# 706-752 Mamre Road Data Centre Campus, Kemps Creek

## Environmental Health Risk (EHRA) & Health Impact Assessment (HIA)

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|---|---|
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# Issue And Revision Record

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| 04 | 12.12.2025 | Minor Update | MV / ZM | AK |

Information presented in this report is based on E-LAB Consulting's understanding of the **Mamre Road Data Centre Campus** Project and the documentation, data, and environmental studies provided by the client and associated consultants.

This report has been prepared specifically to assess the project's potential health impacts in accordance with relevant Australian legislation, environmental guidelines, and planning requirements, as detailed within this document.

The project design and construction teams are required to review and consider the implications of the findings and recommendations contained herein, ensuring that they are integrated into detailed design, construction, and operational management processes.

Design coordination should take into account any related air-quality, acoustic, heat, structural, safety, or maintenance considerations applicable to this particular project.



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We recognise the Traditional Custodians of the land on which the proposed development will be constructed. We respect their enduring cultural and spiritual connections to the land and waters, and celebrate their knowledge, kinship, and values. We acknowledge that these connections to the land and waters have existed for millennia and will continue into the future. We respect the Elders who have gone before, together with those of today for their guidance on our shared journey. We recognise that we are, and always will be, on Aboriginal land.

# Abbreviations

| Abbreviation | Meaning |
|---|---|
| **AQIA** | Air Quality Impact Assessment |
| **AQMS** | Air Quality Monitoring Station |
| **AQC** | Air Quality Category (NSW EPA) |
| **AWS** | Automatic Weather Station |
| **BTEX** | Benzene, Toluene, Ethylbenzene, Xylenes |
| **CAQMP** | Construction Air Quality Management Plan |
| **CO** | Carbon Monoxide |
| **CSM** | Conceptual Site Model |
| **DA** | Development Application |
| **DCP** | Development Control Plan |
| **DPHI** | NSW Department of Planning, Housing and Infrastructure |
| **EER** | Energy Efficiency Ratio |
| **EIA** | Environmental Impact Assessment |
| **EIS** | Environmental Impact Statement |
| **EHRA** | Environmental Health Risk Assessment |
| **EPA** | Environment Protection Authority |
| **EP&A Act** | Environmental Planning and Assessment Act 1979 |
| **EPL** | Environment Protection Licence |
| **ESL** | Ecological Screening Levels |
| **HIA** | Health Impact Assessment |
| **ICNG** | Interim Construction Noise Guideline (DECCW, 2009) |
| **IT Load** | Information Technology Electrical Load |
| **LGA** | Local Government Area |
| **LAeq** | Equivalent Continuous Sound Level |
| **MWD** | Minimum Working Distance (vibration assessment) |
| **MRP** | Mamre Road Precinct |
| **NEPM** | National Environment Protection Measure |
| **$NO_2$** | Nitrogen Dioxide |
| **NOx** | Oxides of Nitrogen |
| **PAH** | Polycyclic Aromatic Hydrocarbons |
| **PFC** | Power Factor Correction |
| **PNTL** | Project Noise Trigger Level |

| Abbreviation | Meaning |
|---|---|
| **POEO Act** | Protection of the Environment Operations Act 1997 |
| **$PM_{2.5}$ / $PM_{10}$** | Particulate Matter ≤2.5 µm / ≤10 µm |
| **RAP** | Remedial Action Plan |
| **REMP** | Remediation Environmental Management Plan |
| **RBL** | Rating Background Level |
| **SBU** | Switchboard Unit / Site Battery Unit |
| **SEARs** | Secretary's Environmental Assessment Requirements |
| **SSD** | State Significant Development |
| **TARP** | Trigger Action Response Plan |
| **TRH** | Total Recoverable Hydrocarbons |
| **TSP** | Total Suspended Particulates |
| **UHI** | Urban Heat Island |
| **UHIE** | Urban Heat Island Effect |
| **UTCI** | Universal Thermal Climate Index |
| **VOC** | Volatile Organic Compound |

# Executive Summary

This Environmental Health Risk Assessment (EHRA) and Health Impact Assessment (HIA) has been prepared to support the State Significant Development (SSD-92743706) application for the Mamre Road Data Centre Campus at 706–752 Mamre Road, Kemps Creek. The assessment integrates the findings from the Air Quality Impact Assessment (AQIA), Acoustic Mitigation Investigation, construction Noise and Vibration Impact Assessment, and Remedial Action Plan, in accordance with the Secretary's Environmental Assessment Requirements (SEARs) and relevant NSW and national health guidance

The proposal involves a multi-stage, multi-building data centre campus to be constructed and commissioned over a 10-year program. The scale of development, reliance on mechanical plant, and use of standby diesel generators create potential interactions with key environmental health determinants. This HIA forms a specialist technical input to the broader EIA process, ensuring that human health, across physical, psychological, and community wellbeing domains, is systematically evaluated and protected throughout the project lifecycle.

The assessment follows the enHealth Health Impact Assessment Guidelines (2018), the enHealth EHRA Guidelines (2012), the NSW Planning EP&A Act 1979, the POEO Act 1997, and relevant EPA and NEPM air and noise criteria. The HIA responds directly to SEARs requiring the assessment of air quality, noise and vibration, soil contamination, urban heat, and cumulative impacts on nearby residents, schools, and other sensitive receptors.

This EHRA & HIA has been prepare as part of the Environmental Impact Statement (EIS) within which community consultation has been undertaken in accordance with statutory requirements. Project-level engagement led by Plan Project Management and Willowtree Communications has provided valuable insight into local sensitivities, particularly regarding noise, construction staging, dust generation, and cumulative development pressure within the Mamre Road Precinct. The HIA incorporates issues raised through the statutory EIS engagement process, including concerns from nearby educational facilities, the Emmaus Retirement Village, and other industrial neighbours.

This HIA focuses on environmental determinants that have plausible exposure pathways to surrounding populations:

- Air quality: construction dust emissions; diesel generator emissions ($NO_2$, $PM_{10}$, $PM_{2.5}$, CO, $SO_2$, PAH, VOCs).
- Noise and vibration: construction equipment, operational mechanical plant, and emergency/maintenance generator noise.
- Land and soil contamination: asbestos in shallow soils, mixed waste, hydrocarbon impacts, sediment quality.
- Urban heat: altered microclimate from large impervious surfaces and building mass.

Psychosocial determinants, including annoyance, perceived risk, cognitive effects on students, and quality-of-life considerations, were also assessed where relevant.

## 1.1 Key Findings

### 1.1.1 Air Quality

- Air quality impacts during construction are primarily associated with dust generation from earthworks, vehicle movements and exposed surfaces. These impacts are localised and short-term, with potential for temporary increases in particulate matter ($PM_{10}$, $PM_{2.5}$).
- The operational phase presents minimal risk, as emissions are limited to infrequent diesel generator testing and rare emergency operations.
- Modelling demonstrates compliance with relevant EPA and NEPM criteria under both construction and operational scenarios. With standard dust suppression and generator-use controls, air-quality-related health risks are low.

### 1.1.2 Noise and Vibration

- Construction noise modelling indicates that exceedances of Noise Management Levels may occur for a limited number of nearby short-term receptors within the Mamre Road Precinct, particularly during high-noise activities such as rock hammering or when multiple construction phases overlap. These exceedances are intermittent, predictable, and manageable with appropriate mitigation.
- Operational noise impacts are largely mitigated through design, with only marginal exceedances at a small number of transitional receptors.

- No exceedances of sleep-disturbance thresholds are predicted during emergency generator operation.
- Vibration impacts are not expected to cause structural damage and are limited primarily to temporary perceptual annoyance.

### 1.1.3 Soil and Contamination

- Site investigations identified localised contamination, including asbestos in shallow soils, anthropogenic waste and isolated hydrocarbon-impacted materials.
- These hazards can be effectively managed through a Remedial Action Plan (RAP), Asbestos Management Plan and standard controls for contaminated material handling.
- Residual health risk following remediation is low and acceptable for the proposed land use.

### 1.1.4 Urban Heat Island (UHI)

- Modelled UHI effects indicate minor increases in night-time temperatures due to the thermal mass of buildings and hardstand areas, but no exacerbation of daytime peak temperatures.
- Mitigation strategies integrated into the site design, including vegetation, reflective materials and shading, effectively reduce the project's contribution to heat stress and maintain acceptable thermal comfort levels.

## 1.2 Management Strategies

A comprehensive suite of mitigation measures has been developed to address identified risks across all project phases:

### 1.2.1 Air Quality Controls:

Construction Air Quality Management Plan (CAQMP), real-time PM monitoring, dust suppression, sealed haul roads, controlled generator testing and adherence to EPL requirements.

### 1.2.2 Noise & Vibration Controls:

Use of quieter plant, acoustic screening, staging optimisation, limitation of high-noise works to standard hours, complaints management, and operational noise barriers and enclosures.

### 1.2.3 Soil & Contamination Controls:

Remediation of impacted soils, asbestos air monitoring, waste classification and compliant disposal, dewatering controls and implementation of an Unexpected Finds Protocol.

### 1.2.4 Urban Heat Mitigation:

High-albedo roofing, increased vegetation coverage, shaded pedestrian areas, and use of permeable, low-heat-absorption paving materials.

Collectively, these strategies ensure that all identified risks are reduced to low or very low levels following mitigation, consistent with NSW health risk management guidelines.

## 1.3 Supporting Argument for Project Progression

This assessment concludes that the Mamre Road Data Centre Campus can proceed without presenting unacceptable risks to human health or the environment. The following factors strongly support project approval and progression:

- **Compliance with Regulatory Criteria:** All predicted impacts, air quality, noise, vibration, soil and UHI are either compliant with regulatory thresholds or can be reduced to compliant levels through feasible and reasonable mitigation.
- **Low Residual Health Risk**: After implementation of the recommended controls, residual risks are categorised as low or very low across all environmental health domains, with impacts being temporary, localised or effectively mitigated.

- **Robust Environmental Management Framework:** The project incorporates monitoring, trigger-action response procedures, community engagement mechanisms and adaptive management, ensuring ongoing compliance throughout construction and operation.
- **Strategic Alignment with the Mamre Road Precinct Vision:** The development supports the broader transformation of the precinct into a high-tech industrial hub, consistent with SEPP (Western Sydney Employment Area) objectives and regional economic growth plans.
- **Protection of Sensitive Receptors: Nearby** schools, retirement facilities, and residential properties have been carefully assessed, and targeted mitigation measures ensure protection of health and amenity throughout the project lifecycle.

Based on the evidence presented, the Project is considered suitable to proceed and is not expected to result in significant adverse health impacts when managed in accordance with the recommendations outlined in this report.

# 2 Introduction

Health Impact Assessment (HIA) and Environmental Health Risk Assessment (EHRA) are complementary processes used to understand how proposed developments may influence human health. As defined by the World Health Organization's Gothenburg Consensus Paper (1999) and the enHealth Health Impact Assessment Guidelines (2001), an HIA is a systematic method for identifying and assessing the potential direct and indirect, positive and negative health impacts of a proposal on individuals and communities. It considers social, environmental and economic determinants of health and is typically undertaken early in planning to support informed decision-making and sustainable development.

The EHRA forms a more technical component within this broader framework by evaluating potential adverse health effects arising from environmental exposures such as chemical contaminants, physical stressors and biological agents. Following the steps of hazard identification, exposure assessment, dose–response assessment and risk characterisation, the EHRA and HIA together ensure the Mamre Road Data Centre Campus Project is assessed not only for environmental performance but also for its potential to protect and enhance human health, consistent with the WHO definition of health as a complete state of physical, mental and social wellbeing.

## 2.1 Purpose of the HIA and EHRA

The purpose of this EHRA and HIA is to evaluate the potential health and environmental impacts associated with the Mamre Road Data Centre Campus Project during both construction and operational phases. The assessment has been undertaken in accordance with the enHealth Health Impact Assessment Guidelines (2017) and the Environmental Health Risk Assessment Guidelines (2012). It complements the Environmental Impact Statement (EIS) prepared to address the requirements issued by the NSW Department of Planning, Housing and Infrastructure.

This assessment considers a range of direct and indirect health determinants relevant to the Proposal, including air quality and odour, noise and vibration, soil and land contamination and Urban Heat Island (UHI) effects.

## 2.2 Site Description

The Mamre Road Data Centre Campus Project is located at 706–752 Mamre Road, Kemps Creek, NSW 2178, legally described as Lot 10 in DP 1280592 and covering approximately 52 hectares. The site is regular in shape and situated on the eastern side of Mamre Road and the southern side of Bakers Lane (the future Southern Link Road, delivered by others), All traffic will use a new four-leg roundabout on Berriwerri Drive which will be delivered and dedicated to Council as part of the MRP Road Network. The land is generally vacant except for one residential dwelling that will be demolished to accommodate the development, and it contains vegetation that will be cleared. The location of the site is illustrated in Figure 1.


*Figure 1: Google maps (706-752 Mamre Rd)*

## 2.3 Proposed Development

The site is proposed for development under a State Significant Development Application (SSDA 92743706) as a data centre campus comprising:

- Approximately 26 shells across four-storeys data centre buildings (4x four shells and 2x five shells), including six technical office buildings, plus a campus office.
- Incoming and internal electrical substations and associated infrastructure
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

The project area for the proposed development, 706-752 Mamre Road, Kemps Creek (Lot 10 DP 1280592), constitutes the main development site with areas across the shared boundaries to the east and south (described below) utilised to facilitate roadworks and bulk earthworks:

- Gibb Group site to the East known as 1-22 Bakers Lane, Kemps Creek (Lot 40 in DP 709347).
- GPT Group site to the South known as 754 Mamre Road, Kemps Creek (Lot 180 in DP 1290397).

Additionally, power supply lead-in from Sydney-West Substation is proposed as part of the development, which traverses through multiple landholdings.

## 2.4 Staging and Construction Program

The development will proceed in clearly defined stages over an estimated 10-year program. Earthworks and construction activities for all 6 data centre buildings will not occur simultaneously. Instead, major earthworks will be undertaken in two primary phases separated by approximately seven to eight years apart, with minor earthworks occurring progressively as individual sub-parcels are developed. Construction traffic will not use Bakers Lane at any time during the works, minimising impacts to nearby road users and residents.

As the campus is built out, data centre buildings within each sub-parcel will be constructed and commissioned sequentially over the full delivery period. Each building will require approximately three years from commencement of construction to operational readiness. All traffic will use a new four-leg roundabout on Berriwerri Drive which will be delivered and dedicated to Council as part of the MRP Road Network. The assessment of construction-phase impacts incorporates this staging approach to ensure a realistic reflection of how potential impacts may influence nearby sensitive receptors over time. A summary of the staging program is provided in Table 1 and Figure 2.

## 2.5 Electrical Supply and Redundancy

To support the extensive and continuous power requirements of the data centre campus, a new 330-kilovolt (kV) substation will be constructed in the northwest corner of the site. This substation will be directly supplied from the Sydney West Bulk Supply Point via three redundant 330 kV feeders arranged in an N-1 configuration, enabling the full site load to be supported even in the event of a single feeder outage. The incoming supply will be stepped down to 132 kV via three 330/132 kV transformers and distributed across the campus through 132 kV gas-insulated switchgear in a breaker-and-a-half configuration, ensuring very high electrical redundancy and reliability.

Under normal operating conditions, the electrical system is designed so that a loss of one utility supply does not trigger the use of standby generators. However, in the rare event of a feeder failure, the system will undergo a brief transition of approximately 15 to 20 minutes while the medium-voltage network reconfigures. During this period, a small number of standby generators may be temporarily activated to ensure continuous power supply to critical systems.

## 2.6 Scope of the EHRA and HIA

This EHRA and HIA provide a comprehensive evaluation of the likely health and environmental impacts associated with the Mamre Road Data Centre Campus Project during both construction and operation. The assessment focuses on key determinants of environmental and human health, including air quality and odour, noise and vibration, potential soil and contamination risks and UHI impacts. By integrating health considerations into the planning and assessment process, the EHRA and HIA ensure that the development proceeds in a manner that minimises risks and promotes the wellbeing of surrounding communities.

*Table 1 Description of Proposal Staging (construction and operation)*

| Timing (indicative) | Stage | Phase | Land parcel | Description | | Site Access |
|---|---|---|---|---|---|---|
| | | | | Construction | Operation | |
| 0 to 2 years | 1 | 0 | A, B, C, D | Earthworks in the western portion of the proposal site. This would prepare land for the construction of the sixteen data centre building to the west of the internal road, and closest to Mamre Road. | No operations | Temporary construction access from Mamre Road to the southwestern corner of the site. |
| 2 –6 years | | 1 | A | Construction of the data centre building in Parcel A plus the campus offices. | No operations | Construction and operational access via GPT development to the south.<br>Emergency access only via Bakers Lane. |
| | | 2 | B | Construction of the data centre building in Parcel B. | Commissioning / operation of Parcel A | |
| | | 3 | C | Construction of the data centre building in Parcel C. | Operation of Parcel A.<br>Commissioning / operation of Parcel B | |
| | | 4 | D | Construction of the data centre building in Parcel D. | Operation of Parcel A and B.<br>Commissioning / operation of Parcel C. | |
| 7 –10 years | 2 | 5 | E, F | Earthworks in the eastern portion of the Proposal site, with temporary access from the south for construction vehicles. This would prepare land for the construction of the ten data centre buildings to the east of the internal road. | Operation of Parcel A, B, C and D. | |
| | | | E | Construction of the data centre building in Parcel E. | Operation of Parcel A, B, C and D. | |
| | | 6 | F | Construction of the data centre building in Parcel F. | Operation of Parcel A, B, C and D.<br>Commissioning / operation of Parcel E. | |
| | | - | - | Construction finalised. | Operation of Parcel A, B, C, D and E.<br>Commissioning / operation of Parcel F. | |
| 10+ years | 3 | 7 | | Construction of north-south road. | Full development | Operational access via GPT development to the south. |

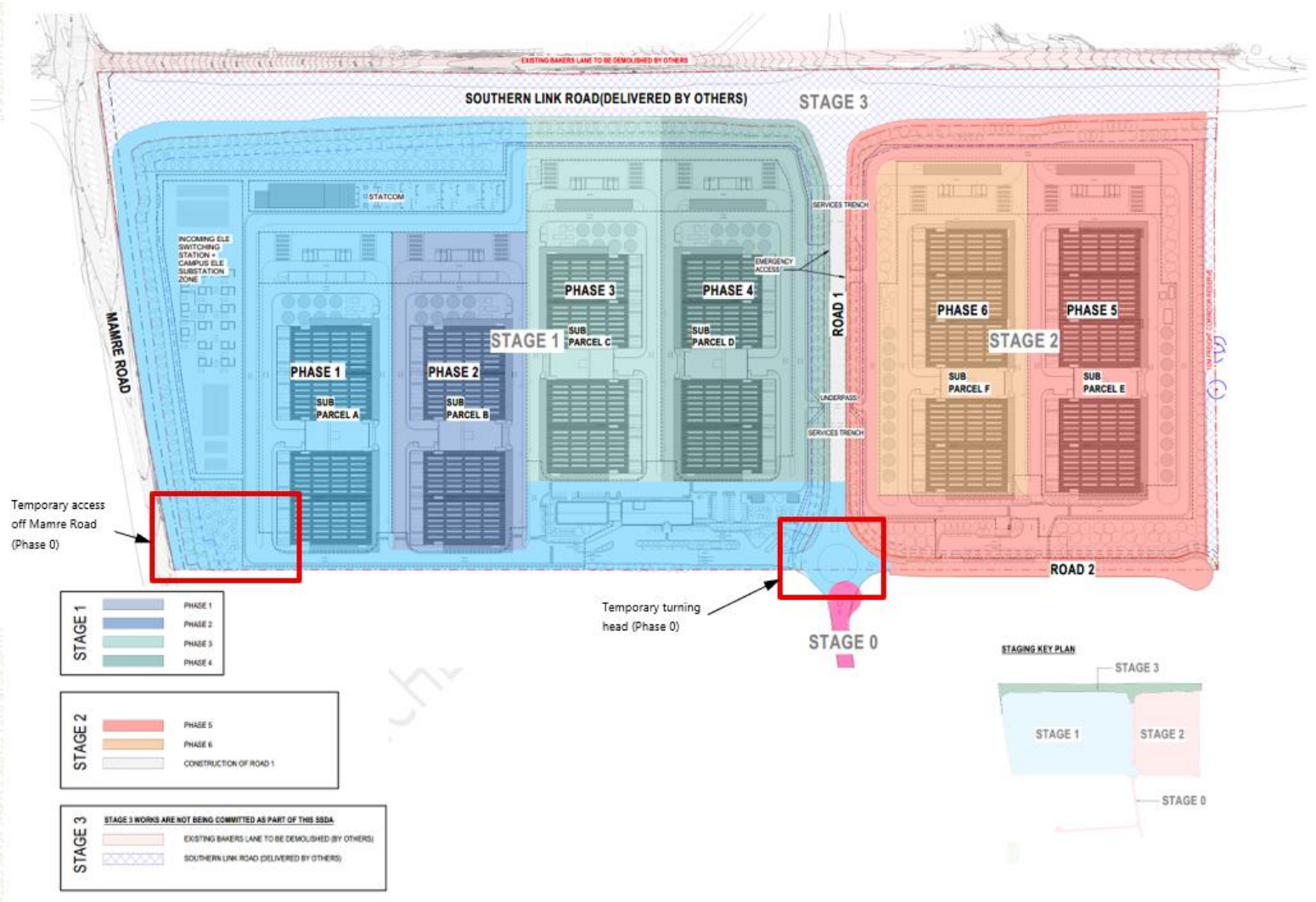


*Figure 2 Key Construction work areas (Source: RTA, 2025)*

# 3 Methodology

## 3.1 Relevant Guidance

### 3.1.1 Integration within the SEARs Framework

The HIA functions as a key decision-support tool within the Environmental Impact Assessment (EIA) and SEARs framework, ensuring that the Mamre Road Data Centre Campus is developed and operated in a manner that:

- Protects and promotes public health;
- Reduces inequities and exposure risks;
- Enhances local environmental quality; and
- Contributes to sustainable and resilient outcomes for the Western Sydney community.

