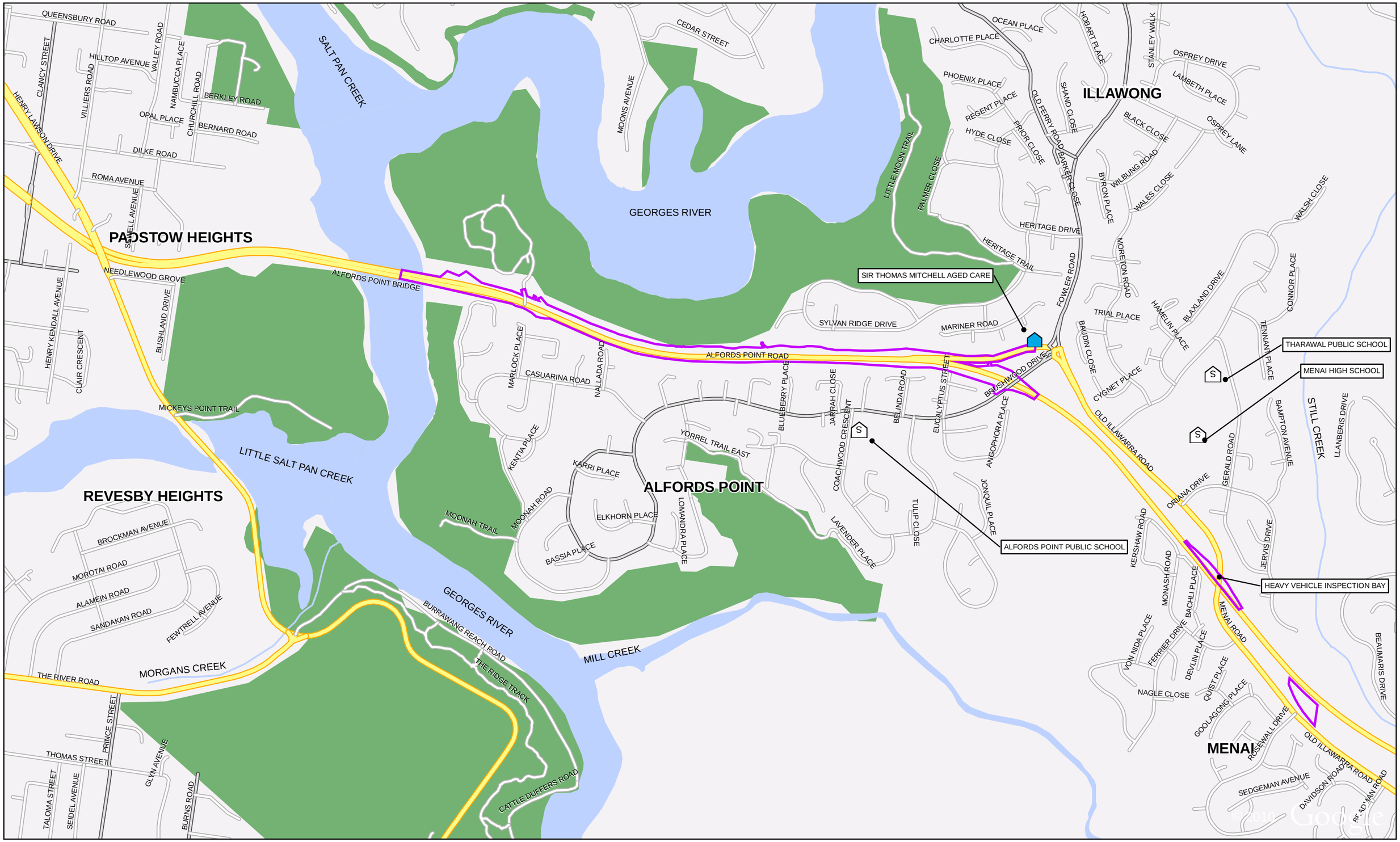
Table 1-1 Display locations

Location	Address
Sutherland Library	30-36 Belmont Street, Sutherland
Menai Library	34-40 Allison Crescent, Menai
Padstow Motor Registry	Shop 1, 11 Cahors Road, Padstow

As part of the public display of the REF, a community information session and two staffed shopping centre displays were held:

- Community information session on Saturday 16 March 2013 between 1pm and 3.30pm at Menai Community Centre, 34 Allison Crescent, Menai.
- Shopping centre displays at Menai Marketplace Shopping Centre, 152-194 Allison Crescent, Menai on:
  - Thursday 7 March 2013, between 3pm and 7pm.
  - Thursday 21 March 2013, between 3pm and 7pm.

In addition to the public display, an invitation to comment and copy of the REF was sent directly to several identified stakeholders (Appendix A).



1:12,000 (at A3)

0 70 140 280 420 560

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

- Education Facillity
- Community Facillity
- Proposal site
- Highways
- Major Roads
- Secondary Roads
- Other Roads
- Waterways (lines)
- Watercourse
- Georges River National Park

CLIENTS | PEOPLE | PERFORMANCE

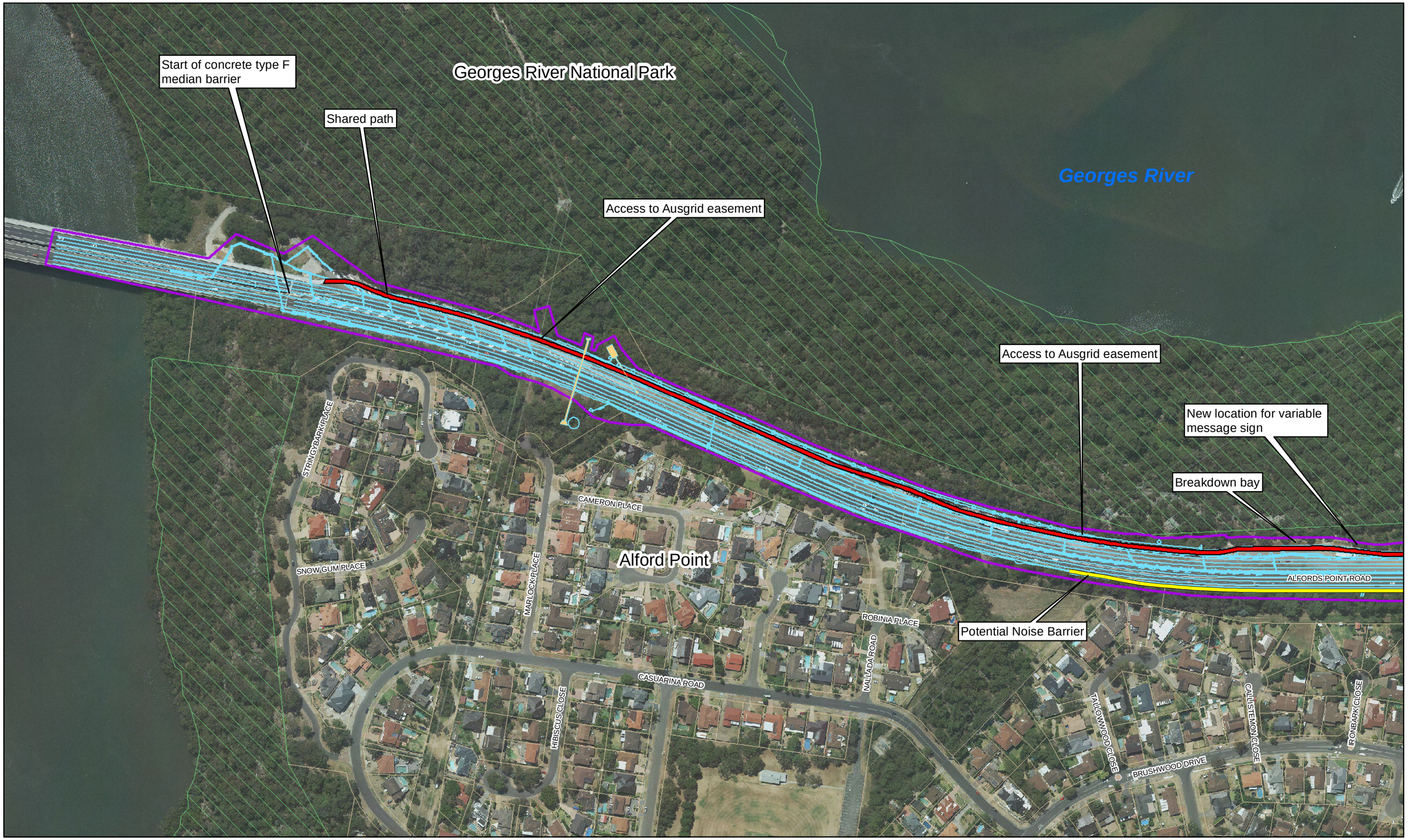
Roads and Maritime Services
Alfords Point Road Upgrade

Job Number 21-21268
Revision A
Date 18 Feb 2013

Regional context

Figure 1.1

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au



1:3,000 (at A3)

0 12.5 25 50 75 100

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

- Existing noise barrier
- Potential noise barrier
- Brushwood drive on ramp
- Footpath to bus stop
- Bus only lane
- Illawong/Alford Point Road Off Ramp
- Construction compound
- Cross drainage features
- Proposal site
- Shared path
- The proposal
- Georges River National Park

CLIENTS | PEOPLE | PERFORMANCE

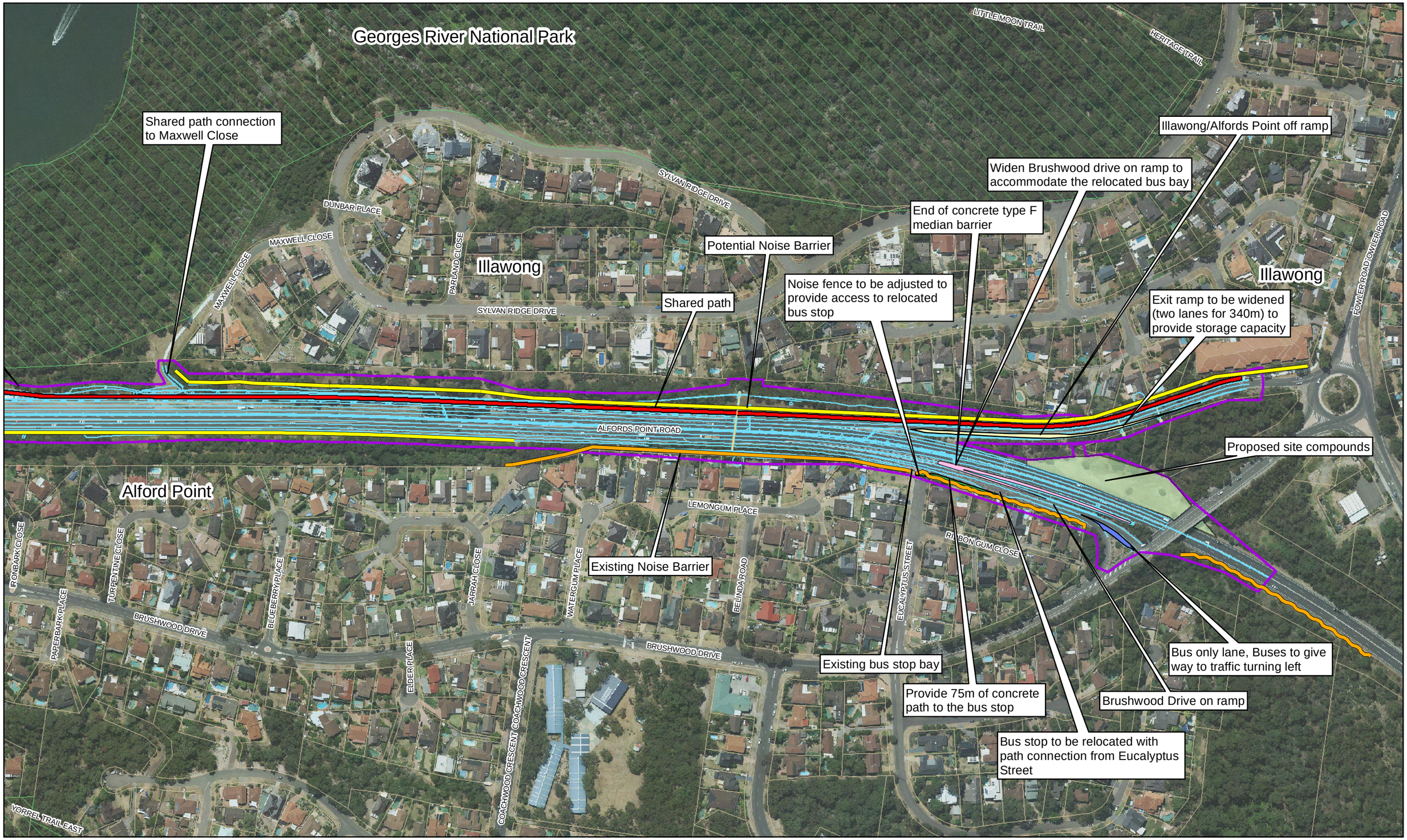
Roads and Maritime Services
Alfords Point Road Upgrade

Job Number	21-21268
Revision	B
Date	18 Feb 2013

The proposal

Figure 1.2 (a)

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au



1:3,000 (at A3)

0 12.5 25 50 75 100

Metres

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 56

N

LEGEND

- Existing noise barrier
- Potential noise barrier
- Brushwood drive on ramp
- Footpath to bus stop
- Bus only lane
- Illawong/Alford Point Road Off Ramp
- Construction compound
- Cross drainage features
- Proposal site
- Shared path
- The proposal
- Georges River National Park

CLIENTS | PEOPLE | PERFORMANCE

Roads and Maritime Services
Alfords Point Road Upgrade

Job Number	21-21268
Revision	B
Date	18 Feb 2013

The proposal

Figure 1.2 (b)

Level 15, 133 Castlereagh Street Sydney NSW 2000 **T** 61 2 9239 7100 **F** 61 2 9239 7199 **E** sydmail@ghd.com.au **W** www.ghd.com.au

2. Response to issues

Roads and Maritime Services received 25 submissions, accepted up until 5 April 2013. Table 2-1 lists the respondents and each respondent's allocated submission number. The table also indicates where the issues from each submission have been addressed in this report.

Table 2-1 Respondents

Respondent	Submission no.	Section number where issues are addressed
Sutherland Shire Council	1	Section 2.2.3, 2.6.1, 2.6.2, 2.6.3 and 2.11
Office of Environment and Heritage	2	Section 2.3, 2.4 and 2.9
Heritage Council of NSW	3	Section 2.5
Illawong Alfords Point Progress Association	4	Section 2.2.3, 2.6.1, 2.6.2, 2.6.4 and 2.8
Individual	5	Section 2.2.1, 2.6.3, 2.6.4, 2.7 and 2.9
Individual	6	Section 2.6.3 and 2.6.4
Individual	7	Section 2.2.3
Individual	8	Section 2.2.3, 2.2.4 and 2.10
Individual	9	Section 2.2.2
Individual	10	Section 2.8
Individual	11	Section 2.6.1
Individual	12	Section 2.6.5
Individual	13	Section 2.6.1, 2.6.2, 2.8 and 2.10
Individual	14	Section 2.10 and 2.11
Individual	15	Section 2.2.3
Individual	16	Section 2.12
Individual	17	Section 2.2.4 and 2.8
Individual	18	Section 2.2.4 and 2.9
Individual	19	Section 2.12
Individual	20	Section 2.12

Respondent	Submission no.	Section number where issues are addressed
Individual	21	Section 2.2.1
Individual	22	Section 2.12
Individual	23	Section 2.6.3
Individual	24	Section 2.2.3
Group feedback during staffed information sessions	25	Section 2.2.1, 2.2.2, 2.2.3, 2.6.1, 2.6.4, 2.6.5, 2.6.6, 2.11 and 2.12

2.1 Overview of issues raised

A total of 25 submissions were received in response to the public display of the environmental assessment comprising three from government agencies (Sutherland Shire Council, Office of Environment and Heritage, Heritage Council of NSW) and 22 submissions from the community.

Each submission has been examined individually to understand the issues being raised. The issues raised in each submission have been extracted and collated, and corresponding responses to the issues have been provided. Where similar issues have been raised in different submissions, only one response has been provided. The issues raised and RMS' response to these issues forms the basis of this section.

The main issues raised by members of the public were related to:

- Traffic flows and access to the existing bus stop on the Brushwood Drive entry ramp.
- Noise and vibration impacts and the location and use of noise barriers.
- Concept design of certain aspects of the proposal, such as noise barriers, ramp design and bus stop location.
- Socio-economic aspects around amenity and safety.

The main issues raised by the Office of Environment and Heritage (OEH) included:

- Impacts to soil and water quality adjacent to the Georges River National Park due to the proposal.
- Impacts to biodiversity, specifically Koala colonies identified in the area.
- Consultation to be undertaken with National Parks and Wildlife Service (NPWS) Area Manager regarding access to the worksite via Georges River National Park.

The main issue raised by the Heritage Council of NSW related to:

- Management of heritage values in the event that unexpected historic heritage or archaeology is disturbed.

The main issues raised by Sutherland Shire Council included:

- Safety concerns around traffic and access at certain intersections.

- Support for noise management and mitigation measures to be included in the scope of the proposal.
- Timing of the proposal.

