

4.11 HEALTH AND SAFETY

4.11.1 Description of Environmental Values

Existing Environment

The existing environment within the vicinity of the proposed Elimatta Project is classified as rural. Scattered residences and small communities within the region contribute to the relaxed country lifestyle that is valued by the close-knit community. Feedback from residents has indicated that the region is appealing for reasons including its size, safety, tranquillity, and pristine natural environment.

Public Health and Safety Values

The establishment of the proposed Elimatta Project within the region will involve certain risks to the public health and safety of both the mine employees, and to a lesser extent, the permanent community that reside within the vicinity of the Project. As such, it is important that the risks associated with the Project are managed in a way that minimises the potential impacts to the existing community values for public health and safety.

The public health and safety values of the permanent and temporary (mine accommodation) communities surrounding the proposed Elimatta Project include being able to work, rest, and partake in recreational and leisure activities without:

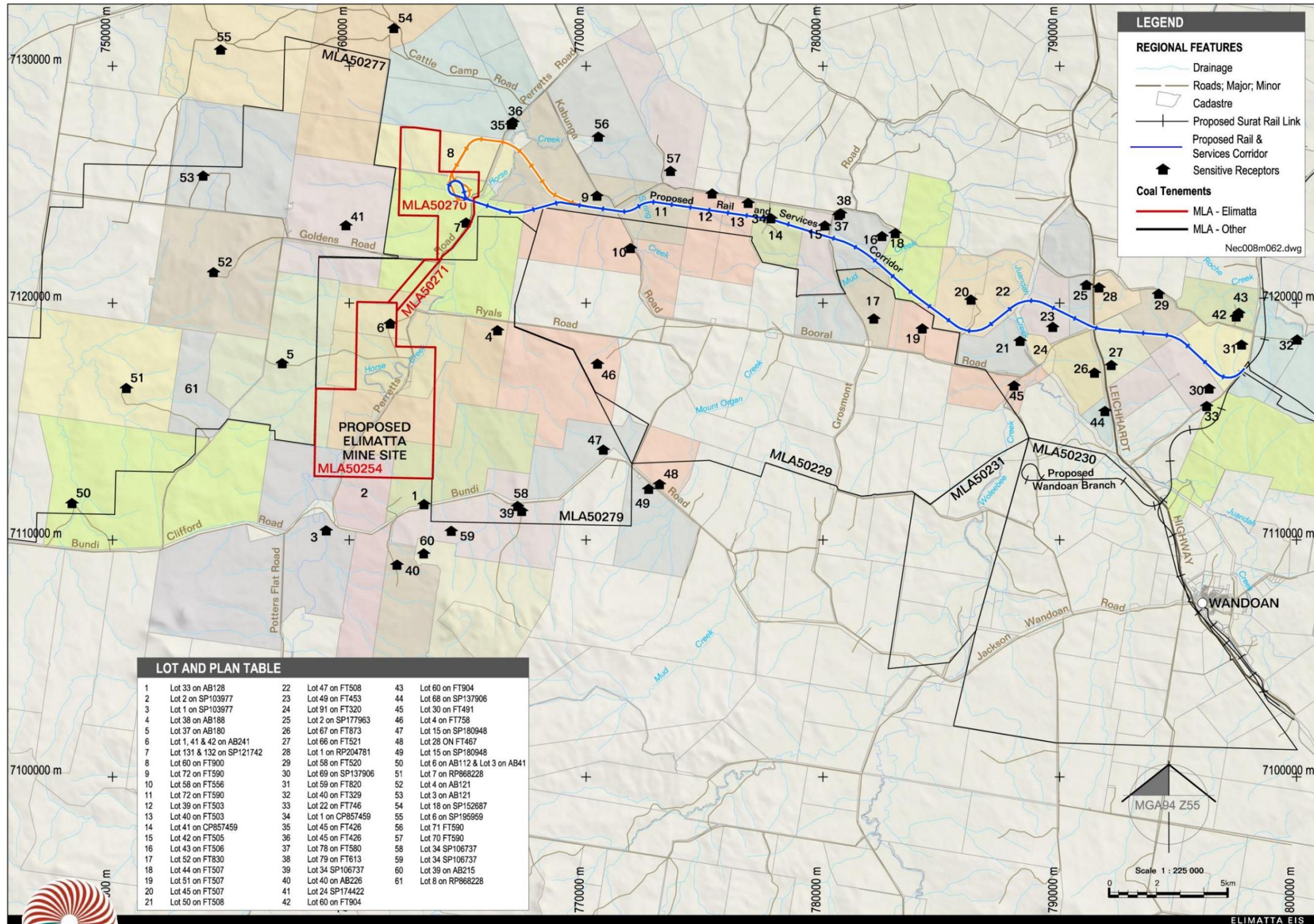
- The risk of respiratory distress and irritation associated with airborne dust particles, irritants and odours;
- Sleep disturbance and related stresses from persistent noise and vibrations;
- Traffic safety hazards;
- Acute and/or chronic health effects due to waterborne faecal, bacterial, or toxic contaminants; and
- Disease vectors.