The Health Impact Assessment (HIA) for the Mamre Road Data Centre Campus Project has been prepared within the framework of the New South Wales (NSW) legislative, policy, and technical guidance documents that govern the consideration of human health in environmental and planning assessments.

### 3.1.2 NSW Legislative Framework

The HIA is consistent with the requirements of the Environmental Planning and Assessment Act 1979 (EP&A Act), which establishes the statutory framework for assessing environmental and social impacts of State Significant Developments (SSD) in NSW.

Under the EP&A Act, the Secretary's Environmental Assessment Requirements (SEARs) identify the need to assess potential health impacts where developments may influence environmental or socio-economic determinants of health. The Mamre Road Data Centre Campus Project has therefore incorporated a standalone Health Impact Assessment to address these SEARs obligations.

The assessment also aligns with other relevant state instruments and policies, including:

- **Protection of the Environment Operations Act 1997 (POEO Act) –** governing pollution control, noise, and air quality management;
- **Work Health and Safety Act 2011 (WHS Act) –** ensuring the protection of worker health, safety, and welfare;
- **Public Health Act 2010 (NSW) –** regulating public and environmental health, water quality, and sanitation standards; and
- **State Environmental Planning Policies (SEPPs) –** covering infrastructure, industrial land use, and environmental management controls.

### 3.1.3 National and Technical Guidance

This HIA has been prepared in accordance with the following key Australian health and environmental frameworks:

- **enHealth Guidelines for Assessing Human Health Risks from Environmental Hazards (EHRA, 2012)** – providing the national risk assessment framework for exposure, uncertainty, and risk characterisation;
- **enHealth Health Impact Assessment Guidelines (HIA, 2018)** – establishing the principles and stages for integrating health within environmental and planning processes;
- **enHealth Guidance: The Health Effects of Environmental Noise (2018)** – defining health endpoints and evidence for community noise exposure;
- **National Environment Protection (Ambient Air Quality) Measure (NEPM, 2016)** – providing pollutant standards and exposure thresholds for criteria air pollutants ($PM_{2.5}$, $NO_2$, $SO_2$, CO, $O_3$);
- **NSW EPA Noise Policy for Industry (2017)** – outlining acceptable noise limits and measurement methodologies for construction and operation; and

- **CSIRO and NSW Planning Urban Heat Island (UHI) Guidance (2021)** – informing evaluation of local heat stress, waste heat dispersion, and mitigation design in Western Sydney contexts.
- **Mamre Road Precinct Development Control Plan 2021 (DCP) -** It provides detailed planning controls for development in the Mamre Road Precinct within the Western Sydney Employment Area, supporting industrial land use and growth.

### 3.1.4 Integration with the SEARs Process

Within the SEARs issued for the Mamre Road Data Centre Campus Project, the HIA ensures that health is considered as a cross-cutting element across environmental, social, and economic domains.

The integration of this HIA within the Environmental Impact Statement (EIS) enables decision-makers to evaluate not only environmental compliance but also the potential influence of the project on population health, community amenity, and quality of life.

The legislative and policy framework therefore provides a robust foundation for ensuring that the Mamre Road Data Centre Campus is planned, constructed, and operated in a manner that protects public health, reduces inequities, and promotes sustainable, resilient outcomes for the Western Sydney community.

In addition, this HIA references the following regulatory and technical standards relevant to the assessment of data centres in Western Sydney:

- National Environment Protection (Ambient Air Quality) Measure (NEPM, 2016) – for assessment of key air pollutants ($PM_{2.5}$, $NO_2$, CO, $SO_2$, and $O_3$).
- NSW Environment Protection Authority (EPA) Noise Policy for Industry (2017) – for criteria and measurement methods to assess construction and operational noise.
- NSW Planning / CSIRO Urban Heat Island (UHI) Guidance (2021) – for assessment of microclimate and waste heat impacts in the Western Sydney region.
- NSW Work Health and Safety Act (2011) – to ensure occupational health and psychosocial well-being are integrated into the project's management systems.

## 3.2 Environmental Health Risk Assessment (EHRA) and Health Impact Assessment (HIA) Process

This assessment has been prepared in accordance with the enHealth Health Impact Assessment Guidelines (2017) and the enHealth Guidelines for Assessing Human Health Risks from Environmental Hazards (EHRA, 2012)

E-Lab has followed the Health Risk assessment applied at the scoping stage of a HIA process. This process is shown in Figure 3 below.

This approach was completed following four steps

- Step 1: Identify the potential hazards.
- Step 2: Determine the feasible exposure pathways associated with each hazard.
- Step 3: Assess the potential health impacts arising from the hazards via the identified exposure pathways.
- Step 4: Conduct a risk assessment to evaluate the likelihood and severity of adverse health outcomes.

The risk assessment framework defines six levels of potential health or well-being consequences for the community at risk (Table 2), ranging from catastrophic to negligible/slight. Health consequences may also arise from impacts on community values, including social factors, environmental assets (e.g., national parks, nature reserves, and cultural areas), and relevant policies.

The likelihood of occurrence is categorised into five levels, from almost certain to rare/remote (Table 3). To determine the overall health risk level for each identified hazard, the consequence and likelihood are combined using a Risk Matrix, resulting in five possible risk levels, ranging from very low to extreme (Table 4 and Table 5).

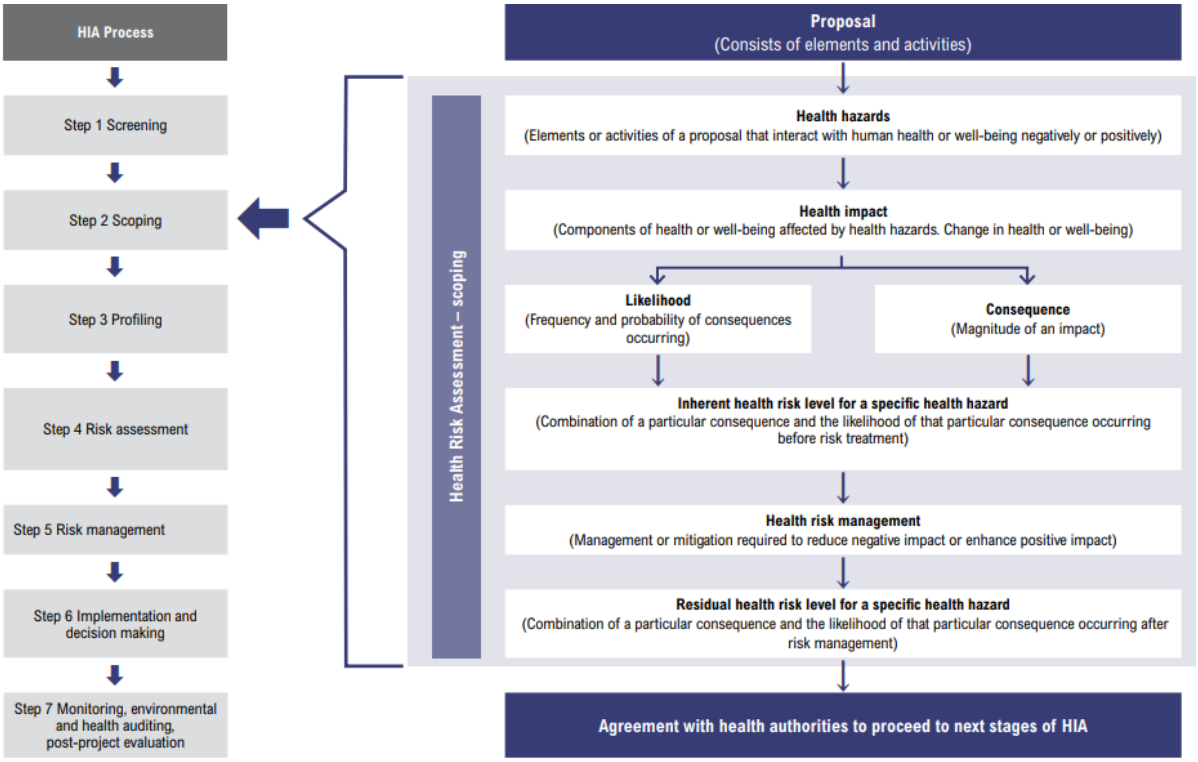


*Figure 3 EHRA & HIA model*

The criteria used to manage the potential risk associated with the health impacts are show in Table 2.

*Table 2 Categories for Health Consequences (Source: DoH 2010)*

| Category | Acute Health Consequences (per hazard or outbreak) | Chronic health consequences (per project lifecycle) |
|---|---|---|
| Catastrophic 1 | >1 fatality<br>OR >5 permanent disabilities<br>OR Non-permanent injuries requiring hospitalisation for 5–<br>10% of population at risk<br>OR Acute health effect requiring hospitalisation for<br>>5-10% of population at risk | Chronic health effect requiring medical treatment for<br>10–15% of population at-risk* |
| Massive 2 | Massive 2 1 fatality<br>OR 2–5 permanent disabilities<br>OR Non-permanent injuries requiring hospitalisation for 2–<br>5% of population at risk<br>OR Acute health effect requiring hospitalisation for >2–5% of population at risk | Chronic health effect requiring medical treatment for 5–<br>10% of population at-risk* |
| Major 3 | No fatality<br>AND (1 permanent disability<br>OR Non-permanent injuries requiring hospitalisation for >1–<br>2% of population at risk<br>OR Acute health effect requiring hospitalisation for<br>>1–2% of population at risk<br>OR Evacuation is necessary) | Chronic health effect requiring medical treatment for 2–<br>5% of population at-risk* |

| | | |
|---|---|---|
| Moderate/ Significant 4 | No fatality AND No permanent disability AND (Non-permanent injuries requiring hospitalisation for 1–2% of population at risk OR Acute health effect requiring hospitalisation for 1–2% of population at risk AND No evacuation | Chronic health effect requiring medical treatment for 1–2% of population at-risk* |
| Minor 5 | No fatality AND No permanent disability AND (Non-permanent injuries requiring hospitalisation for 1–5 persons OR no acute health effect requiring hospitalisation) AND No evacuation | Chronic health effect requiring medical treatment for about 0–1% of population at-risk* |
| Negligible/slight 6 | No fatality AND No permanent disability AND No non-permanent injuries requiring hospitalisation AND No acute health effect requiring hospitalisation AND No evacuation | No chronic health effect requiring medical treatment |

*Table 3 Likelihood Categories for Health Impact Assessments (source (DoH 2010))*

| Likelihood descriptor | | Frequency of incident or outbreak with No-chronic health effect | % chance of chronic health effect during life of project |
|---|---|---|---|
| 1 | Rare/remote | Once in more than 10 years | Up to 5% |
| 2 | Unlikely | Once in 5 – 10 years | 6 – 30% |
| 3 | Possible/ occasionally | Once in 3 – 5 years | 31% – 60% |
| 4 | Likely | Once in 1 to 3 years | 61% – 90% |
| 5 | Almost certain | More than once a year | Over 90% |

*Table 4 Qualitative Risk Matrix for Health Impact Assessments (source (DoH 2010))*

| Likelihood | Consequences | | | | | |
|---|---|---|---|---|---|---|
| | Slight/negligible | minor | moderate | Major | Massive | Catastrophic |
| Almost certain | Low | Medium | High | Extreme | Extreme | Extreme |
| Likely | Low | Low | Medium | High | Extreme | Extreme |
| Possible | Very low | Low | Low | Medium | High | Extreme |
| Unlikely | Very low | Very low | Low | Low | Medium | High |
| Rare/remote | Very low | Very low | Very low | Low | Low | Medium |

*Table 5 Risk Management Criteria according to risk rating at scoping stage (Source DoH 2010)*

| Risk Rating | Risk mitigation/ management criteria |
|---|---|
| Extreme | Potentially unacceptable: modification of proposal required |
| High | Major mitigation/management (including offsets) may be required – Assessment required of health hazards |
| Medium | Substantial mitigation/management required – Assessment required of health hazards |
| Low | Some mitigation/management may be required – No detailed assessment of health hazards required but addressed with routine controls |
| Very Low | No further assessment required |

## 3.3 Site Context and Surroundings

The Proposal site is situated within an area zoned as IN1 General Industrial under the SEPP (WSEA) Mamre Road Precinct.

Surrounding land uses include existing industrial facilities, warehouses, logistics hubs and data centres. Residential receptors are scarce and buffered by intervening industrial lots. Three residential properties are located approximately 60 metres (m) to the north of the Proposal site along Mamre Road and Bakers Lane, which are anticipated to be utilised for industrial land uses in the future. Mamre Anglican School (relocating in 2029), Trinity Catholic Primary School, Emmaus Catholic College, and Emmaus Retirement Village are all accessible via Bakers Lane and are located to the north of the Proposal site.

The land use immediately surrounding the Proposal site includes other IN1 areas and SP2 Infrastructure (Classified Road) directly to the west. Other land uses proximate to the Proposal site include C2 Environmental Conservation as well as RE1 Public Recreation, RE2 Private Recreation and ENZ Environment and Recreation areas to the west.

Topography is predominantly undulating terrain and has been extensively cleared and modified through historical agricultural activities. It contains several man-made surface water dams and a former residential area located in the central northern portion. Previous investigations have identified localised areas of soil contamination across the site, necessitating remediation to ensure the land is suitable for the proposed development.

### 3.3.1 Sensitive Receptors

The proposal site at 706–752 Mamre Road, Kemps Creek NSW 2178, is located within a predominantly rural and industrial setting that forms part of the broader Mamre Road development corridor. Based on the Australian Bureau of Statistics (ABS, 2025), the surrounding area is characterised by very low population density (between 0 and less than –500 persons/km²), with land uses including agricultural lots, large industrial lots, and scattered rural-residential properties. Higher-density residential communities are located further from the site, including St Clair and Erskine Park to the north, Abbotsbury and Bossley Park to the southeast, and Luddenham to the southwest.

A GIS-based spatial assessment identifies the following approximate distances:

- Nearest rural-residential dwelling: ~300–800 m west and northwest of the site boundary.
- Nearest high-density residential zone:
  - St Clair: ~4.5 km north
  - Erskine Park: ~3.3 km northeast
  - Abbotsbury: ~6 km southeast
  - Bossley Park: ~7 km southeast
  - Luddenham: ~5 km southwest
- Nearest sensitive ecological receptor:
  - South Creek: connected downstream via internal drainage lines and dams, generally >1.5–2 km.
- Nearest public facilities (schools, childcare, healthcare):
- Located >3 km from the site, outside immediate receptor zones.

These distances confirm that sensitive human receptors are relatively limited, with most exposure associated with onsite workers and neighbouring rural properties.

For the purposes of this Health Impact Assessment (HIA), sensitive receptors have been identified based on their proximity, potential exposure pathways, and vulnerability. Receptors include on-site workers, neighbouring rural residents, future site occupants, and downstream ecological environments connected to the site's surface water flows. Each receptor group varies in sensitivity, with a hierarchy applied to ensure the assessment accurately reflects risk for the most vulnerable populations. Table 6 presents an overview of the sensitive receptors for this project.

*Table 6 Overview Sensitive Receptors*

| Receptor Type | Location / Proximity | Description | Sensitivity Level | Key Exposure Pathways |
|---|---|---|---|---|
| **Construction workers** | Onsite | Workers undertaking excavation, remediation, soil handling, and construction. | Moderate | Dust inhalation, asbestos fibres, dermal contact with soils/sediments, noise, odour. |
| **Future site occupants / maintenance staff** | Onsite | Personnel accessing the site after redevelopment as a data centre campus. | Low–Moderate | Residual soil contact, maintenance-related disturbance. |
| **Nearest rural-residential properties** | Within ~300–800 m of site boundary | Scattered rural dwellings along Mamre Road and adjoining lots. | High | Dust migration, noise, traffic emissions (indirect pathways). |
| **High-density residential areas** | >3–5 km (St Clair, Erskine Park, Abbotsbury, Bossley Park, Luddenham) | Large residential communities not directly adjacent to the site. | Moderate | Broader air quality and cumulative effects; unlikely direct exposure. |
| **Downstream ecological receptors (South Creek catchment)** | Connected via onsite dams and ephemeral drainage | Includes surface water, fauna, and riparian environments downstream of the site. | Environmental receptor (not human) | Contaminated sediment transport, runoff. |
| **Visitors/contractors** | Transient onsite | Short-duration exposure during site access for delivery, inspections, or utility work. | Low–Moderate | Dust inhalation, incidental contact. |

The receptors have been categorised according to their relative sensitivity and likelihood of exposure. The table below outlines the receptor hierarchy used in this HIA, along with the rationale for each sensitivity level.

*Table 7 Receptors Hierarchy*

| Hierarchy Level | Receptor Category | Rationale |
|---|---|---|
| **High Sensitivity** | Offsite rural-residential properties; vulnerable individuals (children, elderly) | Fixed occupancy, home-based exposure, potential long-duration exposure windows. |
| **Moderate Sensitivity** | Construction and remediation workers; future staff; transient site users | Potential for direct contact with hazards; exposure controlled by Work Health and Safety protocols. |
| **Low Sensitivity** | Broader residential communities (>3 km away), visitors, industrial neighbours | Distance and dispersion reduce exposure potential; generally controlled environments. |

### 3.3.2 Scoping

The EHRA & HIA evaluates the potential health effects arising from the proposed project activities. It considers both short-term impacts, such as those occurring during construction, excavation, and commissioning; and long-term effects associated with the ongoing operation and maintenance of the facility.

The assessment addresses the following key factors:

- Air quality and Odour
- Noise and vibration
- Soil and land condition
- Urban heat

This EHRA & HIA has been informed by findings and data from existing technical studies, including:

- Air Quality Impact Assessment, Mamre Road Data Centre Campus Data Centre (SSD-92743706) – Main report dated 11 December 2025, prepared by Northstar
- MAMRE ROAD DATA CENTRE CAMPUS, KEMPS CREEK Noise and Vibration Impact Assessment – Report dated 12 December 2025, prepared by Renzo Tonin & Associates (RTA)
- Remedial Action Plan, 706 – 752 Mamre Rd Kemps Creek, NSW – Revision A dated 3 October 2025, prepared by JBS&G.

Spatially, the EHRA & HIA focuses on the local community and workforce within and around the project site, capturing potential direct and indirect health impacts associated with the project's lifecycle.

# 4 Health Risk Assessment

## 4.1 Air Quality Assessment

Northstar Air Quality Pty Ltd prepared an Air Quality Impact Assessment (AQIA) for Plan Project Management Pty Ltd in support of a State Significant Development Application (SSDA 92743706) for the Mamre Road Data Centre Campus Data Centre Campus at 706–752 Mamre Road, Kemps Creek NSW.

This assessment evaluates the potential air quality and odour impacts of the proposed development on surrounding sensitive receptors during both construction and operation. Given the extensive development occurring within the Mamre Road Precinct, concurrent earthworks across multiple sites may contribute to cumulative air quality impacts in the area. NSW DPHI and NSW EPA have advised that these risks are best identified and managed through a quantitative assessment, ensuring that appropriate and effective mitigation measures are applied.

### 4.1.1 Existing Environment and Sensitive receptor

The area surrounding the Proposal site includes a number of facilities currently undergoing approval or development which have been considered within the AQIA.