2.2 Noise and vibration

A noise and vibration assessment was undertaken by Renzo Tonin & Associates in June 2012 to assess the potential noise and vibration impacts during construction and operation of the proposal. The study area for the noise and vibration assessment captured residents within the 50 dB(A) noise contour which included the first and second row of residential receivers along the eastern and western sides of Alfords Point Road. Beyond this distance the predicted operational noise levels emitted from Alfords Point Road would be below 50 dB(A). Road noise traffic criteria are set by the NSW Road Noise Policy for sensitive land receivers. The 50 dB(A) noise criteria is the equivalent external noise level based on the internal noise goal of 40 dB(A), taking into account a 10 dB(A) noise reduction from external to internal noise levels. Noise and vibration is discussed in section 6.1 of the REF and a copy of the specialist report is provided in Appendix F of the REF.

2.2.1 Operational noise

Submission number

5, 21, 25

Issue description

In summary the respondents raised the following issues:

- A respondent from Ribbon Gum Close commented that noise on the second storey of houses is loud, particularly in bedrooms facing Alfords Point Road. The proposed widening and relocation of the bus stop would increase these noise levels.
- Operational noise is already considered an issue, particularly associated with heavy vehicle gear changes.
- Noise at the southbound exit ramp is already acute and treatment is required.

Response

A noise and vibration impact assessment was undertaken for the proposal which considered potential impacts on receivers, including assessment of both levels (ground and first floor) of two storey houses, and potential operational noise impacts relating to relocation of the bus stop on the Brushwood Drive entry ramp. The assessment found that the proposal is not expected to increase noise levels by more than two dB(A) at adjacent residences, and is therefore considered to be minimal. However, the assessment did identify that 27 residences within the study area are already exposed to 'acute' noise levels during day-time hours (greater than or equal to $L_{Aeq,15hr}$ 65 dB(A)) and 49 residences during night-time hours (greater than or equal to $L_{Aeq,9hr}$ 60 dB(A)). Therefore, further investigation of all feasible and reasonable noise mitigation options would be undertaken during detailed design for the receivers currently

affected by acute noise levels (refer to section 6.1.4 of the REF). In addition, the investigation would consider mitigation options on the eastern side of the proposal (from Maxwell Close to Brushwood Drive) due to the high number of receivers close to acute levels. This would be in accordance with the requirements of RMS Environmental Noise Management Manual Practice Note 4.

RMS is mindful of the problems associated with heavy vehicle noise in the vicinity of residential areas. Though RMS does not have any regulatory powers to prosecute in relation to exhaust brake noise, it is implementing strategies to address heavy vehicle noise. The first key strategy is the RMS heavy vehicle inspection program. Vehicles are checked for faulty noise emission control equipment at periodic inspections or following a complaint and defect notices are issued where warranted. The checks also include detailed mechanical and load restraint inspections. The second key strategy is the Compression Brake Sign Education Strategy. This involves a general education program to promote long-term behavioural changes among heavy vehicle operators to encourage the appropriate use of compression brakes. This strategy also includes the installation of signs on all major truck routes at strategic locations around Sydney advising truck drivers to limit the use of compression brakes in the vicinity of residential areas. The vast majority of heavy vehicle operators now see at least one sign on any given journey. Alfords Point Road is a key transport corridor and RMS has installed three of these signs in the local area at the following locations:

- Alfords Point Road south bound, 850 metres north of Brushwood Drive, Illawong.
- New Illawarra Road north bound, 300 metres south of Old Illawarra Road, Lucas Heights.
- Linden Street north bound, north of Leonay Street, Sutherland.

2.2.2 Heavy vehicle inspection bay

Submission number

9, 25

Issue description

In summary the respondents raised the following issues:

- Concern over possible noise issues associated with the relocation of the heavy vehicle inspection bay. A suggestion was made to install noise barriers south of the bay to reduce noise impacts on Illawong residents.
- Cygnet Place is already impacted by noise and the new truck inspection bay will make it worse.

Response

Additional noise monitoring was undertaken during December 2012 at 7 Lee Place, Illawong to represent receivers surrounding the proposed heavy vehicle inspection bay on the eastern side of Alfords Point Road. The proposed location for the inspection bay is within a deep cutting underneath the Old Illawarra Road overpass and the cutting itself provides noise shielding to residences,

particularly on the eastern side of Alfords Point Road. Noise impacts from typical activities at the inspection bay were determined by modelling the noise sources, receiver locations and topographical features of the surrounding area.

A typical truck inspection takes about five minutes, and generally only one truck is inspected at a time. Allowing time for changeover between the conclusion of one inspection and the beginning of the next, the worst case scenario for any 15 minute period was assumed. Based on the worst case scenario, the predicted operational noise levels at the nearest affected receivers during the day and night-time periods were calculated (refer Table 6-20 of REF). The operational hours of the inspection bay are proposed to be generally 6am to 6pm Monday to Saturday. The noise assessment showed that operation during these proposed hours would not exceed the Industrial Noise Policy criteria (of 53 dB(A) during day-time hours, between 7am and 6pm, and 36 dB(A) during night-time hours, between 6am and 7am).

While there may also be inspections outside these hours, provided they are not during the quietest part of the night (between 1am and 4am), then the Industrial Noise Policy criteria would not be exceeded. Operation of the heavy vehicle inspection bay after 6pm and before 6am (and particularly between 1am and 4am) would require strong justification (ie an emergency or safety situation) and compliance with RMS' Environmental Noise Management Manual Practice Note 7 would be required.

In addition to the above, a noise monitoring program would be undertaken within 12 months of opening once traffic flows have stabilised, in order to verify the predicted noise levels in accordance with RMS' Environmental Noise Management Manual. Monitoring would include the heavy vehicle inspection bay. Investigation of additional noise mitigation treatment would be undertaken if monitoring showed increased noise levels above predicted levels.

2.2.3 Noise mitigation measures

Submission number

1, 4, 7, 8, 15, 24, 25

Issue description

In summary the respondents raised the following issues:

- Council and the Illawong-Alfords Point Progress Association support measures to reduce noise levels on the eastern and western sides of Alfords Point Road. Council requested inclusion of noise mitigation measures in the proposal, while the Progress Association commented that residents directly impacted by adverse noise levels should be included in the consultation process.
- Interest in the noise abatement measures that will be considered, as existing noise levels were considered to be impacting on quality of living. Double glazing on second story windows minimises the impact of noise, however during warmer months windows need to be opened to sleep comfortably.
- A noise barrier should be installed on the eastern side of Alfords Point Road to minimise road traffic noise impacting residents in Illawong.

- A residence was not listed in the noise study, and would like further information on architectural noise treatments and whether RMS would maintain the noise wall on the property owner's side.

Response

RMS notes Council and the Progress Association's support of noise mitigation measures. RMS is committed to undertaking an assessment during detailed design of feasible and reasonable noise mitigation options in accordance with RMS' Environmental Noise Management Manual, and the NSW Road Noise Policy. This would include consultation with directly affected landowners to discuss their concerns and requirements. The assessment would include investigation of a noise barrier on the western roadside edge of Alfords Point Road for about 700 metres to the north of the existing noise wall. Subject to an assessment of feasible and reasonable noise mitigation options, a noise barrier would be provided on the eastern side of Alfords Point Road for about one kilometre between Maxwell Close and Brushwood Drive.

In addition to the above, a noise monitoring program would be undertaken within 12 months of opening once traffic flows have stabilised, in order to verify the predicted noise levels in accordance with RMS' Environmental Noise Management Manual. Investigation of additional noise mitigation treatment would be undertaken if monitoring showed increased noise levels above the levels predicted.

Although the proposal is not expected to increase noise levels by more than two dB(A) at nearby residences, 27 residences within the study area are already exposed to 'acute' noise levels during day-time hours and 49 residences are exposed during night-time hours. Therefore, consideration of noise mitigation measures for these residences is required. During detailed design of the proposal, further investigation of all feasible and reasonable noise mitigation options would be undertaken for the receivers currently affected by acute noise levels (refer to section 6.1.4 of the REF). Options include quieter pavement, noise barriers and at-property treatment. The final selection of any noise mitigation options would be undertaken in consultation with affected landowners.

The residence nominated in the submission (in Ribbon Gum Place) was not identified as a sensitive receptor already affected by existing acute noise levels (refer to noise modelling contour maps in Appendix F of the REF) and therefore was not included in Table 10 of Appendix F of the REF. RMS has contacted the noise consultant to obtain the noise levels for this residence. The model indicated that this single storey residence is not currently exposed to acute noise levels during the day-time or night-time periods as it already has a noise wall along its boundary. Furthermore, as a result of the proposal this residence would experience less than a 0.2 dB(A) increase between 2016 and 2026 for both the day-time and night-time periods, and would not exceed NSW Roads Noise Policy criteria. Therefore no further mitigation is proposed as part of the proposal.

Where noise barriers are installed as part of the proposal RMS will seek to install them within the road reserve. Where noise walls are installed, RMS would be responsible for ongoing maintenance of both sides of these noise walls.

2.2.4 Noise barrier design

Submission number

8, 17, 18

Issue description

- No clear indication of the type of screening to be made available for properties as a result of the proposal. A noise mound or screening plants would not provide adequate noise mitigation.
- Preference for a noise mound covered with natural bush rather than a constructed noise barrier that may attract graffiti.
- Walls along the road are claustrophobic, deteriorate in time and attract graffiti resulting in ongoing maintenance costs. Noise barriers should instead be natural and aesthetically pleasing.
- Noise walls should be the same as the existing noise walls in various locations around the Sutherland Shire as they are aesthetically pleasing and the materials used give privacy, noise protection and sun penetration

Response

During detailed design of the proposal, further investigation of all feasible and reasonable noise mitigation options would be undertaken for the receivers currently affected by acute noise levels (refer to section 6.1.4 of the REF). Options include quieter pavement, noise barriers (including a wall, mound or a combination of a wall and mound) and at-property treatment.

It is worthwhile noting that landscape treatments provided as part of the proposal are for visual and urban design purposes only. Vegetation screening is not considered a noise mitigation measure as it provides negligible noise reduction. Dense vegetation provides about one dB(A) reduction per 10 metres of dense vegetation (RTA 2001), and to the human ear the change would need to be three dB(A) to be perceptible. Noise barriers are most feasible where residences are closely grouped and where they are visually acceptable as outlined in the RMS Environmental Noise Management Manual Practice Note 4. The feasibility of a noise mound would be assessed during detailed design.

The design of any potential noise barriers would take into consideration the RMS Noise Wall Design Guidelines (RTA 2007) as well as the following principles, as identified in the Urban Design report in Appendix K of the REF:

- Two metre set back from Alfords Point Road to allow planting of vegetation to screen the roadside face of the noise barrier.
- The noise barrier would be consistent with the design of noise barriers at other locations along Alfords Point Road.
- Materials, colours and textures would be selected to break up the dominant nature of the noise barrier.
- Consideration of the use of transparent panels where it has potential to block solar access to adjacent residential properties.
- Consideration of landscape treatments on the residential face of the eastern barrier to reduce the incidence of graffiti.

The road corridor encompassing Alfords Point Road is lined by vegetation and an existing noise barrier is located on the western side between Brushwood Drive entry ramp and the rear of Jarrah Close. The proposal aims to accommodate both visual amenity and noise management for residents surrounding the proposal area. Installation of noise barriers would consider the RMS *Noise Wall Design Guidelines* (RTA 2007) to ensure minimal removal of vegetation. The installation of noise barriers on the eastern side of Alfords Point Road may require the removal of some vegetation given the distance between the residences and the road side edge, however as much as practicable would be retained or replaced as a visual buffer.

2.3 Biodiversity

A biodiversity assessment was prepared for the REF by GHD in August 2012. Biodiversity is discussed in section 6.2 of the REF, and a full copy of the report is provided in Appendix E of the REF.

Submission number

2

Issue description

In summary the following issues were raised:

- A koala colony has been identified about one kilometre from the proposal. Although the REF identifies there is a lack of suitable feed trees, this colony is connected by a recognised bush corridor. Koalas utilising the riverside corridor could access the work site.

Response

RMS notes that the area surrounding the road has confirmed koala records. The majority of these records are from the Holsworthy Military Area to the west of the study area and the Georges River National Park to the east, with the nearest record being about 420 metres from the study area. It should be noted that the scope of the proposal does not encroach into the National Park.

The REF included *Threatened Species Conservation Act 1995* (NSW) and *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) assessments of significance which concluded that the proposal would not have a significant impact on the koala population. To manage the risk of encountering a koala in the construction area during construction the REF outlines a safeguard that a biodiversity management plan would be prepared by a suitably qualified ecologist who would also conduct pre-clearing inspections. This safeguard has been amended to clarify that this would include a targeted search for the presence of koalas. Any fauna handling would be done by a licensed wildlife carer or ecologist and in accordance with the RMS Biodiversity Guidelines 2011. The pre-clearing survey report developed by the ecologist is also required to provide mitigation measures to be adopted in the biodiversity management plan. Inductions and toolbox talks would also include procedures to follow if koalas are observed on or near the construction area.

2.4 Soils and water quality

Soils and water quality is discussed in section 6.4 of the REF.

Submission number

2

Issue description

In summary the following issues were raised:

- To ensure the proposal does not impact on Georges River National Park, erosion and sedimentation control measures should be implemented prior to works commencing and should be maintained for the duration of construction. The control measures should comply with the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (June 2010).

Response

Prior to the commencement of construction activities, erosion and sedimentation controls would be established to prevent sediment laden surface runoff entering the Georges River National Park and the Georges River as outlined in section 6.4 of the REF. The erosion and sedimentation control measures would be further refined during detailed design, and would be designed and implemented in accordance with the *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (June 2010). The design would address the following specific aims of the guidelines:

- *Prevent erosion and the movement of sediment onto DECCW land, and ensure no detrimental change to hydrological regimes.*
- *Nutrient levels are minimised, and stormwater flow regimes and patterns mimic natural levels before it reaches DECCW land.*

A soil and water management plan would also be prepared as part of the construction environmental management plan (CEMP) prior to construction commencing.

None of the construction catchments for the proposal are anticipated to exceed more than 150 cubic metres of annual soil loss which would trigger the requirements for a construction basin under the policy document *Managing Urban Stormwater: Soils and Construction (The Blue Book)* (Landcom, 2004). However a temporary construction sediment basin is proposed to be constructed as part of the soil and water management strategy due to the sensitive adjacent receiving environment of the Georges River National Park. The proposed basin would collect construction water from an upstream catchment area of about 1.8 hectares and therefore would require a capacity of about 135 cubic metres. Construction basins and connecting drainage are to be constructed as early works. The location and sizing of basins would be further refined during detailed design. Any sedimentation basins required would form part of a comprehensive erosion and sedimentation control strategy during construction of the proposal and meet The Blue Book requirements.

2.5 Heritage

An Aboriginal archaeological survey report was prepared by Kelleher Nightingale in April 2012. A statement of non-Aboriginal heritage impact was also prepared for the proposal by JCIS Consultants in July 2012. Aboriginal heritage is discussed in section 6.5 of the REF, and non-Aboriginal heritage is discussed in section 6.6 of the REF. A full copy of each specialist report is provided in Appendix H and I, respectively, of the REF.

Submission number

3

Issue description

In summary the following issues were raised:

- In the event that unexpected historic (non-Aboriginal) heritage or archaeology is disturbed during works, it is considered appropriate to manage this through the RMS Unexpected Finds Protocol.

Response

In the event of an unexpected find of a non-Aboriginal heritage item (or suspected item), work would cease in the affected area and the Unexpected Finds Procedure (RMS 2012) would be implemented.

2.6 Traffic, safety and access

A traffic impact assessment for the proposal was prepared by SMEC Australia in June 2012. Traffic, safety and access are discussed in section 6.7 of the REF, and a full copy of the specialist report is provided in Appendix J of the REF.

2.6.1 Traffic flow

Submission number

1, 4, 11, 13, 25

Issue description

In summary the respondents raised the following issues:

- Council generally expressed support for the proposal, which should significantly improve existing delays.
- One respondent queried if the proposal would cause bottlenecks further south on Alfords Point Road.
- The Illawong-Alfords Point Progress Association commented that the existing traffic island at the Brushwood Drive/Alfords Point Road entry ramp intersection should be replaced with a roundabout. It was suggested that a third lane should be added for vehicles approaching from the east along Brushwood Drive: two lanes to allow traffic to enter the Alfords Point Road entry ramp and the third outside (kerb) lane to allow through traffic to Alfords Point. For vehicles travelling east along Brushwood Drive, the arc of the left turn lane onto the Alfords Point Road entry ramp needs to be increased.

- An exit ramp from Alfords Point Road onto Brushwood Drive should be provided for northbound traffic.
- Support acknowledged for the central barrier dividing northbound and southbound carriageways on Alfords Point Road. The barrier should include a U-turn facility so traffic can be rerouted in the event of a major incident or bushfire.

Response

RMS acknowledges the support for the proposal provided by Council. The objectives of the proposal are to improve traffic flow and safety along Alfords Point Road. Traffic modelling (refer to section 6.7 of the REF) indicates that in 2026 the proposal would increase the average speed of vehicles travelling along Alfords Point Road by 40km/h in the AM peak and 10km/h in the PM peak compared to the 'do nothing' option. The proposal would also substantially reduce the average vehicle delays in both the AM and PM peak periods. This reduction in congestion would improve safety for road users on Alfords Point Road and minimise the potential for rear-end collisions. The proposal as presented in the REF therefore meets the objectives.

