21. Hazard and risk

21.1 Existing environment and background

This chapter assesses the potential hazards and risks associated with the project and identifies corresponding management and mitigation measures.

21.1.1 Overview

Central Station has been used for railway activities for over 100 years. Hazardous materials, such as asbestos and lead paint, were used in the station's construction and could be encountered during construction of the project. Potential hazards and risks at and around the Sydney Terminal Building include:

- Hazardous substances used in the station's construction, including:
  - Asbestos (actual and potential) – pipe boxing, sheeting under tiles, wall sheeting, backing board, ceiling panels, cubicle partitions, vinyl floor tiles, window packing, exterior eaves, fascia, stair infill, roof sheeting, power distribution boards, and toilet cisterns.
  - Lead paint – painted on walls, ceilings, and architraves. The presence of lead paint has been confirmed and/or is suspected at various locations within the project area, including the buildings in Eddy Avenue Plaza, multiple rooms and areas within the Sydney Terminal Building, and in substations.
  - Lead dust – on surfaces in general, and notably in ceiling voids and roof cavities. The presence of lead dust has been confirmed and/or is suspected at various locations within the project area including, multiple rooms and areas within the Sydney Terminal Building, and in substations.
  - Synthetic mineral fibres – roof cavity, air conditioning ducts, and hot water pipe insulation. The presence of synthetic mineral fibres has been confirmed and/or is suspected at various locations within the project area, including the buildings in Eddy Avenue Plaza and multiple rooms and areas within the Sydney Terminal Building.
  - Polychlorinated biphenyl (PCB) containing capacitors – fluorescent light fittings. The presence of PCB has been confirmed and/or is suspected at various locations within the project area, including multiple back of house rooms within the Sydney Terminal Building.
- Dangerous goods and hazardous substances that are used, stored and transported to site as part of the station's typical operation, including petrol, diesel and cleaning chemicals/solvents. These are currently managed in accordance with existing licenses and health and safety guidelines.
- Hazardous/special waste produced as part of the station's typical operation, including batteries, e-waste and light fittings, which are all appropriately managed and disposed of.
- General health and safety hazards and risks associated with the station's typical operation, including:
  - Safety risks to the public (for example, unauthorised access)
  - General worker health and safety issues for drivers and maintenance staff
  - Electromagnetic field (EMF) exposure from the Light Rail and electrical substations.

21.1.2 Policy and planning setting

The assessment considered the following relevant policies and guidelines:

- Storage and Handling of Dangerous Goods Code of Practice (WorkCover, 2005)
- Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011) (referred to as Applying SEPP 33)
- NSW *Work Health and Safety Act 2011*
- Work Health and Safety Regulation 2017
- IEC 31010: 2019 Risk Management – Risk Assessment Techniques (ISO, 2019)
- Code of Practice: How to manage and control asbestos in the workplace (Safe Work Australia, 2020a)
- Code of Practice: How to safely remove asbestos (Safe Work Australia, 2020b)
- Code of Practice: Managing Risks of Hazardous Chemicals in the Workplace (Safe Work Australia, 2020c)
- State Environmental Planning Policy (Resilience and Hazards) 2021
- Australian Code for the Transport of Dangerous Goods by Road and Rail (edition 7.8 – National Transport Commission, 2022).

21.2 Assessment of potential impacts

21.2.1 Construction

The following sections identify the potential hazards and risks that may be encountered during construction. Potential construction hazards and risks will be managed through the implementation of measures detailed in Section 21.3. Hazards associated with contamination are described in Chapter 16 (Groundwater, soils and contamination).

On-site storage, use, and transport of dangerous goods and hazardous substances

The incorrect storage, handling, use, and transport of dangerous goods and hazardous materials (including special and hazardous waste), presents a worker-exposure risk. It also has the potential to impact the site, surrounding community, and environment if leaks, spills, or other releases occur. Exposure to these contaminants could cause health and safety impacts to the community through inhalation, incidental ingestion and/or direct contact, or impacts to the environment due to contamination of land.

Potentially hazardous materials that may be used, stored, and transported to and from the site during construction are:

- Diesel
- Petrol
- Lubricating oils and greases
- Industrial grade oxygen
- Acetylene
- Concrete curing compounds
- Concrete retardant
- Epoxy glue
- Acids
- Bases
- Disinfectant
- Paint.