To assess the Proposal's impacts, existing background air quality conditions were characterised using 2021 monitoring data, consistent with the selected meteorological modelling year, from the nearest Automatic Weather Station (AWS) at Horsley Park Equestrian Centre, along with air quality measurements from the St Marys and Prospect Air Quality Monitoring Stations (AQMS). In addition, several pollutants not routinely monitored in NSW; polycyclic aromatic hydrocarbons (PAHs), benzene ($C_6H_6$), toluene ($C_7H_8$), xylene ($C_8H_{10}$), and formaldehyde ($CH_2O$), were considered as part of the AQIA. Background concentrations of these pollutants were assumed to be negligible, consistent with standard practice.

The maximum recorded background pollutant concentrations were all below the relevant impact assessment criteria specified in the NSW Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA, 2022), except for one 24-hour $PM_{2.5}$ and $PM_{10}$ exceedance attributed to burns in the Sydney region.

The Air Quality Impact Assessment (AQIA) identified several discrete receptors representing the main land use types within the study area, including residential, educational, industrial (such as data centres and substations), medical, and recreational receptors, as well as boundary receptors (for PAH, benzene, and formaldehyde).

The selected receptor locations are representative rather than exhaustive, chosen to reflect typical exposure conditions within their surrounding land uses. In areas where multiple sensitive uses occur close together (for example, a school adjacent to a medical centre), the receptor nearest to the emission source was selected to represent potential impacts for all nearby sensitive uses.

A detailed list of the receptors included in the AQIA assessment is provided in Appendix A. A map showing the location of these sensitive receivers are shown in Figure 4 and Figure 5 below.

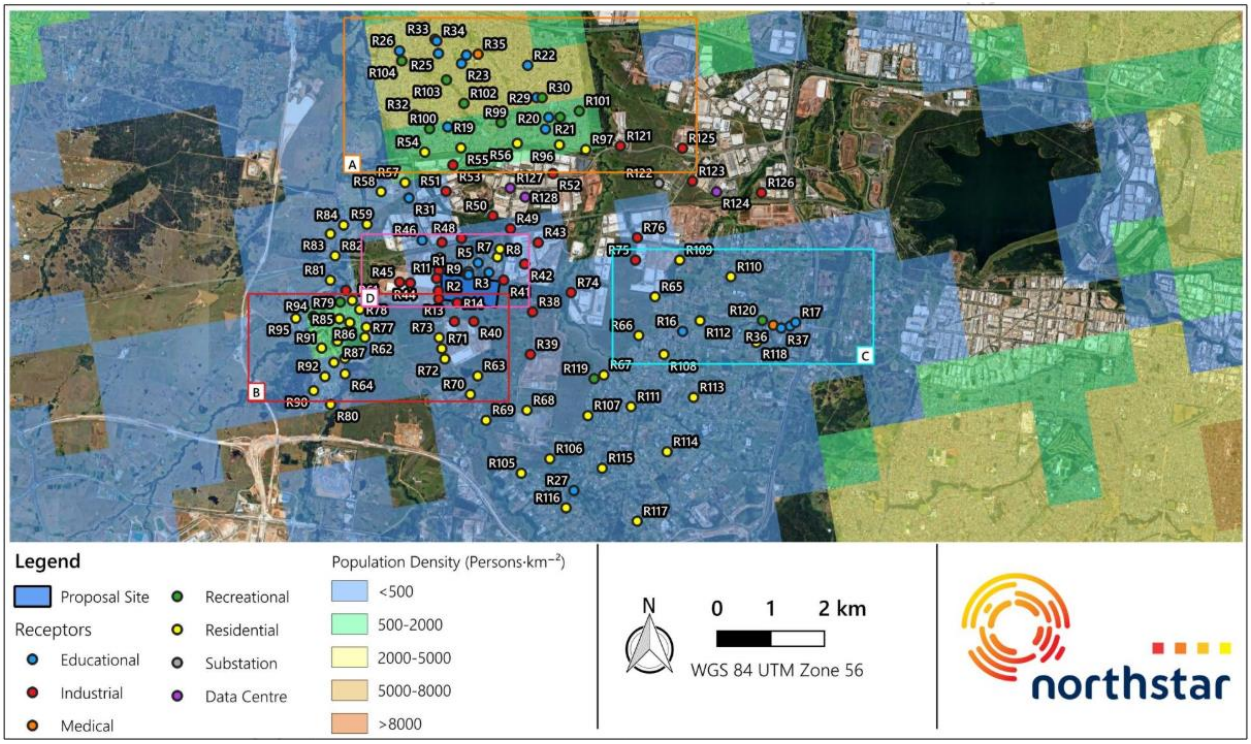


*Figure 4 Sensitive Receptor surrounding the proposal site and population density (Part 1) (Source: Northstar, 2025)*

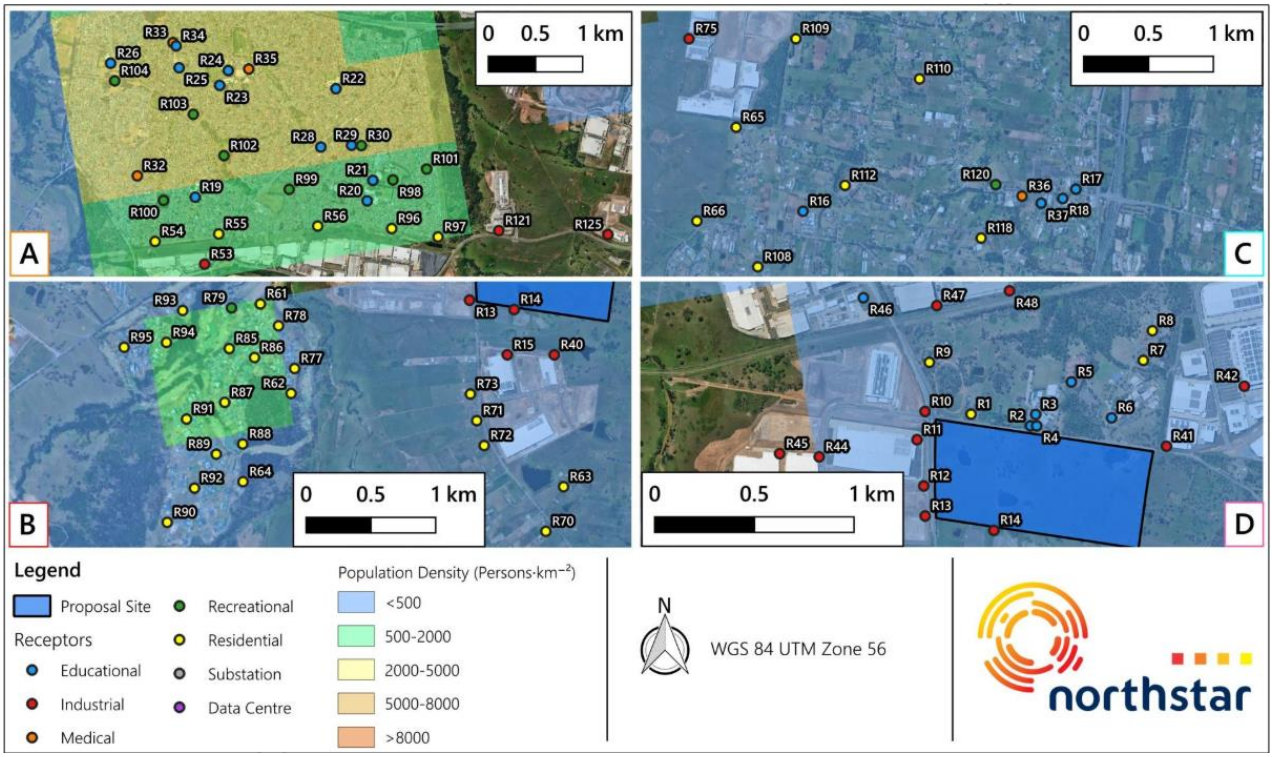


*Figure 5 Sensitive Receptor surrounding the proposal site and population density (Part 2) (Source: Northstar, 2025)*

### 4.1.2 Hazards

Exposure to air emissions is limited to suspended particles (TSP), $PM_{10}$ and $PM_{2.5}$ and organic and inorganic gases during the operating phase generated by the combustion emissions from standby diesel generators required during mains power outage events.

The primary sources of emissions to air during the construction phase of the Proposal would include:

- Topsoil scraping
- Excavation and filling (cut/fill) of topsoil and overburden (earthworks);
- Grading
- Haulage of materials (loading /unloading)
- Wind erosion of exposed surfaces and stockpiles; and
- Diesel fuel combustion from heavy vehicles, plant and equipment.

Operational emissions from the data centre on a day-to-day basis would be anticipated to be negligible, except for potential emissions from diesel-fuelled back-up generators during periodic maintenance testing or during a power outage event.

The main sources of emissions to air during the operation phase are:

- fugitive VOCs during filling and dispensing of fuel,
- potential accidental spillages and leaks that may occur.
- Operation of the back-up generators during power outage and short-term routine maintenance testing
- Additionally, there is the potential for minor fugitive emissions from the storage of diesel at the Proposal site.
- Cumulative emissions from other industrial and commercial developments in the Mamre Road Precinct and surrounding area, contributing to regional background levels.

Odour has been considered as part of the broader air quality assessment for both the construction and operational phases of the project. During construction, potential odour-generating activities include accidental fuel spills associated with plant and machinery use. In the operational phase, periodic testing and maintenance of the diesel-fueled standby generators may also generate odorous emissions. Air emissions of volatile organic compounds (VOCs) from generator exhaust, specifically benzene ($C_6H_6$), with anticipated contributions from toluene ($C_7H_8$) and xylene ($C_8H_{10}$), have been assessed against applicable odour impact criteria.

### 4.1.3 Exposure

During the construction phase, each of the activities identified above in section 4.1.2would be expected to generate emissions of particulate matter as:

- Total suspended particulates (TSP)
- Particulate matter with a diameter of 10 micrometres or less ($PM_{10}$)
- Particulate matter with a diameter of 2.5 micrometres or less ($PM_{2.5}$); and
- Deposited dust.

The pollutants of concern from the operation of the back-up generators includes:

- Particulate matter (PM)
- Oxides of nitrogen ($NO_X$)
- Carbon monoxide (CO)
- Sulphur dioxide ($SO_2$)
- Polycyclic aromatic hydrocarbons (PAHs)
- Volatile organic compounds (VOCs), as benzene ($C_6H_6$), toluene ($C_7H_8$) and xylene ($C_8H_{10}$); and
- Formaldehyde ($CH_2O$)

Operational phase activities will not result in any odour emissions, except for the periodic operation of the diesel-fuelled generators for testing and back-up power generation purposes. Toluene ($C_7H_8$) and xylene ($C_8H_{10}$) emissions have been assessed against the relevant odour impact assessment criteria. No exceedances of the odour criteria are anticipated, and no significant odour impacts are expected for surrounding sensitive receptors.

### 4.1.4 Potential Impacts

Given the nature and location of the Proposal, the quantitative assessment for both the construction and operational phases has considered both incremental and cumulative impacts. As the final make and model of the generators have not yet been confirmed, the modelling has adopted the worst-case operational characteristics from four potential generator options ("candidate generators"). This approach provides maximum flexibility for final equipment selection while ensuring the assessment remains conservative.

Modelling scenarios were prepared to allow the predicted air quality impacts of the Proposal to be presented across all stages of development. A summary of those scenarios is presented in Table 8 below. The scenario identifiers represent the scenarios associated with Construction, Emergency operation, and under Maintenance testing, respectively.

*Table 8 Summary of modelling scenarios (Source: Northstar,2025)*

| Scenario | | Stage | Phase |
|---|---|---|---|
| Construction | | | |
| **C1** | Construction | Stage 1 | Phase 0 |
| **C2** | Construction | Stage 2 | Phase 5 |
| Operation - emergency | | | |
| **E1** | Justified worst case | Stage 1 | Phase 1 |
| **E2** | Justified worst case | | Phase 1 + Phase 2 |
| **E3** | Justified worst case | | Phase 1 + Phase 2 + Phase 3 |
| **E4** | Justified worst case | | Phase 1 + Phase 2 + Phase 3 + Phase 4 |
| **E5** | Justified worst case | Stage 2 | Phase 1 + Phase 2 + Phase 3 + Phase 4 + Phase 5 |
| **E6** | Justified worst case | | Phase 1 + Phase 2 + Phase 3 + Phase 4 + Phase 5 + Phase 6 |
| Operation – maintenance testing | | | |
| **M1** | Maintenance testing | Stage 1 | Phase 1 |
| **M2** | Maintenance testing | | Phase 1 + Phase 2 |
| **M3** | Maintenance testing | | Phase 1 + Phase 2 + Phase 3 |
| **M4** | Maintenance testing | | Phase 1 + Phase 2 + Phase 3 + Phase 4 |
| **M5** | Maintenance testing | Stage 2 | Phase 1 + Phase 2 + Phase 3 + Phase 4 + Phase 5 |
| **M6** | Maintenance testing | | Phase 1 + Phase 2 + Phase 3 + Phase 4 + Phase 5 + Phase 6 |

Based on this methodology, the potential impacts are as follows:

- Short-term respiratory effects (e.g. irritation, coughing, exacerbation of asthma) associated with elevated short-term concentrations of particulates and $NO_2$ during dust-generating construction activities or emergency generator operation.
- Nuisance impacts (e.g. visible dust deposition) near the site during construction if dust is not adequately controlled.
- Low long-term health risk from chronic exposure, as operational emissions under normal generator testing are limited in duration and predicted annual average concentrations comply with relevant NSW EPA and NEPM criteria.
- Negligible health risk from toxic air pollutants (BTEX, PAH, formaldehyde), which are predicted or assumed to be present at negligible background concentrations and assessed against conservative criteria.
- As the potential for fugitive emissions from fuel storage is very low—and the risk of any off-site impacts is minimal—these emissions have not been quantitatively assessed in the AQIA.

Further to this, a completed EHRA & HRA, in accordance with DoH guidelines (DoH 2010), is provided in Table 9.

*Table 9 Air Quality -Health Risk Assessment*

| Risk | Consequence | Likelihood | Inherent Risk Level | Uncertainty | Health Risk Management / Controls | Residual Risk Level |
|---|---|---|---|---|---|---|
| **Construction phase (scenario C1 and C2)[Note 1] -** | | | | | | |
| Dust emissions, (from earthworks, haulage, and wind erosion) | Localised dust deposition and temporary increase in TSP, $PM_{10}$ and $PM_{2.5}$. Short-term respiratory symptoms and nuisance dust at nearby receptors | **Possible** during high-activity construction periods. It's dependent on weather and activity level | **Medium** | **Moderate –** variable depending on concurrent nearby works, future construction staging and weather variability | Implementation of a Construction Air Quality Management Plan (CAQMP) including dust suppression (water sprays, water carts, covering loads), minimise drop heights, stabilisation of exposed surfaces, control of vehicle speed limits, air quality monitoring, and a Trigger Action Response Plan (TARP). | **Low** |
| Cumulative impacts from nearby developments | Potential additive increase in particulate and $NO_2$ concentrations in the broader area | **Possible** depending on timing of regional construction and operation | **Medium** | **Moderate –** future development timing and intensity uncertain | Cumulative air quality modelling; regional planning controls; adherence to EPA and planning requirements | **Low** |
| **Operation – Emergency (Scenario E1 to E6) Justified Worst case Scenario** | | | | | | |
| Emergency generator operation during feeder failures | Potential acute exposure to elevated TSP, $PM_{10}$, $PM_{2.5}$, $NO_2$ and CO under worst-case outage scenarios | **Rare** (multiple feeder failures highly unlikely) | **High** (inherent, before controls) | **High –** conservative modelling assumptions overstate duration of exposure | Network redundancy; short expected outage durations; emergency-only operation; EPA-compliant generator technology | **Low** |
| **Operation – Maintenance testing Realistic (Scenarios M1 to M6)** | | | | | | |
| Diesel generator emissions during maintenance ($NO_2$, PM) | Short-term reversible respiratory effects; minimal long-term risk due to limited hours | **Unlikely** (scheduled, short-duration testing only) | **Low – Medium** | **Low –** based on EPA Tier 2 (other data centre impacts) generator performance and defined operating hours | Modern low-emission generators; limited operating hours; maintenance to ensure optimal combustion; compliance monitoring if required | **Low** |
| Cumulative impacts from nearby developments | Potential additive increase in particulate and $NO_2$ concentrations in the broader area | Possible depending on timing of regional construction and operation | **Medium** | **Moderate –** future development timing and intensity uncertain | Cumulative air quality modelling; regional planning controls; adherence to EPA and planning requirements | **Low** |
| Exposure of sensitive receptors (residential, educational, medical, recreational | Short-term respiratory irritation in more vulnerable populations during peak events | Possible but short-duration and infrequent | **Medium** | **Moderate –** variability in time spent at each location | Use of worst-case receptor locations in modelling; dust and emissions controls; communication of high-impact events via site management if required | **Low** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Toxic pollutants (BTEX, PAH, formaldehyde) | Minimal health risk due to predicted negligible concentrations | **Rare to negligible** | **Low** | **Low –** conservative criteria and limited emission potential | Design to meet NSW EPA toxic pollutant criteria; periodic review of emission factors; additional monitoring if required by regulators | **Very Low** |
| Odour emissions (construction fuel spills + diesel exhaust odour from testing/emergency operation | During construction: Slight, temporary odour if accidental fuel spill occurs. During operation: Mild diesel odour during brief generator testing or emergency use; VOCs (toluene, xylene) assessed within odour criteria | Construction: **Rare** due to infrequent spills. Operation: **Unlikely** during testing; Possible during emergency generator use | **Low - Medium** | **Low–Moderate** individual odour sensitivity varies; emergency duration uncertain | Spill kits deployed onsite to manage accidental fuel spills; rapid response procedures; EPA-compliant diesel generators; very limited operating hours; VOC and odour assessment completed against relevant criteria showing compliance | **Very Low** |

**Note 1:** The AQIA report indicates that predicted incremental PM impacts at surrounding receptor locations associated with the construction of the Proposal are anticipated to be greater during the Stage 1 construction works than during Stage 2.

## 4.2 Noise and vibration Assessment

Renzo Tonin & Associates (RTA) provided acoustic and vibration advice for the concept design development stage of the proposed Mamre Road Data Centre Campus.

### 4.2.1 Existing Environment and sensitive receptors

The proposal site is within the Mamre Road Precinct (MRP), an area transitioning from predominantly rural land (rural dwellings, grazing land, farm dams and scattered vegetation) to a large-scale industrial/logistics precinct associated with Western Sydney Airport.

Surrounding land now includes a mix of remaining rural-residential properties and increasingly, approved and under-construction industrial estates.

Background noise varies over time; therefore, it's been assessed separately for the daytime, evening and night time period. The rating background environmental noise levels (RBLs) at representative monitoring locations generally range from about 36–48 dB(A) by day, 33-46 in the evening and 30–37 dB(A) at night, influenced mainly by traffic on Mamre Road and other roads.

These monitored RBLs are used to derive construction noise management levels (NMLs) for each noise catchment area (NCA).

To address the MRP DCP and SEARs requirements the receivers surrounding the development were grouped into three categories, described below. A detailed list of the receivers' locations has been included in Appendix B.

#### *4.2.1.1 Receivers outside the MRP,*

These are the permanent residential communities located in Luddenham (near Twin Creeks Golf & Country Club). These include:

- Luddenham (NCA06) near Twin Creeks Golf & Country Club, ~700 m west of the site
- Orchard Hills (NCA05), ~1.1 km north-west3
- Mount Vernon / Horsley Park (NCA08), ~4 km east / south-east
- Kemps Creek (NCA07) and other nearby residential clusters.

#### *4.2.1.2 Receivers inside the MRP (long-term receivers)*

There are a number of currently existing noise sensitive receiver within the MRP area in the vicinity of the Proposal site. Although these receivers area within the rezone MRP area, it is unknown whether they are likely to relocate in the medium term or long term, or it is expected that they are likely to be receivers for the long-term, and in both cases are expected to remain in place as receivers for some time, these include:

- Catholic Healthcare Emmaus Retirement Village (NCA02)
- Trinity Catholic Primary School (NCA02)
- Emmaus Catholic College (NCA02)
- BAPS Shri Swaminarayan Hindu Mandir and Cultural Precinct (BAPS Temple)

#### *4.2.1.3 Receivers inside the MRP (short-term receivers)*

There are a number of currently existing noise sensitive receivers within the MRP area in the vicinity of the Proposal site, which are expected to only be receivers for the short-term. These existing receivers are likely to be receivers only for the short-term (NCA01/NCA03/NCA04) and any noise impacts could only be expected when they remain occupied and receivers. These include:

- Mamre Anglican School (relocating in 2029)
- Existing residences in NCA01, NCA03, NCA04

As the existing acoustic environment varies at the nearby residential receivers, these residential receivers have been grouped into Noise Catchment Areas (NCAs) based upon areas with similar acoustic environments, and similar grouping of receivers considering when impacts may occur.