In terms of the proposal causing bottle necks further down Alfords Point Road, the main objective of the proposal is to improve traffic flow and safety along Alfords Point Road between the Georges River and Brushwood Drive. The proposal as presented in the REF meets this objective. Forecast traffic data for the assumed year of opening of the proposal (2016) shows that there would be nearly 30 per cent lower traffic on Alfords Point Road south of the Brushwood Drive entry and exit ramps, compared to the section to the north. This is due to the large number of vehicles that enter and exit at Brushwood Drive.

RMS acknowledges the Progress Association's comments regarding the existing traffic island at the Brushwood Drive/Alfords Point Road entry ramp intersection, however believes that a roundabout is not suitable at this location. On the eastern side of Alfords Point Road, where a roundabout is in place, there is a much greater separation between the end of the bridge across Alfords Point Road and the roundabout's location (including the on and exit ramps from Alfords Point Road). On the western side, provision of a roundabout would require either modification of the bridge structure and/or relocation of the entry ramp further west (into existing residential properties). To address this safety hazard, RMS has reviewed the proposal RMS will change the give-way priority at this intersection as part of this proposal. This will require signage changes and an associated public awareness program (refer to Section 2.6.2) to inform road users of the changed traffic conditions. This design refinement, in addition to the proposal as presented in the REF would address both the safety and traffic efficiency issue raised by the Progress Association.

Traffic modelling has shown that Old Illawarra Road performs satisfactorily with the expected traffic volume, therefore a new northbound exit ramp from Alfords Point Road onto Brushwood Drive is not required as part of the current proposal.

RMS acknowledges the support for a central barrier dividing northbound and southbound carriageways on Alfords Point Road. A movable median barrier has been provided at several locations along the proposal length to allow cross over

in the event of a major traffic incident or emergency situation such as a bush fire, and during future maintenance of Alfords Point Road.

2.6.2 Safety

Submission number

1, 4, 13

Issue description

In summary the respondents raised the following issues:

- Council crash data reveals a crash history at the intersection of Brushwood Drive and Alfords Point Road entry ramp. The existing safety issue at this location has not been resolved. Currently, traffic travelling east from Alfords Point gives way to right turning traffic coming west from Illawong, which is not a standard arrangement. Roundabout control, traffic calming/speed reduction measures or provision of signage should be investigated further.
- Council notes that, with the proposed increase in capacity to Alfords Point Road and the entry ramp from Brushwood Drive, the dual right turn lanes from Fowler Road into Brushwood Drive may no longer be necessary. Prohibiting the right turn from the outside lane of Fowler Road to Brushwood Drive should be investigated.
- A central concrete barrier should be installed between the dedicated exit lane leading into Brushwood Drive and the two through lanes to Menai to stop the unsafe practice of some drivers which cut in at the last minute.

Response

Brushwood Drive entry ramp

Traffic assessment for 2016 in the REF indicates that the level of service at the intersection of Brushwood Drive and Alfords Point entry ramp once the upgrade is completed would be A, which is very good. The existing level of service in the AM peak is F. RMS has reviewed the crash history for the site between 2006 and 2012 and has also undertaken additional traffic modelling to assess the operational impact of changing priority (refer to Appendix C of this submissions report). This assessment of both the crash history and the forecast performance of the intersection with the current priority reversed (removing the give way sign for eastbound traffic on Brushwood Drive) shows that the change maintains the very good level of service A after the upgrade. RMS agrees with the proposal to reverse the priority once construction of the upgrade is complete, such that right turning traffic from Brushwood Drive travelling from the east would give way to eastbound traffic.

RMS would work with Council to ensure that this proposed change is comprehensively communicated to the many motorists that currently use this site and have become used to the current arrangements (refer to safeguard number 52 in Table 4-1).

Fowler Road roundabout

The roundabout at Fowler Road/Brushwood Drive has dual right turn lanes from Fowler Road into Brushwood Drive. Council commented this dual lane arrangement may no longer be necessary with implementation of the proposal and prohibiting the right turn from the outside lane of Fowler Road to Brushwood Drive should be investigated. The right turn movement described by Council is consistent with the current lane arrow marking on site and this movement would be permissible under the NSW Road Rules in the absence of lane arrows. With the proposal as described in the REF, traffic modelling indicates there is substantially less delay for traffic entering Alfords Point Road heading northbound from Brushwood Drive, as well as for traffic heading west on Fowler Road and wishing to travel south (turn left) onto Alfords Point Road via Old Illawarra Road. In addition, there have been only four reported multi-vehicle crashes at this site in the most recent five year period, which is relatively low for such a heavily trafficked site. As such, it is not proposed to change the existing traffic arrangements at this time. RMS would complete a post-construction safety audit of the roundabout within 12 months of completion of the construction, which would include a review of level of service and crashes (refer to safeguard number 53 in Table 4-1). If corrective actions are required, they would be implemented in consultation with Council.

Fowler Road exit ramp

A concrete barrier is not appropriate for the dedicated exit lane to Fowler Road because this will not address the driver behaviour problem and will only move the problem further north. The design for the proposal has been undertaken in accordance with the relevant Australian Standards (*Austroads Guide to Road Design*) and relevant local variations (*RMS Supplements*), which include appropriate treatments for the areas on approach to adjacent exit ramps and through lanes.

2.6.3 Relocated bus stop

Submission number

1, 5, 6, 23

Issue description

In summary the respondents raised the following issues:

- One respondent expressed agreement that the bus stop adjacent to Eucalyptus Street in its current location is a high safety concern.
- There should be no requirement for buses to merge.
- Council asked that adequate clearance be provided for Council to re-install the bus shelter at the proposed bus stop location and that safe pedestrian access should be provided from Eucalyptus Street to the new bus stop.
- A bus shelter should be installed at the proposed new bus stop location.
- To ensure the safety of bus passengers, a concrete fence should be installed between the bus stop footpath and the Brushwood Drive entry ramp.

- Safety concerns were raised associated with the public walking along the entry ramp to access the bus stop, particularly for those individuals with mobility issues.

Response

RMS acknowledges that the existing bus stop on the Brushwood Drive entry ramp is in a location with poor sight distances. Buses are required to stop in the entry ramp merge lane to pick up and set down passengers. A feature of the proposal is to relocate the existing bus stop on the Brushwood Drive entry ramp to about 80 metres south of its current location. This location would greatly increase safety for pedestrians and motorists due to improved visibility and a slower speed environment. Relocation of the bus stop would also make it easier for buses to stop without blocking entry ramp traffic and improve the merge with other vehicles, therefore reducing congestion.

The buses would use the bus only lane to wait for a safe gap in the traffic entering from westbound on Brushwood Drive to enter the bus bay to the north. This arrangement eliminates the need for the buses to merge across the entering traffic from Brushwood Drive into the bus bay in a short distance, which is a safety issue.

The bus shelter on the Brushwood Drive/Alfords Point Road entry ramp was temporarily removed by Council after it was damaged by a bus. RMS acknowledges the need for adequate clearance to install the bus shelter and this would be provided at the new bus stop location. The bus shelter installation would be funded by Council and relocation costs would be funded by RMS.

As part of the proposal, a dedicated pedestrian path would be provided from Eucalyptus Street to the new bus stop location (refer to section 3.3.6 of the REF). The path would be suitably designed in accordance with Austroads ‘Guide to Road Design Part 6A: Pedestrian and Cyclist Paths’ for people with mobility issues. In addition, lighting would be reviewed and modified to provide safe lighting for road traffic and pedestrians in this vicinity. RMS is currently investigating options to provide separation between the road and pedestrians at this location. RMS will develop options during detailed design for provision of a barrier to separate the proposed new path leading to the bus stop from vehicles travelling down the entry ramp (refer to safeguard number 49 in Table 4-1).

2.6.4 Alternative bus stop locations

Submission number

4, 5, 6, 25

Issue description

In summary the respondents raised the following issues:

- Consideration should be given to installing another bus stop at the most northerly end of Alfords Point to improve access to bus services for residents living in the middle and northern areas of Alfords Point.
- The Progress Association commented that a new bus stop should be provided on the eastern side of Alfords Point Road heading southbound, linking with existing pedestrian access from Maxwell Close.

- A bus stop is needed on the eastern side of Alfords Point Road near the intersection with Fowler Road.
- The bus stop adjacent to Eucalyptus Street should be located on a newly created access road next to the fire station on Old Illawarra Road (Menai Road), where safety rails and paths already exist.

Response

Selection of bus stop locations is made by Transport for NSW and the local bus operator.

Alfords Point Road is a controlled access road, with a primary function to serve high speed regional and inter-regional travel. The existing bus stop for northbound travel along Alfords Point Road is being moved some 80 metres south to a point where the prevailing travel speeds will be lower and with the downhill grade of the entry ramp, buses will be more readily able to accelerate to prevailing speeds. Another bus stop located at the most northerly end of Alfords Point would not be able to achieve these objectives in relation to safety or operational efficiency and therefore an additional bus stop would not be provided.

The closest southbound bus stop to the proposal is located on Old Illawarra Road about 100 metres south of the Brushwood Drive overbridge. The provision of a bus stop southbound on Alfords Point Road, adjacent to Maxwell Close or near the intersection with Fowler Road, was not considered. Due to the steep uphill gradient of Alfords Point Road at this location, buses exiting the bus stop would not be able to accelerate to a sufficient speed to safely merge with through traffic.

A bus stop adjacent to the fire station on Old Illawarra Road was not considered in the concept design as an alternative to the current bus stop on the northbound entry ramp as this would serve a different residential catchment. The proposed location is considered as providing a balance of accessibility and safety as described in section 2.6.3 of the REF.

2.6.5 Pedestrian access

Submission number

12, 25

Issue description

In summary the respondent raised the following issues:

- A pedestrian path should be built on the western side of Alfords Point Road.
- Pedestrian access should be provided for residents on the eastern side of Alfords Point Road to the bus stop on the western side.
- One respondent asked whether a pedestrian overbridge had been considered closer to the Alfords Point Bridge from Mahogany Close, Cameron Place, Nallada Road or Marlock Place.

Response

A pedestrian path on the western side of Alfords Point Road was not pursued as part of the proposal as the narrow width between the carriageway and the cutting makes provision of a pathway dangerous and difficult to construct. Access under Alfords Point Bridge to provide a connection with the shared path on the eastern side of Alfords Point Bridge was also considered. This option does not comply with Austroads *Guide to Road Design Part 6A: Pedestrian and Cyclist Paths* for disabled access due to the steep grades, and would potentially create security risks for pedestrians.

Pedestrian access from the eastern side of Alfords Point Road to the bus stop on the western side is currently provided via the Brushwood Drive overbridge.

During early strategic development of the proposal, RMS investigated options to provide access from the western side of Alfords Point Road to the pedestrian path on the eastern side. This included consideration of a potential pedestrian bridge from Marlock Place to the eastern pedestrian path. This option was not pursued as it was not considered justified for the following reasons:

- Construction of a pedestrian bridge would be expensive due to the topography of the area, the need to provide lengthy disabled access ramps on the eastern side, and the need to avoid the Georges River National Park.
- The structure would also be likely to have considerable visual impacts both to motorists and on residential views.
- The strategic bridge option investigated would also have had a direct impact to an identified Aboriginal cultural heritage constraint.
- There is no significant pedestrian attractor or source in the vicinity and usage is expected to be low, which would not justify the cost of building the bridge. Alternative safe access to the pedestrian path on the eastern side is available via Brushwood Drive.

2.6.6 Illegal truck parking

Submission number

25

Issue description

In summary the following issues were raised:

- Illegal truck parking occurs at the existing heavy vehicle inspection bay. The respondent suggested that Council should provide a truck parking area near the tip and charge users.

Response

It is known to RMS that illegal parking occurs at the existing heavy vehicle inspection bay. “No Parking” signage is currently in place to discourage this. The proposal would relocate this heavy vehicle inspection bay further south to underneath the Old Illawarra Road overbridge. The new location would include lockable gates and fencing to prevent potential illegal parking in the new heavy vehicle inspection bay. Suggestions for Council to provide truck parking near

the tip should be addressed to Sutherland Shire Council. The area where the existing heavy vehicle inspection bay is currently located would become a formalised road verge and breakdown bay and parking would not be permitted. Enforcement of illegal parking is a matter for NSW police and council. Council will be informed about the illegal parking issue.

2.7 Amenity and safety

Submission number

5

Issue description

In summary the following issues were raised:

- Concern for amenity and safety of residents due to the proposed bus stop relocation and creation of walkway directly behind properties in Ribbon Gum Close. The respondent suggested the potential for vandalism and rubbish dumping to occur, creating concern for security and loss of privacy and value to the property. During evenings/late night weekends, large groups may congregate at the bus stop causing noise.

Response

The current bus stop was relocated in consultation with the bus operator to a position that ensured the operational efficiency of both Alfords Point Road and the bus service, while improving the safety for bus passengers and continuing to serve the Alfords Point passenger catchment. RMS is aware of the security concerns, vandalism and rubbish dumping that can be associated with bus stops. The new bus stop would be designed to minimise these potential issues. This would include planting of vegetation along the rear of properties to deter graffiti and illegal entry, and maintain privacy, as well as maximising passive surveillance. The bus stop layout and landscaping would also ensure passive surveillance opportunities from Alfords Point Road are maximised. RMS is responsible for the maintenance of the road corridor. Rubbish and graffiti removal would be carried out in accordance with RMS policies, including *Beyond the Pavement* (RMS 2009) and *Designing to minimise vandalism* (draft; RMS 2010), and as part of general road maintenance.

If a property is adjacent to a new or upgraded road and would potentially decrease in property value, RMS does not provide financial compensation. However, RMS has identified potential impacts as a result of the proposal and impacts have been avoided and minimised where possible.

2.8 Concept design

Submission number

4, 10, 13, 17

Issue description

In summary the respondents raised the following issues:

- Respondents expressed their support for concept design aspects of the proposal, including the bike path linking Illawong and Padstow, the central

barrier dividing north and south carriageways on Alfords Point Road, the two lanes for southbound traffic approaching the Alfords Point/Illawong roundabout and dedicated exit lane.

- The proposed location of the new heavy vehicle inspection bay would be easy to avoid when RMS inspectors are checking trucks and could increase heavy vehicle traffic flow through local streets, including through a school zone. A suggested option was to move the location further south by around 50 to 150 metres where the available space widens considerably and there is still considerable distance from dwellings.
- Dropping the speed limit on Alfords Point Road from 80 km/h to 70 km/h would reduce noise and traffic incidents.
- The Illawong-Alfords Point Progress Association suggested moving the variable message sign closer to the M5 to allow motorists greater opportunity to take alternative routes in the event of an accident/emergency. The current location is on the crest of a hill and causes traffic delays when drivers slow down to read the sign.

Response

The objectives of the proposal are to improve traffic flow and safety along Alfords Point Road between Georges River and Brushwood Drive. The proposal as presented in the REF achieves these objectives. RMS acknowledges the support for concept design aspects of the proposal provided by the respondents.

Heavy vehicle inspection bay

Options for the relocation of the heavy vehicle inspection bay were assessed in the REF in section 2.6.1. The proposed location was preferred as it improves safety and minimises noise impact, as the heavy vehicles would be exiting the bay on a slight downhill grade without the need to change lanes. The suggestion to move the inspection bay 50 to 150 metres to the south has been discounted as it is on an uphill grade. This limits trucks in their ability to accelerate efficiently, thus diminishing the safety and traffic efficiency benefits of the proposal. It would also put slow moving trucks wishing to continue south on Alfords Point Road and merging right in conflict with vehicles merging left to exit Alfords Point Road towards Illawong or Alfords Point.

The issue of avoidance is not new for RMS as it is very difficult (in most cases) to locate a site where it cannot be avoided due to the number of local streets. In saying this, attempted avoidance is currently being monitored across Sydney.

RMS would undertake pre- and post-construction surveys of truck movements on Old Illawarra Road to determine whether the relocated heavy vehicle inspection bay is being avoided. Should this be identified as an issue on Alfords Point Road, strategies would be investigated and RMS would liaise with heavy vehicle enforcement contacts to provide advice and guidance on this matter. An additional safeguard has been added (refer to safeguard number 50 in Table 4-1).

Alfords Point Road speed limit

While RMS acknowledges that a reduction in the speed limit would lead to a slight reduction in noise generated from road traffic, the proposed speed limit is

consistent with the NSW Speed Zoning Guideline. This guideline aims to ensure that speed limits and speed zones are set to balance road safety with mobility needs. Further, the guide seeks to ensure an appropriate balance of speed zones which are sensitive to changes in conditions along the length of a road without excessive numbers of changes. The guidelines also recommend restricted use of 70 km/h and 90 km/h speed zones.

Variable message sign

The existing variable message sign would be relocated to allow for the widening of Alfords Point Road. The new location for the variable message sign would be about 500 metres south of its current location, further away from the crest of the hill. This location is also preferred due to its negligible visual impact on adjacent residential areas. A primary function of the variable message sign at this location is to inform southbound motorists of traffic conditions south of the Brushwood Drive exit ramp, to enable motorists to exit Alfords Point Road via the Brushwood Drive exit ramp in the event of an accident/emergency ahead.

2.9 Consultation

Submission number

2, 5, 18

Issue description

In summary the respondents raised the following issues:

- The Office of Environment and Heritage requires that RMS must contact the NPWS Area Manager well in advance if it is intended to use any portion of the Georges River National Park for access to the worksite.
- One respondent requested that any public submissions be displayed on the proposal web site, all comments be responded to and respondents kept up to date.
- Direct communication is required with all residents affected by the proposed bus stop relocation (ie those residents on the left hand side of Ribbon Gum Close).
- One respondent requested direct communication regarding noise impacts and mitigation measures.