Sensitive Receivers

There are 60 properties that are considered to be sensitive receivers located within the vicinity of the Project (including Rail and Services Corridor) (Figure 4.219). However, only 9 of these properties (Receptor ID# 1, 3, 4, 5, 6, 7, 14, 41 and 59) are predicted to be potentially impacted by modelled noise and air impacts associated with the operation of the Project. A number of these residences were unoccupied at the time of assessment or are located within land targeted by other resource development projects. Sections 4.6 and 4.7 provide detailed description of proposed controls for protection of these values. Two sensitive receivers, a school and camping reserve, are located in proximity to the proposed Rail and Services Corridor. The mining camp is also considered a sensitive receiver and is located 1.7 km to the north of the CHPP.

Water harvesting in the vicinity of the Project is mainly sourced for stock watering and irrigation purposes, with the nearest downstream extraction licence being 20 km north east of the Project. All other downstream supplies within 100 km are associated with the Dawson Valley Water Supply

Scheme, whose upstream storage is Glebe Weir, approximately 75 km north east of the Elimatta MLAs.



Land Tenure and Sensitive Receptors Map

Figure 4.219 Sensitive Receivers

4.11.2 Potential Impacts and Mitigation Measures

4.11.2.1 Potential Impacts

Air Quality

The potential impacts to public health and safety values associated with airborne particulates, irritants and odours are associated with respiratory distress as well as eye, nose and throat irritation.

An air quality assessment was undertaken for the Project to determine the potential impacts from dust emissions associated with the Project, in particular, Total Suspended Particulates (TSP), PM₁₀ and PM_{2.5}, at sensitive receivers. For a full description of the air quality modelling that was undertaken, refer to Section 4.6 and Appendix AD and Appendix AE.

The air pollutant impacts from the proposed Elimatta Project were assessed against typical EHP dust deposition guidelines and Environmental Protection (Air) Policy 2008 goals.

The results of the assessment are:

- Compliance with the annual average PM_{2.5} criteria at all locations;
- Compliance with the maximum 24 hour average PM_{2.5} concentration criteria at all locations except Location 7 during Year 27;
- Compliance with the 24 hour average PM₁₀ criterion at all locations except at Locations 6 and 7 during all modelled years and Location 1 during Year 27;
- Compliance with the annual average TSP criterion at all locations;
- Compliance with the annual average deposition criterion at all locations; and
- Compliance with cumulative impacts air quality environmental values.

The three properties that are predicted to be impacted adversely with regard to air quality are either planned to be acquired by Taroom Coal or are currently unoccupied. As such, there will be no impact to public health and safety values due to dust emissions and associated air quality from the Project.

The Project will be managed so that air quality remains in accordance with the *Environmental Protection (Air) Policy 2008 (EPP(Air))* and EHP guidelines.

If a health complaint relating to air pollutants is received from nearby residents as a result of mining activities, then air quality monitoring will be conducted and appropriate mitigation and control strategies implemented as required.

Additional mitigation strategies specific to air quality are detailed in Section 4.6.

Noise Quality

The potential impacts to public health and safety values associated with noise and vibration at the Project are associated with sleep deprivation, which can escalate to more serious effects such as stress and anxiety.

A noise and vibration assessment was undertaken in order to predict noise vibration levels at the sensitive receivers surrounding the Project. For a full description of the noise and vibration modelling that was undertaken, refer to Section 4.7 and Appendix AG and Appendix AH.

EHP EcoAccess guidelines *Planning for Noise Control and Assessment of Low Frequency Noise* criteria have been used for the assessment of noise from construction and operation of mining activities. Vibration and air blast was assessed using criteria in the Environmental Protection Act 1994. For the operation of the WSL, noise criteria applied to residence adjacent to the rail corridor were derived from QR Limited's (2007) *Code of Practice – Railway Noise Management*. The *EPP (Noise)* acoustic quality objectives have been referred to in assessing the impacts of the construction of the Rail and Services Corridor.