This has been done to logically group the receivers to assist with the assessment and allocate the appropriate project noise trigger levels or management levels to each receiver. The locations of these noise catchment area boundaries are also shown in Figure 6 and Figure 7.

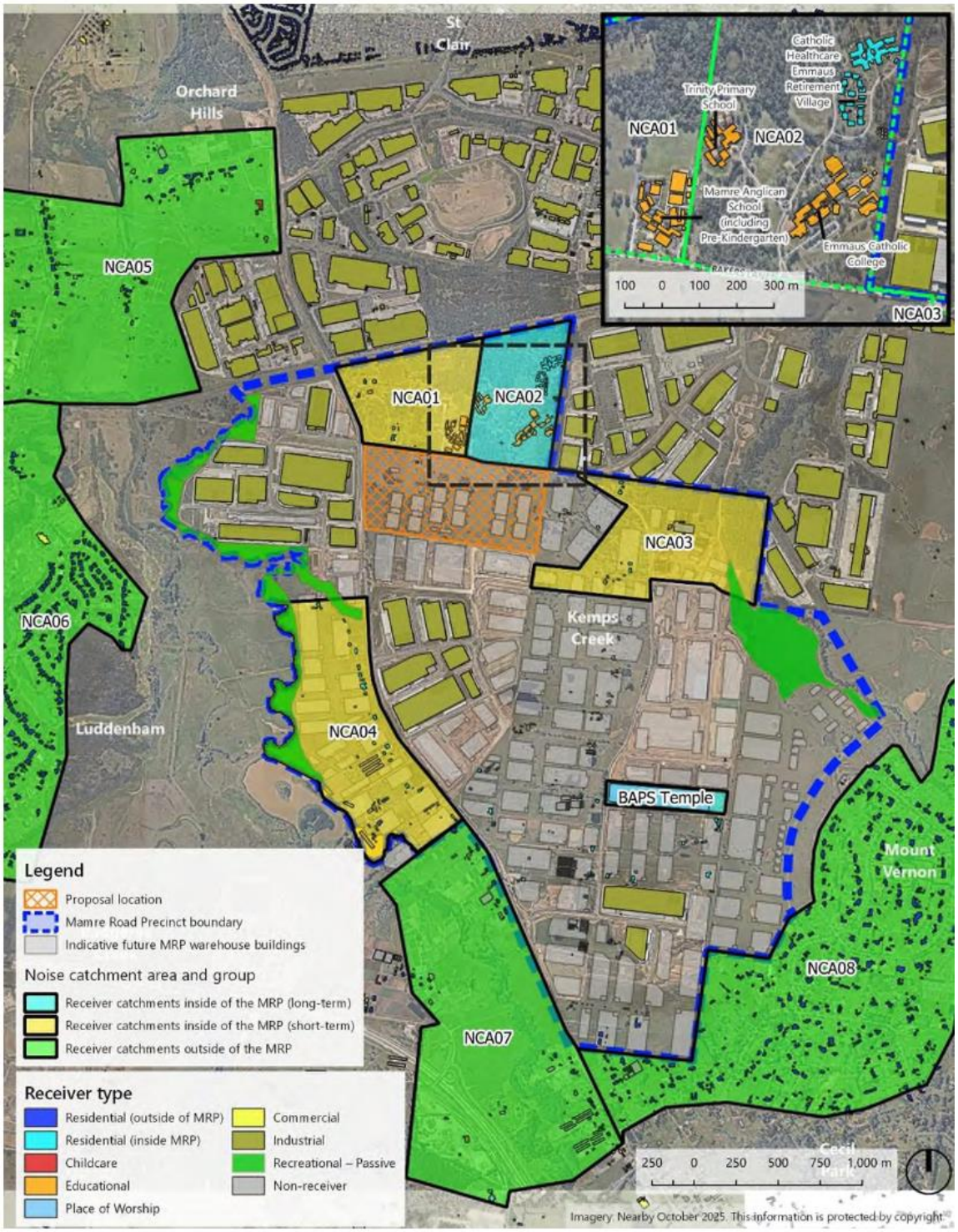


*Figure 6 Proposal Location receiver groups, NCA and land uses (Source: RTA, 2025)*

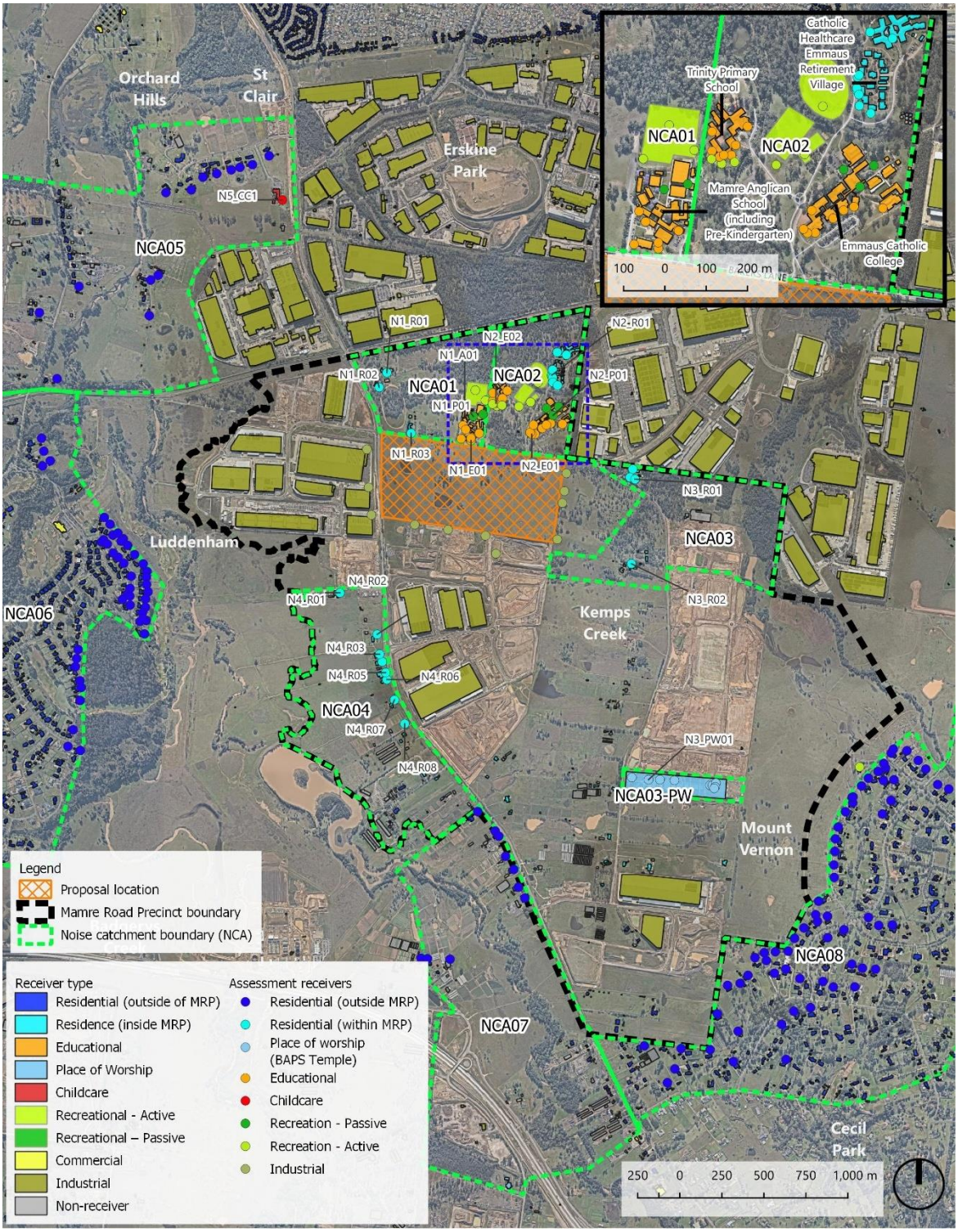


*Figure 7 Proposal location, nearby noise sensitive receivers, land uses, and assessment locations, noise monitoring locations and NCA's (Source: RTA, 2025)*

A screening assessment was undertaken to identify receptors and structures potentially affected by construction vibration, based on their proximity to the minimum working distances associated with the most vibration-intensive plant. Using conservative assumptions reflecting the most sensitive receiver types, receptors located within these worst-case distances were flagged as potentially impacted. The indicative minimum working distances, measured from the boundaries of active construction zones, are shown in Figure 8 below.

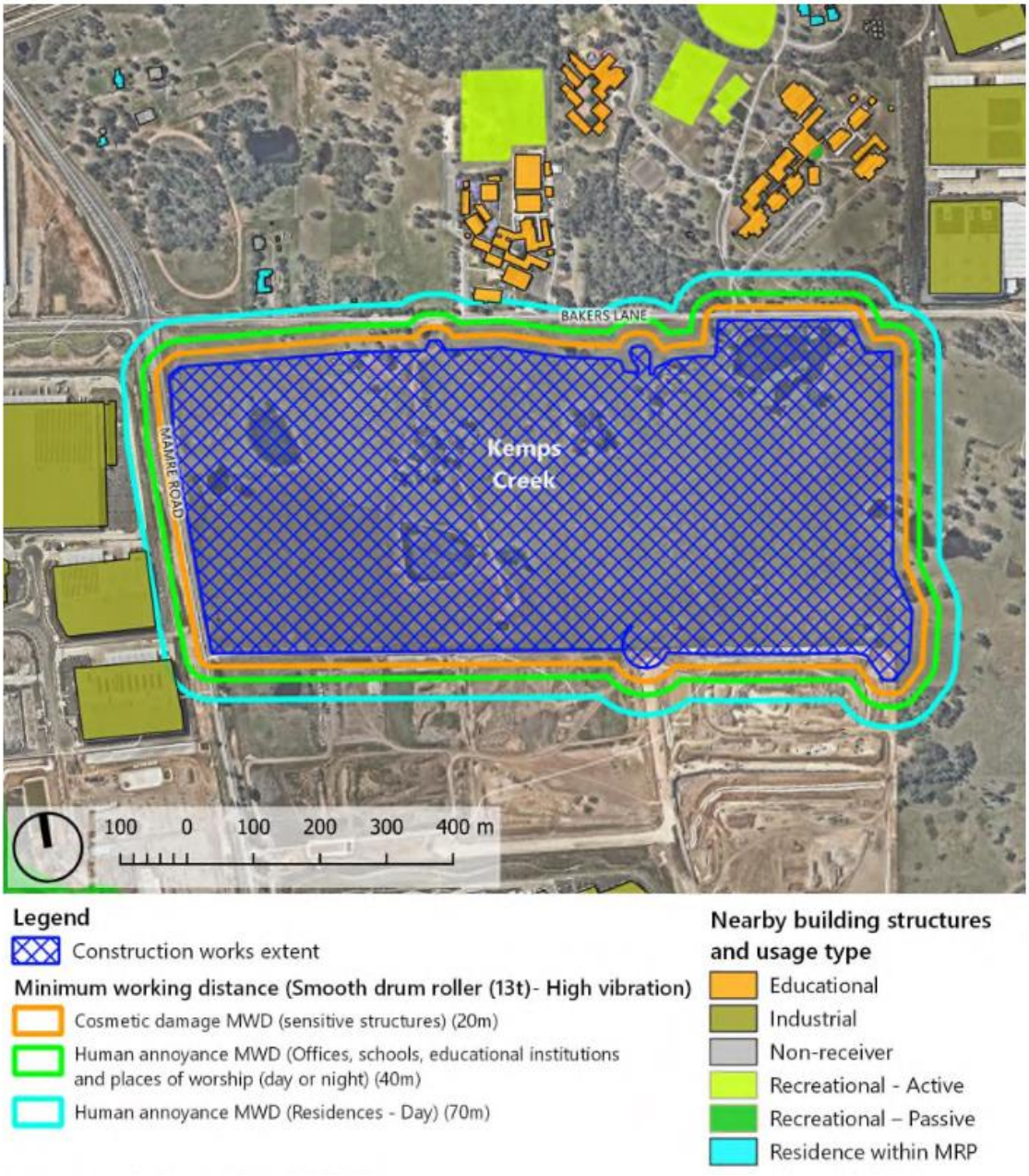


*Figure 8 Minimum working distances (MWD) for cosmetic damage from the construction area extents (most vibration intensive plant) (Source: RTA, 2025)*

### 4.2.2 Hazards

The construction-phase hazards relevant to health are:

- Airborne construction noise from typical and high-noise plant (excavators, trucks, compactors, road saws, rock-hammers etc.) operating across multiple phases, including bulk earthworks, roadworks and building construction.
- Out-of-hours works, designated by the NSW Interim Construction Noise Guideline (DECCW, 2009) (ICNG) associated primarily with temporary access/roadworks off Mamre Road, with potential for high-noise activities during evening/night.
- Construction traffic noise on Mamre Road and designated access routes, adding to existing road traffic noise.

- Ground-borne vibration from vibration-intensive equipment such as smooth drum rollers, jackhammers, and excavators with hammer attachments, with potential for human annoyance and concern about property damage, and for effects on sensitive equipment in data centres/industrial facilities.
- Cumulative construction noise where works at the proposal overlap with other large developments in the MRP and other phases of the Proposal construction works. This could increase increasing overall noise levels by up to ~3 dB compared to any individual set of works; however this could be higher where there are more than two concurrent projects in similar proximity to a receiver, along with increasing the frequency/duration of noisy periods.

The typical operations plant and equipment that can generate Noise during the operational phase are:

- Air-cooled chillers
- Transformers
- Reactor/ capacitor banks or similar electrical equipment
- Building cooling unit
- PFC rooms
- SBU systems
- Fan condenser unit
- Pump house
- Carpark vehicle movement

During a maintenance testing the emergency operations plant and equipment that can generate noise are:

- Generator unit (containerised)
- Generator exhaust flue outlet
- Load bank

### 4.2.3 Exposure

The predicted noise levels will vary across the stages as they progressively developed as shown in Table 10 and Figure 2.

During the construction phase, noise and vibration exposure will occur for residential, educational and industrial receptors located both within and adjacent to the Mamre Road Precinct. The nearest long-term residential communities, including areas such as Luddenham, Orchard Hills, Mount Vernon, and Kemps Creek, along with rural dwellings and schools within the precinct, will experience varying levels of construction noise depending on their distance from active work zones and the type of equipment in use.

Within the Mamre Road Precinct itself, several rural dwellings, schools, (including the Mamre Anglican School, and newly constructed industrial warehouses will be exposed to intermittent construction activities as the area transitions to an industrial landscape.

Daytime works are expected to generate the most consistent exposure, with typical construction activities generally remaining within derived Noise Management Levels, although short periods of elevated noise may occur when high-noise equipment such as rock hammers or saws operate near the site boundary. These elevated periods can result in exceedances of up to approximately 14 dB(A) at the closest residences and school boundaries, though these instances will be limited in duration and spatial extent.

Out-of-hours works, which relate primarily to temporary access and road upgrades, will generally remain below night-time noise and sleep disturbance criteria, except during occasional high-noise tasks that may briefly exceed thresholds for the closest residents. In addition to airborne noise, vibration from rollers, jackhammers, and hammer-equipped excavators may be perceptible at nearby residences, schools, and industrial facilities; however, distances to these receptors are expected to remain outside screening thresholds associated with structural damage, meaning exposure will be limited to perceptible but low-risk vibration.

During the operational phase, community exposure to noise is dominated by continuous mechanical plant (cooling systems, fans, transformers, ventilation equipment) and occasional vehicle movements within the data centre

campus. Noise levels at surrounding residential and sensitive receivers were assessed against Project Noise Trigger Levels (PNTLs) derived from the NSW Noise Policy for Industry.

For long-term residential receptors outside the Mamre Road Precinct (MRP), predicted operational noise meets all PNTLs, resulting in low exposure conditions. These locations are expected to experience low-level background noise increases, without meaningful exceedances or characteristics (e.g., tonality, intermittency) that would elevate health concern.

For short-term receivers within the MRP (existing residences and Mamre Anglican School, which are anticipated to relocate under the precinct plan), modelled noise levels indicate marginal exceedances of PNTLs by up to 5 dB(A) in some stages. Exposure for these receivers therefore remains mild but noticeable, primarily affecting outdoor amenity and potentially causing low to moderate annoyance. These impacts are transitional and reduce as land-use changes occur.

Night-time exposure is expected to remain low, with predicted LAmax levels below sleep-disturbance screening and awakening thresholds, indicating that sleep disruption from operational activities or vehicle movements is unlikely.

### 4.2.4 Potential Impacts

As the detailed construction methodology is not yet finalised, the assessment is based on indicative plant and equipment typical of similar projects.

The anticipated construction stages and their approximate durations are summarised in Table 10. In practice, many of these phases are expected to occur concurrently. This has been taken in consideration for all the modelling scenario and identification of the potential impacts

#### *4.2.4.1 Construction Phase*

Construction activities will generate intermittent increases in airborne noise levels particularly those within the MRP short-term zones (e.g., NCA01, NCA03 and NCA04) with the greatest impacts expected during high-noise tasks such as rock-hammering, saw-cutting, and heavy earthworks occurring close to the site boundary.

During typical single-phase construction, noise at schools in NCA01 and NCA02 is generally predicted to remain below NMLs. However, where two phases overlap, cumulative noise may increase generally up to ~3 dB(A) during bulk earthworks, subject to works location and concurrent activities. Phase 0 has the greatest potential for overlapping activities (bulk earthworks, road construction, Parcel A + COSH construction, Parcel B construction). Without staging optimisation, this could result in worst-case cumulative noise levels at nearby receivers.

The schools in NCA01 and NCA02 are predicted to experience exceedances of approximately 7–14 dB(A) above NMLs during the bulk earthworks or road construction (Phase 7) stages, and between 1 dB(A) up to 13 dB(A) above the NML during the parcel construction stages.

For all other residences or during typical construction activities, due to the substantial distance from the construction works, the construction noise levels are predicted to be below the standard hours NMLs.

The adjacent industrial facilities may experience construction noise levels above the noise management level when works are close to the shared boundary.

During out-of-hours works, predicted noise levels for typical construction activities remain below the night-time Noise Management Levels and sleep-disturbance screening criteria; however, any unavoidable impulsive or tonal high-noise events may momentarily disturb sleep for the nearest residents. In the unlikely event that this happens, these impacts are expected to be short-lived and reversible due to the staged, mobile nature of the works.

Vibration generated by heavy plant, particularly smooth drum rollers and excavators fitted with hammer attachments, may be perceptible at nearby dwellings, schools and industrial premises, leading to short-term annoyance or concern regarding potential building damage and structural safety. However, modelling indicates that distances to all receptors exceed the cosmetic damage screening thresholds, meaning structural damage is unlikely. Vibration exposures are therefore expected to be limited to human-perception effects, such as temporary rattling of household items or awareness of ground vibration, rather than physical harm.

Cumulative effects arising from concurrent construction within the wider Mamre Road Precinct may increase construction noise levels but will also increase the frequency and duration of construction noise events, potentially prolonging periods of annoyance for some receptors. Nevertheless, when feasible and reasonable noise and vibration mitigation measures are applied, including equipment selection, acoustic shielding, scheduling controls

and monitoring, residual health impacts are predicted to remain low to moderate, predominantly characterised by temporary annoyance, short-term disturbance and minimal risk of long-term or severe health outcomes.

