6.10 Other impacts

6.10.1 Existing environment and potential impacts

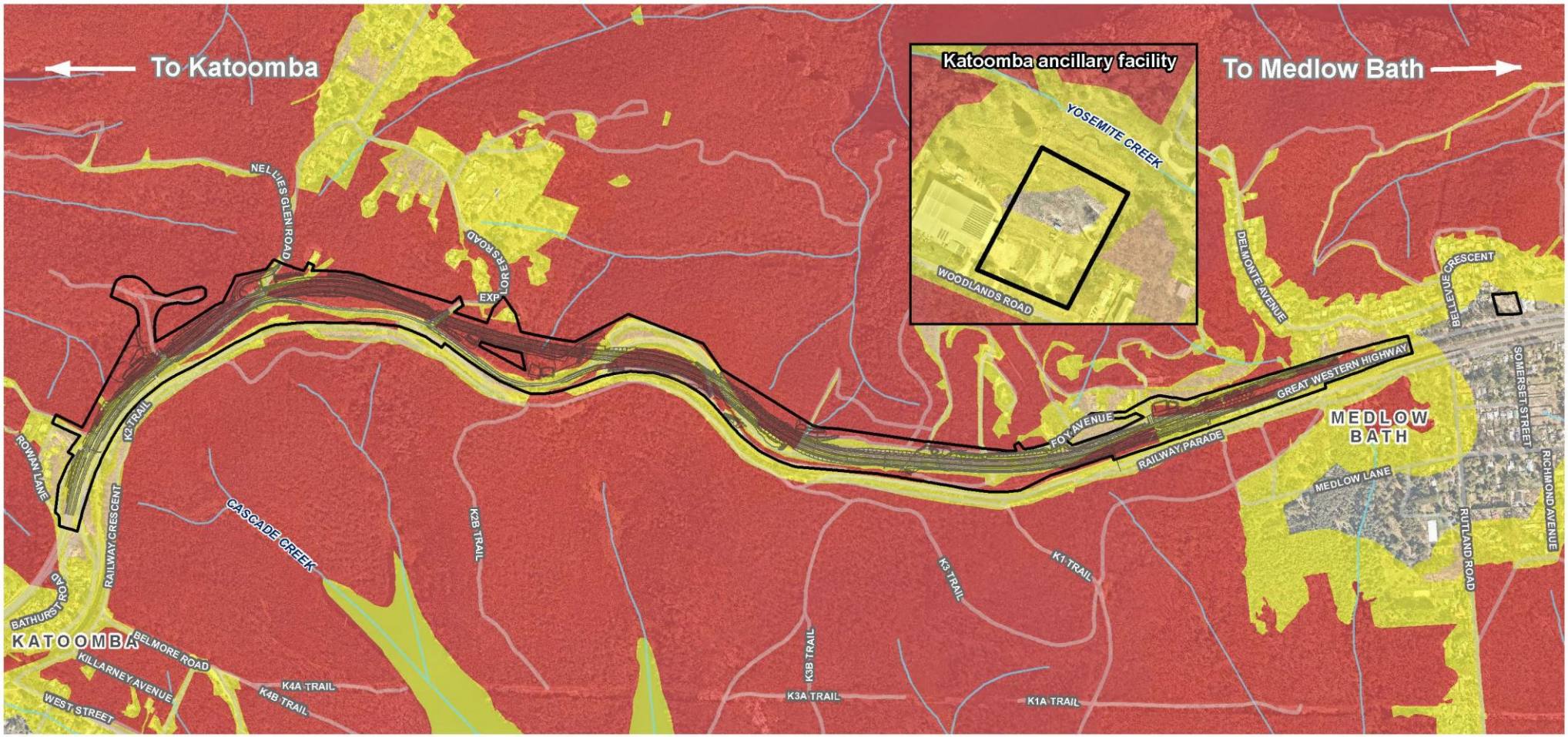
The existing environment and potential impacts of the proposal for other environmental factors are outlined in Table 6-61.