Potentially hazardous construction materials would be stored in drums, bulk containers, cylinders, bags, or pallets and in bunded, secured, and contained areas, depending on the type of material.

Hazardous and special waste that may be generated or encountered during construction includes:

- Asbestos
- Lead paint
- Lead dust
- Synthetic mineral fibres
- PCB
- Light bulbs
- Printer toners and ink cartridges
- Commercial lead acid or nickel cadmium batteries.

Hazardous and special waste will be managed by relevant licensed contractors and facilities. Refer to Chapter 19 (Resource efficiency) for more information on the management of hazardous and special waste.

Rupture of, or interference with, underground utilities

The project includes adjustments and relocation of existing services, as described in Section 5.2.10 of the EIS.

Damage, rupture and/or failure to shut down, isolate or otherwise appropriately manage underground utilities has the potential to result in the following environmental hazards and risks:

- Release of untreated sewage and/or gas from a sewer main, and potential impacts on water mains and drains resulting in pollution of the surrounding environment and health impacts due to exposure
- Flooding and inundation due to interference with water mains
- Release of (high-pressure) gas from a main or pipeline that could result in explosions, air pollution and health impacts on workers and the public due to exposure
- Release of large electrical currents through the ground surface from an underground electricity cable (known as earth potential rise) which could result in fire and health impacts to workers including electrocution, injury and death
- Exposure to hazardous materials that may have been used in the construction of utility infrastructure, for example, insulation containing asbestos in pipes.

Removal of buildings and structures

The project requires the removal of structures in and around the Sydney Terminal Building, including the removal of buildings on the eastern side of Eddy Avenue Plaza (to occur Q3 of 2023 to Q4 of 2024) and the removal of existing substations within the Sydney Terminal Building (to occur Q3 of 2023 to Q4 of 2024), as described in Chapter 5 (Project description). Hazards associated with building demolition include:

- Unplanned structure collapse
- Falls from one level to another
- Falling objects
- Impacts on above and underground services
- Exposure to hazardous substances, such as those listed in Section 21.1.1 above
- Noise from plant used during demolition work
- Proximity of the building or structure being demolished to other buildings or structures.

These hazards have the potential to result in worker injury or death, and incidental/secondary structural damage or collapse.

Risk of subsidence

The potential for changes to groundwater levels because of construction is low, due to the generally shallow depth of groundwater and limited extent of excavation. The project would also not involve the excavation of any tunnels or other subsurface cavities. Based on the nature of the works being carried out and the existing environment, the risk of subsidence because of construction is considered negligible.

Other health and safety risks

Other construction activities that could result in impacts to the health and safety of site workers, users, visitors, customers, and the community if not properly managed are:

- Working within an operating rail environment
- The operation of vehicles and construction equipment on site
- The transportation of equipment, excavated spoil, and materials to and from the site
- Health impacts from noise, air pollution and EMFs during construction
- Reduced safety for road users, pedestrians and customers using the Sydney Terminal Building and its surrounds during construction
- Risks to workers who are working at heights
- Risks to the public from unauthorised access to construction work areas.

The management approaches outlined in Section 21.3 will be implemented to minimise and avoid the potential for health and safety impacts.

21.2.2 Operation

The following sections identify the potential hazards and risks that may be encountered during operation. Potential operational hazards and risks will be managed through the implementation of the measures detailed in Section 21.3.

On-site storage, use, and transport of dangerous goods and hazardous substances

Dangerous goods and hazardous materials (including hazardous and special waste) that may be used, stored, and transported to and from the site during operation of the project include:

- Diesel
- Petrol
- Batteries
- E-waste
- Printer toners and ink cartridges
- Cleaning chemicals and solvents
- Spent smoke detectors
- PCB.

The incorrect storage and handling of these materials has the potential to present an exposure risk and may impact the site, surrounding community, and environment if leaks, spills, or other releases occur. Exposure to these contaminants could cause health and safety impacts to the community through inhalation, incidental ingestion and/or direct contact, or impacts to the environment due to contamination of land.