*Table 10 Approximate construction phases and duration of works*

| Phase | Construction phase / works | Works area (**Figure 2**) | Modelling scenario reference | Construction activities | Approximate duration (subject to approval)**1,2** |
|---|---|---|---|---|---|
| **Phase 0** | Site establishment | Entire of Stage 1 - Phase 1/2/3/4 + Substation and Statcom | P0 | Site establishment and early works<br>Establishment of construction facilities | **Year 0**<br>**4 months** |
| | Bulk earthworks, cut/fill and excavation works | Entire of Stage 1 - Phase 1/2/3/4 + Substation and Statcom | P0E | Bulk earthworks and retaining wall works for western portion of Proposal.<br>Utilities related works, including drainage formation, and installation of early service conduits, temporary power and water connections | **Year 0-2**<br>**2-3 years** |
| | Road works | Temporary access & temporary turning head | P0R | Construction of temporary access to the site off Mamre Road.<br>Construction of temporary turning head off the North-South Collector Road within Yiribana Logistics Estate. | |
| **Phase 1** | Construction of Parcel A and COSH buildings, and associated works | Phase 1 / Parcel A | P1 | Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>COSH construction<br>Incoming electrical switching station and Statcom construction.<br>Building fitout<br>Campus and Parcel road works and carparking<br>Commissioning | **Year 1-2**<br>**1-2 years** |
| **Phase 2** | Construction of Parcel B and associated works | Phase 2 / Parcel B | P2 | Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>Building fitout<br>Parcel road works and carparking<br>Commissioning | **Year 2-3**<br>**1-2 years** |
| **Phase 3** | Construction of Parcel C and associated works | Phase 3/ Parcel C | P3 | Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>Building fitout<br>Parcel road works and carparking<br>Commissioning | **Year 3-4**<br>**1-2 years** |

| | | | | | |
|---|---|---|---|---|---|
| **Phase 4** | Construction of Parcel D and associated works | Phase 4 / Parcel D | P4 | Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>Building fitout<br>Parcel road works and carparking<br>Commissioning | **Year 4-6**<br>**1-3 years** |
| | Road works | Road 1 | P4R | Construction of a temporary road within the ultimate Road 1 corridor to provide emergency access out of the site. | |
| **Phase 5** | Bulk earthworks, cut/fill and excavation works (building footprint / staging areas) | Stage 2 - Phase 5/6 | P5E | Site establishment<br>Bulk earthworks, cut/fill and excavation works and retaining wall works for eastern portion of Proposal | **Year 7-8**<br>**1-2 years** |
| | Construction of Parcel E and associated works | Phase 5 / Parcel E | P5 | Site establishment<br>Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>Building fitout<br>Parcel road works and carparking<br>Commissioning | |
| | Road works | Road 2 | P5R | Construction of Road 2 between the roundabout and the eastern boundary of the site.<br>Landscaping adjacent to road | |
| **Phase 6** | Construction of Parcel F and associated works | Phase 6 / Parcel F | P6 | Civil, utilities and in-ground works<br>Parcel building construction, including electrical substation, water and fuel storage tanks and loading dock.<br>Building fitout<br>Parcel road works and carparking<br>Commissioning | **Year 9-10**<br>**1-2 years** |
| **Phase 7** | Construction of Road 1 and final utilities and landscaping works | Road 1 and turning head at north end | P7 | Road works<br>Civil, utilities and in-ground works<br>Landscaping works | **Year 10**<br>**1 year** |
| **Notes** | **1. In most cases, multiple construction phases will be occurring concurrently. As such there are overlaps between the various works and the approximate duration of construction phases.**<br>**2. Timeframes are indicative and may change.** | | | | |

#### *4.2.4.2 Operational Phase*

During routine operation, the data centre will generate continuous noise emissions from cooling systems, air handling units, transformers, fans, and associated mechanical plant. Noise modelling indicates that several short-term residential receptors within the Mamre Road Precinct (MRP), particularly in NCA01, NCA03, and NCA04 may experience residual noise levels up to 5 dB(A) above the Project Noise Trigger Levels (PNTLs) after feasible and reasonable mitigation has been applied. These exceedances are classified as “Marginal” under the NSW Noise Policy for Industry (NPfI), noting the noise levels are also below the NPfI recommended amenity noise level.

Marginal exceedances are perceptible and may contribute to:

- Low-level annoyance
- Reduced outdoor or indoor acoustic amenity
- Perceived loss of environmental quality in transitioning industrial areas

Given that these receptors are expected to remain only in the short term, the duration of potential health effects is limited. Long-term residential and educational receptors are not expected to experience exceedances due to incorporated design mitigation.

Scheduled generator testing constitutes the primary intermittent noise source during daytime operational periods. Under worst-case scenarios, up to six generators may run concurrently, producing temporary noise levels that exceed PNTLs by 1–5 dB(A) at a small number of educational and short-term residential receptors.

These temporary increases may lead to:

- Short-term annoyance or disruption
- Reduced speech intelligibility outdoors
- Mild stress responses among noise-sensitive individuals (e.g., children, elderly residents)

However, exposures occur infrequently, during daytime only, and for limited durations.

In the event of a mains power failure, all backup generators may operate simultaneously. This represents the loudest potential operational noise condition, but would be an extremely rare occurrence due to the redundancy in the design.

Modelling of maximum instantaneous noise levels (LAmax) confirms that no residential receivers are predicted to exceed sleep-disturbance screening criteria, and awakening reactions are not expected.

Emergency noise events may still produce:

- Acute startle or stress responses
- Temporary concern among residents or facility users

However, these reactions would be short-lived, infrequent, and unlikely to result in meaningful health impacts.

Low-Frequency Noise (LFN) assessment identified instances where low-frequency components exceed recommended C–A weighted levels and low-frequency thresholds at specific short-term and industrial receptors. While these exceedances do not present a direct health hazard, LFN can be perceived as vibration-like or “rumbling.”

Potential impacts include:

- Increased annoyance relative to equivalent broadband noise levels
- Sensations of discomfort for particularly sensitive individuals

LFN effects are expected to be limited to a small number of transitional receptors within the MRP.

Operational traffic, including staff vehicles and occasional service or delivery trucks, is predicted to increase road noise levels by less than 1 dB(A). Such a change is below the threshold of perceptibility for most individuals.

- No measurable change to community noise exposure
- No anticipated effects on sleep, annoyance, or wellbeing

Operational vibration from fixed mechanical plant is negligible. No exceedances of human comfort or structural vibration criteria are predicted.

- No health impacts expected
- No risk to sensitive equipment or structural integrity

While the facility will introduce continuous and intermittent noise sources typical of an industrial data centre, the majority of sensitive long-term receptors are not expected to experience adverse health effects due to the significant mitigation incorporated into the design. Minor, short-term impacts may occur for transitional residential receivers within the Mamre Road Precinct, primarily in the form of annoyance, reduced amenity, or temporary stress responses during generator testing or emergency scenarios. These impacts are limited in duration, scope, and intensity, and do not pose significant long-term health risks.

*Table 11 Noise - Health Risk Assessment*

| Health Risk Description | Potential Health Consequences | Likelihood | Inherent Risk Level | Uncertainty | Health Risk Management / Controls | Residual Risk Level |
|---|---|---|---|---|---|---|
| **Construction phase** | | | | | | |
| **Daytime construction noise at nearest receptors** | Short-term annoyance, irritation and reduced amenity; difficulty concentrating or conducting conversations indoors/outdoors; transient stress responses. | **Likely** for nearest residences (NCA01/NCA03) during specific high-noise activities and phases; Unlikely–Possible for more distant receivers where predicted levels are below NML. | **Medium–High** | **Moderate** –Variability of construction activities, noise sources, locations, occupant sensitivity, and concurrency of activities | – Adopt Standard construction hours,<br>– Prioritise quiet plant selection,<br>– Implement general engineering noise control like acoustic enclosures/barriers,<br>– Optimised worksite layout and traffic flow,<br>– CNVMP implementation, including monitoring and adaptive management. | **Low–Medium** for nearest residences<br><br>**Low** for more distant receivers |
| **Daytime construction phases overlap noise at schools and childcares** | Intermittent interference with speech communication, teaching, and outdoor play; short-term annoyance and distraction among students and staff. | **Possible–Likely** during periods of high-noise works when two overlapping phases or activities are occurring<br><br>**Unlikely** during typical construction activities when predicted levels are below NML. | **Medium** | **Moderate** dependant on detailed school timetables and exact sequencing of works.<br>Variability of construction activities, noise sources, locations, occupant sensitivity, and concurrency of activities | – Schedule highest-noise works away from key teaching/exam periods where practicable, in consultation with schools/childcare.<br>– Maintain plant as far as practicable from school boundaries; use barriers/acoustic screens where effective.<br>– Use quieter methods/equipment and throttle down or switch off plant when idle.<br>– Provide advance notification so schools can plan indoor activities during short high-noise periods. | **Low–Medium**– short-term disruption possible but manageable, with no anticipated long-term health consequences. |
| **Construction traffic noise on Mamre Road and access routes (residences along routes)** | Slight increase in annoyance and perceived traffic noise, particularly during peaks of construction traffic; minor interference with conversation in outdoor areas. | **Possible –** traffic volumes on key routes will increase during peak construction but from an already road-influenced baseline. | **Low–Medium** | **Moderate** depends on final haul routes, staging and construction traffic management. | – Use agreed haul routes and times; avoid sensitive night-time periods where possible.<br>– Apply standard construction traffic management measures and vehicle maintenance (e.g. mufflers, speed control). | **Low –** incremental change relative to existing road noise, mainly noticeable during peak |

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|---|---|---|---|---|---|---|
| | | | | | – Coordinate deliveries to reduce clustering of heavy vehicles, especially if OOH works occur. | construction periods. |
| **Construction vibration at nearby residences, schools and industrial buildings (human annoyance)** | Perception of vibration and rattling; concern about potential property damage; annoyance, discomfort, interference with concentration and anxiety about structural damage .<br>Health impacts are primarily stress and anxiety rather than direct physical injury. | **Possible** when vibration-intensive plant operates within human-annoyance minimum working distances, particularly for rollers and hammers. | **Medium** | **Moderate** depends on detailed selection and location of plant and ground conditions. | – Apply vibration minimum working distances and screening assessment; adjust plant type or location where necessary.<br>– Undertake vibration testing at start of vibration-intensive activities; implement on-site vibration monitoring with alert thresholds.<br>– Conduct pre-construction dilapidation surveys; implement clear vibration complaints procedure and responsive mitigation (change methods, buffer zones, time restrictions). | **Low–**vibration may still be perceptible at times,<br>Residual health risk is mostly occasional annoyance and short-term stress rather than long-term morbidity. |
| **Cumulative construction noise from the proposal and other MRP projects** | Increased frequency and duration of noisy periods, potentially leading to prolonged annoyance and reduced perception of respite for some residents and school users. | **Possible –** overlapping construction stages may increase noise levels by up to ~3 dB(A) and extend impact periods. | **Medium** | **Moderate –High** – depends on timing and intensity of other projects beyond the control of this proposal. | – Use the Mamre Road Precinct Working Group to identify cumulative construction noise issues and coordinate mitigations across developments.<br>– Apply all feasible and reasonable noise mitigation measures consistently across the proposal (engineering controls, layout, scheduling).<br>– Consider cumulative effects when planning high-noise tasks.<br>– Ongoing communication with community and coordination with nearby major projects where possible.<br>– Prepare a detailed Construction Staging Plan (CSP) | **Low–Medium**– some persistent annoyance possible for small subset of nearest receivers, but significant or long-term health impacts are not expected. |
| **Operational phase** | | | | | | |
| **Chronic exposure of long-term residential and institutional receivers (outside** | Continuous/long-term noise from cooling systems, chillers, transformers and ventilation plant can lead to noise | **Possible** near the project without mitigation, given the large amount of high-level rooftop and substation plant. | **Medium–High** – without mitigation, | **Low– Moderate** | – Set and apply PNTLs for all NCAs, derived from NPfI and MRP DCP amenity criteria (including cumulative industrial noise).<br>– Apply comprehensive built-in noise mitigation measures, ensuring | **Low**. After mitigation, Residual health risk is low-level annoyance |

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|---|---|---|---|---|---|---|
| **MRP) to operational plant noise** | annoyance, reduced outdoor amenity, interference with conversation and relaxation, and potential modest long-term stress reactions if above or close to NPfI PNTLs. | | | | transformers meet AS60076.10 limits, and orienting vents and louvres away from sensitive receivers<br>– Apply annoying-characteristics corrections (tonality, low-frequency, intermittency) in design/assessment and ensure operational levels including penalties still meet PNTLs.<br>– Undertake noise compliance monitoring after commissioning and as part of ongoing management, with corrective actions if levels exceed PNTLs. | potential, not significant morbidity. |
| **Chronic exposure of short-term receivers within the MRP (existing residences + Mamre Anglican School) to operational noise, including residual exceedances** | For existing residential and school receivers inside the rezoned MRP, operational noise can cause mild–moderate annoyance, reduced outdoor amenity, and potential interference with teaching and learning (for the school) if present over extended periods. | **Likely** that these specific short-term receivers will experience Marginal residual impacts (⩽5 dB above PNTL) for parts of the development staging, assuming they remain in place. | **Medium–High** | **Moderate** | – Maintain and enforce design-embedded mitigation for all plant.<br>– Use negotiated at-property mitigation (e.g. façade upgrades, acoustic glazing, ventilation enhancements) or agreements for these short-term receivers until existing residential/school uses cease or relocate<br>– Review residual impacts during detailed design and when tenant loads are known; refine plant selection and control strategies if monitoring shows higher than predicted levels. | **Low–Medium.** Residual exposure is limited to a small number of short-term receptors, with impacts classified as Marginal by NPfI.<br>With at-property treatments and eventual relocation, long-term health risk is **low;** primary residual effect is annoyance / reduced amenity while the uses remain. |
| **Night-time operational noise events (plant changes, vehicle movements,** | Intermittent night-time events (e.g. truck movements, air-brake events, some plant changes) could cause | **Possible** in absence of design/management, but **Unlikely** given predicted LAmax values below 52 dB(A) external | **Medium –** chronic night-time sleep disturbance would be a high- | **Low– Moderate** NVIA uses worst-case assumptions and conservative outside-to-inside attenuation; actual internal levels may be lower | – Design and operate plant such that PNTLs are met, which automatically ensures LAeq-based sleep disturbance criteria are satisfied. | **Low.** NVIA explicitly concludes that sleep disturbance |

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|---|---|---|---|---|---|---|
| **occasional air-brake events) – sleep disturbance at residences** | sleep disturbance (awakenings, difficulty initiating or maintaining sleep).<br><br>NVIA assesses this against LAmax screening (NPfl / RNP) and awakening thresholds and finds that predicted maximum levels are below both screening and awakening criteria at all residential NCAs for the fully developed campus. | and below awakening criteria. | consequence health issue, but probability is low with compliant LAmax. | (e.g. closed windows, heavier facades). | – Ensure night-time LAmax from the loudest predictable events (vehicles, air-brakes, plant changes) remain below screening and awakening thresholds<br>– Minimise noisy truck manoeuvres at night near sensitive receivers and manage loading docks/carparks to reduce late-night braking/reversing events<br>– Maintain operational noise management plan with monitoring and complaint-response mechanisms for night-time noise. | impacts are not predicted, with all modelled LAmax values below the screening and awakening criteria at residential locations. Residual health risk is minimal. |
| **Low-frequency and tonal noise from plant and equipment** | Headaches, sleep disruption, "vibration" perception, stress-related symptoms | **Likely** | **Medium** | **Moderate –High** – depends on final plant selection and spectral data | – Require LFN analysis; apply tonal penalties; specify non-tonal operating modes | **Low-Medium** |
| **Operational road traffic noise (staff, service and delivery vehicles on Mamre Road and new access roads)** | Increases in road traffic from the data centre can incrementally increase roadside noise exposure, contributing to annoyance, communication interference and (if large enough) sleep disturbance for residents along Mamre Road and connecting roads. | **Unlikely–Possible.** NVIA shows that predicted changes in construction and operational traffic noise are <2 dB(A) at the nearest sensitive receivers, which is generally not perceptible and complies with RNP. | **Low–Medium –** road traffic noise is a known chronic health burden, but the incremental change from this project alone is small. | **Low– Moderate.** Based on traffic forecasts and conservative routing assumptions (all traffic assumed to pass the nearest receivers), but actual traffic growth in the corridor may differ. | – Design site access and internal roads to minimise heavy vehicle movements near existing residences where practicable; use roundabout and access configuration as modelled. - Implement traffic management measures (routing, speed control, scheduling of heavy vehicle movements outside night hours where possible). - Periodically review traffic volumes and, if necessary, revisit road traffic noise assessment and consider further mitigations (e.g. façade treatments on affected dwellings per RNP practice). | **Low.** Incremental changes in traffic noise from the Proposal are expected to be below perceptible levels for residents and within RNP criteria; therefore, the additional health impact above existing and future background traffic is negligible. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Short-term elevated noise from generator testing and operation** | Short, intense bursts can interrupt teaching, concentration, or rest.<br>Startle response; temporary discomfort; short-term stress<br>Outdoor conversations, instruction, or recreation may be disrupted. | **Possible** | **Medium** | **Low –** predictable and manageable with scheduling | – Daytime-only testing; acoustic walls; generator enclosures and mufflers | **Low** |

## 4.3 Soil Assessment

JBS&G Australia Pty Ltd (JBS&G) prepared a remedial action Plan (RAP) for the proposed Mamre Road Data Centre Campus project. Multiple environmental investigations have identified localised contamination across the site, including bonded and friable asbestos in shallow soils, areas of mixed household and anthropogenic waste, and isolated hydrocarbon-impacted soils beneath a disused petroleum drum. Additional potential contamination was noted near existing infrastructure such as the septic tank and man-made bore, requiring further inspection and validation.

The RAP has been developed in accordance with relevant NSW EPA guidelines, the National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 2013), and the requirements of the State Environmental Planning Policy (Resilience and Hazards) 2021. Completion of the remediation works will ensure the site is suitable and safe for its intended development.

### 4.3.1 Existing Environment and sensitive receptors

According to JBS&G the site at 706–752 Mamre Road, Kemps Creek is a 55-hectare former agricultural and rural-residential property containing several man-made dams, a former residential area, grazing land, and areas of historic fill. Surrounding land uses include agricultural land, scattered rural residential properties, and developing commercial/industrial precincts as part of the Mamre Road development corridor.

The existing environment includes shallow soils impacted by historic agricultural use, building materials, and waste dumping, as well as ephemeral drainage lines connecting multiple retention ponds across the site. These features create several environmental constraints related to contamination and soil disturbance.

The RAP identifies the following human and environmental sensitive receptors

- Future site users/visitors who may contact impacted soils, dusts, surface water, or sediments.
- Construction, excavation and maintenance workers, who may encounter contaminants through direct contact or inhalation of dusts/fibres during intrusive works.
- Offsite ecological receptors, including South Creek, which may receive contaminated sediments or runoff during rainfall events.
- Site vegetation, which may uptake contaminants depending on soil and water quality conditions.

No public recreation areas, childcare centres, or sensitive indoor community infrastructure are located within the immediate site boundary, but the pathways identified still require management to protect human receptors.

### 4.3.2 Hazards

The RAP identifies several contamination hazards associated with the site's historical use:

- Asbestos (Bonded and Friable): Presence of friable and bonded asbestos in shallow soils, particularly surrounding former residential buildings and dam embankments.
- Building and Demolition Waste: Brick, concrete, Asbestos Containing Materials (ACM) fragments, household refuse, scrap metal, tyres and general anthropogenic waste present across the site.
- Hydrocarbon-Affected Soil: A sample taken beneath a petroleum drum showed Total Recoverable Hydrocarbon (TRH) and hydrocarbon staining exceeding the adopted Management Limits and Ecological Screening levels (ESLs).
- Potential Infrastructure-Related Contamination: Localised contaminant risks around septic tanks and a man-made bore, potentially affecting shallow soils or creating vapour risks if hydrocarbons are present.
- Contaminated Sediments and Surface Water: Retention ponds and drainage lines contain sediments that may have accumulated contaminants from historical runoff or waste placement.

These hazards form the basis for the site’s Conceptual Site Model, which defines contaminants of potential concern (COPCs) including asbestos, heavy metals, hydrocarbons, and contaminated sediment.

### 4.3.3 Exposure

The RAP provides a clear set of complete human exposure pathways:

- Inhalation: Airborne asbestos fibres and heavy-metal-impacted dust migrating from exposed soils, particularly during excavation, traffic movement, or erosion.
- Dermal Contact: Direct contact with contaminated soils, sediments, or surface waters during intrusive ground works or future maintenance activities.
- Oral/Ingestion: Incidental ingestion of impacted soils or sediments during earthworks or soil handling activities.
- Vapour Inhalation: Low-probability pathway relating to vapours from hydrocarbon-impacted soil near the bore structure.
- Environmental Transport Pathways: Windblown dust migration where exposed soils are present, especially in eroding areas or traffic routes. And movement of soluble compounds via surface water, particularly through connected ephemeral drainage lines leading to retention ponds.

These exposure pathways apply primarily to construction workers, but may also affect future site users, especially if contamination remains unremediated.

