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**NORTH ROCKS COMMUTER CAR PARK
LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT (LCVIA)**

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NORTH ROCKS COMMUTER CAR PARK LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT



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Executive summary



EXECUTIVE SUMMARY

An Landscape Character and Visual Impact Assessment (LCVIA) takes into account all effects of change and development in a visual scene that may impact visual amenity. It is concerned with how the surroundings of individuals or groups of people may be specifically affected by change in the visual scene, both quantitatively and qualitatively.

After undertaking a visual catchment assessment of the wider context of the site, a number of suitable viewpoints were selected to analyse for visual impact. A range of viewpoints were selected surrounding the Proposal from public locations. The Proposal has a generally small visual catchment from most directions, which results in the viewpoints being in comparatively close proximity to the Proposal.

The selection of views for detailed evaluation later in this report has been based on the following sources:

- Visual assessment policy guidance in particular the NSW Land and Environment Court Planning Principles;
- Background documents;
- Desktop mapping;
- In field evaluation undertaken for this report.

The proposed development is an approximately 135 space at-grade commuter car park (AGCP), subject to detailed design, in proximity to the M2 Barclay Road Bus Interchange. To meet this additional provision, the AGCP facility has been proposed on vacant land to the south-west of the interchange. The site is owned by Transport for New South Wales (TfNSW) and lies adjacent the M2 Motorway, Barclay Road and Perry Street (with access proposed from Perry Street).

Of the 7 viewpoints selected and analysed the findings are as follows:

- Two viewpoints received an impact rating of Low
- Three viewpoints received an impact rating of Moderate/Low
- One viewpoint received an impact rating of Moderate
- One viewpoint received an impact rating of High/Moderate

A range of potential mitigation measures have been considered in order to reduce any visual impacts. After an analysis of the visual impacts the most appropriate form of mitigation to be considered would be through 'Alleviation' in the form of developed planting design. This would help to screen or highly filter views of the Proposal to the neighbouring houses (particularly 1 & 3 Perry Street). Similarly, the use of appropriate tree species within the vegetated islands throughout the site would provide visual amenity as well as increased shade coverage to the site.

Given the overall limited visual impact of the Proposal to the surrounding area, it is the professional opinion of the authors of this assessment that the visual impacts of the Proposal combined with the overall visual catchment are such that they would not constitute reasons for the Proposal not to proceed.



PART A

existing conditions



1.0 Introduction



1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

CLOUSTON Associates has been commissioned to prepare the Landscape Character & Visual Impact Assessment (LCVIA) for the proposed North Rocks Commuter Car Park.

This LCVIA is one of a number of technical reports supporting the Review of Environmental Factors (REF) for the Proposal.

1.2 VISUAL ASSESSMENT RATIONALE

An LCVIA takes into account all effects of change and development in a visual scene that may impact visual amenity. It is concerned with how the surroundings of individuals or groups of people may be specifically affected by change in the visual scene, both quantitatively and qualitatively.

Judgement as to the significance of the effects is arrived at by a process of reasoning, based upon analysis of the baseline conditions, identification of visual receptors (viewers of the scene) and assessment of their sensitivity, as well as the magnitude and nature of the changes that may result from any development.

This assessment is an independent report and is based on a professional analysis of the visual environment and the Proposal at the time of writing. The current and potential future viewers (visual receptors) have not been consulted about their perceptions. The analysis and conclusions are therefore based solely on a professional assessment of the anticipated impacts, based on a best practice methodology.

2.0 Methodology



2.0 METHODOLOGY

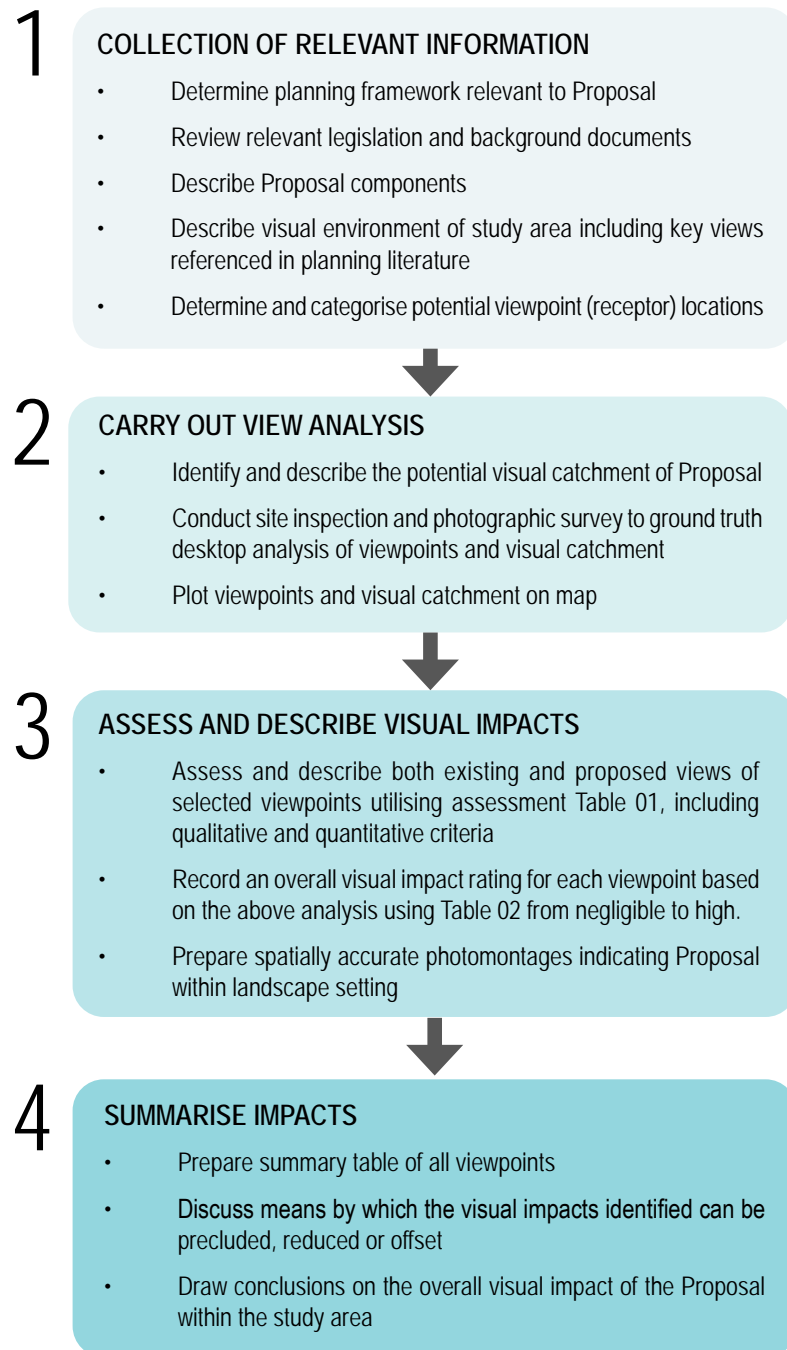


Figure 2.0 - Summary of CLOUSTON methodology.

2.0 METHODOLOGY

2.1 METHODOLOGY

Landscape Character and Visual Impact Assessment aims to ensure that all possible effects of change and development in the landscape, views and visual amenity are taken into account. It is concerned with how the surroundings of individuals or groups of people may be specifically affected by change in the landscape, both quantitatively and qualitatively.

The Commission of the NSW Land and Environment Court have developed Planning Principles that relate to visual impact assessment and have developed assessment steps to be followed:

Step 1: Identify the nature and scope of the existing views from the public domain. This identification should encompass (but is not limited to):

- the nature and extent of any existing obstruction of the view
- relevant compositional elements of the view (such as is it static or dynamic and, if dynamic, the nature and frequency of changes to the view)
- what might not be in the view – such as the absence of human structures in the outlook across a natural area
- is the change permanent or temporary
- what might be the curtilages of important elements within the view

Step 2: Identify the locations in the public domain from which the potentially interrupted view is enjoyed. (Note that the Planning Principles give primacy of views from the public domain over views from private land).

Step 3: Identify the extent of the obstruction at each relevant location.

Step 4: Identify the intensity of public use of those locations where that enjoyment will be obscured, in whole or in part, by the proposed development.

Step 5: Identify whether or not there is any document that identifies the importance of the view to be assessed. The absence of such provisions does not exclude a broad public interest consideration of impacts on public domain views. Heritage items (such as Aboriginal and environmental) should also be considered, as should direct impacts on the local community.