Table 6-61: Existing environment and potential impacts – other impacts

Environmental factor	Existing environment	Potential impacts
Air quality	There are no permanent air quality monitoring stations in the proposal area. However, the closest monitoring station is the Katoomba Air Quality Monitoring Station, which monitored ambient air quality near the proposal between May 2019 and May 2020 as part of the NSW EPA's Blue Mountains and Lithgow Air Watch program. Results from the program showed that the region near the proposal had very good air quality with air pollutants below Australian air quality standards. Local air quality is influenced by emissions and odours from vehicles travelling along the Great Western Highway and local roads, as well as private residences, for example through the emission of woodfire smoke.	During construction, the activities which could generate air emission and dust or odour and impact air quality would include: • clearing of vegetation • stripping, stockpiling and managing of topsoil • building demolition • earthworks, excavation and landscaping • road sub-grade preparation and road pavement work • transport and handling of soil • use of construction vehicles, machinery and plant • spray painting of the road for line marking. These air quality impacts have potential to impact surrounding residential receivers and construction workers. However, impacts would be localised and largely be dependent on daily weather conditions. During operation, air quality is not expected to worsen compared to the existing scenario. The upgraded Great Western Highway would have a higher capacity than the existing road corridor, which could result in increased traffic use and emissions. However, the proposal would result in reduced congestion, which should result in reduced vehicle emissions, even with an increase in traffic volumes. In addition, the impacts on air quality in relation to the clearance of vegetation would be partially offset through revegetation work. Implementation of Transport's *Future Transport 2056 Strategy* and *Future Energy Action Plan 2020-2025* as part of the proposal would result in long-term improvements in air quality. These policies contribute to the NSW Government Climate Change Policy Framework's goal of net zero emissions by 2050. The successful implementation of the Action Plan and achieving the objectives and targets of the overarching Policy and Strategy would likely improve air quality in and around the proposal area in the long-term.

Environmental factor	Existing environment	Potential impacts
Bushfire hazard and risk management	The proposal area is surrounded by highly vegetated landscapes, including public land as well as vegetated private properties. To the west of the proposal area, there is a steep densely vegetated escarpment overlooking Megalong Valley. To the east of the proposal area is the Blue Mountains National Park. Bushfire prone land near the proposal area is shown in Figure 6-15a-b. The existing road corridor is mostly categorised as a bushfire buffer zone. Surrounding vegetation is identified as being mostly Category 1 high risk bushfire prone land and otherwise Category 2 low risk bushfire prone land. This is due to the proposal area's setting surrounded by mature vegetation and steep topography. During the summer 2019-2020 bushfire season, about 79 per cent, or 855,310 hectares of the Greater Blue Mountains World Heritage Area, was burnt (Smith, 2021). While these bushfires did not occur within the proposal area, on 21 December 2019, the Great Western Highway was closed between Katoomba and Hartley between 2.45pm and 5.30pm due to the bushfire risk. As such, the risk of bushfires which impact the proposal area is present and ongoing danger.	Construction activities that may increase bushfire risk during construction include mulch stockpiling, hot work such as welding, as well as fuel/chemical storage and plant operation near densely vegetated areas. Any disruption to access along the Great Western Highway during construction could impact the safety of the community who might need to evacuate along the road corridor during a bushfire emergency. However, as noted in Section 3.3.8, the road corridor would remain operational during construction, with only minor delays expected. During a bushfire emergency, work would stop on the Great Western Highway, which would further reduce the potential delays due to construction work experienced by residents evacuating along the road corridor. Once operational, the proposal would improve the resilience of the Great Western Highway and surrounding community to respond to natural disasters and traffic incidents. The proposal would widen the road corridor and increase the width of the buffer zone which exists across the road. Trees would be cleared where appropriate to maintain required driver sight lines. Where the Great Western Highway adjoins the rail corridor, the buffer zone would increase to a width of about 75 metres. This would improve the likelihood of the Great Western Highway remaining trafficable during bushfire periods. The proposal would also improve emergency access to the communities of Katoomba, Medlow Bath and Blackheath. The new second, separated carriageway would allow contraflow if one carriageway is required to close due to a bushfire (as was the case in the summer 2019-2020 bushfires). The proposal would also increase capacity of the road network in the event of an emergency.
Spoil, waste and resource management	The resource management hierarchy principles in order of priority as outlined in the *Waste Avoidance and Resource Recovery Act 2001* would be applied to the proposal. These are: • avoidance of unnecessary resource consumption • resource recovery (including reuse, reprocessing, recycling and energy recovery) • disposal. By adopting the above principles, Transport encourages the most efficient use of resources and reduces cost and environmental harm in accordance with the principles of ecologically sustainable development.	During construction, the proposal would require a number of resources including road base, concrete, steel and landscaping materials. Details of the materials and estimated volumes are provided in Section 3.3.7. Waste generated during construction would be mostly located at ancillary facilities. Waste sources may include: • residual road and building materials including concrete, asphalt and aggregate • packing materials including pallets, crates, plastics • domestic garbage including food waste and general site waste and litter • wastewater from facilities, vehicle wash down and dust suppression • residual chemical including oils, lubricants, waste fuels and batteries • green waste including timber, vegetation and weeds • hazardous waste including asbestos, oils, lubricants, waste fuels and batteries.