### 4.3.4 Potential Impacts

Based on the hazards and exposure pathways, the following potential human health impacts are identified:

- Asbestos-Related Disease: Disturbance of friable or bonded asbestos in soil may generate airborne fibres, leading to risks such as asbestosis, mesothelioma, and other respiratory diseases if exposure occurs during excavation or soil transport.
- Heavy Metal Toxicity: Metal-impacted soils and dusts may pose risks of dermal irritation, systemic toxic effects, or respiratory exposure if dust becomes airborne during construction activities.
- Hydrocarbon Exposure: Dermal or inhalation exposure (vapours) to hydrocarbon-impacted soils may cause irritation, headaches, or (in high exposures) chronic health risks.
- Sediment/Surface Water Contact Risks: Handling contaminated sediments or surface waters may result in skin irritation, or ingestion-related health risks for workers during dewatering or pond infilling operations.
- Nuisance and Indirect Health Stressors: Environmental emissions (noise, dust, odour) may trigger community complaints, discomfort, and stress, although the RAP assesses the likelihood of such public exposure as low due to the distance from receptors.
- Unexpected Hazardous Materials: Discovery of unidentified wastes or concealed contamination during excavation could lead to acute exposure incidents, requiring immediate stop-work procedures under the Unexpected Finds Protocol.

Table 12 provides the Health Risk Assessment (HRA) for this component.

*Table 12 Soil - Health Risk Assessment*

| Health risk description | Potential health consequences | Likelihood | Inherent risk level | Uncertainty | Health risk management / controls | Residual Risk Level |
|---|---|---|---|---|---|---|
| Asbestos in shallow soils (bonded and friable) | Inhalation of fibres leading to asbestos-related disease | Likely | High | Low–Moderate | Asbestos Management Plan, wet suppression, licensed removal, PPE, air monitoring | Medium |
| Mixed household/anthropogenic waste | Dermal/ingestion exposure, minor injury, contaminant exposure | Possible | Medium | Moderate | Excavation/removal, PPE, dust control, classification/disposal | Low |
| Hydrocarbon-impacted soil | Dermal/vapour exposure causing irritation or chronic effects | Possible | Medium | Moderate | Targeted excavation, vapour screening, PPE, validation | Low |
| Potential contamination near septic tank/bore | Chemical/microbiological exposure during excavation | Possible | Medium | High | Inspection/validation, remediation if required, restricted access | Low |
| Wind-blown contaminated dust | Respiratory irritation, inhalation of fibres/metals | Possible | Medium–High | Moderate | Dust suppression, monitoring, RPE, weather-based controls | Low–Medium |
| Contaminated sediments/surface water | Dermal/ingestion exposure causing irritation or low-level toxicity | Possible | Low–Medium | Moderate | Dewatering controls, PPE, sediment management | Low |
| Migration via surface water | Indirect impacts to downstream users/environment | Possible | Medium | Moderate | Erosion/sediment controls, staged works, monitoring | Low |
| Unexpected hazardous materials | Acute or chronic exposure during disturbance | Possible | Medium–High | High | Unexpected Finds Protocol, stop-work, containment, specialist assessment | Medium |

## 4.4 Urban Heat Island and Microclimate

### 4.4.1 Existing Microclimate Context

The site located at Mamre Road, Kemps Creek, NSW, is situated within the Western Sydney Basin, an area characterised by a warm temperate climate with distinct seasonal variation. The region typically experiences hot, dry summers and mild winters, with average maximum summer temperatures often exceeding 30°C and winter minimums averaging around 6–8°C. The site's inland position, combined with limited coastal influence, contributes to higher diurnal temperature ranges compared to coastal Sydney areas.

Local topography is generally flat to gently undulating, with minimal elevation change across the site. This terrain allows for relatively uniform wind distribution but limits the potential for natural ventilation driven by topographic effects. Prevailing winds are predominantly from the east during warmer months and from the west to northwest during cooler months, influencing both daytime heat exposure and nighttime cooling potential. Summer and winter wind rose profiles are shown in Figure 9. The absence of significant topographic shelter also exposes the site to solar radiation throughout most of the day, contributing to elevated surface temperatures during peak summer periods.

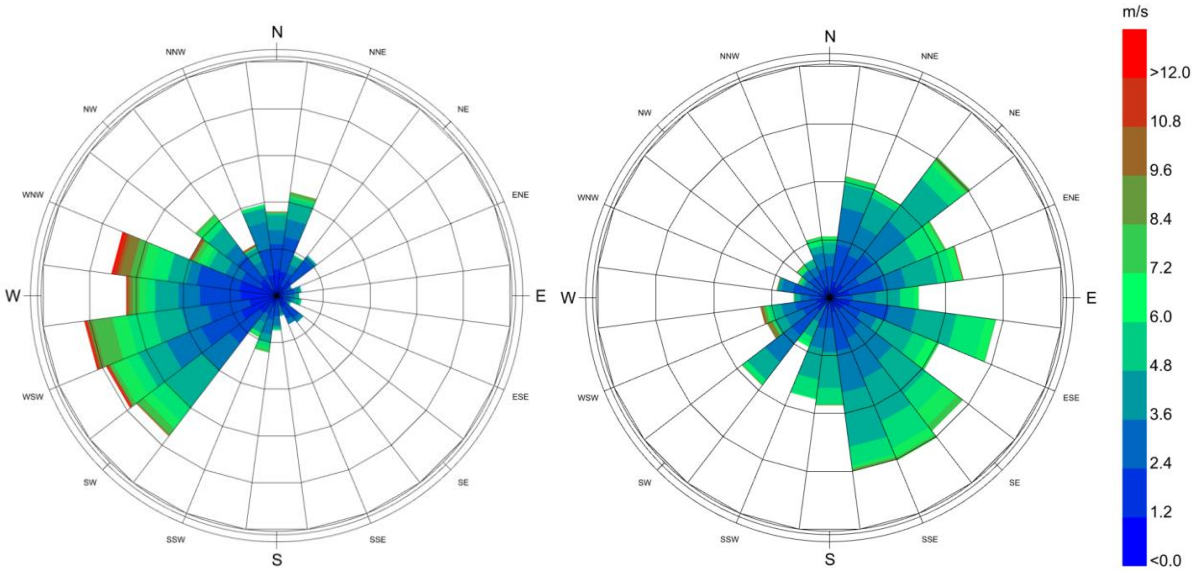


*Figure 9 Winter (Left) & Summer (Right) Wind Rose*

The existing land use within and surrounding the site is primarily industrial and semi-rural, with large impervious areas such as roads, hardstands, and warehouse roofs interspersed with sparse vegetation. This pattern contributes to localised heat retention and reduced evapotranspiration. Vegetative cover is limited mainly to boundary plantings and remnant grassland, providing minimal shading or cooling effect. The limited presence of water bodies or green infrastructure further restricts local microclimatic moderation. Overall, the baseline microclimate of the Mamre Road site reflects a heat-prone environment with limited natural mitigation capacity.

### 4.4.2 Urban Heat Island Assessment

The Urban Heat Island Effect (UHIE) refers to the phenomenon where urbanised areas experience higher ambient temperatures than surrounding rural or vegetated regions. This temperature difference arises primarily from the prevalence of heat-absorbing materials such as concrete, asphalt, and metal, coupled with reduced vegetation and limited evapotranspiration. The retention and slow release of heat by these surfaces lead to elevated nighttime temperatures, which can exacerbate cooling energy demand, impact local microclimates, and affect occupant comfort and environmental quality. For large-scale developments, particularly those incorporating extensive hardstand and building coverage such as data centres, the potential contribution to the UHIE warrants detailed assessment to inform mitigation strategies through design.

To evaluate the potential UHI impact of the proposed Mamre Road Data Centre Campus development, a site-specific analysis was undertaken using the Dragonfly plugin for Grasshopper. Dragonfly enables microclimate simulation by integrating site geometry, building typology, material properties, and meteorological data to estimate

localised temperature variations. The assessment involves developing a digital model of the site incorporating building forms, surface materials, and landscape elements, subsequently modifying a baseline weather file to reflect the anticipated surface heat fluxes and radiative balance associated with the proposed development. The Badgerys Creek Airport TMW 2009-2023 weather file was used for the assessment due to its close proximity to the site. The modelled site geometry and spatial details are shown in Figure 10 and Table 13 respectively.

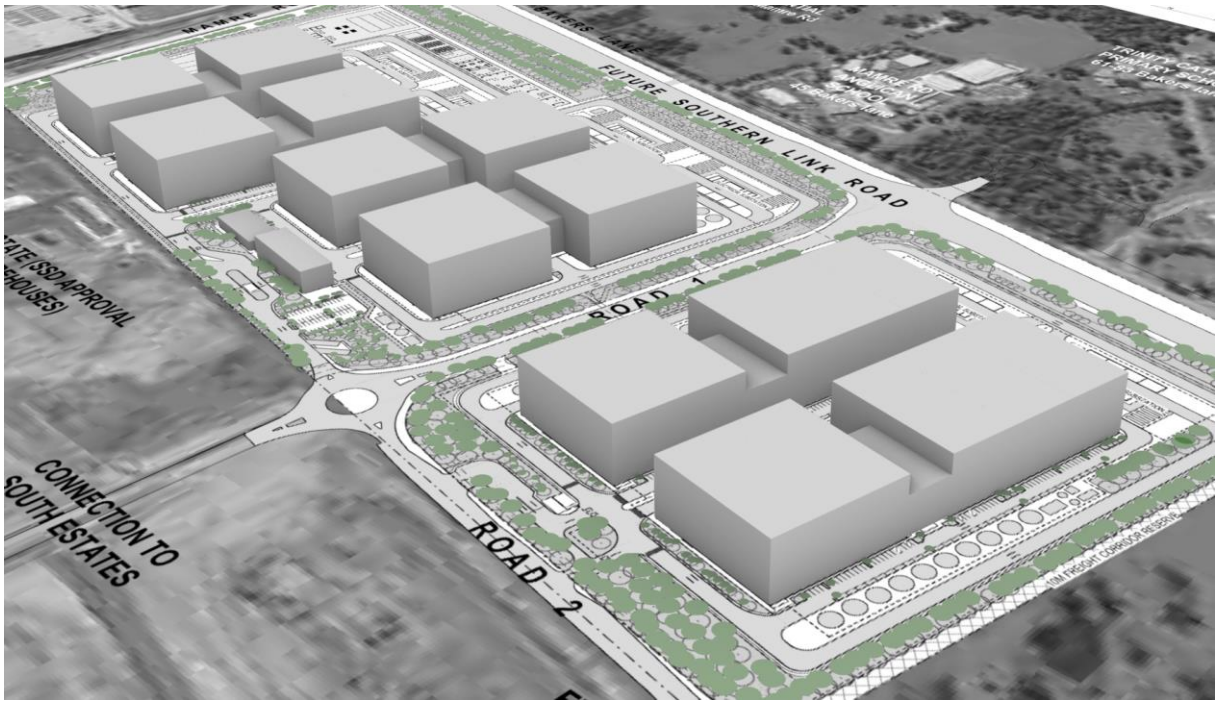


*Figure 10 Dragonfly Model Site Geometry*

*Table 13 Dragonfly Model Details*

| Aspect | Value |
|---|---|
| Datacentre Program | Large Data Centre w/ high IT load density |
| Footprint Density | 24% |
| Façade to Site Ratio | 61% |
| Vegetation Cover | 36% |

#### *4.4.2.1 Mathematical Basis for Urban Heat Island Calculation*

The Dragonfly UHIE simulation process is founded on the energy balance and heat flux relationships that govern surface–atmosphere interactions within an urban domain. The model modifies a baseline weather file by adjusting hourly air temperatures based on changes in surface characteristics, radiative exchange, and convective heat transfer using the following empirical relationships:

**Surface Energy Balance**

At each surface node, Dragonfly resolves the fundamental energy balance:

$$Q* = QH + QE + QG + \Delta QS$$

*where:*

$Q* = net\ all-wave\ radiation\ (shortwave + longwave)$

$QH = sensible\ heat\ flux\ (convective\ exchange\ with\ air)$

$QE = latent\ heat\ flux\ (evapotranspiration)$

$$QG = ground\ (conductive)\ heat\ flux$$

$$\Delta QS = heat\ storage\ in\ built\ surfaces\ (thermal\ mass)$$

Material parameters such as albedo (α), emissivity (ε), and thermal conductivity (k) are derived from the geometry inputs and material libraries to define the magnitude of these terms. Impervious surfaces (roads, roofs) increase QH and ΔQS, while vegetated surfaces enhance QE.

**Air Temperature Adjustment**

Dragonfly integrates these surface fluxes over time using a simplified urban canopy layer model derived from the Surface Urban Energy and Water Balance Scheme (SUEWS) and EnergyPlus formulations. The change in near-surface air temperature (ΔT) between the baseline and the developed site is computed as:

$$\Delta T = (\Sigma(QH + QG + \Delta QS) - \Sigma(QE)) / (\rho a * Cp * h)$$

*where:*

$$\rho a = air\ density$$

$$Cp = specific\ heat\ of\ air$$

$$h = effective\ mixing\ height\ of\ the\ boundary\ layer$$

Positive ΔT indicates net warming relative to the rural baseline. This adjustment is applied hourly to generate a modified EPW weather file representing the urbanised microclimate.

**Temporal Averaging and Output**

The modified weather data are then aggregated to derive diurnal temperature patterns and exceedance frequencies (e.g. number of days above 25°C, 30°C, and 35°C). The model outputs both the maximum daily and minimum daily temperature differences, reflecting the daytime shading and nighttime heat release dynamics inherent to the UHIE.

**Simplified Conceptual Relationship**

At the macroscale, the temperature differential between urban and rural zones can be approximated by the empirical relationship:

$$\Delta TUHI = a + b\ ln(PD) + c(1 - V)$$

*where:*

$$PD = population\ or\ building\ density$$

$$V = vegetation\ fraction$$

$$a, b, c = empirically\ derived\ coefficients\ from\ calibration\ datasets$$

Dragonfly effectively replaces these empirical constants with physically derived surface parameters from the model geometry, enabling site-specific and design-responsive UHIE predictions.

#### *4.4.2.2 Urban Heat Island Analysis*

The analysis of the site using the modified weather file generated through Dragonfly indicates that maximum daily air temperatures across the development remain largely unchanged, if not slightly reduced, compared to baseline, as illustrated in Figure 11. In contrast, the minimum daily temperatures post development are consistently higher than in the baseline case. This pattern is characteristic of the UHIE and reflects the influence of increased thermal mass associated with the proposed buildings and hardstand surfaces. Heat absorbed by surfaces such as roofs, pavement, and other impervious areas during the day is gradually released overnight, reducing the rate of cooling and resulting in elevated nighttime temperatures. The increased thermal mass, however, helps to slightly reduce the midday peak temperature.

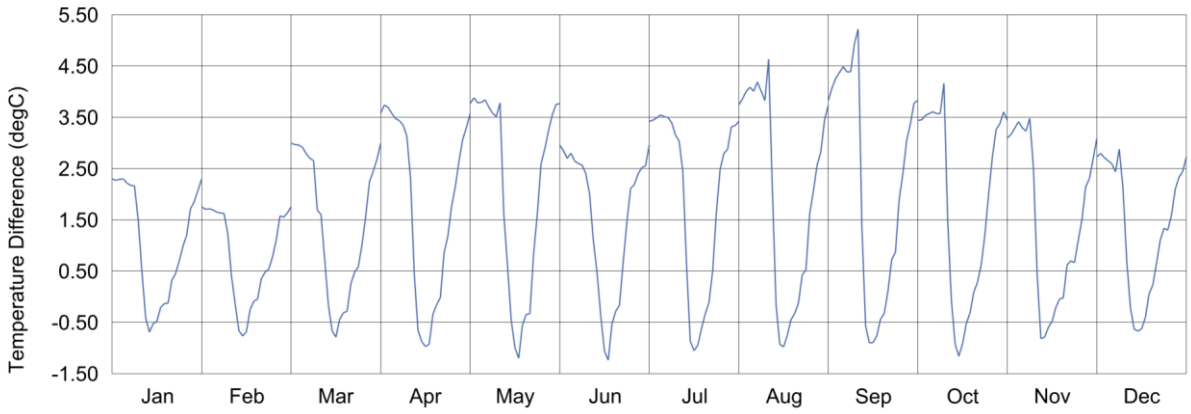


*Figure 11 Average Daily Temperature Difference*

The site specific UHIE adjusted weather file indicated a reduction in days above 25°C and 30°C when compared to the predevelopment baseline, as shown in Table 14 due to the thermal inertia discussed above. Both conditions resulted in 9 days exceeding 35°C. Hourly ambient temperature however, as illustrated in Figure 12 and Figure 13, remains elevated above 30°C for longer post development.

*Table 14 Number of Days Exceeding Criteria*

| Criteria | Baseline | UHIE Adjusted |
|---|---|---|
| Days above 25°C | 127 | 120 |
| Days above 30°C | 38 | 35 |
| Days above 35°C | 9 | 9 |

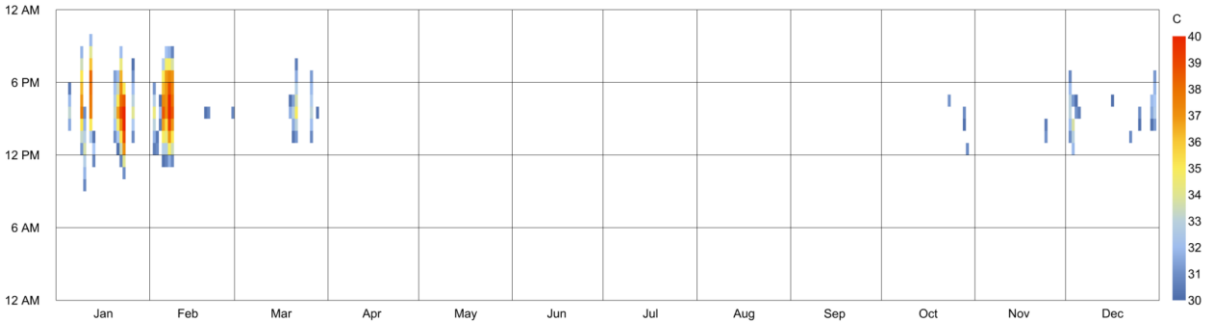


*Figure 12 Annual Ambient Temperature above 30°C - Baseline*


*Figure 13 Annual Ambient Temperature above 30°C - UHIE Adjusted*

The development in its current design is therefore likely to contribute to localised nighttime warming whilst not exacerbating daytime peak temperatures, though localised hotspots may still occur on specific surfaces, particularly those with low reflectivity or limited shading. These results provide a quantitative basis for considering mitigation

strategies such as increased vegetation, highly reflectivity roofs, and shaded areas, which can help reduce heat retention and improve local thermal comfort during night-time periods.

#### *4.4.2.3 Urban Thermal Climate Index*

To understand the impact of the development on human thermal comfort and identify where mitigation strategies would be most effective, a Universal Thermal Climate Index (UTCI) assessment was conducted using the Honeybee plugin for Grasshopper. UTCI integrates air temperature, humidity, wind, and radiant exposure to predict how the human body will perceive temperature under varying environmental conditions.

The same digital model was used, distinguishing between differing surface types; asphalt road, concrete, hardstand, vegetation, and building materials to represent differences in heat absorption and radiation exchange. A grid of analysis points was created across the site, with spatially resolved UTCI values calculated at 1.75 m above ground level. The assessment was conducted at 12pm on a typical summer day, including the sites predicted UHIE, to highlight areas where perceived thermal stress is highest.

Views of the output UTCI temperature gradient are illustrated in Figure 14, Figure 15, and Figure 16, indicating that areas around the data centres and beneath trees show a reduced perceived temperature due to overshadowing. Areas of hardstand that have little shading, as in the northwestern corner of the site result in an increased perceived temperature. Introducing permeable or lighter coloured paving materials and shading structures for areas with high pedestrian activity will both improve both human comfort and local microclimate conditions in these areas.