Response

RMS acknowledges the requirement from the Office of Environment and Heritage in relation to use of Georges River National Park for access to the worksite. The scope of the proposal does not encroach into the National Park. The National Park would form a ‘no-go’ zone and an exclusion boundary would be established prior to the commencement of construction. If required, any encroachment into the National Park (including utility works or access) would be subject to further assessment and approvals. This would include consultation with Office of Environment and Heritage and the NPWS Area Manager.

In terms of displaying public submissions, this submissions report summarises all issues raised by the community and provides a response as to how each issue has been addressed. This submissions report will be uploaded onto the

RMS internet website. Each respondent during the display period will receive an acknowledgement letter for their submission. Submission authors will be subsequently advised when project information is released. After consideration of community comments, RMS will determine whether the proposal should proceed as proposed, or whether any alterations to the proposal are necessary. The community will be kept informed regarding this determination.

The request for additional consultation has been acknowledged for land owners identified for possible noise mitigation. All noise affected residents would be consulted during detailed design.

Direct communication was provided for the respondent who requested additional consultation in relation to the bus stop relocation and noise impacts. Project timing, bus stop location and barriers, and noise mitigation options were discussed. The respondent requested to be kept informed and has been added to the stakeholders list.

2.10 Proposal need

Submission number

8, 13, 14

Issue description

In summary the following issues were raised:

- A number of respondents support the proposal and widening of the north and southbound lanes of Alfords Point Road to three lanes, as this is essential to handle current volumes and will greatly improve traffic flow and safety.
- One respondent questioned the need for an additional lane on Alfords Point Road, specifically at the southbound exit ramp, claiming this was not required as traffic flowed efficiently and quickly during peak periods.

Response

RMS acknowledges the support from respondents for the proposal.

The performance of Alfords Point Road was assessed based on the criteria defined in the RMS *Guide to Traffic Generating Developments* (RTA, 2002). These criteria are ‘average vehicle delay’ and ‘level of service’ (refer to Table 6-33 of the REF for further explanation). The performance assessment of Alfords Point Road indicated that during AM peak hour periods the northbound lanes currently operate at capacity with a level of service E. During the PM peak hour period, the southbound direction of Alfords Point Road also operates at capacity with a level of service E. Level of service E indicates over saturated conditions with long delays and queues. The upgrading of Alfords Point Road to six lanes and the upgrade of the Brushwood Drive entry ramp and the Illawong/Alfords Point exit ramp were selected as the preferred option to improve the level of service on Alfords Point Road. The additional lane on Alfords Point Road would also minimise the risk of accidents from vehicles on the exit ramp spilling back onto Alfords Point Road and causing a hazard for through traffic.

2.11 Proposal timing

Submission number

1, 14, 25

Issue description

In summary the respondents raised the following issues:

- Alfords Point Road should have originally been built as six lanes.
- The proposal should be expedited; there were expectations that the proposal should already be funded and constructed.
- One respondent asked whether the proposal would commence in the next financial year.

Response

Alfords Point Bridge and its approaches were originally constructed in 1973 and included a generous cutting to allow for future carriageway widening. Alfords Point Road was later expanded in 1989 to include a tidal flow arrangement and an extension to four lanes between Brushwood Drive and Old Illawarra Road. Alfords Point Bridge was duplicated in 2008 and the northern approaches were widened in late 2011. RMS is now proposing to upgrade the southern approaches to Alfords Point Bridge. These upgrades have been implemented by RMS as traffic volumes and congestion on Alfords Point Road increases and the need to upgrade was triggered.

Following consideration of submissions received following the display of the REF, RMS will determine whether the proposal should proceed, or whether any alterations to the proposal are necessary. If RMS decides to proceed with the proposal, RMS would invite tenders for detailed design; following this and subject to funding, construction tenders would then be invited. The timing of these subsequent activities has not been confirmed. Construction of the proposal is anticipated to take about 24 months to complete (weather permitting).

2.12 Out of scope

Submission number

16, 20, 22, 25

Issue description

In summary the respondents raised the following issues:

- The proposal does not address the problem of PM peak traffic between Brushwood Drive and Menai Road. Alfords Point Road from Brushwood Drive to Menai Road should be upgraded to three lanes to handle the volume of traffic approaching Menai Road. The left hand turn into Menai Road also needs to be upgraded to two lanes.
- Congestion at the Menai Road intersection is worse than that at Alfords Point Road.

- Traffic lights need to be removed at the intersection of Alfords Point Road and Menai Road. A dedicated exit lane (with barrier) is needed for traffic exiting Alfords Point Road to Fowler Road.
- The northbound exit lane at Clancy Street exit ramp needs a sign south of the bridge to advise drivers that the left hand lane is the exit lane for Clancy Street.
- One respondent commented on the level of congestion on Stacey Street heading northbound approaching the Hume Highway.
- One respondent asked whether Heathcote Road near Holsworthy was being upgraded.
- Cyclists should pay a levy because of the drain on public services.
- One respondent noted excessive noise from Bangor Bypass.

Response

The current proposal is targeted at a specific section of the road network and the option presented is considered to address current congestion around Fowler Road/Brushwood Drive and south of the Georges River. RMS constantly monitors the operating performance of the road network with the support of Transport for NSW and the Transport Management Centre and develops cost effective treatments in response to observed problems.

The objectives of the proposal are to improve traffic flow and safety along Alfords Point Road between Brushwood Drive and the Georges River. The proposal as presented in the REF meets these objectives.

The Alfords Point Road and Menai Road intersection is beyond the scope of this proposal however the Sydney Traffic Management section, of RMS, is aware of the concerns relating to this intersection. Investigations for improving this intersection are underway.

The provision of signage for the proposal would be developed during detailed design which would include consideration of directional signage south of the bridge to alert motorists of the turning lanes for the Clancy Street exit ramp. An additional safeguard (number 48) has been added to Table 4-1 to reflect this.

The NSW Government has an aim to “more than double the mode share of bicycle trips made in the Greater Sydney region, at a local and district level, by 2016,” (NSW 2011). The proposal as described in the REF would replace the temporary bitumen shared path with a permanent off-road shared path on the eastern side of Alfords Point Road. The shared path would extend the length of the proposal from Alfords Point Bridge to the roundabout at the end of the Illawong/Alfords Point exit ramp. This submission related to the levy is noted but is not considered to be directly relevant to an impact of the current proposal.

In relation to Heathcote Road, other proposals that RMS is aware of include the current RMS proposal to replace the bridge over Deadmans Creek on Heathcote Road at Sandy Point. Further information regarding this project can be found at the project website (www.rta.nsw.gov.au/roadprojects/projects/sydney_region/southern_sydney/deadmans_creek_bridge/index.html).

A separate proposal by the Gandangara Local Aboriginal Land Council for a state significant development at West Menai (Heathcote Ridge) is currently under assessment by Department of Planning and Infrastructure. Draft conditions of approval are available online at the link provided below and include conditions relating to upgrade of Heathcote Road (vparegister.planning.nsw.gov.au/index.pl?action=view_job&job_id=5813).

For information regarding the Bangor Bypass and post construction noise monitoring, refer to the Bangor Bypass website (http://www.rta.nsw.gov.au/roadprojects/projects/sydney_region/completed_projects/bangor_bypass/). Post construction monitoring was carried out in 2005 for Stage 1 of Bangor Bypass (from Woronora Bridge to Alfords Point Road) and 2012 for Stage 2 of the Bypass (linking New Illawarra Road to Stage 1). Additional treatment was identified for 44 residences in Stage 1 and no additional treatment was required for Stage 2.

3. Changes to the proposal

3.1 Changed priority at the Brushwood Drive entry ramp

3.1.1 Description

In their submission, Sutherland Shire Council raised concern with the crash history at the intersection of Brushwood Drive and Alfords Point Road entry ramp. Currently, traffic travelling east from Alfords Point gives way to right turning traffic coming west from Illawong, which is not a standard arrangement. Council requested investigation of roundabout control, traffic calming/speed reduction measures or provision of signage at this location to address the safety issue.

RMS has reviewed the crash history for the site between 2006 and 2012 and has also undertaken additional traffic modelling to assess the operational impact of changing priority.

As a result, it is now proposed to reverse the priority of this intersection once construction of the upgrade is complete, such that right turning traffic from Brushwood Drive travelling from the east would give way to eastbound traffic.

3.1.2 Environmental assessment

Supplementary traffic analysis has been undertaken by RMS, including consideration of the changed priority at this intersection (refer to Appendix C of this submissions report).

Traffic assessment for 2016 in the REF indicates that the level of service at the intersection of Brushwood Drive and Alfords Point entry ramp once the upgrade is completed would be A, which is very good. The existing level of service in the AM peak is F. This assessment of both the crash history and the forecast performance of the intersection with the current priority reversed (removing the give way sign for eastbound traffic on Brushwood Drive) shows that the change maintains the very good level of service A after the upgrade.

3.1.3 Revised management and mitigation measures

RMS would work with Council to ensure that this proposed change is comprehensively communicated to the many motorists that currently use this site and have become used to the current arrangements. An additional safeguard has been provided in Table 4-1 (safeguard number 52).

4. Environmental management

The REF for the upgrade of Alfords Point Road between Brushwood Drive and the Georges River identified the framework for environmental management, including management and mitigation measures that would be adopted to avoid or reduce environmental impacts (refer Section 7 of the REF).

After consideration of the issues raised in the submissions, the management and mitigation measures have been revised and some additions have been made.

Should the proposal proceed, environmental management will be guided by the framework and measures outlined below.

4.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A Construction Environmental Management Plan (CEMP) would be prepared to describe safeguards and management measures identified. These plans will provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation.

The plans would be prepared prior to construction of the proposal and must be reviewed and certified by RMS environment staff, Sydney region, prior to the commencement of any on-site works. The CEMP would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in RMS' QA Specification G36 – Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan) and the QA Specification G40 – Clearing and Grubbing.

4.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document would be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards would minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 4-1. Changes and additions made to those previously outlined in the REF are recorded in **blue and bold**.

Table 4-1 Summary of site specific environmental safeguards

1	**General**	**All environmental safeguards must be incorporated within the following documents:** • **Detailed design report.** • **Contract specifications for the proposal.** • **Contractor's Construction Environmental Management Plan (CEMP).**	**Project manager**	**Pre-construction**
2	**General**	**A risk assessment must be carried out on the proposal in accordance with the RMS ProjectPack and Project Management Services risk assessment procedures to determine an audit and inspection program for the works. The recommendations of the risk assessment are to be implemented.** **A review of the risk assessment must be undertaken after the initial audit or inspection to evaluate if the level of risk chosen for the project is appropriate.** **Any works resulting from the proposal and as covered by the review of environmental factors may be subject to environmental audit(s) and/or inspection(s) at any time during their duration.**	**Project manager and regional environmental staff**	**Pre-construction** **After first audit**
3	**General**	**The environmental contract specification QA Specification G36 – Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan) and the QA Specification G40 – Clearing and Grubbing must be forwarded to the Roads and Maritime Services Senior Environmental Officer for review at least 10 working days prior to the tender stage.** **A contractual hold point must be maintained until the CEMP is reviewed by the Roads and Maritime Services Senior Environmental Officer.**	**Project manager**	**Pre-construction**
4	**General**	**The Project Manager must notify the Roads and Maritime Services Environment Officer Sydney region at least five days prior to site work commencing.**	**Project manager**	**Pre-construction**
5	**General**	**All businesses and residences within the suburbs illustrated on Figure 1.1**	**Project**	**Pre-**

		of the REF must be notified at least five working days prior to the commencement of the proposed activities.	**manager**	**construction**
6	**General**	**Environmental awareness training must be provided, by the contractor, to all field personnel and subcontractors.**	**Contractor**	**Pre-construction and during construction as required**
7	Noise and vibration	An assessment of feasible and reasonable noise mitigation measures for operation of the proposal will be undertaken in accordance with the RMS *Environmental Noise Management Manual Practice Note 4*.	RMS	Pre-construction
8	Noise and vibration	A construction noise and vibration management plan will prepared and include, but not be limited to, the following: • Identify potentially affected properties • A risk assessment to determine the potential for discrete work activities to affect receivers • A map indicating the locations considered likely to be impacted • Mitigation measures to reduce excessive noise during construction activities • A construction staging program incorporating a program of noise monitoring at sensitive receivers • A process for assessing the performance of **temporary** mitigation measures • A process for resolving issues and conflicts • Consider construction compound layout so that primary noise sources are at a maximum distance from residences, with solid structures (sheds and containers) placed between residences and noise sources (and as close to the noise sources as is practical) • Locating compressors, generators, pumps and any other fixed plant as far from residences as possible and behind site structures • Where practical, equipment will be selected to minimise noise emissions. • Equipment will be fitted with appropriate silencers and be in good working	Construction contractor	Pre-construction

		order. Machines found to produce excessive noise compared to normal industry expectations will be removed from the site or stood down until repairs or modifications can be made • Responsible working practices including: – Avoid the use of outdoor radios during the night-time period – Avoid shouting and slamming doors – Where practical, machines will be operated at low a speed/power and switched off when not in use rather than left idling for prolonged periods – Minimise reversing • Avoid dropping materials from height and avoid metal to metal contact on material.		
9	Noise and vibration	Building condition surveys will be undertaken for any building, structure or utilities located within 20 metres of construction works.	Construction contractor	Pre-construction
10	Noise and vibration	Works will be carried out during standard working hours (ie 7am–6pm Monday to Friday, 8am–1pm Saturdays). Any work that is performed outside normal work hours or on a Sunday or public holiday is to **minimise** noise impacts in accordance with RMS's *Environmental Noise Management Manual Practice Note 7 – Roadworks Outside of Normal Working Hours (RTA 2001)* and the *Interim Construction Noise Guidelines* (DECC 2009). This will include notifying the local community of any works planned to be undertaken outside standard construction hours.	Construction contractor	Pre-construction
11	Noise and vibration	The local community that could be affected by the proposed works will be contacted and informed of the proposed work, location, duration of work, and hours involved. The contact will be made a minimum five days prior to commencement of works.	Construction contractor and RMS	Pre-construction and construction
12	Noise and vibration	The Contractor will review their noise and vibration management plan in response to complaints and amended where practical throughout the construction phase. This will include consideration of respite periods.	Construction contractor	Construction
13	Noise and vibration	**Vibration producing activities such as rock hammering and compacting will be required outside standard working hours, these activities will be managed in accordance with RMS's *Environmental Noise Management***	Construction contractor	Construction

		Manual Practice Note 7 – Roadworks Outside of Normal Working Hours (RTA 2001).		
14	Noise and vibration	During work hours, a community liaison phone number and site contact will be provided **on site signage and the RMS project website** so that complaints can be received and responded to.	Construction contractor	Construction
15	Noise and vibration	Vibration testing will be undertaken on high risk plant to determine site specific buffer distances.	Construction contractor	Construction
16	Noise and vibration	Where vibration is found to exceed project criteria, management measures will be implemented to control vibration. In terms of human comfort criteria, measures will include modifications of construction methods and respite periods. For potential structural damage impacts, modification of construction methods will be necessary.	Construction contractor	Construction
17	Noise and vibration	Attended compliance noise and vibration monitoring will be undertaken upon receipt of a complaint. Monitoring will be reported as soon as possible. In the case that exceedances are detected, the situation will be reviewed in order to identify means to minimise the impacts to residences.	Construction contractor	Construction
18	Noise and vibration	A noise monitoring program will be undertaken within 12 months of opening once traffic flows have stabilised in order to verify the predicted noise levels. **Monitoring will include the heavy vehicle inspection bay. Investigation of additional noise mitigation treatment will be undertaken if monitoring showed increased noise levels above predicted levels.**	RMS	Post Construction
19	Biodiversity	A Biodiversity Management Plan (BMP) is to be prepared and included within the CEMP. The BMP is to include (but not be limited to) the following: • A suitably qualified ecologist is to be engaged to visit the site prior to any clearing works to clearly demarcate vegetation protection areas (particularly hollow bearing trees and areas of EEC) and conduct a pre-clearing survey report • **The pre-clearing survey is to include a targeted search for the presence of koalas** • A site walk with the RMS Environmental Officer to confirm clearing boundaries prior to the commencement of work	Construction contractor	Pre-construction