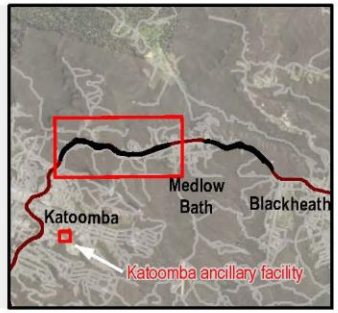
Environmental factor	Existing environment	Potential impacts
		There would be about 333,000 cubic metres of cut material due to the proposal. The Katoomba to Medlow Bath section would have about 272,000 cubic metres and Medlow Bath to Blackheath section would have 61,000 cubic metres. The Medlow Bath to Blackheath section would reuse all the cut material generated and would use an additional 63,000 cubic metres from the Katoomba to Medlow Bath section. There would be an excess of 111,000 cubic metres in cut material from Katoomba to Medlow Bath section. Where possible, this excess material would be used for landscaping in the section; otherwise it would be disposed of at an off-site waste facility. Inappropriately managed waste has the potential to result in impacts to air quality, human health, water quality contamination and visual impacts which are details in the relevant sections. Waste would be reused and recycled on site where possible, however surplus or contaminated material would be classified and disposed of at a licensed waste facility in accordance with EPA Waste Classification Guidelines (NSW EPA, 2014). During operation, waste sources would likely include: • roadside litter • waste material associated with roadside maintenance • green waste from landscape maintenance • illegal dumping.



The design
Proposal area

NSW bushfire prone land

Vegetation Category 1
Vegetation Category 2
Vegetation Category 3
Vegetation Buffer



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Source: Aurecon, Mott MacDonald, LPI, Nearmap, RFS

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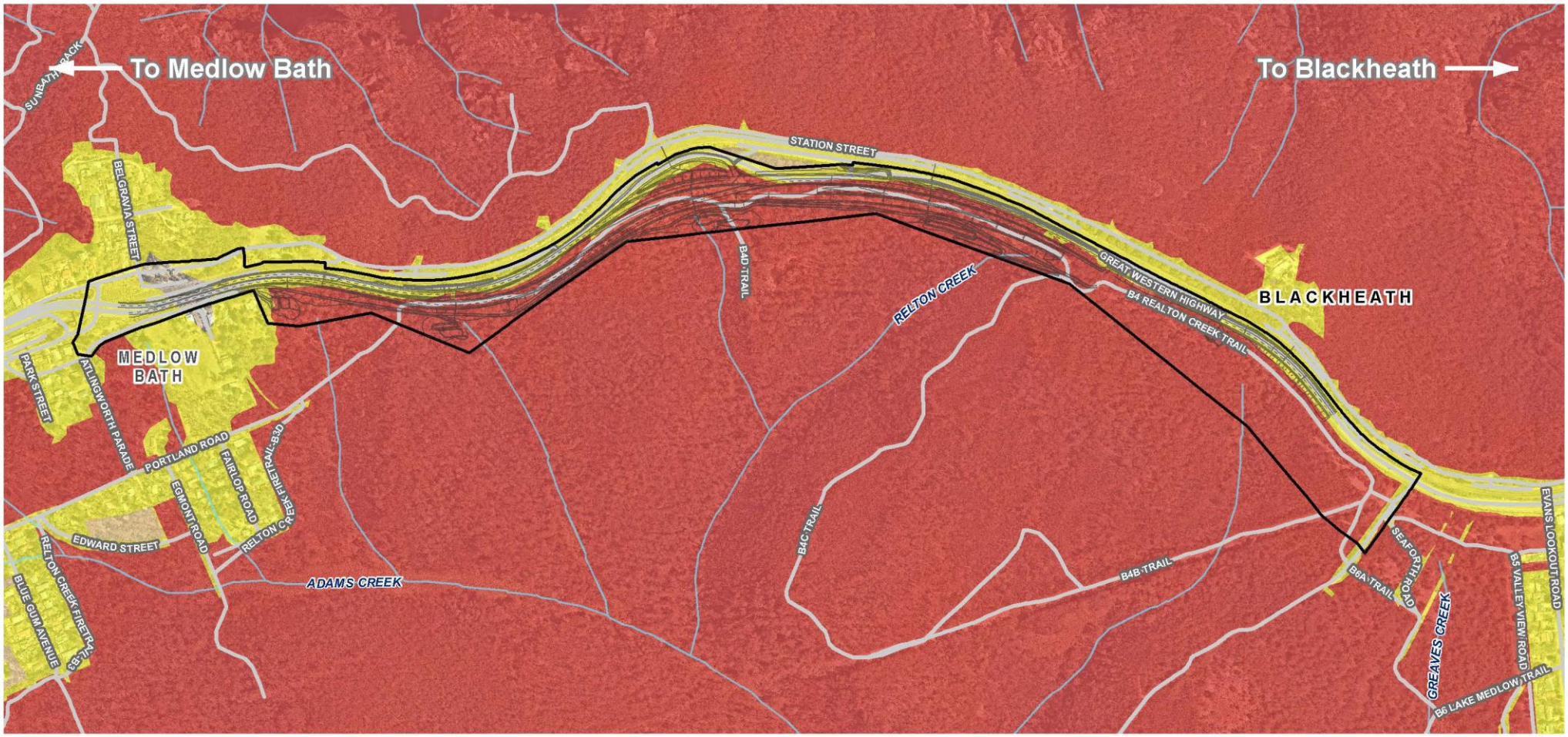
0 150 300m