2.2 QUANTITATIVE AND QUALITATIVE VALUES

The visual experience of the area and its landscape setting varies depending on the viewer's standpoint within and outside the site and indeed from the viewer's personal perceptions of what they may appreciate in any given setting.

This requires an assessment to address both the quantitative characteristics of the landscape views (what elements form the scene? What features dominate? What breadth of view is offered – narrow vista or wide panorama?) and the qualitative assessment of the values ascribed to those scenes.

2.0 METHODOLOGY

The quantitative-based strategies are less debatable (can that view still be seen when the new built form is introduced? How much of that view will we lose?) than is establishing the qualitative strategies (which view is more important to retain?); the latter could be perceived differently by every viewer that sees that scene. Such variation of perception is particularly acute around the built form.

2.3 FIELD OF VIEW

The choice of lens, camera format and final presentation has a significant bearing on the understanding of site photos. There is a balance to be struck in seeking to replicate the human eye with respect to focal length, looking straight ahead and the experience of the view with its wider context, so that a project's appearance and its place within its environment can be recognised and understood.

In recognising that no photographic image can exactly replicate the view of the human eye, extensive literature has been published on the nearest equivalent combination of focal length and field of view of a camera that best emulates human vision.

Much of this literature is contradictory with a further complication to this process being the differing sensor formats of digital cameras which affect the apparent focal length and field of view.

It is important to note that the process of assigning visual impact ratings to viewpoints is undertaken during a site visit and is calculated from a human vision perspective on site. Photographic images should be considered to be representative only.

Viewpoint photos have been taken with a Sony Alpha ILCE-A7 II with the following specification:

- Body type: Compact
- Sensor size: 855.62mm² (35.80mm x 23.90mm)
- Sensor type: CMOS Full Frame
- ISO: Auto
- Focal length: 50mm

The use of a 50mm focal length and a full frame sensor is generally considered the closest achievable replication of the human eye view and is in line with the current guidelines of the Landscape Institute (UK).

2.4 ASSESSMENT METHODOLOGY

CLOUSTON Associates has developed a best practice methodology based on internationally accredited approaches and 20 years of experience in the field of visual assessment. There are several critical dimensions demonstrated through this assessment and evaluation:

- Ensuring all receptors (viewers) have been adequately identified, even at distance, with emphasis on public domain views
- Comprehensive evaluation of context to determine visual catchment of the site from these areas
- Being clear on and separately defining quantitative impacts (distance, magnitude, duration etc) as against qualitative impacts (viewer type and context of view)

2.0 METHODOLOGY

- Providing a clear rationale for how impacts are compared and contrasted
- Ensuring photomontages include views from the highest potential impact locations, identified from analysis above
- Being clear on the differing forms of mitigation options, namely avoidance, amelioration (eg design), mitigation (eg screening) and compensation (on or offsite)

2.5 ASSESSMENT PROCESS

The initial step involves the collection of relevant information regarding the Proposal, and its compatibility with the surrounding landscape. Desktop analysis is undertaken to determine the visual catchment of the Proposal and potential visual receivers through the use of mapping and topography analysis. Site visits are then undertaken to confirm the visual catchment and visual receivers.

The next step is to carry out a view analysis that identifies the potential visual catchment and areas from which the Proposal Site may be viewed. Viewpoints are analysed and defined into different categories and sensitivities in terms of their land use context and spatial relationship to the Proposal Site and the landscape in which they are located. A photographic inventory from identified key viewpoints is suggested, plotting the viewpoints on a map.

An evaluation matrix is then completed that summarises the full range of viewer situations identified, assessing the indicative contribution to potential visual impact of key factors for each selected viewpoint. The scores for these key factors are then averaged to determine a High, Moderate, Low or Negligible impact rating.

2.6 View Selection Criteria

The selection of views for detailed evaluation for the Proposal are based on the following sources:

- visual assessment policy guidance in particular the NSW Land and Environment Court Planning Principles;
- desktop mapping;
- in-field evaluation.

Informed by the above considerations, the selection criteria for views to be assessed in detail will include potentially impacted views from:

- the public domain (principally streets, parks and waterways)
- pedestrians and cyclists
- views and vistas identified within local planning documents
- close and direct views
- transport (private and public)
- distant and filtered views
- any impacted heritage areas or items.

2.0 METHODOLOGY

2.7 CHRONOLOGY OF ASSESSMENT

For this LCVIA the sequential assessment steps employed in determining the potential visual impact of the Proposal Site are as follows:

Stage 1:

Establishing the baseline – drawing on background documents and site investigation to document the existing landscape character and visual environment of the study area and its visual catchment. This leads to establishing the most significant views and vistas within and surrounding the Proposal Site.

Stage 2:

Visual Impact Assessment - assessment of the visual impacts of the Proposal Site set against the planning and design principles. This leads to determining any mitigation measures that may be required to reduce visual impacts from the preferred development option.

2.8 RATING SYSTEM

The overall visual impact rating of a project on any given viewpoint/visual receptor is based on themes of magnitude and sensitivity, recorded using a four band scoring system from negligible to high.

- Sensitivity: each visual receptor type has an inherent and varied sensitivity to change in the visual scene based on the personal context in which their view is being experienced (ie. At home, on the street, in a park etc). This sensitivity has a direct bearing on the perception of visual impact experienced by the receptor and qualifies the quantitative impacts
- Magnitude: a measure of the magnitude of the visual effects of the development within the landscape. A series of quantitative assessments are studied, including distance from development, quantum of view, period of view and scale of change
- Overall Impact Rating: The severity of these impacts is calculated using matrix Table 1 – based on a combination of magnitude and sensitivity.

	HIGH MAGNITUDE	MODERATE MAGNITUDE	LOW MAGNITUDE	NEGLIGIBLE MAGNITUDE
HIGH SENSITIVITY	HIGH	HIGH - MODERATE	MODERATE	NEGLIGIBLE
MODERATE SENSITIVITY	HIGH - MODERATE	MODERATE	MODERATE/LOW	NEGLIGIBLE
LOW SENSITIVITY	MODERATE	MODERATE/LOW	LOW	NEGLIGIBLE
NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE

Table 1: Visual Impact Rating as a combination of Sensitivity and Magnitude. Source: Environmental Impact Assessment Practice Note: Guideline for Landscape Character and Visual Impact Assessment (EIA-N04). Roads and Maritime Services.

2.0 METHODOLOGY

	FACTOR		NEGLECTIBLE	LOW IMPACT	MODERATE IMPACT	HIGH IMPACT
QUALITATIVE	Viewer Sensitivity	<p>Each visual receptor type has an inherent and varied sensitivity to change in the visual scene based on the personal context in which their view is being experienced. This sensitivity has a direct bearing on the perception of visual impact experienced by the receptor and qualifies the quantitative impacts.</p> <p>Number of viewers also has a bearing on sensitivity. Viewpoints have a varied number of potential receivers depending on whether the viewpoint is public or private, the popularity of the viewing location and its ease of accessibility. Views from public reserves and open space are often given the highest weighting due to the increased number of viewers affected.</p>	Vacant lot, uninhabited building, car park.	Minor roads, service providers.	Residential properties with limited views, commercial properties, scenic public roads (eg official tourist routes).	Public open space, public reserves, living areas or gardens/ balconies of residential properties with direct views of Project.
	Quantum of View	<p>The quantum of view relates to the openness of the view and the receptor's angle of view to the scene. A development located in the direct line of sight has a higher impact than if it were located obliquely at the edge of the view. Whether the view of the Project is filtered by vegetation or built form also affects the impact, as does the nature of the view (panoramic, restricted etc.). A small element within a panoramic view has less impact than the same element within a restricted or narrow view.</p>	Only an insignificant part of the Project is discernible.	An oblique, highly filtered or largely obscured view of the Project or a view where the Project occupies a very small section of the view frame.	A direct view of the Project or its presence in a broader view where the Project occupies a moderate proportion of the view frame.	A direct view of the Project or its presence (sometimes in a very narrow or highly framed view), where the Project occupies the greater proportion of the view frame.
QUANTITATIVE	Distance of View	<p>The effect the Project has on the view relating to the distance between the Project and the visual receptor. The distances are from the approximate boundary of the Project site.</p>	Over 3000m	Viewing distance of between 1000-3000m.	Viewing distance between 100m and 1000m.	Viewing distance between 0 and 100m.
	Period of View	<p>The length of time the visual receptor is exposed to the view. The duration of view affects the impact of the Project on the viewer - the longer the exposure the more detailed the impression of the proposed change in terms of visual impact.</p>	Less than 1 second	1 to 10 seconds: often from a road or walking past.	1 to 5 minutes: usually from a road/ driveway entrance, walking past.	Significant part of the day: usually residential property.
	Scale of Change	<p>Scale of change is a quantitative assessment of the change in compositional elements of the view. If the proposed development is largely similar in nature and scale to that of existing elements in the vicinity, the scale of change is low. If the development radically changes the nature or composition of the elements in the view, the scale of change is high. Distance from the development would accentuate or moderate the scale and variety of visible elements in the overall view and hence influence this rating.</p>	Project barely discernible	Elements and composition of the view would remain largely unaltered.	Elements within the view would be at odds with existing features in the landscape	Elements within the view would greatly dominate existing features in the landscape

Table 2: Sensitivity and Magnitude Rating Criteria.