The results of the noise assessment predicted that noise levels as a result of mining operations at sensitive receivers 1, 3, 4, 5, 6, 7, 41, and 59 (using attenuated equipment) will exceed the proposed noise criteria under certain meteorological conditions and at various stages throughout the mine life. It should be noted that predicted mining noise levels have an accuracy of at best +/- 3 dB(A) and generally +/- 5 dB(A). This level of accuracy would be expected of all similar mining noise reports. Operation of the WSL is not expected to result in noise impacts exceeding the relevant criteria. However, construction of the Rail and Services Corridor has the potential for short term impacts upon sensitive receivers 9, 12, 13, 14 and 15 by exceeding the acoustic quality objectives assigned by the *EPP (Noise)*.

Based on the vibration assessment of the air blasting that will take place at the proposed Elimatta Coal Mine, the ground vibration levels are predicted to be acceptable at the nearest receptors. However, the airblast levels have the potential to exceed the 115 dB(Lin) limit and therefore blast parameters will need to be reviewed over the initial few blasts, and potentially changed such that airblast levels are modified to comply with the longer term limit of 115 dB(Lin). Calculations indicate that compliance can be achieved by reducing the charge or increasing the stemming height, but should be determined in consultation with a Blast Engineer.

Construction vibration associated with the Rail and Services Corridor is required to achieve the EHP EcoAccess Guideline *Noise and Vibration Blasting* criteria. These criteria are expected to require buffer distances of several hundreds of metres, and are thus expected to be achieved in most areas along the corridor except at receivers 9, 12, 13, 14 and 15. Blasting in the vicinity of these receivers will require careful consideration of the blast parameters. It is unlikely that blasting will be required during construction; however, where necessary, small-scale localised blasting will be utilised, involving a small mobile drill rig and resulting in only a few holes small in diameter. Blasting will not be required during operation of the WSL.

The properties that are predicted to be impacted by ongoing mining operations at the Elimatta Project are either planned to be acquired by Taroom Coal, are currently unoccupied or are likely to be within the boundary of the future Metro Project. As such, it is unlikely that the noise and vibration impacts from the operating Project are going to impact upon public health and safety values.

During the construction of the Rail and Services Corridor, if unmitigated, there is the potential for impacts on public health and safety values as a result of construction noise and blasting vibration. However, due to the mobile nature of the construction works, the period during which the construction will occur within the impact buffer distance is expected to be relatively short. Based on the projected rate of construction progress, the longest period of impact will be limited to location 14 for a period of approximately 6 weeks.

The Project will be managed in accordance with noise and vibration guidelines and mitigation strategies will be employed to ensure compliance, as detailed in Section 4.7.

If noise or vibration complaints are received from nearby sensitive receivers as a result of mining activities, then monitoring will be conducted, and appropriate mitigation and control strategies will be implemented as required.

A full description of the modelling that was undertaken as well as additional mitigation strategies is detailed in Section 4.7 and Appendix AG and Appendix AH.

Traffic

A Traffic Management Plan (TMP), or Road User Management Plan (RUMP), will be developed in consultation with DTMR and the WDRC to ensure the ongoing safety of the public and Project workforce. This plan will also consider strategies to minimise disruptions to transport movements on the local road network.

Traffic will be increased around the Project area during all phases of the Project; construction, operations and decommissioning. During construction and decommissioning in particular, heavy traffic will be more prevalent in line with Project supply requirements. During the operations phase there will be an increase in the frequency of traffic associated with the high number of mine personnel and contractors, travelling to and from work on a daily basis. Overall, the increased number of vehicle movements in the vicinity of the Project will have the potential to increase the risk of traffic and road hazards and will cause significant issues with regards to road safety and the perception of road safety in the region.

In order to minimise the impacts to the local community and Project workforce all Project related roadwork will be conducted in accordance with the *Road Planning and Design Manual* (DMR 2006) and signed in accordance with the *Manual of Uniform Traffic Control Devices* (DTMR 2011). Taroom Coal will commit to the dissemination of relevant information and consultation, where appropriate, to minimise community and safety impacts.

A Road User Management Plan will be implemented in consultation with DTMR, the WDRC and BSC to ensure the ongoing safety of the public and Project workforce. This plan will consider strategies to minimise disruptions to transport movements on the local road network. Relevant Traffic Management Plans will be developed and implemented prior to interruption of traffic flows at locations subject to road works.

Section 4.3 details all strategies to be implemented that will aim to minimise the potential impacts to public health and safety values as a result of the Project.

Water Contamination

With all water management infrastructure and controls in place, the impact of the Project on quantity and quality of flow in the receiving waters of Horse Creek will be minimal, with the predicted changes to the flow regime being well within the range of natural climate variability for the watercourse.

Due to the intermittent nature of the existing streamflow within Horse Creek there is very little reliance on the usage of surface water in the vicinity of Elimatta, with the nearest established consumer being approximately 20 km downstream. As a result, the impacts to flow rates and water quality on downstream users is likely to be negligible.