		• A map which clearly shows vegetation clearing boundaries and no-go zones • A procedure for clearing potential habitat including hollow-bearing trees in accordance with RMS Specification G40. An experienced, licenced wildlife carer or ecologist will be present to supervise vegetation clearing and capture then relocate fauna if required. Fauna handling and vegetation removal will be in accordance with the RMS *Biodiversity Guidelines 2011* • Incorporation of management measures identified as a result of the pre-clearing survey report and nomination of actions to respond to the recommendations made. This should include details of measures to be implemented to protect clearing limits and no go areas • Content of toolbox talks and records of attendance • Compliance with RMS Biodiversity Guidelines (RTA, 2011). • Clearing of mature trees should be minimised where **practical** • Habitat features such as mature tree trunks and rock fragments within the proposal site should be salvaged and replaced within revegetation areas as far as is practicable. • Protocols to prevent introduction or spread of chytrid fungus should be implemented following OEH Hygiene protocol for the control of disease in frogs (DECCW, 2008c).		
20	Biodiversity	Prepare Environmental Work Method Statements for **the following** specific work activities **as a minimum**: • **Clearing and grubbing** • **Basin and drainage work** • **Any activity directly adjacent to the Georges River National Park** • **Earthworks** **The Environmental Work Method Statements** must include but not be limited to the following: • Description of the work activity including machinery • Outline of sequence of tasks, including interfaces with other construction	Construction contractor	Pre-construction

		activities • Identification of potential environmental risks/impacts due to the work activity and risks/impacts associated with wet weather events • Evaluation of possible mitigation measures to reduce the environmental risk and selection of most practical cost-effective operational and monitoring measures to reduce environmental impact • A map indicating the locations of likely potential environmental impacts and sensitive locations • Identification of work areas and exclusion areas • A process for assessing the performance of the implemented environmental control measures.		
21	Biodiversity	A Weed Management Plan (WMP) will be prepared and incorporated into the CEMP. The WMP will be in accordance with the requirements of RMS Specifications G36 and G40 and include (but not be limited to) the following: • Type and location of weeds of concern (including noxious weeds) within the proposal site • Sensitive receivers (such as native vegetation and waterways) within or adjacent to the proposal site • Measures to prevent the spread of weeds and fungi, including hygiene procedures for equipment, footwear and clothing • Proposed weed control methods and targeted areas • Weed disposal protocols.	Construction contractor	Pre-construction
22	**Biodiversity**	**Staff environmental awareness training and inductions are to include procedures to follow if koalas are encountered during construction.**	**Construction Contractor**	**Construction**
23	Hydrology and drainage	A contingency plan will be prepared in preparation for a potential flood event during construction and will outline evacuation procedures.	Construction contractor	Pre-construction
24	Soils and water quality	Operation water quality measures will be further investigated during detailed design including consideration of bio filtration measures in consultation with the RMS Environmental Officer.	RMS	Pre-construction

25	Soils and water quality	The principal Erosion and Sedimentation Control Plan (ESCP) will be sent to RMS Senior Environment Officer (Sydney Region) for review and verification prior to the construction tender.	RMS	Pre-construction
26	Soils and water quality	The Construction Environmental Management Plan (CEMP) will include a contingency plan for any acid sulfate soils or contamination identified during the construction phase.	Construction contractor	Pre-construction
27	Soils and water quality	A Soil and Water Management Plan (SWMP) will be prepared as part of the Construction Environmental Management Plan (CEMP) in accordance with the requirements of RMS contract specification G38 prior to the commencement of construction. The SWMP will also address the following: • The RMS Code of Practice for Water Management • The RMS Erosion and Sedimentation Procedure (RTA, 2008) • The Blue Book - *Managing Urban Stormwater: Soils and Construction*, Volume 1 and 2 (Landcom, 2004) • RMS Technical Guidelines – *Temporary Stormwater Drainage for Road Construction* (RMS, 2011). • ***Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (June 2010).***	Construction contractor	Pre-construction
28	Soils and water quality	In addition to the G38 requirements, the SWMP will: • Address the requirements of the principal Erosion and Sedimentation Control Plan (ESCP) • Include an ESCP in accordance with the requirements of the Blue Book • Outline basin flocculation and dewatering procedures • **Require basins and connecting drainage to be installed as early works** • Outline a procedure for the containment and management of spills or leaks • A summary of applicable legislation • A procedure for regular inspection, maintenance and cleaning of erosion and sediment controls	Construction contractor	Pre-construction

		• Outline regular monitoring of Bureau of Meteorology weather forecasts • Be reviewed by RMS's Environmental Officer, Sydney Region prior to the commencement of works.		
29	Soils and water quality	A principal Erosion and Sedimentation Control Plan (ESCP) will be prepared during detailed design which is to include as a minimum: • Identification of catchment areas and the direction of on-site and off-site water flow • The likely run-off from each road sub-catchment • Separation of on-site and off-site water • The direction of run-off and drainage points during each stage of construction • The locations and sizing of sediment basins • The locations of other erosion and sediment control measures (eg rock check dams, swales and sediment fences) • A materials management plan. The ESCP is to be reviewed by a soil conservationist and will be updated to address the recommendations.	RMS / Designer	Pre-construction
30	Soils and water quality	A separate ESCP is to be prepared which outlines controls to be implemented in preparation for a wet weather event.	Construction contractor	Pre-construction
31	Soils and water quality	Batters will be stabilised progressively using appropriate ground cover once construction completed.	Construction contractor	Construction
32	Soils and water quality	Disturbed surfaces will be compacted and stabilised in anticipation of rain events to reduce the potential for erosion.	Construction contractor	Construction
33	Soils and water quality	Topsoil will be stockpiled separately for possible reuse for the landscaping and rehabilitation works.	Construction contractor	Construction
34	Soils and water quality	All stockpiles will be designed, established, operated and decommissioned in accordance with RMS' *Stockpile Management Procedures* (RTA 2011).	Construction contractor	Construction
35	Soils and	Controls will be implemented at exit points to minimise the tracking of soil and	Construction	Construction

	water quality	particulates onto pavement surfaces.	contractor	
36	Soils and water quality	Any material transported onto pavement surfaces will be swept and removed at the end of each working day and prior to rainfall.	Construction contractor	Construction
37	Soils and water quality	An accredited soil conservationist will be engaged to regularly inspect works throughout the construction phase.	RMS	Construction
38	Soils and water quality	Low lying areas of construction formations and excavations will collect stormwater and will need to be dewatered in accordance with the *RMS Technical Guideline for Dewatering*.	Construction contractor	Construction
39	Soils and water quality	A monitoring program and checklist for the sediment basin will be prepared and implemented, including: • Monitoring procedures and frequency • Flocculation procedures • Dewatering procedures.	Construction contractor	Construction
40	Aboriginal cultural heritage	An Aboriginal Cultural Heritage Management plan will be prepared and included within the CEMP. The plan is required to address (but not be limited to) the following: • A sensitive areas map which clearly identifies exclusion zones • Fencing to control access to exclusion zones during construction • An environmental risk assessment to determine potential risks for discrete work elements or activities likely to affect significant heritage elements • Vibration management measures for works in the vicinity of APS1 • Specific mitigation measures to avoid risk of harm • A process to communicate risk and responsibilities through environmental awareness training and inductions • A stop works procedure in the event of actual or suspected potential harm to a heritage feature/place	Construction contactor	Pre-construction
41	Aboriginal	In the event of an unexpected find of an Aboriginal heritage item (or suspected	Construction	Construction

	cultural heritage	item), work will cease in the affected area and RMS' Environmental Officer, Sydney Region and the RMS Senior Environmental Specialist (Aboriginal heritage), will be contacted for advice on how to proceed. The Unexpected Finds Procedure (RMS 2012) will be followed in the event a potential artefact is uncovered.	contactor	
42	Non-Aboriginal heritage	In the event of an unexpected find of a non-Aboriginal heritage item (or suspected item) work will cease in the affected area and the policies and procedures in the RMS *Unexpected Archaeological Finds Procedure* (RMS 2012) will be implemented.	Construction contractor	Construction
43	Traffic and access	A traffic management plan (TMP) will be prepared prior to **the commencement of** construction and included in the CEMP. The TMP will include measures to minimise construction vehicle impacts on the surrounding local road network, such as restrictions on vehicle delivery times and ensuring construction traffic is minimised during peak periods. The TMP will also ensure that pedestrian and cyclist access from Illawong and Alfords Point to Alfords Point Bridge is maintained at all times during construction. It will also ensure all property accesses, access to the Ausgrid easements and Alfords Point Bridge maintenance access will be maintained throughout construction.	Construction contractor	Pre-construction
44	Traffic and access	Consultation with emergency service authorities will be undertaken during development of the detailed design including NSW Rural Fire Service and Fire Rescue.	RMS	Pre-construction
45	Traffic and access	A detailed construction staging plan will be developed to maintain existing peak flow capacity. This will include staging of construction works on the Illawong/Alfords Point exit ramp.	RMS and construction contractor	Pre-construction
46	Traffic and access	Maintain pedestrian and cyclist access throughout construction.	Contractor	Pre-construction
47	**Traffic and access**	**A signage strategy will be developed for the proposal and surrounding road network during detailed design, and will include consideration of directional signage south of the Georges River bridge to alert northbound motorists of lane allocation for the Clancy Street exit ramp.**	**RMS**	**Pre-construction**
48	**Traffic and access**	**RMS will develop options during detailed design for provision of a barrier to separate the proposed new path leading to the relocated bus stop from**	**RMS/Designer**	**Pre-construction**

		vehicles travelling on the entry ramp.		
49	**Traffic and access**	**RMS will monitor attempted avoidance of the heavy vehicle inspection bay by heavy vehicles, by conducting pre- and post-construction surveys on Old Illawarra Road. Should avoidance be identified as an issue, strategies will be investigated and RMS will liaise with heavy vehicle enforcement contacts to provide advice and guidance on this matter.**	**RMS**	**Pre and post-construction**
50	Traffic and access	Appropriate protection will be installed to separate pedestrians and cyclists from work areas.	Contractor	Construction
51	**Traffic and access**	**The priority of the intersection of Brushwood Drive and Alfords Point Road entry ramp will be reversed once construction is complete, such that right turning traffic from Brushwood Drive travelling from the east will give way to eastbound traffic. RMS will develop and implement a communications strategy in consultation with Sutherland Council and will notify road users of the changed traffic conditions at least one month prior to the change being implemented.**	**RMS**	**Post-construction**
52	**Traffic and access**	**RMS will complete a post-construction safety audit of the roundabout at Fowler Road/Brushwood Drive within 12 months of completion of construction, which will include a review level of service and crashes. If corrective actions are required, they will be developed in consultation with Sutherland Council.**	**RMS**	**Post-construction**
53	Landscape character and visual amenity	Detailed design of the proposal will incorporate the design principles outlined in the Landscape Character, Visual Impact Assessment and Urban Design Report where feasible, including: • Landscape and urban design principles in Section 3.3.6 and Appendix K of the REF • Treatment of verges, safety barriers and infrastructure elements will be simple and robust in detail, and considerate of the greater landscape experience • The design of safety barriers and lighting will be compatible with the design elements of Alfords Point Road northern approach and Alfords Point Bridge • The provision of seats with shade trees at steep sections of the shared path will be considered during detailed design.	RMS/Designer	Pre-construction

54	Landscape character and visual amenity	The design of potential noise barriers **or mounds** will be undertaken during detailed design and will take into consideration the RMS Noise Wall Design Guidelines (RTA 2007). The following principles will be considered during the design of the noise barriers: • Two metre set back from Alfords Point Road to allow planting of vegetation to screen the roadside face of the noise barrier • The noise barrier will be consistent with the design of noise barriers on nearby roads • Materials, colours and textures will be selected to break up the dominant nature of the noise barrier • Transparent panels will be incorporated into sections of the noise barrier where it has potential to block solar access to adjacent residential properties • Consideration of landscape treatments, **including retention of existing vegetation,** on the residential face of the eastern barrier to reduce the incidence of graffiti **and act as a visual buffer**.	RMS/Designer	Pre-construction
55	Landscape character and visual amenity	An urban design contractor from RMS panel will be engaged for the detailed design phase to ensure adequate consideration of urban design principles and objectives, and to ensure appropriate mitigation of identified impacts.	RMS/Designer	Pre-construction
56	Landscape character and visual amenity	Where vegetation loss reduces the amount of screening between residences and the shared path and residents and the Illawong/Alfords Point exit ramp, causing loss of amenity and privacy, the following will be considered: • Tree protection measures at the base of the fill embankment to maintain as much mature vegetation as possible • Early works to plant advanced stock adjacent to the proposed shared path at the top of the embankment • Early works to plant advanced stock between the base of the embankment and the road corridor boundary • Using fast growing species such as Acacia on the embankment.	RMS/Designer	Pre-construction

57	Landscape character and visual amenity	The footprint for construction works will be kept to a minimum to ensure existing stands of vegetation remain intact wherever possible and to screen adjoining sensitive receivers.	Construction contractor	Construction
58	Landscape character and visual amenity	Fencing with material attached (eg shade cloth) will be provided around the construction compounds and other areas to screen views of the construction compounds from adjoining properties.	Construction contractor	Construction
59	Landscape character and visual amenity	The work site will be left in a tidy manner at the end of each work day.	Construction contractor	Construction
60	Air quality	An Air Quality Management Plan will be prepared and included within the CEMP. The plan is required to address (but not be limited to) the following: • A procedure for monitoring dust on-site and weather conditions • Identification of dust generating activities and associated mitigation measures • Limits on the area that can be opened up or distributed at any one time • Compliance with RMS stockpile site management guideline (2011) • Progressive stabilisation plans.	Construction contractor	Pre-construction
61	Air quality	Any rock hammering works required adjacent to Sir Thomas Mitchell Aged Care Facility will be dampened to reduce dust generation. At other locations dampening during rock hammering will be used as necessary to reduce dust generation or works will cease during windy conditions.	Construction contractor	Construction
62	Land use and property	**The Georges River National Park will form a 'no-go' zone and an exclusion boundary will be established prior to the commencement of construction.**	**Construction contractor**	**Construction**
63	Socio-economic	A complaint handling procedure and register will be included in the CEMP.	Construction contractor	Pre-construction
64	**Socio-economic**	**Where practicable, design and landscaping of the new bus stop on the Brushwood Drive entry ramp will maximise passive surveillance from**	**RMS/Designer**	**Pre-construction**

		adjoining properties.		
65	Socio-economic	Local residents will be notified prior to works commencing and will be kept regularly informed of construction activities during the construction process.	Construction contractor	Pre-construction and construction
66	Socio-economic	During construction, road users, pedestrians and cyclists will be informed of changed conditions.	Construction contractor	Construction
67	Socio-economic	Residents will be informed prior to any interruptions to utility services that may be experienced as a result of utilities relocation.	Construction contractor	Construction
68	Waste management	The following resource management hierarchy principles will be followed: • Avoid unnecessary resource consumption as a priority • Avoidance will be followed by resource recovery (including reuse of materials, reprocessing, and recycling and energy recovery) • Disposal will be undertaken as a last resort (in accordance with the *Waste Avoidance and Resource Recovery Act, 2001*).	Construction contractor	Construction
69	Waste management	A Waste Management Plan will be prepared, which will include the following: • Identify all potential waste streams associated with the works • Identify opportunities to minimise the use of resources, and to reuse and recycle materials • Outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities.	Construction contractor	Pre-construction
70	Waste management	Cleared weed free vegetation will be chipped and reused onsite as part of the proposed landscaping and to stabilise disturbed soils where possible. Weedy mulch will either be composted to ensure propagules and seeds are sterilised or will not be reused.	Construction contractor	Construction
71	Waste management	Excess excavated material will be disposed of at an appropriate facility or reused appropriately for fill on the proposal site, or on other RMS projects, or as otherwise provided for by waste legislation.	Construction contractor	Construction
72	Waste	Garbage receptacles will be provided and recycling of materials encouraged.	Construction	Construction

	management	Rubbish will be transported to an appropriate waste disposal facility.	contractor	
73	Waste management	All wastes will be managed in accordance with the *Protection of the Environment Operations Act 1997.*	Construction contractor	Construction
74	Waste management	Portable toilets will be provided for construction workers and will be managed by the service provider to ensure the appropriate disposal of sewage.	Construction contractor	Construction
75	Waste management	Site inductions will occur and be recorded by a Site Supervisor to ensure staff are aware of waste disposal protocols.	Construction contractor	Construction
76	Waste management	A dedicated concrete washout facility will be provided during construction so that runoff from the washing of concrete machinery and equipment could be collected and disposed of at an appropriate waste facility.	Construction contractor	Construction
77	Waste management	Excess soil requiring waste disposal will first be assessed against the waste classification guidelines *NSW DEC 2008 Part 1: Classifying Waste*. Soil samples will be taken from stockpiled material and analysed. Transportation will be undertaken by a licensed contractor capable of transporting the waste and waste will be disposed of to an appropriately licensed waste facility with supporting waste classification documentation.	Construction contractor	Construction
78	Demand on resources	**Where possible,** procurement will endeavour to use materials and products with a recycled content where that material or product is cost and performance effective.	Construction contractor	Pre-construction and construction
79	Demand on resources	Excavated material will be reused on-site **in accordance with the REF assessment where feasible and reasonable. For example landscaping, potential noise mounds and pavement. If fill is to be re-used outside of the scope of the REF assessment, further environmental assessment would be undertaken in consultation with the Senior Environmental Officer (Sydney).**	Construction contractor	Construction
80	Demand on resources	Any additional fill material required will be sourced from appropriately licensed facilities and/or other RMS projects **(in accordance with relevant waste legislation requirements)**.	Construction contractor/RMS	Construction
81	Hazards and risks	Emergency response plans will be incorporated into the construction environmental management plan. This will include a bushfire response plan.	Construction contractor	Pre-construction
82	Climate	Detailed design will take into consideration the potential effect of climate change	RMS	Pre-construction

	change and greenhouse gas	on the proposal, including drainage requirements.		
83	Climate change and greenhouse gas	The use of alternative fuels and power sources for construction plant and equipment will be investigated and implemented, where appropriate.	Construction contractor	Pre-construction
84	Climate change and greenhouse gas	The energy efficiency and related carbon emissions will be considered in the selection of vehicle and plant equipment.	Construction contractor	Pre-construction
85	Climate change and greenhouse gas	Materials will be delivered as full loads and local suppliers will be used where possible.	Construction contractor	Construction
86	Climate change and greenhouse gas	Construction equipment, plant and vehicles will be appropriately sized for the task.	Construction contractor	Construction
87	Climate change and greenhouse gas	Equipment will be serviced frequently to ensure they are operating efficiently.	Construction contractor	Construction
88	Climate change and greenhouse gas	Vehicles and machinery will not be left idling when not in use.	Construction contractor	Construction
89	Climate change and greenhouse gas	Clearing of natural vegetation will be minimised where possible.	Construction contractor	Construction

90	Cumulative impacts	The CEMP will be revised to consider potential cumulative impacts from surrounding development activities as they become known.	Construction contractor	Pre-construction
91	Other - continued consultation	Detailed design will give consideration to the design requests from Veolia **as outlined in Section 5.5 of the REF**.	RMS	Pre-construction
92	Other - continued consultation	Detailed design will include an objective to incorporate operational access to the Ausgrid easement.	RMS	Pre-construction
93	Other - continued consultation	A Sydney Water servicing coordinator will be engaged prior to construction commencing to assess the impact of the proposal on Sydney Water assets	RMS	Pre-construction
94	**Other - continued consultation**	**All land owners identified for possible noise mitigation will be consulted during detailed design.**	**RMS**	**Pre-construction**

4.3 Licensing and approvals

Table 4-2 lists all relevant licenses, permits, notifications and/or approvals needed to construct/operate the proposal.