2.0 METHODOLOGY

LOCATION		• Viewpoint location
DISTANCE		• Distance to Project site boundary
RECEPTORS		• Description of viewers
NO. OF VIEWERS		• Number of viewers
EXISTING VIEW		• Description of current view
EXPECTED VISUAL IMPACT		
		• Description of expected view

Receptor Type	Private	
Viewpoint Number	2	
Sensitivity rating of receptor	MODERATE	• Assessment matrix table
Magnitude - Distance	MODERATE	
Magnitude - Quantum of view	MODERATE	
Magnitude - Period of View	MODERATE	
Magnitude Scale of change	HIGH	
Overall Magnitude rating	MODERATE	
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	MODERATE	• Overall visual impact rating

Table 3: Example of Assessment Format Before Mitigation Measures.

2.9 PHOTOMONTAGES

Virtual Ideas have produced a spatially accurate photomontage in line with the NSW Land and Environment Court guidelines. A report methodology to the production of this image can be found in Section 10.0 - Appendix.

3.0 Planning Context



3.0 PLANNING CONTEXT

Outlined below is the planning context in relation to views and visual impact.

3.1 THE LAND & ENVIRONMENT COURT PLANNING PRINCIPLES

The Land and Environment Court of New South Wales was established in 1980 by the *Land and Environment Court Act 1979*. Relevant principles have been developed in visual assessment case judgments to guide future decision-making in development appeals. These include separate but related principles for private and public domain views.

The principles set out a process for assessing the acceptability of impact. The two most relevant cases to this site are:

- Private views - *Tenacity Consulting v Warringah Council* (2004)
- Public domain views - *Rose Bay Marina Pty Limited v Woollahra Municipal Council* (2013)

Planning Principle for Private views - *Tenacity Consulting v Warringah Council* (2004)

The key points from this principle include:

Assessment of views to be affected

- Water views are valued more highly than land views.
- Iconic views (eg of the Opera House, the Harbour Bridge or North Head) are valued more highly than views without icons.
- Whole views are valued more highly than partial views, e.g. a water view in which the interface between land and water is visible is more valuable than one in which it is obscured.

What part of the property the views are obtained

- The protection of views across side boundaries is more difficult than the protection of views from front and rear boundaries.
- Sitting views are more difficult to protect than standing views.

Extent of the impact

- The impact on views from living areas is more significant than from bedrooms or service areas.
- It is usually more useful to assess the view loss qualitatively as negligible, minor, moderate, severe or devastating.

Reasonableness of the proposal

- With a complying proposal, the question should be asked whether a more skilful design could provide the applicant with the same development potential and amenity and reduce the impact on the views of neighbours. If the answer to that question is no, then the view impact of a complying development would probably be considered acceptable and the view sharing reasonable.

3.0 PLANNING CONTEXT

Planning Principle for Public domain views - Rose Bay Marina Pty Limited v Woollahra Municipal Council (2013)

The assessment process from this principle includes:

Identification Stage

Identify the nature and scope of the existing views from the public domain:

- the nature and extent of any existing obstruction of the view
- relevant compositional elements of the view
- what might not be in the view - such as the absence of human structures in the outlook across a natural area
- is the change permanent or temporary.

This is followed by identifying the locations in the public domain from which the potentially interrupted view is enjoyed and the extent of obstruction at each relevant location. The intensity of use of this locations is also to be recorded. Finally, the existence of any documents that identifies the importance of the view - ie. international, national, state or local heritage recognition is ascertained.

Analysis of impacts

- The analysis required of a particular development proposal's public domain view impact is both quantitative as well as qualitative.
- A quantitative evaluation of a view requires an assessment of the extent of the present view, the compositional elements within it and the extent to which the view will be obstructed by or have new elements inserted into it by the proposed development.
- In the absence of any planning document objective/aim, the fundamental quantitative question is whether the view that will remain after the development (if permitted) is still sufficient to understand and appreciate the nature of and attractive or significant elements within the presently unobstructed or partially obstructed view. If the view remaining (if the development were to be approved) will be sufficient to understand and appreciate the nature of the existing view, the fundamental quantitative question is likely to be satisfied.
- The outcome of a qualitative assessment will necessarily be subjective. However, although beauty is inevitably in the eye of the beholder, the framework for how an assessment is undertaken must be clearly articulated. Any qualitative assessment must set out the factors taken into account and the weight attached to them. Whilst minds may differ on outcomes of such an assessment, there should not be issues arising concerning the rigour of the process.
- As with Tenacity, a high value is to be placed on what may be regarded as iconic views (major landmarks or physical features such as land/water interfaces).

Other factors to be considered in undertaking a qualitative assessment of a public domain view impact include:

- Is any significance attached to the view likely to be altered?
- If so, who or what organisation has attributed that significance and why have they done so?
- Is the present view regarded as desirable and would the change make it less so (and why)?

3.0 PLANNING CONTEXT

- Should any change to whether the view is a static or dynamic one be regarded as positive or negative and why?
- If the present view attracts the public to specific locations, why and how will that attraction be impacted?
- Is any present obstruction of the view so extensive as to render preservation of the existing view merely tokenistic?
- However, on the other hand, if the present obstruction of the view is extensive, does that which remains nonetheless warrant preservation (it may retain all or part of an iconic feature, for example)?
- If the change to the view is its alteration by the insertion of some new element(s), how does that alter the nature of the present view?

The principles established by the Court from both cases have been integrated into the approach adopted for this evaluation.

4.0 Landscape Character and Visual Environment



4.0 LANDSCAPE CHARACTER AND VISUAL ENVIRONMENT

Landscape character is a combination of distinctive qualities of a certain area including readily identifiable elements such as landform, vegetation cover, built-form and architecture, as well as history, seasonal changes, human culture, urban grain, wildlife and land use. Together these elements produce a distinctive character that influences how the landscape is perceived and valued by the community.

4.1 WIDER SURROUNDING LANDSCAPE

North Rocks is located in the Hills District and is approximately 26 kilometres north-west of the Sydney CBD with a population of 7,965 residents (2016 census). The majority of North Rocks is located in the City of Parramatta council area.

North Rocks is identified as a local centre by the Greater Sydney Commission's metropolitan strategies. The Central City District Plan identifies local centres as 'great places' and community hubs characterised by cultural diversity, shopping and eating facilities, and a high level of accessibility.

4.2 RESIDENTIAL HOUSING

The surrounding housing land is zoned R2 Low Density and is characterised by quiet streets with a mixture of single and double storey dwellings constructed of varying materials and styles (Figure 4.1).

4.3 RECREATIONAL LAND

Directly east of the site is Muirfield Golf Course (zoned RE2 Private Recreation) which provides a significant open space recreation area for its members (Figure 4.2). In close proximity to the site is Bidjigal Reserve, a publicly accessible nature reserve. The reserve consists of eucalypt forest, sandstone cliffs, creeks and rainforest gullies. A number of bushwalking tracks are located throughout the reserve providing an important recreational opportunity for both residents in the immediate area as well as bush walkers from the wider Sydney area.

4.4 COMMERCIAL AND INDUSTRIAL LAND USE

North Rocks Shopping Centre is located 1.2km east of the site on North Rocks Road and consists of standard shopping centre stores such as supermarkets, discount stores, a gym and over 70 speciality stores. To the south of the site is a light industrial area (Figure 4.3) which includes various industrial estates.

4.5 M2 MOTORWAY

The M2 Motorway runs along the northern boundary of the site and forms a significant feature of the surrounding area (Figure 4.4). Two bus stops are located on the motorway north of the site, and pedestrian access is provided to these stops from the Barclay Road Bridge. To the north-east of the Proposal site is the Barclay Road Commuter Car Park which helps service these bus stops.