Electromagnetic fields

The project includes the relocation of transformer rooms within the Sydney Terminal Building and the realignment of the light rail track, including the augmentation of overhead wiring, under the Porte Cochere of the Sydney Terminal Building. The design and operation of the project's power supply would be carried out in accordance with standard industry guidelines and codes of practice, such that conductive and semi-conductive materials effectively shield electrical fields. The separation distance would be maximised between substations and public areas to minimise the

potential to alter EMF strength within the surrounding area. Furthermore, users of the light rail would only be exposed to low level EMF for short periods of time.

The project would be designed to comply with appropriate Australian and international standards to minimise the risk associated with EMF exposure. EMF is therefore not expected to pose a significant risk to public safety.

Other health and safety risks

Potential impacts to the health and safety of the community and customers during operation would be largely consistent with the existing health and safety risks associated with the station's typical operation, as described in Section 21.1.1.

21.3 Environmental management measures

All potential hazards and risks will be addressed in the form of management measures. Measures to minimise impacts relating to contamination or hazardous waste are addressed in other impact chapters and have not been included here. Table 21-1 lists the measures to manage hazards and risks specifically.

Table 21-1: Environmental management measures – hazard and risk

Ref	Impact/ uncertainty	Environmental management measure	Timing
HR01	Impact | Health and safety risks	A **Hazard Analysis** will be carried out to identify risks to public safety from the project, and how these can be mitigated through safety and design. The hazard analysis will be conducted with reference to the relevant standards and codes of practice in Section 21.1.2.	Detailed design
HR02	Impact | Hazards and risks associated with the demolition of buildings and structures	A **Risk Assessment** will be carried out prior to starting work. It will involve: • An assessment of the: – Structural integrity of the structure to be demolished – Method of demolition, including sequencing, scheduling, plant and equipment to be used, and the layout of work areas • A hazardous material survey for those buildings and structures containing hazardous substances, including asbestos, lead paint, and polychlorinated biphenyl containing materials (for example, in electrical equipment). Hazardous materials and waste will be removed and disposed of in accordance with the relevant legislation, codes of practice and standards in Section 21.1.2.	Pre-construction
HR03	Impact | Emergencies and incidents	The Construction Environmental Management Plan will include emergency and incident response procedures that will specify: • Roles and responsibilities • Notification and reporting protocols • Action and investigation requirements • Training programs to ensure that all staff are familiar with the plan • Design and management measures to address the potential environmental impacts of an emergency.	Pre-construction / construction
HR04	Impact | Rupture of, or interference with, underground utilities	Utility searches (such as Before You Dig Australia) and consultation with the relevant service providers will be carried out prior to relocating, isolating, and/or protecting each asset.	Pre-construction / construction
HR05	Impact | Exposure to asbestos	An **Asbestos Management Plan** will be prepared to ensure asbestos is handled and managed in accordance with relevant legislation, codes of practice and Australian standards, and by licensed contractors.	Construction

Ref	Impact/ uncertainty	Environmental management measure	Timing
HR06	Impact | Health and safety risks during construction	NSW workplace safety laws require construction sites to have adequate site security, which includes appropriate signage and fencing. All construction work will be isolated from the public. The contractor will ensure that construction sites are secure and monitored to prevent unauthorised entry. Health and safety risks during construction will be managed by the implementation of standard workplace health and safety requirements.	Construction
HR07	Impact | Incorrect storage, use or transport of hazardous substances	All hazardous substances will be stored and managed in accordance with the *Work Health and Safety Act 2011* and supporting Work Health and Safety Regulation 2017, the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005) and Applying SEPP 33 (Department of Planning, 2011). Furthermore, hazardous materials requiring storage will be located at a suitable distance from sensitive receivers in accordance with the thresholds established under Applying SEPP 33 (Department of Planning, 2011). The Sydney Trains Hazardous Materials Register for Central Station will be updated to include the minimum buffer distances where necessary. The transportation of dangerous goods and materials to and from the site will be carried out by licensed contractors, operating in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (edition 7.8) (National Transport Commission, 2022) (or updated equivalent).	Construction / operation
HR08	Impact | Electromagnetic field exposure	The design and operation of the project's power supply will be carried out in accordance with standard industry guidelines and codes of practice, such that conductive and semi-conductive materials effectively shield electrical fields.	Detailed design / Construction / operation
HR09	Uncertainty | Final materials and hazards on site	If thresholds in Applying SEPP 33 (Department of Planning, 2011) are exceeded, further analysis of the potential risks associated with handling these substances will be carried out.	Construction / operation