Table 4-2 Summary of licensing and approval required

Requirement	Timing
No additional licences or approvals are required for the proposal.	N/A

5. References

Austroads, 2009. *Guide to Road Design,* Austroads.

GHD 2013, *Alfords Point Road Upgrade, Brushwood Drive to the Georges River – Review of Environmental Factors*, February 2013.

Landcom, 2004. Managing Urban Stormwater: Soils and Construction. Volume 1, 4th Edition Lyall and Associates, 2006, *Alfords Point Bridge Duplication – Pavement drainage design report.*

NSW Government 2011. *NSW 2021: A Plan To Make NSW Number One*. NSW Government, http://www.2021.nsw.gov.au/sites/default/files/NSW%202021_Return%20Quality%20Services_5.pdf.

RMS, 2009. *Beyond the Pavement: RTA urban design policy, procedures and design principles*. July 2009.

RMS, 2010. *Designing to minimise vandalism* (draft). 2010.

RMS, 2012. *Unexpected Archaeological Finds Procedure.* July 2012.

RTA 2001. *Environmental Noise Management Manual*. December 2001.

RTA, 2002. *RTA Guide to Traffic Generating Developments*, Version 2.2, October *2002.*

RTA, 2007. *Noise wall design guideline.*

RTA, 2011, *Draft Stockpile Site Management Procedures.*

Appendices

Appendix A – List of stakeholders and copy of community update

Stakeholder consultation list

- Sutherland Shire Council
- NSW Department of Premier and Cabinet - Office of Environment and Heritage National Parks and Wildlife Branch
- NSW Department of Premier and Cabinet – Office of Environment - Heritage Branch
- NSW Department of Planning and Infrastructure
- NSW Department of Primary Industries – Fishing and aquaculture NSW
- Heritage Council of NSW
- Commonwealth Department of Sustainability, Environment, Water, Population and Communities
- Veolia
- Sydney Water
- Telstra
- Ausgrid
- Bicycle NSW.

Community Update

Transport Roads & Maritime Services

NSW GOVERNMENT

FEBRUARY 2013

Alfords Point Road Southern Approach

Georges River to Brushwood Drive

Roads and Maritime Services (RMS) is planning for the upgrade of Alfords Point Road, between Brushwood Drive and Alfords Point Bridge over the Georges River, to improve traffic flow and road safety.

The review of environmental factors (including the concept design) to upgrade Alfords Point Road from a four-lane road to six-lane divided road is on display for community comment until Friday 5 April 2013.

Background

Alfords Point Road is a key road in southern Sydney, providing access across the Georges River for motorists, commuters, cyclists and freight.

RMS has been working to improve travel times and road safety on the route by:

- Duplicating Alfords Point Bridge in 2008.
- Upgrading the Alfords Point Bridge northern approach in 2011.
- Planning to upgrade Alfords Point Road between the Georges River and Brushwood Drive.

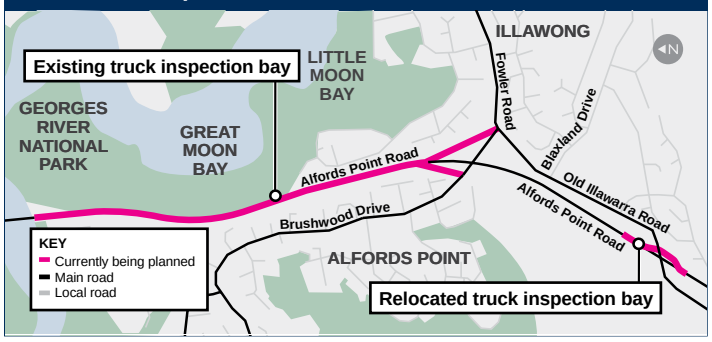
RMS has prepared an environmental impact assessment of the proposed upgrade, known as a review of environmental factors (REF). The REF assesses the potential environmental impacts, identifies environmental issues and outlines mitigation and management measures.

It includes investigations into removal of vegetation, change to visual amenity, potential impacts to water quality and noise and vibration impacts.

Please see the back of this update for information on how to view the REF.

The upgrade is currently in the planning phase and construction time frames have not been confirmed.

Location map



Key features of the proposed upgrade

- Widen Alfords Point Road between Georges River and Brushwood Drive from two lanes to three lanes in each direction.
- Improve traffic flow to and from Brushwood Drive on and off ramps by using the new lanes.
- A central barrier to improve safety by dividing the northbound and southbound carriageways.
- Relocate the northbound bus bay on Alfords Point Road on ramp near Eucalyptus Street, to a location approximately 100 metres to the south.
- New road surface and improved drainage system.
- A breakdown bay along the southbound carriageway located approximately midway between the Georges River and Brushwood Drive.
- Truck inspection area on the southbound carriageway relocated to beneath Old Illawarra Road bridge, approximately 900 metres south of Brushwood Drive (see location map above).
- Realign the pedestrian path on the eastern side of Alfords Point Road.
- Adjust existing noise walls, possible provision of noise barriers and/or architectural treatments to address noise issues.
- Cycleway access from Alfords Point Road.

Have your say!

See back page for more details

Noise levels in the road corridor

A noise assessment has been completed to document existing noise levels and model future predicted noise levels in the road corridor. Noise investigations show existing noise levels are acute in some locations. The noise model shows noise levels would generally remain the same after Alfords Point Road is upgraded.

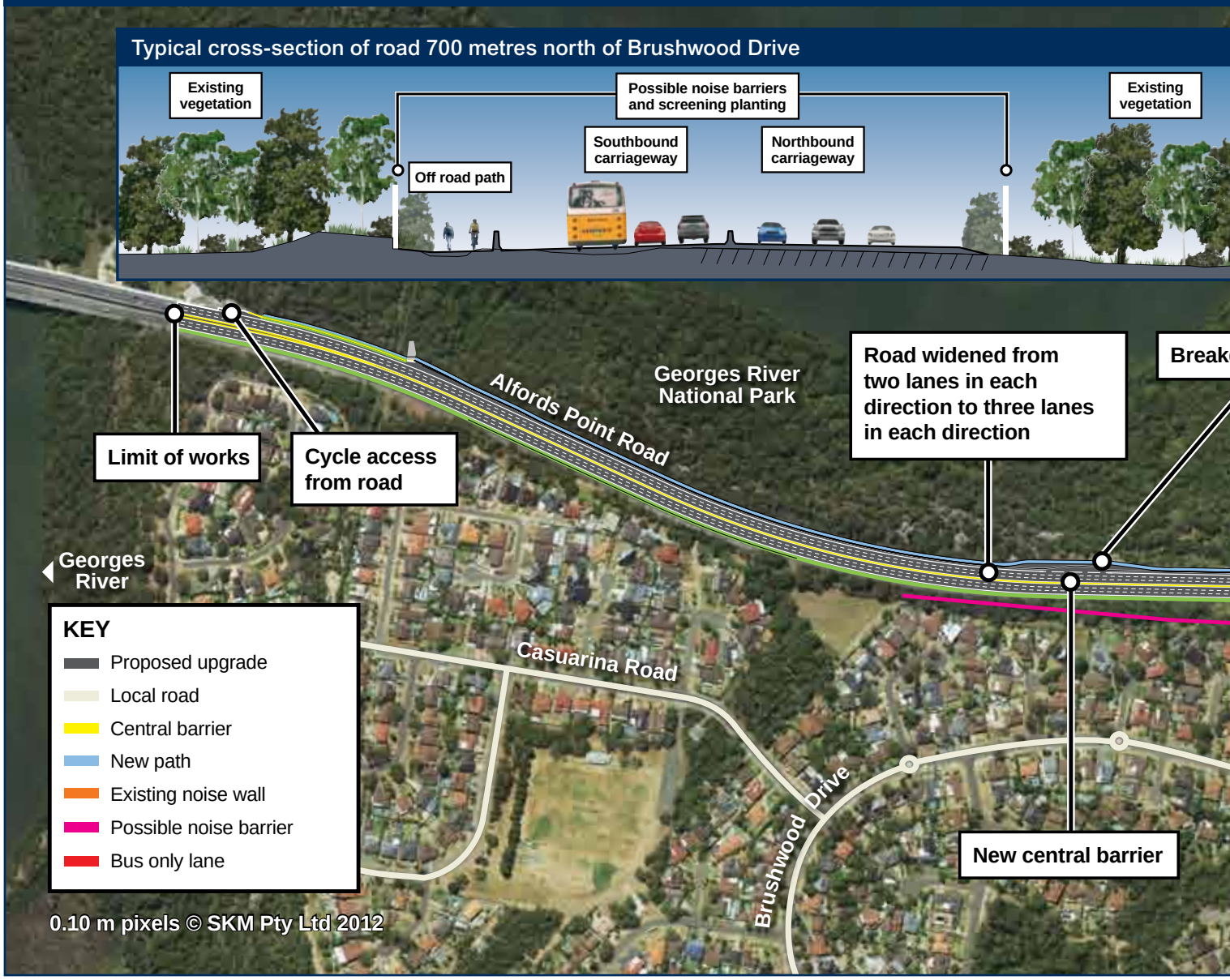
RMS is investigating noise reduction measures for homes currently receiving acute noise levels. Measures being investigated are noise barriers (wall or earth mound) and architectural treatment to individual homes or a combination of these measures.

Further investigation of feasible and reasonable options will be carried out during detailed design. The factors being considered include constructability and potential impact on residents. Please see the concept design below to see possible noise barrier locations, depending on the outcome of investigations.

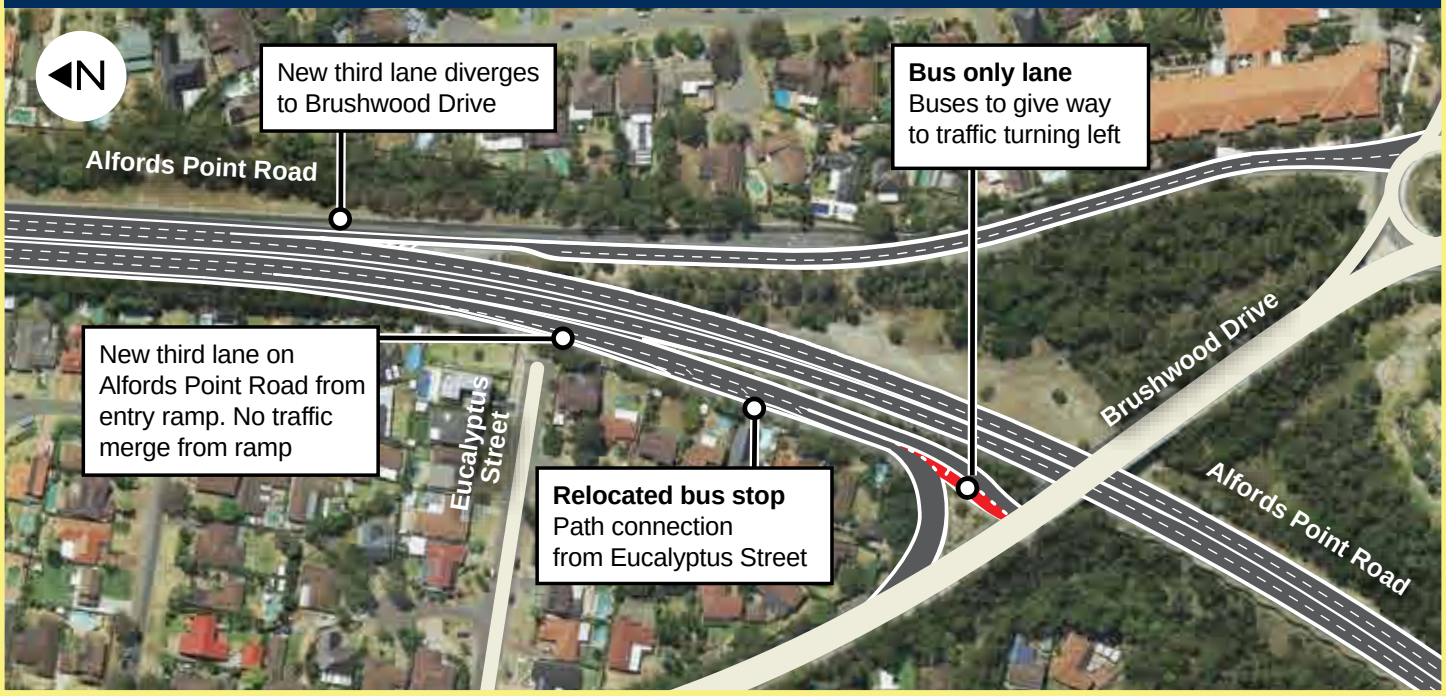
More information on noise reduction measures will be available at the community information session. Please drop by to talk to RMS staff. See the back page for dates and locations.

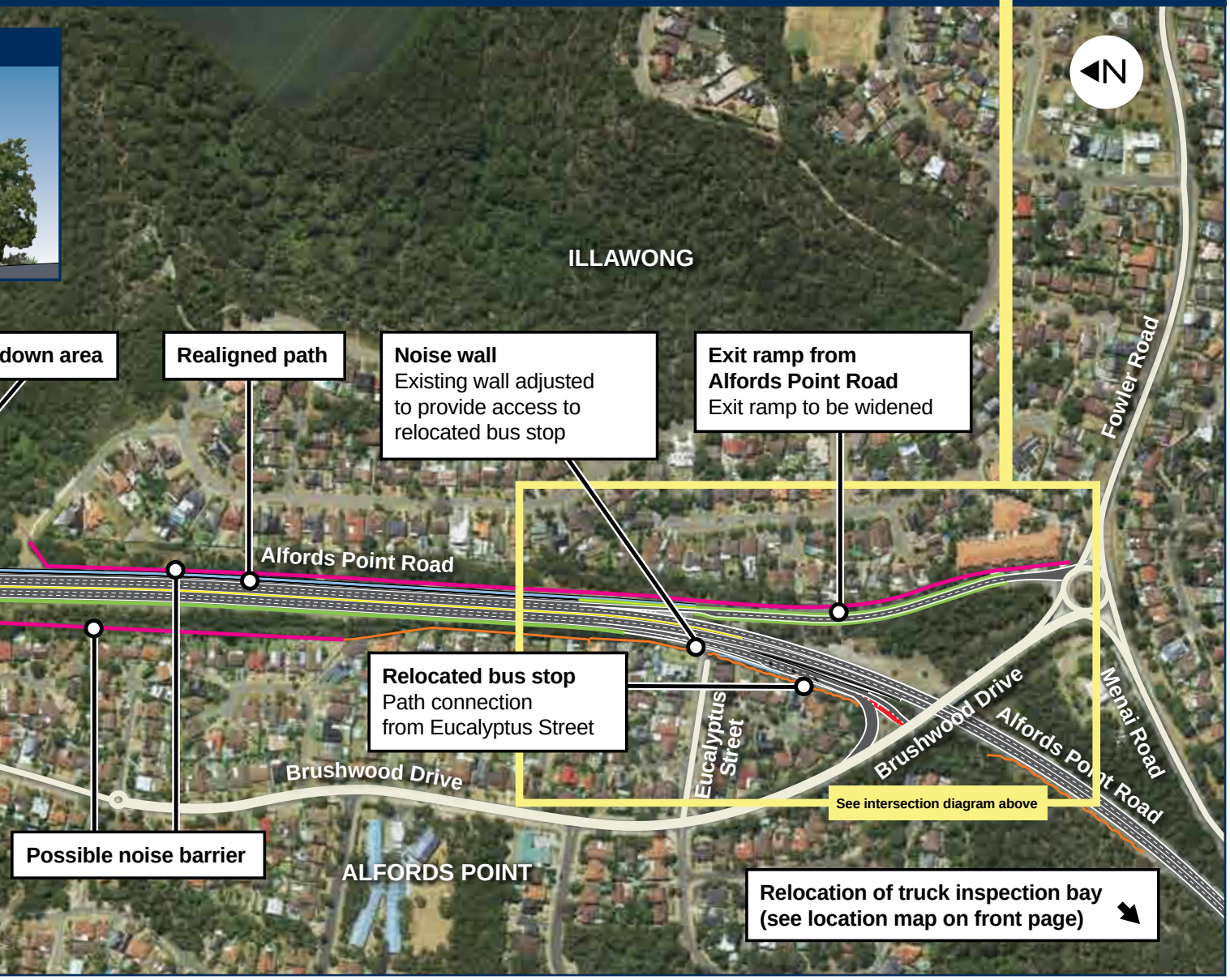
To see the RMS 'How is Noise Addressed?' information brochure, please go to the 'resources' page at **www.rms.nsw.gov.au/roadprojects**.