4.0 LANDSCAPE CHARACTER AND VISUAL ENVIRONMENT

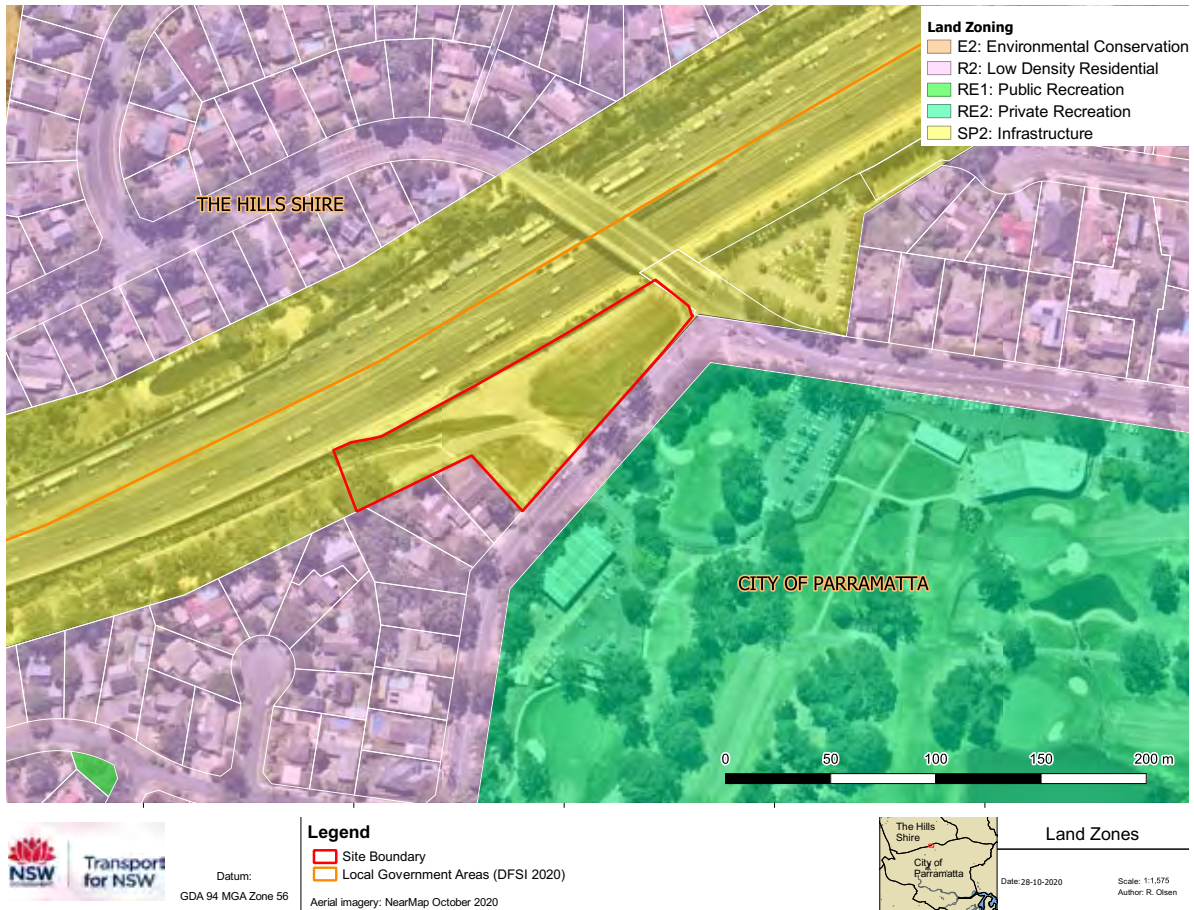


Figure 4.0: Surrounding Land Zones.



Figure 4.1: Low Density Residential Housing (William Road, south of the Proposal site).

4.0 LANDSCAPE CHARACTER AND VISUAL ENVIRONMENT



Figure 4.2: Muirfield Golf Course.



Figure 4.3: Light Industrial to the south around Loyalty Road.



Figure 4.4: Motorway Infrastructure.

5.0 Visual Catchment Analysis and Viewpoint Selection



5.0 VISUAL CATCHMENT ANALYSIS AND VIEWPOINT SELECTION

EXISTING VISUAL CATCHMENT

This desktop topography study is sourced from Google Earth and is limited to an estimated viewshed based on topography only, without taking into account vegetation or building heights. This analysis has been used as a guide only, while significant ground studies have been conducted in and around the site to ascertain the key locations from which the proposal would potentially be visible.

BASIS OF SELECTION

The selection of views for detailed evaluation later in this report has been based on the following sources:

- Visual assessment policy guidance in particular the NSW Land and Environment Court Planning Principles;
- Background documents;
- Desktop mapping;
- In field evaluation undertaken for this report.



Figure 5.0 - Surrounding viewshed. ■ Potential viewshed based on topography only. Proposal site.



5.0 VISUAL CATCHMENT ANALYSIS AND VIEWPOINT SELECTION

Based on the foregoing selection criteria this section maps 12 views of the site from a variety of close and more distant viewpoints.



Figure 5.1 - Viewpoint Locations.

A photograph of a utility site. In the foreground, a paved road with white double lines runs horizontally. A concrete curb separates the road from a sidewalk. Behind the sidewalk is a chain-link fence. Inside the fence, there is a large green transformer box. To the right of the transformer, a tall, thin tree with peeling bark stands next to a utility pole. Several power lines are strung across the scene. In the background, a grassy hill rises, topped with a line of trees. The sky is overcast and grey.

PART B

visual impact assessment



6.0 The Site



6.0 THE SITE

6.1 SITE CHARACTERISTICS

The Proposal site is located at 102-106 Barclay Road, North Rocks and is approximately 6,100 square metres in size. The site appears to have originally been vegetated bushland until around 2015 when it was progressively converted into a works depot for the NorthConnex project. The site is currently vacant and zoned SP2 Infrastructure.

The most noticeable element of the site is the large grassed mound located in the north-eastern section of the site. The only noticeable significant vegetation on site consists of 3 eucalyptus trees on the edge of the grass mound that run parallel to Perry Street, as well as some vegetation in the south-western corner of the site.

A noise wall running along the northern edge of the site is the most noticeable built-form element of the site.



Figure 6.1 - Proposal Site. (October 2020).