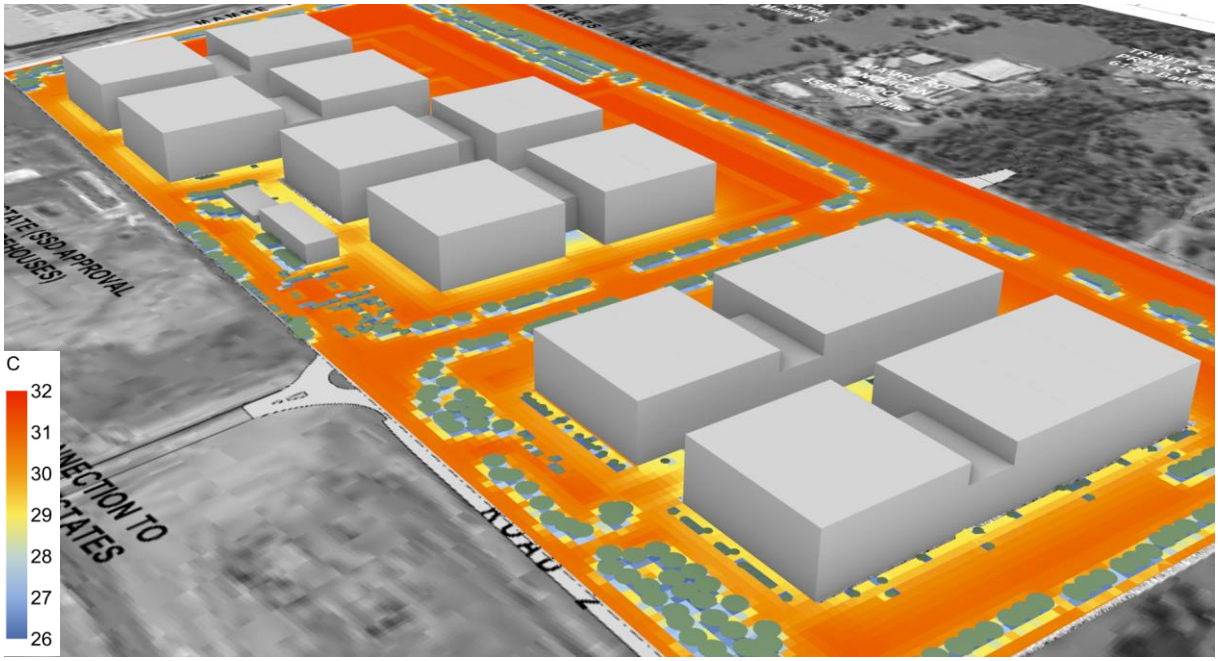


*Figure 14 Typical Summer Midday UTCI Output - View 1*

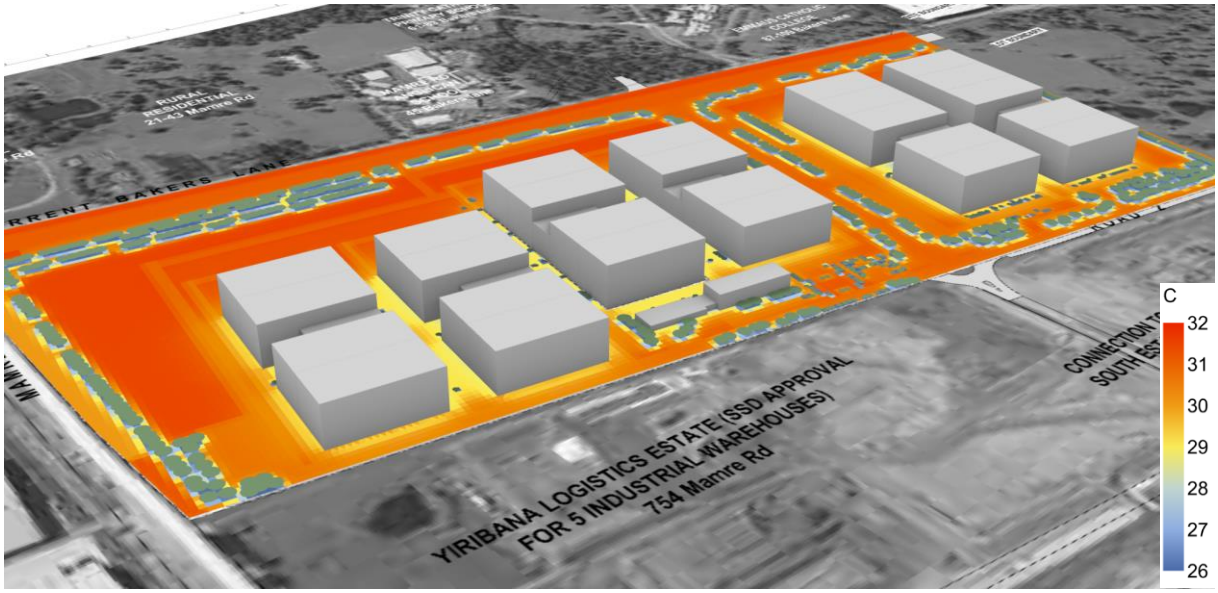


*Figure 15 Typical Summer Midday UTCI Output - View 2*

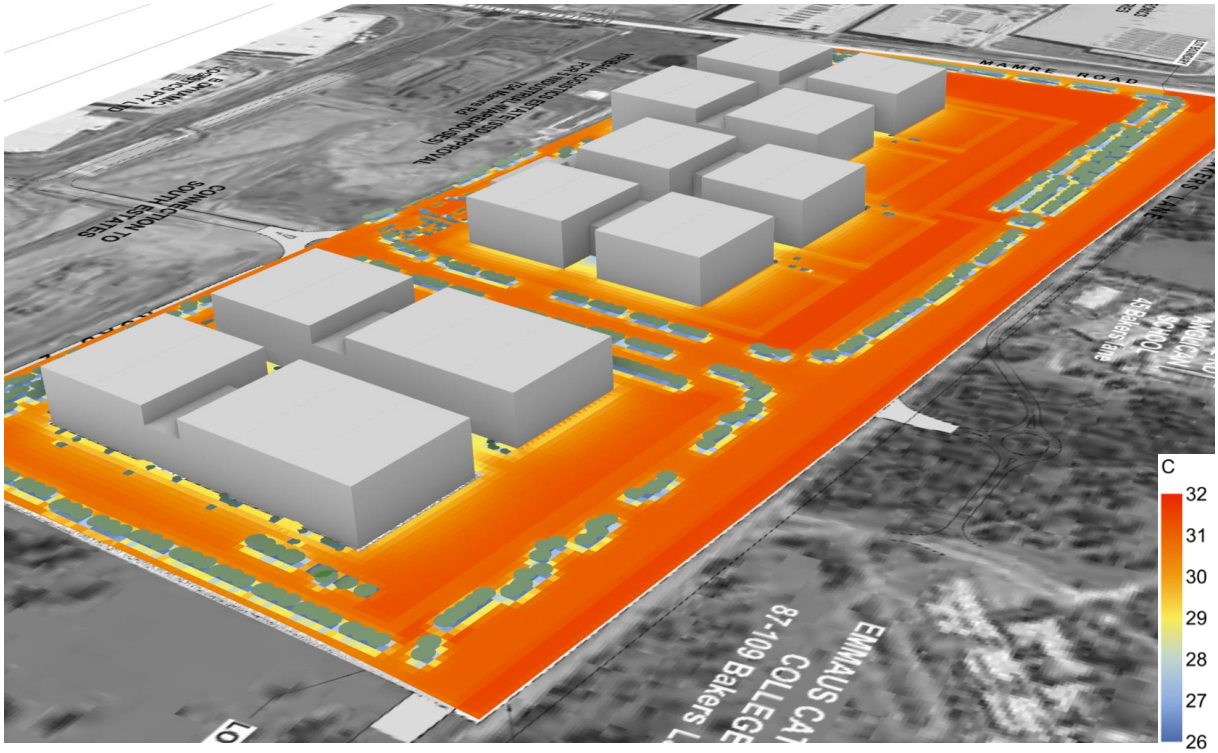


*Figure 16 Typical Summer Midday UTCI Output - View 3*

# 5 Management and Mitigation

## 5.1 Purpose

This section defines the environmental-health management framework for the Mamre Road Data Centre Campus Project, specifying the metrics to be monitored, monitoring methods and frequency, trigger levels, and corrective actions.

The objective is to ensure that health-related risks associated with air quality, noise, and temperature (urban heat) remain controlled and compliant with applicable standards throughout construction and operation.

## 5.2 Air Mitigation measures

### 5.2.1 Construction Phase

Construction-phase mitigation measures form a comprehensive best-practice framework aimed at preventing dust generation, reducing particulate matter, and managing combustion-related emissions. These measures address all major emission sources identified in the Construction Air Quality Management Plan (CAQMP), including wind erosion, earthworks, materials handling, haulage, and exhaust emissions, and are supported by a Trigger Action Response Plan (TARP) that activates real-time responses based on $PM_{10}$ monitoring, visible dust observations, and meteorological conditions. Controls are applied at the source, along pathways, and at the boundary to ensure no visible dust leaves the site and that $PM_{10}$ concentrations remain below relevant criteria.

During construction, air quality will be managed through a large suite of source controls, pathway controls, administrative controls, and reactive measures designed to suppress dust emissions and minimise particulate matter transport off-site. The plan emphasises proactive management during high-wind conditions and high-dust activities, including earthworks and heavy vehicle movement on unpaved surfaces. Key measures include widespread use of water carts and sprays, covering or stabilising exposed surfaces and stockpiles, limiting vehicle speeds, minimising drop heights during loading, sealing or damping haul routes, and ensuring all plant is well maintained and operated efficiently. A multi-point real-time $PM_{10}$ monitoring network will inform operational decisions and activate corrective actions in accordance with the TARP. Additional administrative controls, such as community engagement, complaint procedures, staff training, daily inspections, and coordination with nearby projects, ensure that emissions remain as low as practicable throughout all construction stages.

The measures related to the CAQMP include

**Wind Erosion Controls**

- Use water carts and handheld sprays on exposed surfaces and stockpiles.
- Install solid screens or temporary barriers around dusty activities or the site boundary.
- Keep fencing and scaffolding clean using wet methods.
- Remove dust-prone materials promptly or keep them covered/seeded to prevent drying.
- Cover, seed, or fence stockpiles; stabilise surfaces progressively.
- Maintain sand and aggregate in bunded areas and prevent drying out.
- Clean any spillages using wet methods; no dry sweeping.

**Materials Processing & Handling Controls**

- Use cutting, grinding, or sawing equipment fitted with water suppression or local exhaust extraction.
- Minimise drop heights from trucks and conveyors.
- Use enclosed chutes, conveyors, and covered skips.
- Avoid dry sweeping of large areas.

**Haulage and Vehicle Controls**

- Enforce low speed limits: 15 km/h on unpaved, 25 km/h on paved surfaces.
- Use water-assisted dust sweepers on haul roads; regularly damp down surfaces.
- Install wheel wash systems and rumble grids; ensure trucks exit on hardstand.
- Cover loads on all vehicles and prevent track-out onto public roads.
- Maintain haul route integrity and use hard-surfaced routes where possible.
- Prohibit idling; ensure trucks comply with emission standards.

**General Controls**

- Fully enclose active areas with high dust generation potential.
- Ensure constant availability of non-potable water for suppression.
- Use effective water sprays during earthworks and demolition.
- Position access gates as far as possible from sensitive receptors.
- Maintain and regularly inspect all plant and equipment.

- Avoid diesel/petrol generators where possible; use mains or battery power.
- Avoid burning waste or using explosive blasting.
- Plan site layout to distance machinery from receptors.

**Administrative & Management Controls**

- Implement a Dust Management Plan and stakeholder communication plan.
- Display contact details of responsible personnel on the site boundary.
- Maintain a complaints register and provide prompt investigation and response.
- Conduct daily on-site and off-site dust inspections and compliance checks.
- Coordinate with other nearby construction projects to manage cumulative impacts.
- Train all personnel on dust sources, responsibilities, and environmental obligations.

**Trigger Action Response Plan (TARP) Controls**

- Real-time $PM_{10}$ and meteorological monitoring at boundary and receptor locations.
- Tiered action response (Action 1, 2, 3) based on $PM_{10}$ exceedances and wind conditions:
    - Apply extra watering, reduce activity intensity, modify or halt specific works.
    - Temporarily cease high-dust activities under Action 3.
- Maintain a daily log and photographic records of triggers and responses.

### 5.2.2 Operational Phase

The operational phase air quality controls for the Mamre Road Data Centre Campus focus on minimising emissions from the diesel-fueled backup generators during routine maintenance testing and ensuring compliance with NSW legislative requirements. The AQIA concludes that no additional mitigation is required for normal operations, as dispersion modelling for all maintenance scenarios (M1–M6) predicts compliance with air quality criteria at surrounding receptors. Nonetheless, several best-practice measures are recommended to ensure emissions remain low and to minimise cumulative impacts. These include coordinated scheduling of generator testing with nearby data centres to avoid simultaneous emissions, avoiding testing during periods of poor regional air quality, and operating in accordance with the Minister's Conditions of Approval and the Environmental Protection Licence (EPL) requirements. These strategies ensure that the campus operates with minimal contribution to local particulate matter, $NO_2$ and other combustion-related pollutants, while maintaining robust health protection for nearby sensitive receptors.

The measures sourced from the AQIA include:

**Generator Testing & Operational Controls**

- Conduct generator maintenance testing only at times when nearby data centres are not also testing, preventing cumulative peak emissions.
- Do not undertake testing during poor background air quality conditions. Operators must check NSW EPA's Air Quality Category (AQC) readings prior to testing.
- Maintain full compliance with all Minister's Conditions of Approval and EPL air emission requirements, including concentration limits under the POEO (Clean Air) Regulation 2022.
- Maintain generators and associated plant to manufacturer specifications to ensure optimal combustion efficiency and lower emissions

**Emissions Reduction & Best-Practice Measures**

- Avoid generator operation beyond 200 hours/year to remain below thresholds requiring Group 6 emission controls under the POEO CAR.
- Ensure backup generator configuration incorporates multiple power feeders and operational redundancy, reducing the likelihood of simultaneous large-scale generator operation (emergency scenario) and thus reducing potential short-term air quality impacts.
- Adopt best-practice diesel emission reduction technologies where feasible, consistent with Mamre Road Precinct DCP requirements for high-capacity diesel equipment.

**Operational Scheduling & Environmental Coordination**

- Integrate generator testing into a coordinated operational schedule with nearby data centres to reduce overlapping peak emissions within the Mamre Road Precinct.
- Incorporate consideration of regional background conditions, cumulative industrial emissions, and meteorology when planning operational testing, as per AQIA cumulative assessment methodology.

**Monitoring & Compliance Framework**

- Ongoing operational performance will be validated through compliance monitoring required under the EPL and Ministers Conditions of Approval
- Maintain records of testing times, equipment performance, and background AQC assessments to demonstrate ongoing compliance and enable regulatory reporting.

**Emergency Scenario Considerations**

- While emergency generator operation may temporarily elevate $NO_2$, $PM_{10}$, and $PM_{2.5}$ levels, the AQIA indicates the probability of experiencing exceedances during such events is extremely low (once every 10,000–11,000 years).
- The data centre design includes redundancy and risk-minimisation measures that significantly reduce the likelihood that large sets of generators would run concurrently.

## 5.3 Noise and Vibration Mitigation Measures

### 5.3.1 Construction Phase

#### *5.3.1.1 Noise Mitigation*

According to the noise and vibration assessment document (09 December 2025), construction noise will be managed through a suite of feasible and reasonable mitigation measures targeting the source, pathway and receiver. At-source controls include:

- using quieter or acoustically treated plant,
- selecting equipment based on verified noise emission levels,
- maintaining all machinery (including mufflers, silencers and braking systems), and
- substituting high-impact tools (e.g. rock breakers) with lower-noise alternatives where practicable.

Pathway controls involve:

- strategic placement of site sheds and laydown areas to provide shielding,
- installation of temporary acoustic barriers and hoarding to block line-of-sight, and
- use of acoustic blankets for elevated or out-of-hours works where construction cannot be shielded by permanent structures.

Site layout and scheduling measures include locating noisy activities as far as practicable from sensitive receivers, coordinating construction stages to avoid cumulative impacts, limiting high-noise works to standard hours, and aligning respite periods where multiple projects operate concurrently. Behavioural controls require avoidance of unnecessary banging, dropping materials, or excessive engine revving, along with implementing heavy-vehicle codes of conduct that restrict idling and compression braking near residences.

For elevated noise-risk equipment such as diesel tower cranes, additional treatments, including acoustic enclosures, industrial-grade silencers, and careful orientation of exhausts away from receivers, are recommended to reduce high-frequency noise propagation.

Finally, the mitigation framework includes complaint-driven and verification noise monitoring to ensure compliance with Noise Management Levels, particularly during out-of-hours works. Collectively, these measures aim to minimise noise exposure, reduce annoyance, and ensure compliance with the NSW Interim Construction Noise Guideline.

#### *5.3.1.2 Vibration Mitigation*

Vibration during construction will be managed through a combination of engineering, administrative and monitoring approaches to minimise both human discomfort and structural risk. Where possible, lower-vibration construction methods will be selected, such as bored piling in place of impact piling, and contractors will be instructed to position vibration-intensive equipment as far from sensitive receivers as practicable. High-vibration activities will be staggered to avoid cumulative exposure, and nearby residents and facility operators will be notified in advance whenever such works are scheduled to occur.

To protect buildings from potential cosmetic damage, the project will adopt minimum working distances identified in the NVIA and implement vibration monitoring at the closest sensitive receivers, including residences within NCA01–NCA04 and Emmaus Village. Monitoring will ensure that vibration levels remain well below structural damage thresholds, and works will be paused and reassessed if vibration approaches these limits. For sensitive technical environments, such as adjacent operational data centres, continuous vibration monitoring may be required to ensure that levels remain compatible with the resilience thresholds of ICT and other precision equipment. If monitoring identifies a risk to sensitive equipment, mitigation may involve adjusting work methods, modifying equipment, or temporarily relocating vulnerable installations.

#### *5.3.1.3 Monitoring and Complaints Handling*

A comprehensive monitoring and complaints-handling framework will support construction activities to ensure that noise and vibration impacts remain within acceptable limits. Prior to works commencing, baseline noise and vibration levels will be established at representative locations. Regular attended or unattended monitoring will then occur during key phases, particularly when high-noise or high-vibration activities are planned. Monitoring results will be compared against project criteria, and any exceedances will trigger a review of construction methods and mitigation strategies.

In parallel, a clear complaints-handling process will be implemented, including a dedicated contact point for community members. All enquiries and complaints will be recorded in a register and responded to promptly, typically within 24 hours. Patterns of repeated complaints or verified exceedances will initiate reassessment of work practices or additional community engagement. This adaptive management approach ensures that concerns are addressed proactively and transparently, supporting both regulatory compliance and community trust throughout the construction period.

### 5.3.2 Operational Phase

During the operational phase of the data centre, noise mitigation relies on a combination of architectural design, engineered controls, and ongoing management strategies to ensure compliance with the project noise trigger levels and to protect the wellbeing of surrounding sensitive receivers.

Mechanical equipment such as chillers, transformers, fans, and electrical plant will be acoustically treated through the use of purpose-built enclosures, silencers, acoustic louvres, noise-attenuating screens, and vibration-isolation mounts.

The layout of the site has also been designed to position noise-generating plant as far as practicable from sensitive receivers, supported by the installation of permanent noise barriers and building-integrated acoustic walls. Operational controls will further reduce impacts, including the careful management of generator testing, restricted to daytime hours, with limits on the number of units tested simultaneously and preferential use of generator locations that minimise off-site noise propagation.

Activities associated with loading docks and vehicle movements will be managed through measures such as prohibiting engine braking, using broadband reversing alarms, restricting heavy vehicle activity at night, and designing acoustic treatments around loading dock areas.

Carpark and internal road noise will be reduced through speed limits, smooth road surfacing, and, where possible, the use of low-noise or electric vehicles.

To ensure long-term compliance, the operator will conduct post-construction verification testing followed by periodic noise audits, supported by operational noise loggers where necessary.

The facility will maintain a clear complaints-handling protocol and continuously review plant performance, operational procedures, and opportunities for further noise reduction. Together, these architectural, engineering, and management controls create a comprehensive framework to minimise noise impacts on surrounding communities throughout the operational life of the data centre.

## 5.4 Soil contamination Mitigation Measures

The remediation and construction phases will be supported by a comprehensive suite of environmental and health protection measures designed to minimise risks to workers, nearby receptors, and the surrounding environment. They key mitigation actions include:

- Remediation Environmental Management Plan (REMP)
  - To be prepared by the remedial contractor before works commence.
  - Includes monitoring and management measures for dust, airborne hazards, noise, visual impacts, flora/fauna, heritage, emergency response, spill procedures, and contaminated soil handling.
- Asbestos Management Plan (AMP)
  - Required for all asbestos-impacted soils.
  - Incorporates exclusion zones, appropriate signage, fencing, decontamination procedures, and air monitoring requirements in accordance with SafeWork Australia (2020) and NOHSC guidance.
- Perimeter and Downwind Asbestos Air Monitoring:
  - Daily monitoring undertaken during any ground disturbance involving asbestos-impacted soils.
  - Confirms effectiveness of dust and fibre control measures and triggers additional responses if required.
- Dust and Airborne Hazard Controls
  - Routine dust suppression (e.g., water sprays).
  - Monitoring-based controls, including adjusting work activities during unfavourable weather conditions.
  - Covering or damping down impacted soils where necessary.
- Soil Excavation, Classification, and Disposal
  - Impacted soils to be classified in accordance with EPA (2014) Waste Classification Guidelines.
  - Off-site disposal only to licensed facilities with full waste-tracking documentation (dockets, certificates) retained for validation reporting.
- On-Site Material Reuse
  - Validated, remediated soils may be reused onsite.
  - Materials tracked from source through treatment to final placement to ensure compliance with validation criteria.
- Surface Water and Wastewater Management
  - All discharges must comply with the Protection of the Environment Operations Act.
  - Any discharge to sewer requires Sydney Water approval and compliance with approval conditions.
- Unexpected Finds and Contingency Procedures
  - Defined stop-work and supervisory protocols if previously unidentified contamination or hazardous materials are encountered.