Concept design – Alfords Point Road proposed upgrade



Concept design – Brushwood Road intersection merge arrangements



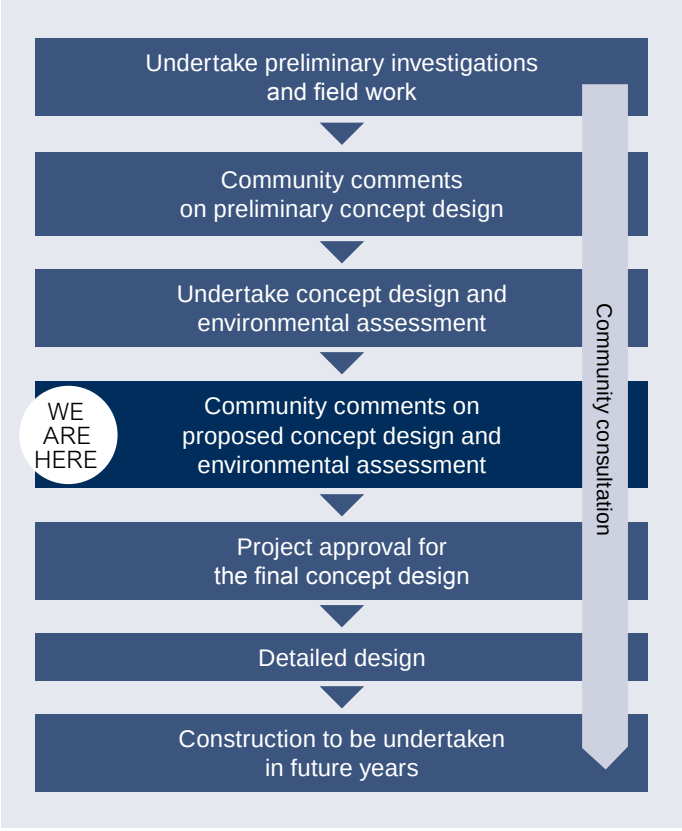


For more information and a copy of the review of environmental factors

- See the project website at **www.rms.nsw.gov.au/roadprojects**.
- Call the project team on 8849 2585 or email **AlfordsPoint@rms.nsw.gov.au**.
- Visit the display locations listed at right.

What happens next?

Following the display of the review of environmental factors, RMS will consider community feedback. The community will be informed of any changes made to the concept design. RMS will continue to refine the project design during the detailed design phase of the project.



Have your say

Please send written comments by **Friday 5 April 2013** to:

Alfords Point Project Team
Roads and Maritime Services
PO Box 973 Parramatta NSW 2124

Fax: 02 8849 2817
Email: **AlfordsPoint@rms.nsw.gov.au**

Community information session

RMS values your views and is hosting a community information session. RMS project team members will be available to answer questions and receive feedback. A formal presentation will not be given, so feel free to drop in at any time during the session:

Menai Community Centre
34 Allison Crescent, Menai

Saturday 16 March 2013, 1pm – 3.30pm.

Light refreshments will be available.

Shopping centre displays

RMS will hold two shopping centre displays where you can drop by and speak to the project team:

Menai Marketplace Shopping Centre
152-194 Allison Crescent, Menai

- **Thursday 7 March 2013**, 3pm – 7pm
- **Thursday 21 March 2013**, 3pm – 7pm

Public display locations

The review of environmental factors is on display until **Friday 5 April 2013** at:

- **Sutherland Library**
  Level 1, 30-36 Belmont Street, Sutherland
  Monday to Friday 9am – 9pm
  Saturday 9am – 4pm
  Sunday 12pm – 4pm
- **Menai Library**
  34-40 Allison Crescent, Menai
  Monday, Tuesday, Thursday 9.30am – 8pm
  Wednesday and Friday 9.30am – 5pm
  Saturday 9am – 12pm
- **Padstow Motor Registry**
  Shop 1, 11 Cahors Road, Padstow
  Monday to Friday 8.30am – 5pm
  Saturday 8.30am – 12pm

RMS 13.183

Appendix B – Submissions received from authorities

Submission no 1

Sutherland Shire Council

GARRETT Chantelle

From: BPowe@ssc.nsw.gov.au
Sent: Monday, 8 April 2013 5:57 PM
To: Alfords Point
Cc: DAVIES Emma; MCNEILL Paul A
Subject: Alfords Point Road Southern Approach - Submission from Sutherland Shire Council

I refer to the February 2013 RMS Community Update for the proposed Alfords Point Road Southern Approach Upgrade. This matter was considered at Councils Consultative Traffic Forum on Friday 5 April where the following recommendation was made:

"1. That the report on Alfords Point Road, Alfords Point - Southern Approach Upgrade be received and noted.

2. That Council provide a submission to RMS in response to the advertised REF indicating the following:

(i) General support for the project.

(ii) The need to satisfactorily address the existing safety issue at the intersection of Brushwood Drive and Alfords Point Road On Ramp including but not restricted to consideration of round about control, traffic calming/speed reduction measures on the eastbound approach and/or provision of a stop sign and diagrammatic signage as is deemed appropriate.

(iii) Request to investigate the prohibition of the right turn from the inside lane of Fowler Road to Brushwood Drive.

(iv) The need to ensure that adequate clearance is provided for Council to install a bus shelter at the proposed bus stop location and that safe pedestrian access is provided to and from Eucalyptus Street.

(v) Request that the project be expedited."

Accordingly, Council submits the following in response to the REF:

Council's Traffic and Transport staff are generally supportive of the proposal which should significantly improve existing delays within the surrounding local road network. However the following issues, as raised at a recent meeting with RMS staff are requested to be addressed.

Intersection of Brushwood Drive and Alfords Point Road On Ramp
The concept design shows the intersection of Brushwood Drive and the on ramp to Alfords Point Road to remain essentially the same with the introduction of a bus lane. This T intersection gives priority to vehicles turning right from Brushwood Drive onto Alfords Point Road.

Council crash data reveals a significant crash history at this location with 12 crashes, four (3) involving injury, recorded in the five (5) year period between June 2006 and July 2011. Most crashes relate to vehicles failing to give way to vehicles turning from Brushwood Drive onto the Alfords Point Road on ramp and occurred outside of peak periods.

Council considers that this important safety issue has not been properly addressed and requires further investigation. The construction of a roundabout at this intersection that retains two (2) lane approaches in Brushwood Drive would resolve the safety issue without impacting on traffic flow and should be further considered. Other alternatives would be to provide traffic calming or speed reduction measures such as the provision of a speed cushion in conjunction with a Stop Sign and diagrammatic signage indicating intersection priority.

Roundabout Intersection of Fowler Road, Old Illawarra Road and Brushwood Drive
Vehicles heading west along Fowler Road towards the existing roundabout can turn right from both lanes into Brushwood Drive. This is seen as a contributing factor to crashes at the roundabout and also creates merging problems at the junction with the Alfords Point Road on ramp. Vehicles heading west along Fowler Road who wish to turn left and proceed south on Old Illawarra Road are at times delayed by vehicles queuing from the Alfords Point Road on ramp.

With the proposed increase in capacity to Alfords Point Road and the on ramp from Brushwood Drive, the dual right turn lanes from Fowler Road into Brushwood Drive may no longer be necessary. It is understood that RMS have undertaken some intersection modelling at this location and Council officers have requested that this include investigation into prohibiting the right turn from the inside lane of Fowler Road to Brushwood Drive.

Relocation of the existing Bus Stop on Alfords Point Road

The existing bus stop at Alfords Point Road is well used throughout the day and, in response to requests from the public, a bus shelter was provided in 2010. The shelter was recently damaged in a crash and has been temporarily removed. Council will proceed with reinstalling a bus shelter at the current location taking into consideration that it may be relocated should the project proceed.

RMS should ensure that adequate clearance is provided for Council to install a bus shelter at the proposed bus stop location and that safe pedestrian access is provided to and from Eucalyptus Street. Relocation of the Bus Shelter shall be at the cost of RMS.

Noise Attenuation
Council has in the past made representations on behalf of residents seeking noise attenuation measures. Council is supportive of any measures that will reduce noise levels to appropriate standards for adjoining residents and would request they be included in the scope of works of the project.

Regards

Bruce Powe
Traffic and Transport Manager
Sutherland Shire Council
Locked Bag 17 Sutherland NSW 1499
Phone: 61 2 9710 0498
Fax: 61 2 9710 0397
Web: www.sutherlandshire.nsw.gov.au

Submission no 2

Office of Environment and Heritage

NSW GOVERNMENT | Office of Environment & Heritage

Your reference: SF2012/054867
Our reference: DOC13/7481
Contact: Thomas Williams (02) 9995 6861

Deanne Forrest
Project Development Manager
Roads and Maritime Services
PO Box 973
Parramatta NSW 2124.

Dear Ms Forrest,

I refer to your letter dated 29 February 2013 inviting submission from the Office of Environment and Heritage (OEH) on the Review of Environmental Factors for the Alfords Point Road Upgrade. OEH takes this opportunity to provide the following information regarding the close proximity of the proposed works to Georges River National Park and the need to consider possible impacts on Koalas (*Phascolarctos cinereus).*

Adjoining Park

It is noted the subject works, are located in close proximity to Georges River National Park. Of primary concern to OEH with regard to the proposal is the avoidance of adverse impacts upon the natural and cultural values of the National Park. The *Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water* (June 2010) are available at this address:

http://www.environment.nsw.gov.au/protectedareas/developmntadjoiningdecc.htm

As detailed in Section 2 of these Guidelines, construction activities will expose soil and increase the risk of erosion. This could result in impacts on Georges River National Park from soils being transported and deposited on vegetation along the Georges River.

To ensure the proposed works do not impact on Georges River National Park, OEH requests that erosion and sedimentation control measures be implemented prior to works commencing and that these measures be maintained for the duration of construction and until the soil is stabilised. The sediment and erosion control measures at this site should comply with the abovementioned Guidelines.

Koala sightings

Recent fauna surveys, conducted by staff of the National Parks and Wildlife Service, identified a Koala colony near Mill Creek, approximately one kilometre away from the work site and connected by a recognised bush corridor. The REF identifies there is a lack of suitable feed trees to attract Koalas to the work site. However any Koala utilising the riverside corridor would have access to the work site. Also, it appears there may be some work conducted within this corridor for stormwater routing and thus Koalas may be encountered.

PO Box 668 Parramatta NSW 2124
Level 7, 79 George St Parramatta NSW 2150
Tel: (02) 9995 5000 Fax: (02) 9995 6900
ABN 30 841 387 271
www.environment.nsw.gov.au

Roads and Maritime Services must contact the NPWS Area Manager well in advance if it is intended to use any portion of Georges River National Park for access to the worksite (christine.hopkins@environment.nsw.gov.au).

If you have any queries regarding this matter please contact Thomas Williams on 9995 6861.

Yours sincerely,

Lou Ewins 26/3/13

LOU EWINS
Manager Planning and Aboriginal Heritage
Regional operations, Metropolitan
Office of Environment and Heritage

Submission no 3

Heritage Council of NSW

NSW GOVERNMENT
Heritage Council of New South Wales

3 Marist Place
Parramatta NSW 2150

Locked Bag 5020
Parramatta NSW 2124
DX 8225 PARRAMATTA

Telephone: 61 2 9873 8500
Facsimile: 61 2 9873 8599

heritage@heritage.nsw.gov.au
www.heritage.nsw.gov.au

Contact: Katrina Stankowski
Phone: (02) 9873 8569
Fax: (02) 9873 8550
Email: Katrina.Stankowski@heritage.nsw.gov.au
File No: A1360856
Job ID: 12/10374
Your Ref:N/A

Ms Deanne Forrest
Project Development Manager
Roads & Maritime Services
PO Box 973
PARRAMATTA NSW 2124

Dear Ms Forrest

RE: Request for Heritage Council on Roads & Maritime Services Review of Environmental Factors for the Alfords Point Road Upgrade – Alfords Point Bridge to Brushwood Drive dated February 2013.

I refer to your letter dated 29th February 2013 requesting any comments the Heritage Council may have about the Roads & Maritime Services Review of Environmental Factors (REF) for the Alfords Point Road Upgrade – Alfords Point Bridge to Brushwood Drive dated February 2013.

Accordingly, as Delegate of the Heritage Council the following comments are provided.

- It is noted that the REF and its accompanying Non-Aboriginal Statement of Heritage Impact by JCIS Consulting dated July 2012 (Appendix I) state that based on field survey, historic map and photograph overlays and a heritage register search, no historic heritage or 'relics' as defined under the Heritage Act are likely to be present along the proposed works area.
- However in the event that unexpected historic heritage or archaeology is disturbed during works it is proposed to have a protocol requiring work to cease in the affected area and the RMS Unexpected Finds Protocols would be activated.
- This is considered appropriate to manage any unexpected heritage within the project boundaries.

If you have any questions regarding the above advice, please feel free to contact Katrina Stankowski at Katrina.Stankowski@heritage.nsw.gov.au.

Yours sincerely

08/03/2013

Vincent Sicari
Manager – Conservation Team
Heritage Branch
Office of Environment & Heritage
Department of Premier & Cabinet

As Delegate of the NSW Heritage Council

Helping the community conserve our heritage

Appendix C – Supplementary traffic assessment

Response Sutherland Shire Council Submission:

Further investigation was undertaken by Development Sydney in consultation with RMS Traffic Management, Road Safety and Transport Planning Section to address Sutherland Shire Council submission.

This report details an assessment of specific issues raised following the display of the Review of Environmental Factors (REF) for the proposed upgrade of Alfords Point Road between Georges River and Brushwood Drive.

The issues listed are as per the submission from Sutherland Shire Council, further background information has been collected, discussions held with technical experts from RMS from subject matter areas including traffic modelling, traffic management and road safety, and a proposed response has been drafted (for inclusion in the Submissions Report). In addition to the numbered items in council's submission, the overall submission included items listed under specific headings. Where appropriate, these have been grouped with the numbered items.

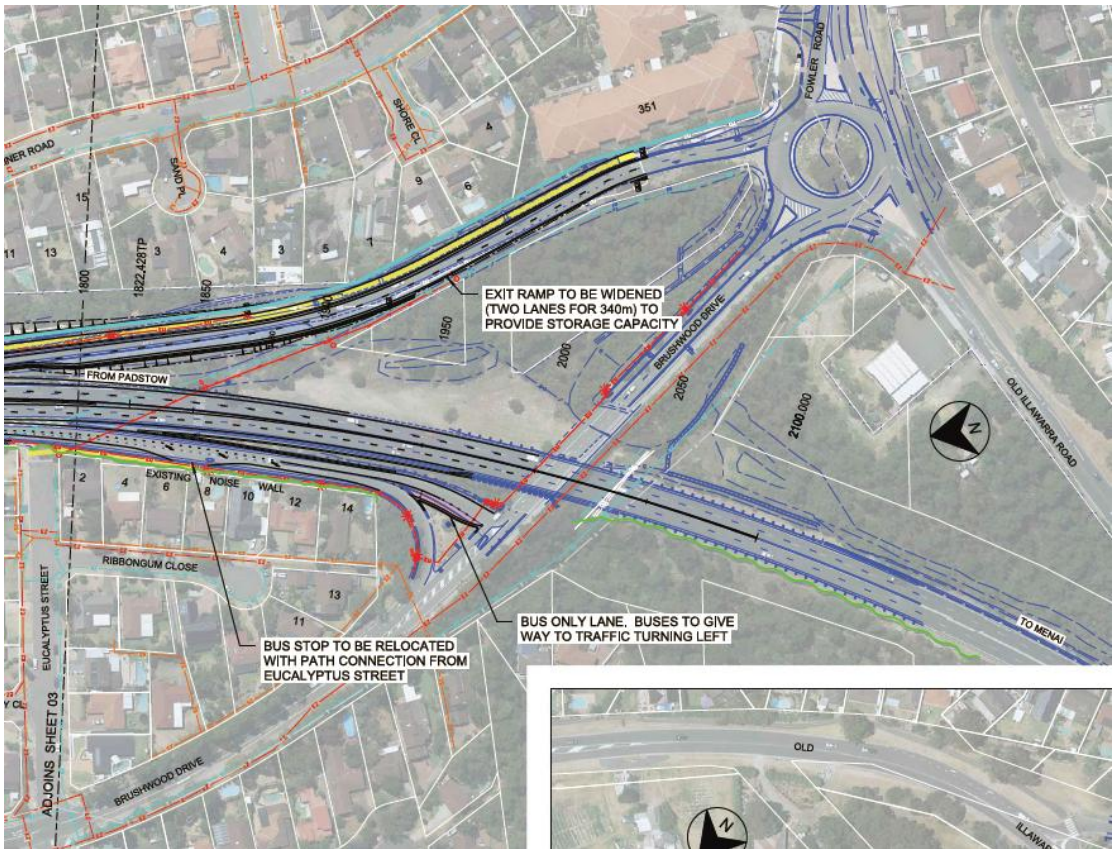


Figure 1 – Proposed Alfords Point Road upgrade

Submission Item: 2(i)

General support for the project.

Proposed Response
Support acknowledged.

Additional Information
None

Submission Item: 2(ii)

The need to satisfactorily address the existing safety issue at the intersection of Brushwood Drive and Alfords Point Road On Ramp including but not restricted to consideration of roundabout control, traffic calming/speed reduction measures on the eastbound approach and/or provision of a stop sign and diagrammatic signage as is deemed appropriate.