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

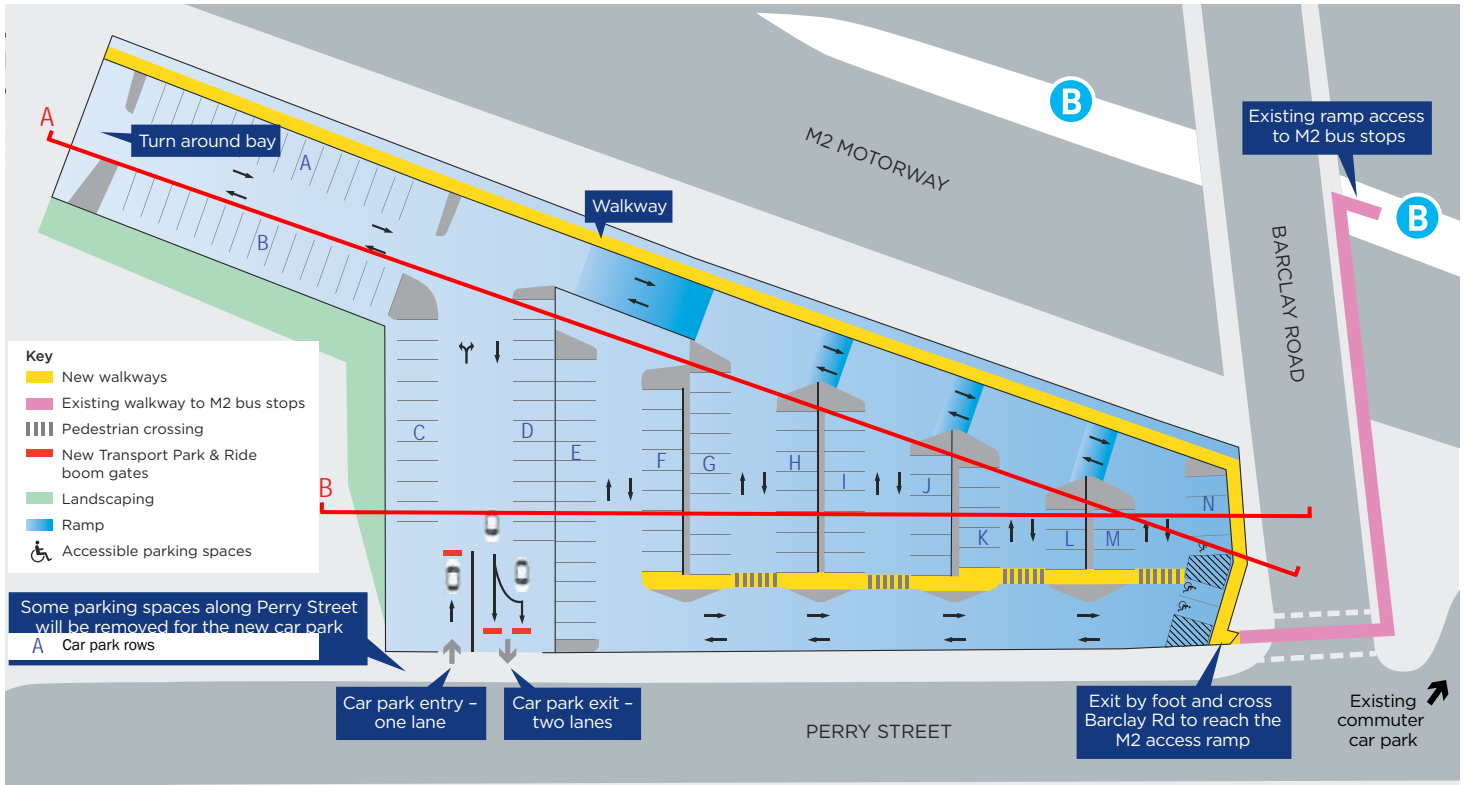


Figure 7.0: Concept Design (subject to planning approval and detailed design).

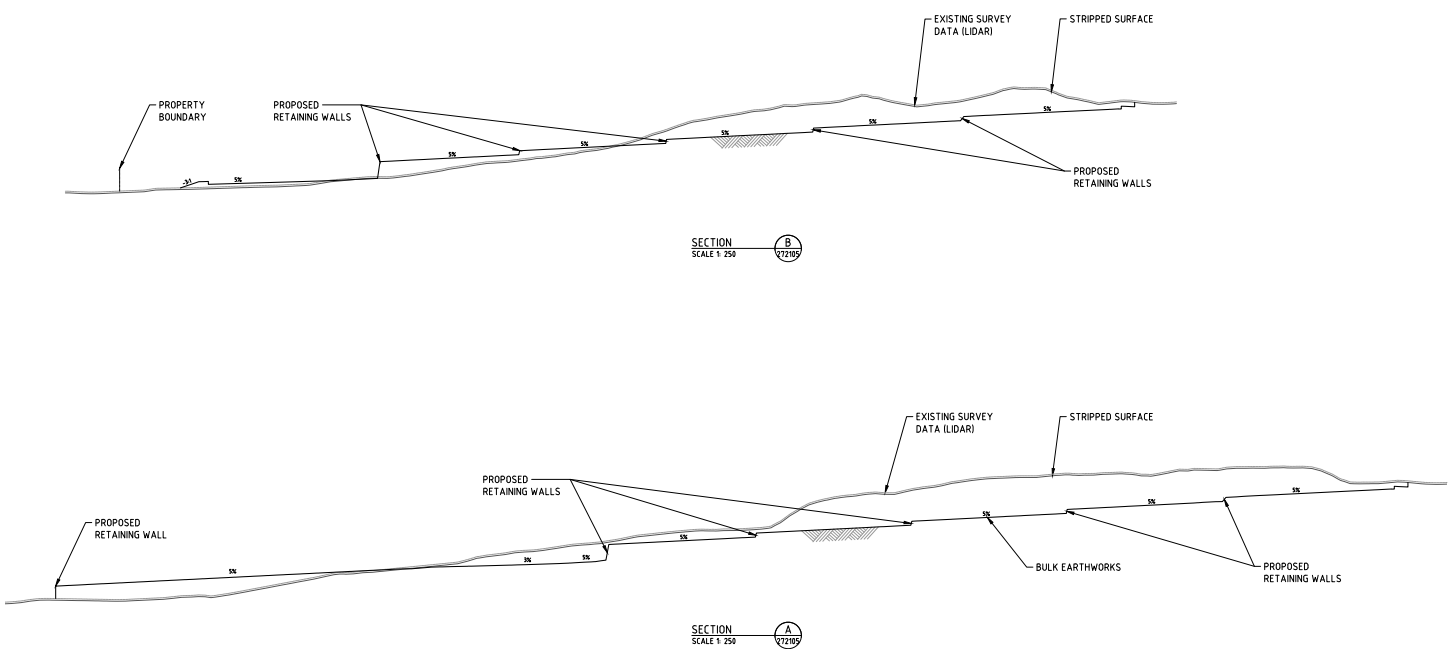


Figure 7.1: Existing & Proposed Sections (subject to detailed design).

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

7.1 PROJECT SUMMARY

The Proposal involves the construction of an at-grade car park in North Rocks, Sydney, as part of the Commuter Car Park Program which would provide customers with more convenient access to public transport at the M2 Barclay Road Bus Interchange and help ease congestion on the roads.

The Proposal would include the following key features:

- enabling works including cut and fill bulk earthworks and site clearance of existing landscaping and perimeter trees
- provision of an at-grade car park, comprising:
 - around 135 car parking spaces
 - 3 accessible parking spaces, either within the existing Barclay Road Commuter Car Park or within the new commuter car park
 - wayfinding signage for pedestrian and vehicular circulation
 - new line-marking
 - retaining walls between car parking terraces
 - Transport Park&Ride infrastructure
- Landscaping works, including:
 - retaining wall along Perry Street
 - soft landscaping
 - pedestrian footpaths and lighting within the Proposal
- ancillary works including site investigations, stormwater drainage and on-site detention tank, services relocation and/or adjustments, installation of boom gates and handrails
- new infrastructure including CCTV cameras, subject to requirements resulting from the detailed design security risk workshop
- new driveway crossing and layback for vehicular entry and exit on Perry Street
- temporary site compounds for storage of equipment and materials, as well as site offices and amenities.

Subject to approval, construction is expected to commence in mid-2021 and take around 12 months to complete.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Photomontage of Proposal (corresponds to Viewpoint 2).



7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Driveway of 7 Perry Street
DISTANCE	65m
RECEPTORS	Pedestrians & Road Users
NO. OF VIEWERS	Low
EXISTING VIEW	A number of trees of varying species and heights forms a dominant element within the visual scene. A near continuous band of canopy obscures the majority of the site, with only a small portion of gravel visible to the left of the view as well as a highly framed view of a fraction of the grassed mound. Residential dwellings of number 1 and 3 Perry Street that border the southern boundary of the site are visible to the left of the view, with a pedestrian pathway running parallel to this. Perry Street can be seen to the right of the view with a number of parked cars visible.

EXPECTED VISUAL IMPACT

Much of the Proposal will remain obscured as a result of existing vegetation outside of the site boundary. To the left of the view where gravel can currently be seen it is anticipated that the proposed landscaping on the 3 in 1 batter along the boundary of 1 Perry Street will obstruct views into the site and increase the level of perceived vegetation significantly which will contribute positively to the visual scene.

The most noticeable change will be the removal of the grassed mound that is visible to the right of the view. This will result in a small, highly framed view to Barclay Road in the distance, with only a fraction of the northern portion of the Proposal visible. Proposed landscaping islands in this area will add an additional amount of vegetation to the view, however given the distance the perception of this would be limited.

Receptor Type	Public
Viewpoint Number	1
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	LOW
Magnitude - Period of View	LOW
Magnitude Scale of change	LOW
Overall Magnitude rating	LOW
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	LOW



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Opposite 1 Perry Street
DISTANCE	25m
RECEPTORS	Road Users
NO. OF VIEWERS	Low
EXISTING VIEW	The foreground of the view is comprised of Perry Street, which recedes into the distance to connect with Barclay Road. Chain wire fencing can be seen running parallel to the street. The significant grassed mound can be seen beyond this, as can the line of eucalyptus trees on site. The grassed mound obstructs long distance views to the Barclay Road bridge over the M2 motorway. Two small trees to the centre and centre-left (outside of the site) obstruct the central area of the site. To the left of these trees can be seen a small portion of the gravel road on site as well as the noise wall that runs along the site boundary parallel to the M2 motorway.