- May include encapsulation, additional sampling, or modified work practices.

- Complaint Response Protocols
  - Monitoring and responsive actions implemented for any noise, dust, or water-quality complaints from surrounding properties.
- Site Disestablishment and Decontamination:
  - All equipment, plant, and environmental controls removed at the end of remediation.
  - Equipment decontaminated or disposed of in accordance with waste regulations.

## 5.5 Urban Heat Island Mitigation Measures

Based on the outcomes of the UHIE and UTCI analysis, mitigation measures can be integrated into the design to minimise the project's contribution to local heat build-up. Strategies include:

- Incorporation of high reflectance roofing materials to reduce surface heat gain.
- Utilisation of permeable and lighter-coloured paving materials for roads and hardstand areas.
- Providing shading structures in high activity outdoor zones.

Implementation of these measures will assist in improving local thermal comfort and reducing the development's overall UHI impact, supporting long-term environmental and operational performance objectives.

# 6 Conclusions

This Environmental Health Risk Assessment (EHRA) and Health Impact Assessment (HIA) has evaluated the potential human health impacts associated with the construction and operation of the Mamre Road Data Centre Campus located at 706–752 Mamre Road, Kemps Creek, consistent with enHealth and NSW planning requirements. The assessment integrates quantitative modelling of air emissions, noise, vibration, soil contamination, and urban heat, incorporating both incremental and cumulative impacts from the broader Mamre Road Precinct development context

The Health Impact Assessment (HIA) undertaken for the Mamre Road Data Centre Campus demonstrates that the proposal can proceed with acceptable and manageable health risks, provided the recommended mitigation and management measures are effectively implemented. The assessment has evaluated potential impacts across air quality, noise and vibration, soil and contamination, and heat-related health outcomes, considering both the construction and operational phases of the project. Findings from the supporting Environmental Health Risk Assessment confirm that, while certain environmental hazards are present, these risks are well-understood, predictable, and readily controlled using standard, industry-recognised approaches.

## 6.1 Construction Phase

- During the construction phase, potential health impacts primarily relate to dust generation, intermittent exceedances of construction noise management levels at a limited number of sensitive receivers, and perceptible vibration during high-impact works.
- These impacts are temporary and can be effectively minimised through a combination of engineering controls, activity scheduling, real-time monitoring, community notification and adherence to best practice guidelines.
- Air quality modelling confirms that dust can be maintained within acceptable levels through established suppression methods, while noise and vibration impacts can be maintained below thresholds that would pose a health risk when mitigation is applied.
- Contamination risks identified on-site, including asbestos and localised hydrocarbon impacts, can be safely remediated under an approved Remedial Action Plan prior to commencement of construction works. The residual health risk during construction is therefore considered low and controllable.

Following mitigation, the residual risk during construction is assessed as **low**

## 6.2 Operational phase

- In the operational phase, the assessment identifies low potential for adverse health impacts. Noise modelling indicates that typical operations, including mechanical plant and annual generator testing, will comply with relevant criteria at all long-term receptors following implementation of the proposed acoustic treatments.
- Minor residual exceedances for short-term transitional receptors within the Mamre Road Precinct do not pose a material health risk and are expected to diminish as the precinct evolves in accordance with its industrial zoning.
- Air emissions during normal operations are negligible, with generator use limited to short, controlled maintenance periods.
- Urban heat contributions have also been evaluated and found to be minor, with mitigation such as reflective materials, vegetation and shading incorporated into the site design to maintain thermal amenity.
- The operational phase is therefore associated with very low residual health risks, all of which are manageable through the proposed environmental management framework.

As a result, the residual health risk during operation is considered **very low.**

## 6.3 Overall Risk Assessment:

Overall, this Environmental Health Risk Assessment (EHRA) and Health Impact Assessment (HIA) concludes that the Mamre Road Data Centre Campus can be developed and operated without resulting in unacceptable risks to human health, provided the recommended mitigation measures, monitoring programs, and management commitments are enacted.

When considering all hazards assessed air quality, noise, vibration, soil and contamination, and heat the project's overall residual health risk is assessed as **Low.**

In conclusion, the Mamre Road Data Centre Campus can be developed and operated without resulting in unacceptable risks to human health. The project aligns strongly with regulatory requirements, environmental best practice, and the strategic intent for the Mamre Road Precinct. The proposed mitigation framework supported by robust monitoring, adaptive management, and transparent communication processes, ensures that any residual risks remain low and manageable. Accordingly, the project is considered suitable for progression, with the health and wellbeing of the surrounding community appropriately protected throughout both construction and operation

# Appendix A Discrete sensitive receptor Locations – Air Quality Assessment (Source: Northstar, 2025)

| Receptor ID | Location | Land use | Coordinates (UTM) | |
|---|---|---|---|---|
| | | | mE | mS |
| **R1** | 1 Bakers Lane, Kemps Creek | Residential | 294844 | 6254331 |
| **R2** | Mamre Anglican School, Kemps Creek | Educational | 295142 | 6254273 |
| **R3** | Mamre Christian College, Kemps Creek | Educational | 295169 | 6254330 |
| **R4** | Little Smarties Early Learning Centre, Kemps Creek | Educational | 295174 | 6254272 |
| **R5** | Trinity Catholic Primary School, Kemps Creek | Educational | 295348 | 6254492 |
| **R6** | Emmaus Catholic College, Kemps Creek | Educational | 295550 | 6254313 |
| **R7** | Emmaus Retirement Village, Kemps Creek | Residential | 295709 | 6254600 |
| **R8** | Catholic Healthcare Emmaus Retirement Village, Kemps Creek | Residential | 295755 | 6254749 |
| **R9** | Mamre Road, Kemps Creek | Residential | 294635 | 6254591 |
| **R10** | The Yards, Kemps Creek | Industrial | 294614 | 6254345 |
| **R11** | The Yards, Kemps Creek | Industrial | 294573 | 6254203 |
| **R12** | The Yards, Kemps Creek | Industrial | 294607 | 6253972 |
| **R13** | The Yards, Kemps Creek | Industrial | 294614 | 6253821 |
| **R14** | Yiribana Logistics Estate, Kemps Creek | Industrial | 294959 | 6253749 |
| **R15** | Aspect Industrial Estate, Kemps Creek | Industrial | 294906 | 6253400 |
| **R16** | St Narsai Assyrian Christian College, Horsley Park | Educational | 299164 | 6253214 |
| **R18** | Marion Catholic Primary School, Horsley Park | Educational | 301169 | 6253313 |
| **R17** | Horsely Park Public School, Horsley Park | Educational | 301270 | 6253384 |
| **R19** | Blackwell Public School, St Clair | Educational | 294779 | 6257025 |
| **R20** | Erskine Park High School, Erskine Park | Educational | 296604 | 6256986 |
| **R21** | James Erskine Public School, Erskine Park | Educational | 296665 | 6257203 |
| **R22** | Clairgate Public School, St Clair | Educational | 296273 | 6258174 |
| **R23** | St Clair Public School, St Clair | Educational | 295039 | 6258209 |
| **R24** | St Clair High School, St Clair | Educational | 295130 | 6258366 |
| **R25** | Holy Spirit Primary School, St Clair | Educational | 294607 | 6258396 |
| **R26** | Banks Public School, St Clair | Educational | 293881 | 6258444 |
| **R27** | Do-Re-Mi Early Learning Centre, Mount Vernon | Educational | 297134 | 6250248 |
| **R28** | Kidzspot Early Learning Centre – Dilga, Erskine Park | Educational | 296112 | 6257556 |
| **R29** | Kidzspot Early Learning Centre – Lima, Erskine Park | Educational | 296438 | 6257575 |
| **R30** | Phoenix Reserve, Erskine Park | Recreational | 296542 | 6257571 |

| | | | | |
|---|---|---|---|---|
| **R31** | Old MacDonalds Childcare Centre, Orchard Hills | Educational | 294057 | 6255701 |
| **R32** | Dutt Medical Centre, St Clair | Medical | 294164 | 6257251 |
| **R33** | Melville Road Family Medical Centre, St Clair | Medical | 294543 | 6258661 |
| **R34** | Kindana Children's Centre, St Clair | Educational | 294577 | 6258628 |
| **R35** | Provincial Medical Centre, St Clair | Medical | 295347 | 6258382 |
| **R36** | Horsely Park Medical Centre, Horsley Park | Medical | 300854 | 6253331 |
| **R37** | Horsley Kids Early Childhood Centre, Horsley Park | Educational | 301002 | 6253277 |
| **R38** | Kemps Creek Industrial Estate, Kemps Creek | Industrial | 296363 | 6253578 |
| **R39** | Kemps Creek Industrial Estate, Kemps Creel | Industrial | 296323 | 6252786 |
| **R40** | Aspect Industrial Estate, Kemps Creek | Industrial | 295268 | 6253400 |
| **R41** | Emporium Avenue, Kemps Creek | Industrial | 295825 | 6254170 |
| **R42** | Amazon Fulfillment Centre, Emporium Avenue, Kemps Creek | Industrial | 296216 | 6254471 |
| **R43** | Coles ADC (Automated Distribution Centre), Emporium Avenue, Kemps Creek | Industrial | 296469 | 6254871 |
| **R44** | The Yards, Kemps Creek | Industrial | 294082 | 6254117 |
| **R45** | The Yards, Kemps Creek | Industrial | 293884 | 6254133 |
| **R46** | Fire and Rescue NSW Emergency Services Academy, Distribution Drive, Orchard Hills | Educational | 294304 | 6254914 |
| **R47** | Warehouse, Sarah Andrews Cl, Erskine Park | Industrial | 294673 | 6254875 |
| **R48** | Woolworths DC, Sarah Andrews Cl, Erskine Park | Industrial | 295037 | 6254949 |
| **R49** | DHL Supply Chain, Templar Road, Erskine Park | Industrial | 295952 | 6255129 |
| **R50** | Templar Road, Erskine Park | Industrial | 295624 | 6255371 |
| **R51** | Erskine Park Road, Erskine Park | Industrial | 294748 | 6255827 |
| **R52** | Grady Crescent, Erskine Park | Industrial | 296744 | 6256156 |
| **R53** | Erskine Park Road, Erskine Park | Industrial | 294879 | 6256316 |
| **R54** | Kasie Place, St Clair | Residential | 294353 | 6256556 |
| **R55** | Coowarra Drive, St Clair | Residential | 295028 | 6256635 |
| **R56** | Dunstaffnage Place, Erskine Park | Residential | 296079 | 6256719 |
| **R57** | Mandalong Close, Orchard Hills | Residential | 293985 | 6255988 |
| **R58** | Mandalong Close, Orchard Hills | Residential | 293537 | 6255820 |
| **R59** | Mamre Road, Orchard Hills | Residential | 293276 | 6255212 |
| **R60** | Twin Creeks Drive, Luddenham | Industrial | 292882 | 6253980 |
| **R61** | Medinah Avenue, Luddenham | Residential | 292999 | 6253792 |
| **R62** | Medinah Avenue, Luddenham | Residential | 293237 | 6253103 |
| **R63** | Mamre Road, Kemps Creek | Residential | 295340 | 6252384 |
| **R64** | Ganton Way, Luddenham | Residential | 292865 | 6252423 |

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|---|---|---|---|---|
| **R65** | Greenway Place, Horsley Park | Residential | 298647 | 6253861 |
| **R66** | Capitol Hill Drive, Mount Vernon | Residential | 298344 | 6253139 |
| **R67** | Bowood Road, Mount Vernon | Residential | 297694 | 6252401 |
| **R68** | Aldington Road, Kemps Creek | Residential | 296259 | 6251744 |
| **R69** | Mamre Road, Kemps Creek | Residential | 295497 | 6251556 |
| **R70** | Mamre Road, Kemps Creek | Residential | 295203 | 6252040 |
| **R72** | Mamre Road, Kemps Creek | Residential | 294727 | 6252701 |
| **R71** | Mamre Road, Kemps Creek | Residential | 294670 | 6252893 |
| **R73** | Mamre Road, Kemps Creek | Residential | 294621 | 6253098 |
| **R74** | Imperata Close, Kemps Creek | Industrial | 297083 | 6253940 |
| **R75** | Johnston Crescent, Horsley Park | Industrial | 298283 | 6254543 |
| **R76** | Millner Avenue, Horsley Park | Industrial | 298318 | 6254962 |
| **R77** | Medinah Avenue, Luddenham | Residential | 293264 | 6253295 |
| **R78** | Medinah Avenue, Luddenham | Residential | 293139 | 6253624 |
| **R79** | Twin Creeks Golf & Country Club, Luddenham | Recreational | 292776 | 6253762 |
| **R80** | Farmingdale Court, Luddenham | Residential | 292596 | 6251851 |
| **R81** | Comargo Lane, Luddenham | Residential | 292591 | 6254168 |
| **R82** | Luddenham Road, Orchard Hills | Residential | 292680 | 6254624 |
| **R83** | Luddenham Road, Orchard Hills | Residential | 292593 | 6255034 |
| **R84** | Luddenham Road, Orchard Hills | Residential | 292839 | 6255196 |
| **R85** | Crystal Downs Close, Luddenham | Residential | 292759 | 6253448 |
| **R86** | Pennard Crescent, Luddenham | Residential | 292954 | 6253379 |
| **R87** | Woodhall Place, Luddenham | Residential | 292724 | 6253034 |
| **R88** | Woodhall Place, Luddenham | Residential | 292863 | 6252713 |
| **R89** | Twin Creeks Drive, Luddenham | Residential | 292659 | 6252635 |
| **R90** | Bridport Place, Luddenham | Residential | 292280 | 6252110 |
| **R91** | Ventana Court, Luddenham | Residential | 292429 | 6252905 |
| **R92** | Humewood Place, Luddenham | Residential | 292491 | 6252373 |
| **R93** | Portrush Crescent, Luddenham | Residential | 292400 | 6253741 |
| **R94** | Portrush Crescent, Luddenham | Residential | 292274 | 6253495 |
| **R95** | Portrush Crescent, Luddenham | Residential | 291948 | 6253458 |
| **R96** | Libra Place, Erskine Park | Residential | 296865 | 6256693 |
| **R97** | Cetus Place, Erskine Park | Residential | 297356 | 6256604 |
| **R98** | Peppertree Reserve, Erskine Park | Recreational | 296877 | 6257207 |
| **R99** | Erskine Park Netball Courts, Erskine Park | Recreational | 295776 | 6257108 |
| **R100** | Corio Reserve, St Clair | Recreational | 294442 | 6256991 |
| **R101** | Sennar Reserve, Erskine Park | Recreational | 297236 | 6257322 |
| **R102** | Shakespeare Drive Reserve, St Clair | Recreational | 295084 | 6257465 |
| **R103** | Saunders Park, St Clair | Recreational | 294759 | 6257903 |

| | | | | |
|---|---|---|---|---|
| **R104** | Peter Kearns Memorial Oval, St Clair | Recreational | 293924 | 6258257 |
| **R105** | Mamre Road, Mount Vernon | Residential | 296153 | 6250570 |
| **R106** | Mount Vernon Road, Mount Vernon | Residential | 296685 | 6250841 |
| **R107** | Bowood Road, Mount Vernon | Residential | 297396 | 6251644 |
| **R108** | Garfield Road, Horsley Park | Residential | 298815 | 6252786 |
| **R109** | Burley Road, Hosley Park | Residential | 299109 | 6254543 |
| **R110** | Barwar Close, Horsley Park | Residential | 300063 | 6254234 |
| **R111** | The Appian Way, Mount Vernon | Residential | 298201 | 6251812 |
| **R112** | Delaware Road, Horsley Park | Residential | 299488 | 6253414 |
| **R113** | Lincoln Road, Horsley Park | Residential | 299367 | 6251984 |
| **R114** | Selkirk Avenue, Cecil Park | Residential | 298873 | 6250971 |
| **R115** | Mount Vernon Road, Mount Vernon | Residential | 297662 | 6250662 |
| **R116** | Cressy Road, Mount Vernon | Residential | 296988 | 6249926 |
| **R117** | Warana Road, Cecil Park | Residential | 298316 | 6249676 |
| **R118** | Horsley Road, Horsley Park | Residential | 300539 | 6253008 |
| **R119** | Bowood Road, Mount Vernon | Recreational | 297512 | 6252333 |
| **R120** | Arundel Road, Horsley Park | Recreational | 300652 | 6253420 |
| **R121** | ETP Precast Facility, Lenore Drive, Eastern Creek | Industrial | 298001 | 6256671 |
| **R122** | TransGrid Sydney West Substation & Switchyard, Eastern Creek | Substation | 298721 | 6255977 |
| **R123** | Warehouse, Old Wallgrove Road, Eastern Creek | Industrial | 299347 | 6256015 |
| **R124** | CDC Data Centre, Eastern Creek | Data Centre | 299797 | 6255817 |
| **R125** | Warehouse, Telopea Place, Eastern Creek | Industrial | 299160 | 6256629 |
| **R126** | Coca-Cola Europacific Partners Eastern Creek, Eastern Creek | Industrial | 300634 | 6255800 |
| **R127** | Digital Realty Data Centre SYD11, Templar Road, Erskine Park | Data Centre | 295946 | 6255888 |
| **R128** | Digital Realty Data Centre SYD 14, Lockwood Road, Erskine Park | Data Centre | 296226 | 6255717 |

# Appendix B Noise Assessment Receiver locations (NVIA, 2025)

| Residential noise catchment area (NCA) | Receiver reference | Address | Receiver type | Approximate distance to the Proposal, metres[4] |
|---|---|---|---|---|
| **NCA01** | N1_R01 | 654-674 Mamre Road, Kemps Creek | Residential | 360 |
| **NCA01** | N1_R02 | 676-702 Mamre Road, Kemps Creek | Residential | 270 |
| **NCA01** | N1_R03 | 1 Bakers Lane, Kemps Creek | Residential | 30 |
| **NCA01** | N1_E01 | Mamre Anglican School[3] | Educational[1] | 60 |
| **NCA01** | N1_P01 | | Passive Rec (School) | |
| **NCA01** | N1_A01 | | Active Rec (School) | |
| **NCA02** | N2_R01 | Emmaus Retirement Village | Residential | 480 |
| **NCA02** | N2_E01 | Emmaus Catholic College | Educational | 170 |
| **NCA02** | N2_P01 | | Passive Rec (School) | |
| **NCA02** | N2_A01 | | Active Rec (School) | |
| **NCA02** | N2_E02 | Trinity Primary School | Educational | 320 |
| **NCA02** | N2_P02 | | Passive Rec (School) | |
| **NCA02** | N2_A02 | | Active Rec (School) | |
| **NCA03-PW** | N3_PW01 | BAPS Temple and Cultural Precinct (BAPS Temple) | Place of worship | 1,520 |
| **NCA03** | N3_R01 | 20 Aldington Road, Kemps Creek | Residential | 430 |
| **NCA03** | N3_R02 | 53 Aldington Road, Kemps Creek | Residential | 490 |
| **NCA04** | N4_R01 | 799-803 Mamre Road, Kemps Creek | Residential | 520 |
| **NCA04** | N4_R02 | 819 Mamre Road, Kemps Creek | Residential | 700 |
| **NCA04** | N4_R03 | 833A Mamre Road, Kemps Creek | Residential | 810 |
| **NCA04** | N4_R04 | 833B Mamre Road, Kemps Creek | Residential | 850 |
| **NCA04** | N4_R05 | 845A Mamre Road, Kemps Creek | Residential | 920 |
| **NCA04** | N4_R06 | 845-857 Mamre Road, Kemps Creek | Residential | 950 |
| **NCA04** | N4_R07 | 859-869 Mamre Road, Kemps Creek | Residential | 1,070 |
| **NCA04** | N4_R08 | 885-899 Mamre Road, Kemps Creek | Residential | 1,200 |
| **NCA05** | All[1] | Orchard Hills | Residential | 1,500 |
| **NCA05** | N5_CC1 | Old MacDonald's Child Care | Childcare | 1,510 |
| **NCA06** | All[1] | Luddenham | Residential | 1,400 |
| **NCA07** | All[1] | Kemps Creek | Residential | 1,600 |
| **NCA08** | All[1] | Mount Vernon | Residential | 2,200 |
| **IND** | I01 | East | Industrial | Adjacent |
| | I02 | South | Industrial | Adjacent |
| | I03 | West | Industrial | Adjacent |