Predicted climatic extremes specific to the Western Downs region have been incorporated into dam design in order to minimise the potential for uncontrolled release of mine affected water that may pose a public health risk. The site water management system also details how water is to be circulated around site or released under controlled conditions into Horse Creek receiving waters in order to maintain capacity in the water management infrastructure.

The water quality and stream sediment monitoring program will aim to continually quantify potential impacts associated with the Project. This information will also serve as an early warning system of any potential waterborne contamination that may impact upon community health and safety values.

The comprehensive water management strategies that will be implemented on site are outlined in detail in Section 4.5.

Disease Vectors

Water management at the Project has been designed to ensure the efficient use and re-use of all mine water. As part of the system, procedures will be put in place to minimise the amount and length of standing water in order to reduce the risk of midge/mosquito breeding at the Project site throughout all phases of the Project.

Drinking water, supplied to site by a third party, will be filtered on site to a potable standard which will minimise the potential for the spread of bacteria and viruses.

4.11.2.2 Mitigation Strategies

Taroom Coal, as a subsidiary of New Hope Corporation, will be bound by the company's Corporate Policy Objective. A cornerstone of the objective is to provide a safe and healthy working environment for all its employees, contractors and, to the extent that it can, its public.

Safety and health management requirements within a mining tenure are governed by the *Coal Mining Safety and Health Act 1999 (Qld)*. As holder of the exploration tenures that underpin the Project, Taroom Coal has already in place a Safety and Health Management Plan (SHMP) that complies with the Act. This SHMP will be upgraded and expanded as site activities progress with development and mining operations.

As part of their Project planning, Taroom Coal will continue to develop relevant health and safety policy, management plans and procedures. These will ensure conformance with relevant legislation and standards including, but not limited to:

- *Coal Mining Safety and Health Act 1999;*
- *Explosives Act 1999;*
- *Work Health and Safety Act 2011;*
- AS/NZ 4804:1997 Occupational Health and Safety Management Systems; and
- AS/NZS4360:2004 Risk Management.

The health and safety system on the Project will include:

- Comprehensive training programs ensuring that all employees, contractors and visitors understand individual responsibilities in order to maintain a safe workplace environment. Such training programs will include information on risk assessment, fire prevention and safe work practices. Personnel will also be trained in collective responsibilities across certain departments;
- Develop specific Health and Safety policies, procedures and practices to deliver appropriate health care and emergency care to employees on site;
- Protective clothing/devices that will be provided for use as required by standard procedures for site safety;
- Requirements for all equipment to be regularly serviced and deemed operationally safe before use;
- The requirement for all accidents and incidents, independent of their severity, to be reported and investigated by relevant authorities in order to prevent recurrence;
- Risks will be identified, assessed and reduced through the risk assessment process; and
- Regular audits of health and safety procedures to ensure procedures are being followed by employees and to implement changes/improvements when required.

Safety procedures put in place will include, but will not be limited to:

- Detailed instructions of responsibilities of all employees, contractors and visitors in order to maintain a safe workplace;
- Appropriate hygiene standards will be employed for all food preparation activities that are conducted on site, in order to ensure that food-borne ailments do not arise;
- Procedures for the use of personal protective equipment, including clothing and devices, which will be provided for employees;
- Special procedures will be developed for tasks where potential risks may occur;
- Procedures will be implemented to ensure adequate monitoring of workplace conditions including but not limited to, noise, inspirable and respirable dust, and drinking water quality;
- Procedures to minimise standing water that is not part of the Project water management system to reduce the risk of midge/mosquito breeding on the Project site;
- Management Strategies and Safety Procedures, including the use and maintenance of bunds in chemical and hydrocarbon storage areas, to reduce the risk of contamination of soil, surface water or groundwater from hydrocarbon or chemical spills;
- Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training, must be updated and included with each Plan of Operations;

- Land contamination risks will be reduced by ensuring that all chemical and hydrocarbon storage facilities are appropriately banded and spills cleaned up immediately;
- Procedures to ensure that all personnel will have relevant certificates, licences and authorisations for the tasks included in their work duties;
- The Safety and Health Management System on the Project site will include detail on specific emergency response elements and procedures in relation to landslide hazard to mitigate erosion and land stability issues;
- Procedures and Incident Response Plans will be included in the Safety and Health Management System on the Project site and exercised in coordination with local response capability and the Local Disaster Management Group of Emergency Management Qld. Plans will include the ability to evacuate the workforce from the site and secure all assets and infrastructure in the event of a localised disaster situation; and
- Clearly stated safety rules which will include site specific road and traffic rules.