EXPECTED VISUAL IMPACT

The most noticeable change to the visual scene will be the removal of the grassed mound to the right of the view. This will result in views of the proposed parking bays and vegetated islands throughout the site, as well as more long distant views towards Barclay Road becoming possible. The level of existing vegetation to the right of the view will decrease as a result of the removal of the existing mature eucalyptus trees on site that run parallel to Perry Street.

Proposed landscaping and screening trees to the 3 in 1 batter that runs parallel to 1 Perry Street will add a noticeable new level of vegetation to the visual scene, and will highly filter views into the site to the left of the small existing trees outside of the site.

Receptor Type	Public
Viewpoint Number	2
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	MODERATE
Magnitude - Period of View	LOW
Magnitude Scale of change	MODERATE
Overall Magnitude rating	MODERATE
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	MODERATE/LOW



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Southern Site Boundary Corner (outside 1 Perry Street)
DISTANCE	5m
RECEPTORS	Pedestrians
NO. OF VIEWERS	Low
EXISTING VIEW	The north-western noise wall bordering the site is clearly visible from this location and obscures views over the M2 motorway to private dwellings on the northern side of the motorway, however a band of mature tree canopy is visible over the wall. Gravel roads are visible amongst grassed landform, the most noticeable of which is the significant grassed mound to the right of the view.

EXPECTED VISUAL IMPACT	
As a result of the proposed landscaping on the 3 in 1 which will be in the foreground of the view, the level of planting in the area will be significantly increased. The mix of low level planting as well as proposed screening trees will filter views into the site, however elements of the site will remain visible as a result of the viewpoint proximity. A noticeable change to the ground level will occur, particularly as a result of the levelling of the grassed mound to the right of the view.	
Filtered views of the entrance/exit area and boom gates will be possible from this location, as will the parking bays in rows C and D. The proposed retaining wall will be visible running parallel to row D with views of the upper levels of the Proposal slightly visible to the very right of the view.	

Receptor Type	Public
Viewpoint Number	3
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	HIGH
Magnitude - Period of View	LOW
Magnitude Scale of change	HIGH
Overall Magnitude rating	HIGH
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	MODERATE



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Driveway of Muirfield Golf Club
DISTANCE	15m
RECEPTORS	Golf Course Users
NO. OF VIEWERS	Moderate
EXISTING VIEW	A clear view into the site looking north-west is possible from this location. In the foreground can be seen Perry Street with the driveway entrance into the site visible. Chain wire fencing topped with barbed wire is also visible from this location. A gravel road can be seen beyond the fencing, with grassed areas to the left and right of the view. In the distance can be seen the noise wall which obstructs views of the M2 motorway and private dwellings beyond, however the tops of the canopies of mature vegetation to the north of the motorway are visible over the wall.

EXPECTED VISUAL IMPACT	
A clear view of the entrance/exit and boom gates will be possible from this location. Views of parking rows C and D will be visible receding towards the noise wall, as will the proposed retaining wall running parallel to row D. . Asphalt will become a highly noticeable element of the visual scene and will replace the grassed and gravel elements of the current view. A further highly visible change will result in the levelling of mound to the right of the view.	

Receptor Type	Public
Viewpoint Number	4
Sensitivity rating of receptor	MODERATE
Magnitude - Distance	HIGH
Magnitude - Quantum of view	HIGH
Magnitude - Period of View	LOW
Magnitude Scale of change	HIGH
Overall Magnitude rating	HIGH
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	HIGH/MODERATE



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Pedestrian Crossing cnr. of Barclay Road & Perry Street
DISTANCE	18m
RECEPTORS	Pedestrians & Road Users
NO. OF VIEWERS	Moderate
EXISTING VIEW	Perry Street is clearly visible in the foreground before receding into the distance and rounding the corner to the left of the view, with a number of parked cars located on either side of the street. To the right of the view the most noticeable element is the grassed mound located on site, as well as 3 eucalyptus trees running parallel to the site boundary. Beyond the mound on the right hand side of the view can be seen a number of private dwellings that border the site and are surrounded by a significant level of mature vegetation.

EXPECTED VISUAL IMPACT	
As a result of the Proposal the grassed mound to the right of the view will be removed, which will open up views towards the western edge of the Proposal and beyond. Views over the asphalt parking bays (and parked cars) will become visible.	
A more substantial planting addition will occur on the 3 in 1 batter proposed (located on the boundary of 1 Perry Street). This is anticipated to highly filter views of the residential dwellings currently visible, as well as increasing the green band that is created in that area as a result of existing mature vegetation.	

Receptor Type	Public
Viewpoint Number	5
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	MODERATE
Magnitude - Period of View	LOW
Magnitude Scale of change	MODERATE
Overall Magnitude rating	MODERATE
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	MODERATE/LOW



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Entrance/Exit to Barclay Road Commuter Car Park
DISTANCE	19m
RECEPTORS	Pedestrians & Car Park Users
NO. OF VIEWERS	Moderate
EXISTING VIEW	The foreground of the view consists of Barclay Road and the pedestrian crossing linking the Barclay Road Commuter Car Park and the Perry Street on the opposite side. Site fencing can be seen running parallel to the pedestrian footpath along Barclay Road and receding into the distance along Perry Street. The crest of the grassed mound can be seen beyond this fencing and obscures views of the rest of the site (apart from the line of eucalyptus trees running along Perry Street). The canopies of existing mature vegetation outside of the site boundary is visible beyond the crest of the mound, as is a small amount of roofing of private dwellings located south-west of the site.

EXPECTED VISUAL IMPACT

The removal of the grassed mound and eucalyptus trees will be the most noticeable change to the visual scene from this location. The removal of the mound will allow for more long distance views south-west to the mature vegetation. Parking rows M and N (and the parked cars in these rows) will be the most noticeable rows, with elements of the other proposed rows becoming less visible as a result of the change in levels and distance. Although the removal of the grassed mound and the change in elevation would have most likely resulted in increased views of number 1 and 3 Perry Street, the proposed landscaping on the 3 in 1 batter will highly filter views of these properties.

Receptor Type	Public
Viewpoint Number	6
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	LOW
Magnitude - Period of View	LOW
Magnitude Scale of change	MODERATE
Overall Magnitude rating	MODERATE
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	MODERATE/LOW



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

LOCATION	Pedestrian Entrance/Exit to Motorway Bus Stop
DISTANCE	34m
RECEPTORS	Pedestrians & Road Users
NO. OF VIEWERS	Moderate
EXISTING VIEW	Elements of Barclay Road comprise the majority of the visual scene. In the immediate foreground can be seen low level fencing at the entrance/exit to the pedestrian footbridge leading to the bus stops located on the M2 motorway. On the opposite side of the road can be seen the pedestrian footpath as well as the significant wire safety screens running parallel to this over the motorway. In the more distant view through the screening can be seen the northern segment of the noise wall running parallel to the motorway. A small fraction of the grassed mound on site can be seen beyond this, with chain wire fencing visible around it. Beyond this can be seen the mature vegetation located on Muirfield Golf Course.

EXPECTED VISUAL IMPACT	
Views of the site will be limited from this location, with the most noticeable change being the removal of the grassed mound which is visible. This will change the levels in the area and allow for a slight increase in views towards the golf course. When the car park is operational it is anticipated that a small number of parked vehicles in rows M and N will be visible, however the majority of the site will not be visible.	

Receptor Type	Public
Viewpoint Number	7
Sensitivity rating of receptor	LOW
Magnitude - Distance	HIGH
Magnitude - Quantum of view	LOW
Magnitude - Period of View	LOW
Magnitude Scale of change	LOW
Overall Magnitude rating	LOW
Overall VISUAL IMPACT RATING (combination of sensitivity and magnitude ratings)	LOW



Viewpoint Location.

7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS



Existing View.



7.0 THE PROPOSAL & VISUAL IMPACT ANALYSIS

VIEWPOINT LOCATIONS	RECEPTOR SENSITIVITY	MAGNITUDE					IMPACT RATING
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	OVERALL MAGNITUDE RATING	
1. Driveway of 7 Perry Street	L	H	L	L	L	L	LOW
2. Opposite 1 Perry Street	L	H	M	L	M	M	MODERATE/LOW
3. Southern Site Boundary Corner (outside 1 Perry Street)	L	H	H	L	H	H	MODERATE
4. Driveway of Muirfield Golf Club	M	H	H	L	H	H	HIGH/MODERATE
5. Pedestrian Crossing cnr. of Barclay Road & Perry Street	L	H	M	L	M	M	MODERATE/LOW
6. Entrance/Exit to Barclay Road Commuter Car Park	L	H	L	L	M	M	MODERATE/LOW
7. Pedestrian Entrance/Exit to Motorway Bus Stop	L	H	L	L	L	L	LOW

Table 7.0: Summary of visual impacts of the Project across the study area.