Projection: GDA2020 MGA Zone 56

Great Western Highway East **Review of Environmental Factors**

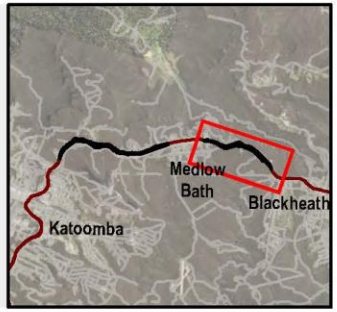
FIGURE 6-15a: Bushfire prone land map



The design
Proposal area

NSW bushfire prone land

Vegetation Category 1
Vegetation Category 2
Vegetation Category 3
Vegetation Buffer



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Source: Aurecon, Mott MacDonald, LPI, Nearmap, RFS

1:10,000@A4
0 100 200m

Projection: GDA2020 MGA Zone 56

FIGURE 6-15b: Bushfire prone land

6.10.2 Safeguards and management measures

Safeguards and management measures for other impacts are outlined in Table 6-62.

Table 6-62: Safeguards and management measures – other impacts

Impact	Environmental safeguards	Responsibility	Timing	Reference
Air quality	An Air Quality Management Plan (AQMP) will be prepared and implemented as part of the CEMP. The AQMP will include, but not be limited to: • potential sources of air pollution • air quality management objectives consistent with any relevant published EPA and/or Energy, Environment and Science (EES)/Department of Planning, Industry and Environment guidelines • mitigation and suppression measures to be implemented • methods to manage work during strong winds or other adverse weather conditions • a progressive rehabilitation strategy for exposed surfaces.	Transport / Contractor	Detailed design / pre-construction	Section 4.4 of QA G36 Environment Protection
Waste and resource management	A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will include but not be limited to: • measures to avoid and minimise waste associated with the project • classification of wastes and management options (re-use, recycle, stockpile, disposal) • statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions • procedures for storage, transport and disposal of spoil and waste • monitoring, record keeping and reporting. The WMP will be prepared taking into account the *Environmental Procedure - Management of Wastes on Roads and Maritime Services Land* (Roads and Maritime, 2014) and relevant Transport for NSW Waste Fact Sheets.	Transport / Contractor	Detailed design / pre-construction	Section 4.2 of QA G36 Environment Protection
Waste and resource management	If vegetation is to be mulched and transported off site for beneficial reuse, it is to be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the Roads and Maritime Technical Procedure: Mulch Management	Transport / Contractor	Detailed design / pre-construction	Additional Safeguard
Waste and resource management	Recycling facilities will be provided at site compounds for recycling paper, plastic, glass and other re-useable materials. Liquid wastes, such as paints and solvents, will be disposed of in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (DECCW, 2009) and the POEO Act.	Transport / Contractor	Detailed design / pre-construction	Additional Safeguard

Impact	Environmental safeguards	Responsibility	Timing	Reference
Bushfire hazards and risk management	The CEMP will include a bushfire management plan prepared in accordance with Planning for Bush Fire Protection 2019 (NSW Rural Fire Service, 2019). Measures to be implemented to manage bushfire risk include: • monitoring of weather and local bushfire ratings • consultation requirements for community notifications in the event of a bushfire • maintaining equipment in good working order • ensuring plant and equipment are fitted with appropriate spark arrestors, where practicable • ensuring site workers are informed of the site rules including designated smoking areas and putting rubbish in designated bins. • obtaining hot work permits and implementing total fire bans as required • implementing adequate storage and handling requirements for potentially flammable substances in accordance with the relevant guidelines.	Contractor	Pre-construction / construction	Additional Safeguard
Bushfire hazards and risk management	Consultation with emergency services, including the Rural Fire Service and Fire and Rescue NSW to: • ensure emergency access is maintained during construction • co-ordinate any bush fire emergency actions as outlined in the project's Bushfire Management Plan.	Contractor	Construction	Additional Safeguard