Proposed Response

This is a general compilation of Council's issues. Each of the specific issues summarised above by Council has been responded to below.

Additional Information

None

Submission Item: 2(iii); and

Request to investigate the prohibition of the right turn from the inside lane of Fowler Road to Brushwood Drive.

Submission Item: Roundabout intersection of Fowler Road, Old Illawarra Road and Brushwood Drive

Vehicles heading west along Fowler Road towards the existing roundabout can turn right from both lanes into Brushwood Drive. This is seen as a contributing factor to crashes at the roundabout and also creates merging problems at the junction with the Alfords Point Road on ramp. Vehicles heading west along Fowler Road who wish to turn left and proceed south on Old Illawarra Road are at times delayed by vehicles queuing from the Alfords Point Road on ramp.

With the proposed increase in capacity to Alfords Point Road and the on ramp from Brushwood Drive, the dual right turn lanes from Fowler Road into Brushwood Drive may no longer be necessary. It is understood that RMS have undertaken some intersection modelling at this location and Council officers have requested that this include investigation into prohibiting the right turn from the inside lane of Fowler Road to Brushwood Drive.

Figure 2 – Current configuration of the Fowler Road/Brushwood Drive roundabout

Proposed Response

RMS has undertaken detailed traffic modelling of the proposal and has reviewed the most recently available crash history for the site. The roundabout at Fowler Road/Brushwood Drive for traffic from the east on Fowler Road widens just prior to the roundabout to two lanes. The manoeuvre described by Council is consistent with the current lane arrow marking on site and with the manoeuvres that would be permissible under the NSW Road Rules in the absence of lane arrows or other signage.

With the proposal as described in the REF, traffic modelling indicates there is substantially less delay for traffic entering Alford's Point Road from Brushwood Drive to head northbound as well as for traffic heading west on Fowler Road and wishing to travel south (turn left) onto Alford's Point Road. In addition, there have been only four reported multi-vehicle crashes at this site for the most recently available five year period analysed, which is relatively low for such a heavily trafficked site. As such, it is not proposed to change the existing traffic arrangements at this time. RMS would continue to monitor the operation of the roundabout following the implementation of the proposal.

Additional Information/Questions

RMS has modelled the three lane upgrade of Alfords Point Road, with only one lane through from Foweler Road (east) heading west towards Brushwood Drive (as per Figure 3 below). The table below compares the base case (no upgrade) in 2016 AM and PM peaks, with the upgrade on Alfords Point Road to 3 lanes each way (but without the southbound offramp upgraded).

Figure 3 – Modelled configuration of the Fowler Road/Brushwood Drive roundabout

Node	Option/Year	From	To	Movement	Traffic Volumes	LOS	Average Average Delay	Lowest Average Delay
Fowler Rd / Brushwood Drive Intersection	Base/AMP/2016	Fowler Road	Old Illawarra Road	L	181	F	102.0	51.1
	Base/AMP/2016	Fowler Road	Brushwood Drive	T	512	F	136.3	85.5
	Base/PMP/2016	Fowler Road	Old Illawarra Road	L	293	B	27.0	23.0
	Base/PMP/2016	Fowler Road	Brushwood Drive	T	237	C	35.5	26.4
	O 1a/AMP/2016	Fowler Road	Old Illawarra Road	L	189	A	8.8	7.7
	O 1a/AMP/2016	Fowler Road	Brushwood Drive	T	536	B	14.4	11.7
	O 1a/PMP/2016	Fowler Road	Old Illawarra Road	L	293	B	25.6	21.6
	O 1a/PMP/2016	Fowler Road	Brushwood Drive	T	238	C	33.5	27.8

The proposed change requested by Council can be accommodated. However, with the upgraded Alford's Point Road in place, there is expected to be less queuing on the bridge and thus, this change if not considered necessary. In 2016, it can be seen that there is 725 vehicles approaching the roundabout from the east on Fowler Road in the AM Peak (AMP). Around three quarters of these vehicles travel through the roundabout onto Brushwood Drive. These two manoeuvres are assessed at Level of Service (LOS) B and A respectively.

In the PM Peak (PMP) there are 531 vehicles approaching the roundabout from the east on Fowler Road. Around 45 per cent of these vehicles travel through the roundabout onto Brushwood Drive, with the remaining 55 per cent turning left onto Old Illawarra Road. These two manoeuvres are assessed at Level of Service C and B respectively. While the total volume of traffic from Fowler Road is less in the evening (PM) peak, the level of service is worse due to the higher volume of traffic coming from Alford's Point Road and offloading through the Fowler Road/Brushwood Drive roundabout. The offload from Alfords Point Road is the constraining manoeuvre on the operating of the roundabout. The storage for the offload ramp will be increased as part of the proposed upgrade. The configuration of Fowler Road approaching the roundabout (current or council proposed) has a lesser impact on the operation of the site and the current configuration offers adequate levels of service on the proposal is implemented.

In relation to crashes at the site, the plot below shows eight crashes for the five year period July 2007 to June 2012. Of these, only four were multiple vehicle crashes. The crash number is relatively low for an intersection carrying this much traffic. Further, the crashes do not reflect an issue associated with the manoeuvres that council have described. The detailed crash listed in also included as an embedded pdf document.

Simon Cussack - extra request for 538

Figure 2 shows the current site layout and given the results of traffic modelling and crash history, it is recommended that this layout remain.

Submission Item: Intersection of Brushwood Drive and Alfords Point Road On Ramp

The concept design shows the intersection of Brushwood Drive and the on ramp to Alfords Point Road remain essentially the same with the introduction of a bus lane. This T intersection gives priority to vehicles turning right from Brushwood Drive onto Alfords Point Road.

Council crash data reveals a significant crash history at this location with 12 crashes, four (3)(sic.) involving injury, recorded in the five (5) year period between June 2006 and July 2011. Most crashes relate to vehicles failing to give way to vehicles turning from Brushwood Drive onto the Alfords Point Road on ramp and occurred outside of peak periods.

Council considers that this important safety issue has not been properly addressed and requires further investigation. The construction of a roundabout at this intersection that retains two (2) lane approaches in Brushwood Drive would resolve the safety issue without impacting on traffic flow and should be further considered. Other alternatives would be to provide traffic calming or speed reduction measures such as the provision of a speed cushion in conjunction with a Stop Sign and diagrammatic signage indicating intersection priority.

Proposed Response

RMS has reviewed the accident history for the site and has also undertaken traffic modelling to assess the operational impact of changing priority. Given this assessment of the both the crash history and the forecast performance of the intersection with the current priority reversed, RMS agree with the proposal put forward by council. RMS will work with council to ensure that this proposed change is comprehensively communicated to the many motorists that currently use this site and have become used to the current arrangements.

Additional Information/issues

Figure 4 – Current configuration of the Brushwood Drive/Alford's Point Road on-ramp

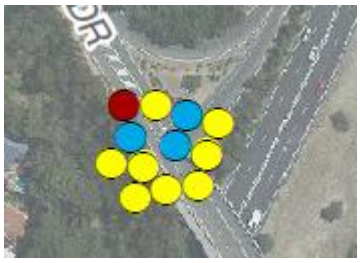
RMS Transport Planning Section completed VISSIM modelling to assess a change in traffic priority at this location. The assessment determined that removing the priority at right turn movement to On-Ramp, the performance of through eastbound traffic reduces the average delay to 4 seconds with minimal affect to the delay of right turn movement to On-Ramp. From the results of this modelling it is concluded that

removal of the priority for westbound right turning traffic to Alford's Point Road northbound On-Ramp can occur, but ONLY after (or concurrent with) the widening to 3 lanes on Alford's Point Road."

The suggestion of a roundabout is not well suited to this location. On the eastern side of Alford's Point Road, where a roundabout is in place, there is much greater separation between the end of the bridge across Alford's Point Road and the roundabouts location. On the western side, provision of a roundabout would require either modification of the bridge structure or relocation of the on-ramp further west (towards the existing residential properties). To the south of the bridge over Alford's Point Road there is a substantial drop-off. Any widening in this area would need to be constructed on structure and would involve quite a bit of clearing (see photo and schematic below).

Figure 5 – Brushwood Drive and Alford's Point Road northbound on-ramp

A review of the most recent five year crash history (July 2007 to June 2012) shows there were 12 crashes at this location, with eight of the crashes involving a vehicle travelling west on Brushwood Drive and turning right onto the Alford's Point Road on ramp, being struck by eastbound vehicles on Brushwood Drive. This is a clear crash pattern that would be suited to a treatment (see cluster plot below). Treatment options vary from reversing the current priority to operate in accordance with the traffic regulations (without signage), namely right turners give way to through traffic up to installation of signal control or roundabouts. The option of configuring the site for roundabout or signal operation would be much more expensive and could involve potential impacts on adjacent properties.



Crash Data.pdf

While the priority currently given to right turning traffic is different to what would exist under the regulations alone (i.e without the presence of a traffic control device), it is incumbent upon all road user to be vigilant in regard to the operation of the road network and in this instance traffic control signage.

Despite the onus being on the drivers and the current signage on site being sufficient to denote the current priority, the crash history continues. Given this crash history and the results of the modelling, it is recommended that the priority is reversed as part of the proposed upgrade of Alford's Point Road.

Detailed Crash Report

NOTES: Simon Cussack - extra request for 5387 Alfords Point Rd and Brushwood Dr

Crash No.	Date	Day of Week	Time	Distance		ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																					A S F
Sydney Region																					
Sutherland LGA																					
Illawong																					
Alfords Pt Rd																					
716619	14/05/2010	Fri	15:20		at	FOWLER RD	RDB	CRV	Fine	Dry	50	2	CAR	M17	W in FOWLER RD	20	Proceeding in lane	I	0	1	
E40589815							RUM:	10	Cross traffic				M/C	M27	S in ALFORDS PT RD	20	Proceeding in lane				
770050	15/09/2011	Thu	16:15	5 m	N	OLD ILLAWARRA RD	RDB	STR	Fine	Dry	60	2	CAR	M60	S in ALFORDS PT RD	Unk	Proceeding in lane	I	0	3	
E46001907							RUM:	31	Left rear				CAR	F30	S in ALFORDS PT RD	0	Waiting turn left				
Brushwood Dr																					
733915	30/11/2010	Tue	11:30		at	OLD ILLAWARRA RD	RDB	STR	Overcast	Wet	60	1	CAR	F20	S in OLD ILLAWARRA RD	30	Turning right	I	0	1	S
E42961838							RUM:	81	Off left/rt bnd=>obj				Fence								
656864	14/02/2009	Sat	06:50	10 m	N	OLD ILLAWARRA RD	RDB	STR	Raining	Wet	60	1	CAR	F44	E in OLD ILLAWARRA RD	30	Turning left	I	0	1	S
E36509418							RUM:	87	Off lft/lft bnd=>obj				Fence								
Fowler Rd																					
721000	10/08/2010	Tue	16:20	5 m	E	ALFORDS PT RD	RDB	CRV	Raining	Wet	60	2	CAR	F52	W in FOWLER RD	Unk	Proceeding in lane	N	0	0	S
E40927360							RUM:	31	Left rear				4WD	F45	W in FOWLER RD	Unk	Turning left				
675385	13/07/2009	Mon	16:40	50 m	E	BRUSHWOOD DR	DIV	CRV	Fine	Dry	60	2	CAR	M51	E in FOWLER RD	40	Incorrect side	N	0	0	F
E39760185							RUM:	20	Head on				CAR	F53	W in FOWLER RD	40	Proceeding in lane				
732732	02/11/2010	Tue	07:40	30 m	E	OLD ILLAWARRA RD	DIV	STR	Raining	Wet	60	1	CAR	M33	W in FOWLER RD	60	Proceeding in lane	N	0	0	
E43246578							RUM:	71	Off rd left => obj				Fence								
Old Illawarra Rd																					
596988	03/11/2007	Sat	10:05		at	FOWLER RD	RDB	CRV	Fine	Wet	50	1	CAR	F18	N in OLD ILLAWARRA RD	20	Proceeding in lane	N	0	0	S
E33546587							RUM:	80	Off left/right bend												
601546	22/11/2007	Thu	14:15		at	FOWLER RD	RDB	STR	Overcast	Wet	50	1	CAR	F43	W in OLD ILLAWARRA RD	50	Proceeding in lane	N	0	0	
E133524594							RUM:	71	Off rd left => obj				Fence								

Report Totals: Total Crashes: 9 Fatal Crashes: 0 Injury Crashes: 4 Killed: 0 Injured: 6

Crashid dataset Simon Cussack - extra request for 5387 Alfords Point Rd and Brushwood Dr

Detailed Crash Report

NOTES: Simon Cussack - 2nd extra request for 5387 Alfords Point Rd and Brushwood Dr

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																				A S F
Sydney Region																				
Sutherland LGA																				
Alfords Point																				
Alfords Pt Rd																				
584330	21/07/2007	Sat	19:45		at BRUSHWOOD DR	TJN	CRV	Fine	Dry	50	2	CAR	F50	E in BRUSHWOOD DR	Unk	Turning right	N	0	0	
E30599337						RUM:	21	Right through				CAR	F18	W in BRUSHWOOD DR	40	Proceeding in lane				
589708	07/09/2007	Fri	17:40		at BRUSHWOOD DR	TJN	STR	Raining	Wet	60	2	WAG	M54	W in BRUSHWOOD DR	10	Turning right	I	0	1	
E31687469						RUM:	21	Right through				4WD	F44	E in BRUSHWOOD DR	50	Proceeding in lane				
621290	31/12/2007	Mon	02:20		at BRUSHWOOD DR	TJN	STR	Fine	Dry	60	1	VAN	M16	W in BRUSHWOOD DR	80	Proceeding in lane	N	0	0	S
E32580338						RUM:	73	Off rd rght => obj				Traffic island etc								
628822	28/06/2008	Sat	14:50		at BRUSHWOOD DR	TJN	STR	Fine	Dry	50	2	4WD	M43	N in BRUSHWOOD DR	10	Turning right	N	0	0	
E34413404						RUM:	21	Right through				CAR	M18	S in BRUSHWOOD DR	50	Proceeding in lane				
682096	25/08/2009	Tue	21:25		at BRUSHWOOD DR	TJN	STR	Fine	Dry	50	2	CAR	M U	N in BRUSHWOOD DR	Unk	Turning right	I	0	3	
E38629558						RUM:	21	Right through				CAR	F25	S in BRUSHWOOD DR	Unk	Proceeding in lane				
691447	08/11/2009	Sun	15:49		at BRUSHWOOD DR	TJN	STR	Overcast	Wet	60	1	TRK	M54	W in BRUSHWOOD DR	60	Turning right	I	0	3	S
E134773896						RUM:	81	Off left/rt bnd=>obj				Traffic island etc								
710226	13/05/2010	Thu	16:00		at BRUSHWOOD DR	TJN	STR	Fine	Dry	50	2	TRK	M18	W in BRUSHWOOD DR	30	Turning right	N	0	0	
E40859656						RUM:	21	Right through				TRK	M27	E in BRUSHWOOD DR	40	Proceeding in lane				
772917	25/09/2011	Sun	17:50		at BRUSHWOOD DR	TJN	STR	Fine	Wet	60	2	CAR	M20	W in ALFORDS PT RD	Unk	Turning right	I	0	1	
E45598422						RUM:	21	Right through				CAR	F23	E in ALFORDS PT RD	50	Proceeding in lane				
805142	15/06/2012	Fri	16:20		at BRUSHWOOD DR	TJN	STR	Fine	Dry	50	2	CAR	M22	W in BRUSHWOOD DR	Unk	Turning right	N	0	0	
E159802097						RUM:	21	Right through				TRK	F44	E in BRUSHWOOD DR	50	Proceeding in lane				
648805	08/12/2008	Mon	00:12	2 m N	BRUSHWOOD DR	TJN	STR	Overcast	Dry	50	1	CAR	M19	W in BRUSHWOOD DR	50	Turning right	N	0	0	S
E69192801						RUM:	81	Off left/rt bnd=>obj				Tree/bush								
Brushwood Dr																				
623308	12/05/2008	Mon	19:20	5 m W	ALFORDS PT RD	TJN	STR	Fine	Dry	60	2	CAR	M24	E in BRUSHWOOD DR	30	Proceeding in lane	N	0	0	
E36016381						RUM:	30	Rear end				CAR	F17	E in BRUSHWOOD DR	0	Stationary				
Illawong																				
Alfords Pt Rd																				
721983	20/08/2010	Fri	09:45		at BRUSHWOOD DR	TJN	STR	Fine	Dry	60	2	TRK	M56	W in BRUSHWOOD DR	Unk	Turning right	N	0	0	
E41698132						RUM:	21	Right through				TRK	M26	E in BRUSHWOOD DR	60	Proceeding in lane				

Detailed Crash Report

Transport Centre for Road Safety

Crash No.	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																				A S F

Report Totals: Total Crashes: 12 Fatal Crashes: 0 Injury Crashes: 4 Killed: 0 Injured: 8

Crashid dataset Simon Cussack - 2nd extra request for 5387 Alfords Point Rd and Brushwood Dr

Note: Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.

GHD

133 Castlereagh St Sydney NSW 2000

-

T: 2 9239 7100 F: 2 9239 7199 E: sydmail@ghd.com.au

\\ghdnet\ghd\AU\Sydney\Projects\21\21268\WP\190732.docx

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	Mike Trebitsch Cindy Fenton	Monique Roser		Monique Roser		25/6/13

www.ghd.com