7.1 VISUAL IMPACT SUMMARY

The visual impacts of the Proposal on the studied viewpoints range from Low to High/Moderate.

- Two viewpoints received an impact rating of Low
- Three viewpoints received an impact rating of Moderate/Low
- One viewpoint received an impact rating of Moderate
- One viewpoint received an impact rating of High/Moderate

8.0 Mitigation recommendations



8.0 MITIGATION RECOMMENDATIONS

8.1 APPROACHES TO MITIGATION

There are typically five broad approaches to mitigating the visual impacts of any change to a scene that entails built form development. These are through:

- Avoidance – where the visual impact of the proposal is deemed of a scale that cannot be mitigated by any of the approaches outlined below, this approach implies relocating the proposal elsewhere on the site with lesser visual impacts or not proceeding with the proposal on the site at all
- Reduction – typically this approach seeks to mitigate impacts through the reduction of some part of the proposed structure or development (ie. reduced height or omission of parts of the built structure/s)
- Alleviation – this approach entails design refinements to the proposal to mitigate visual impacts. These refinements might typically include built form articulation, choice of material and colours and/or planting design
- Off-site Compensation – where none of the above approaches will provide adequate visual impact mitigation for off site visual receptors, this approach entails off site works on the land from which the viewpoint is experienced (eg screening close to the viewpoint), usually carried out with the agreement of the affected landowner.
- Management – in this approach the mitigation response typically entails an operational or management action such as construction management.

Set out below are the relevant responses to these approaches with respect to the Proposal.

8.2 MITIGATION RESPONSES

Avoidance

Given the nature of the Proposal (providing additional commuter car parks in proximity to public transport facilities) 'Avoidance' is not considered an option. Providing commuter car parks at too greater a distance from public transport facilities would most likely result in under utilisation as a result of people not wanting to walk large distances.

Reduction

The Proposal sits within the works depot/construction yard that was created in 2015. As a result, no structures and only two small areas of vegetation are on site which would need clearing. Utilising the extent of the existing compound to provide as many parking spaces as possible is desirable and reducing the size of the Proposal is not considered a necessary form of mitigation.

Alleviation

Alleviation is considered the most appropriate form of mitigation for the Proposal in the form of developed planting design. This will help to screen or highly filter views of the Proposal to the neighbouring houses (particularly 1 & 3 Perry Street).



8.0 MITIGATION RECOMMENDATIONS

Off-site compensation

Off-site compensation for the removal of trees on site may be necessary. Whether the loss of trees can be compensated for on site would be determined during the detailed design phase. If the replacement of the lost trees cannot be accommodated within the site footprint TfNSW should work with Council to identify alternative locations for off-site compensation.

Management

An appropriate Construction Environmental Management Plan (CEMP) should be prepared for the construction phase of the Proposal by the responsible construction contractor which outlines management measures for environmental impacts including impacts on sensitive receivers.

8.3 CONSTRUCTION IMPACTS

The Proposal would involve a construction phase with associated additional temporary visual impacts. The following activities are likely to occur:

- clearing of vegetation
- setting up of site compounds
- stockpiling
- site fencing
- increased site traffic including heavy vehicles

During the construction period, many viewpoints studied within this report are likely to have increased visual impacts. Views of site compounds, storage areas and increased site traffic (including trucks) would lead to a reduction in visual amenity.

Impacts would reduce as viewing distance and screening vegetation increase. Furthermore these visual impacts would be of a temporary nature and would reduce for all viewpoints once the Proposal is complete and the construction areas made good.

9.0 Conclusion



9.0 CONCLUSION

9.1 FINDINGS

A comprehensive visual impact assessment of the Proposal on the surrounding area has been conducted.

The study has identified and evaluated the existing visual environment, key views and view types before progressing to an assessment of quantitative and qualitative criteria using best practice methodology. A number of mitigation measures have also been proposed and explored for appropriateness to reduce the visual impacts of the Proposal to the surrounding area.

9.2 SUMMARY OF FINDINGS

Overall, the following conclusions can be drawn on the Proposal's impacts to visual amenity within the study area:

- the visual catchment of the Proposal is highly limited, and is generally restricted to the immediate area surrounding the proposed AGCP;
- as a result of the limited visual catchment, 'Distance' produces a 'High' result for each viewpoint;
- on-site vegetation is very sparse (the small number of eucalyptus trees running parallel to Perry Street being the most noticeable, as well as the vegetation in the south-western corner of the site). The proposed landscaping would increase the level of vegetation and would have a contributory (positive) impact on the site;
- the period of view for all of the viewpoints is 'Low' as a result of people either driving past or walking;
- the most noticeable change overall to the site would be the removal of the grassed mound that occupies a large portion of the site. This is a grassed mound with only 4 eucalyptus trees on it and provides limited visual or ecological value. The removal of the mound would open up more long distance views from Barclay Road over the site to mature vegetation at the south-western edge of the site which could arguably have a more contributory effect for both pedestrians and motorists using Barclay Road.

9.3 CONCLUSIONS

This LCVIA employs a rigorous, best practice methodology to identify levels of visual impacts and potential mitigation measures, based on a professional evaluation.

Whilst it is acknowledged that the perceived visual impact of the Proposal would vary from viewer to viewer, the methodology used to evaluate visual impact in this instance is informed by internationally accredited approaches and the author's 20 years of experience in the field of visual impact.

This methodology takes into consideration the local context and references both international standards and local legislations, policy and Land and Environment Court principles.



9.0 CONCLUSION

Of the 7 viewpoints selected and analysed the findings are as follows:

- Two viewpoints have a **low** rating;
- Three viewpoints have a **moderate/low** viewpoint rating;
- One viewpoint has a **moderate** rating;
- One viewpoint has a **high/moderate** rating.

The visual catchment of the site is highly limited as a result of surrounding vegetation, topography and infrastructure.

The Proposal would result in a substantial change from the gravel and grassed landform of the site to one that has a large amount of asphalted area that would be occupied by a number of vehicles at any one time. This is mitigated to a certain degree as a result of the limited visual catchment as previously mentioned, as well as proposed landscaping.

Proposed landscaping to the 3 in 1 batter to the south-west of the site surrounding 1 and 3 Perry Street would have the most impact in filtering views of the Proposal from these private dwellings.

Although the removal of the grassed mound would result in greater views into the site from Barclay Road and Perry Street, the proposed landscaping would help to offset the increase in asphalt and vehicles that would become visible. As a result of pedestrians and motorists on both Barclay Road and Perry Street being transitory, and generally for very limited amounts of time, the sensitivity of these viewers is significantly lower than if the immediate catchment was dominated by private dwellings that would have extended periods of viewing the Proposal.

As a result of the majority of views falling into the moderate/low to low rating, combined with the highly limited visual catchment and proposed landscaping, it is the professional opinion of the authors of this assessment that the visual impacts of the Proposal are considered highly limited and do not constitute a reason for the Proposal not to proceed.

10.0 Appendix



An aerial photograph of a residential area, overlaid with a semi-transparent dark grey filter. The image shows a road with a median, a large green lawn, and a golf course with several sand traps. The text is centered over the road and lawn area.

NORTH ROCKS COMMUTER CARPARK PROGRAM (CCP)

Visual impact photomontage and methodology report

November 2020

VIRTUAL IDEAS

1. INTRODUCTION

This document was prepared by Virtual Ideas to demonstrate the visual impact of the proposed North Rocks Commuter Carpark Program (CCP) development with respect to the existing built form and existing site conditions.

2. VIRTUAL IDEAS EXPERTISE

Virtual Ideas is an architectural visualisation company that has over 15 years experience in preparing visual impact assessment content and reports on projects of major significance that meet the requirements for relevant local and state planning authorities.

Our reports have been submitted as evidence in proceedings in both the Land and Environment Court and the Supreme Court of NSW. Our director, Grant Kolln, has been an expert witness in the field of visual impact assessment in the Supreme Court of NSW.

Virtual Ideas' methodologies and outcomes have been inspected by various court appointed experts in relation to previous visual impact assessment submissions, and have always been found to be accurate and acceptable.

3. PHOTOMONTAGE METHODOLOGY

The following describes the process that we undertake to create the photomontage renderings that form the basis of this report.

3.1 DIGITAL 3D SCENE CREATION

The first step in our process is the creation of an accurate, real world scale digital 3D scene that is positioned at a common reference point using MGA 56 co-ordinates system.

We have used a variety of data from various sources to create the 3D scene including a building 3D model, a 2D site plan drawing, and a site survey. A detailed description of the various data sources used in this report can be found in Appendix A.

All data has been imported into the 3D scene at real world scale and positioned to a common reference point. This common reference point is established by using the MGA-56 co-ordinates system. When we receive data sources that are not positioned to MGA-56 co-ordinates we use common points in the data sources that can be aligned to points in other data sources that are positioned at MGA-56. This can be data such as site boundaries and building outlines. Descriptions of how we have aligned each data source can also be found in Appendix A.

3.2 SITE PHOTOGRAPHY

We captured site photography from locations that were directed by Clouston Associates.

Camera lenses for each photograph have been selected taking a variety of factors into consideration including the distance from the site, the size of the proposed development with respect to existing built form and landscape and any specific planning authority requirements.

In some cases a specific lens requirement set by planning authorities may not produce a photomontage that is effective for visual impact assessment. In the cases where we are required to satisfy a specific lens stipulation and we consider that this is not effective for assessment of visual impact, we will outline the extent of the longer lens on the photomontage.

Full metadata of the photographs was recorded during the site photography. The critical data we extracted was date, time and lens width or field of view.

3.3 SITE AND PHOTOGRAPHY LOCATION SURVEY

To correctly adjust the digital cameras in our 3D scenes to match the positions of the site photography, we engaged a registered surveyor (CMS Surveyors) to survey all camera locations and reference this survey to MGA 56 co-ordinates.

In addition to the camera locations we also instructed the surveyor to survey select features that are visible in the photographs from each individual location.

This survey data can be found in Appendix B.

3.4 ALIGNMENT OF 3D SCENE TO PHOTOGRAPHY

To align the 3D scene to the photograph, we first imported the site and photography location survey data into the 3D scene.

We then loaded the photograph into the background of the corresponding 3D scene camera view, ensuring that the aspect ratio and lens setting match.

The 3D scene camera was moved to the surveyed position and rotated so that the surveyed feature locations match the same features in the photograph.

After completing this process we observed that while the CMS survey data aligned to the photograph, the building model did not align correctly. To rectify this we adjusted the building model by moving it to align with the CMS survey data. We then observed that the building aligned to the existing structure and have assumed that there was a slight error in the position of the supplied site drawing which the building model was aligned to.

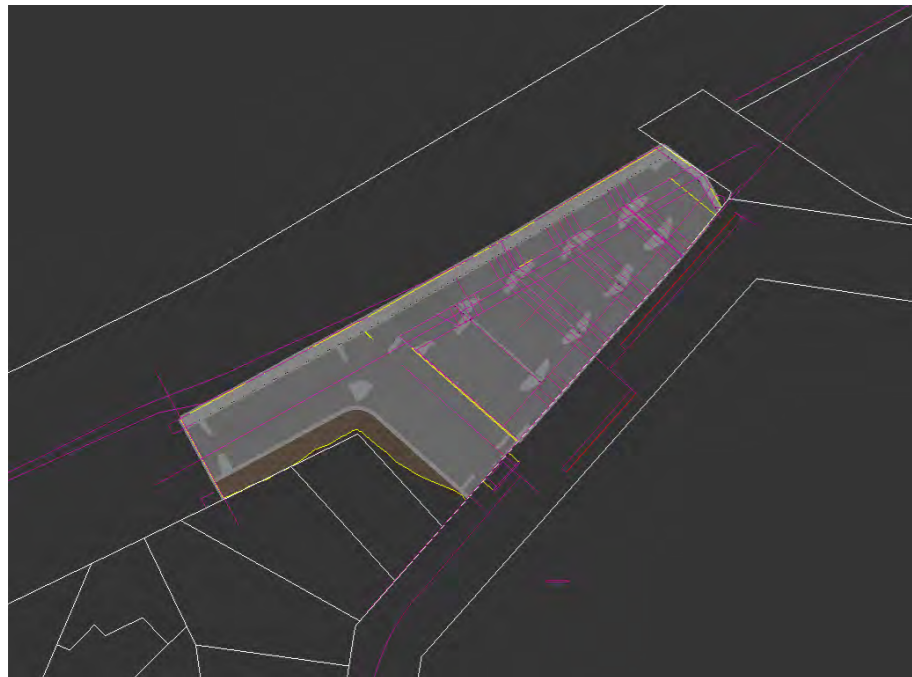


Image showing building model aligned to CMS survey

3.5 RENDERING AND PHOTOMONTAGE CREATION

After the camera alignment we add materials and lighting to the 3D scene.

For 3 of the photomontages we were requested to apply a basic white material to the proposed addition, and for the 4th photomontage we were requested to apply realistic materials.

A digital sunlight system was added in the 3D scene to match the lighting direction of the sun in the photograph. This was done using the software sunlight system that matches the angle using location data and time and date information. This data was extracted from the metadata of the site photographs.

Images were then rendered from the software and layered over the photograph. Additional linework was added to show where built form occurs behind existing built form and landscape.

4. MAP OF PHOTOGRAPHY LOCATIONS



5.1 CAMERA POSITION 2

ORIGINAL PHOTOGRAPH



PHOTOMONTAGE INCLUDING ADDITIONAL CARPARK LEVELS



ORIGINAL PHOTOGRAPH INCLUDING SURVEYED ALIGNMENT DATA



PHOTOGRAPH DETAILS

Photo Date:	27th October 2020
Camera Used:	Canon EOS 5DS R
Camera Lens:	EF16-35mm f/4L IS USM
Focal length in 35mm Film:	35mm
Rational for lens selection:	The 35mm lens was selected to show sufficient surrounding landscape context.

5.1 CAMERA POSITION 2

ORIGINAL PHOTOGRAPH WITH 50mm LENS OVERLAY INDICATED



50mm lens frame

5.1 CAMERA POSITION 2

PHOTOMONTAGE WITH 50mm LENS OVERLAY INDICATED



50mm lens frame

5.1 CAMERA POSITION 2

ORIGINAL PHOTOGRAPH WITH SURVEYED ALIGNMENT POINTS



APPENDIX A: 3D SCENE DATA SOURCES

A.1 - 3D Model of the carpark showing the additional levels

File Name: MTMS0TA-FURL-NRC-GN-M3D-279001.rvt
Author: Future Rail
Format: Revit
Scene Alignment: Aligned to site plan CAD drawing (A.2) in scene at MGA 56
Additional info: Virtual Ideas added a balustrade model to the supplied model to match the existing.


A.3 - Survey of camera location and alignment positions - refer to Appendix B for details

File Name: 19778 photolocation 1.dwg
Author: CMS Surveyors
Format: Autocad DWG
Alignment: Supplied referenced to MGA 56


A.2 - Cad drawings of the site and surrounding context

File Name: MTMS0TA-FURL-NRC-CV-M3D-279101.dwg
Author: Transport for NSW
Format: Autocad DWG
Alignment: Supplied referenced to MGA 56

APPENDIX B: CMS SURVEY OF CAMERA LOCATIONS AND ALIGNMENT POSITIONS



CMS Surveyors Pty Limited
A.B.N. 79 096 240 201
LAND SURVEYING, PLANNING & DEVELOPMENT CONSULTANTS



CMS
SURVEYORS

Page 1 of 1

Date: 30-10-2020
Our Ref: 19778 Photo Locations

Studio 71/61 Marlborough Street
Surry Hills
NSW 2010

Virtual Ideas
Reena Dhupar

As requested, we have attended site and measured the Co-ordinates and Elevation of the photo locations for North Rocks car park.

Co-ordinate's are MGA 56 (GDA 94) and elevation to Australian Height datum (AHD).

Measurements were taken using theodolite measurement and SCIMS coordinates.


DWG of locations has also been supplied.

Point Number	Easting	Northing	Reduced Level (RL)	Photo Point
2	316074.495	6262020.871	Ground level 90.06	PHOTO 2
50	316121.695	6262091.559	101.98	Power pole
51	316102.060	6262074.942	92.91	Top of sign
52	316083.710	6262046.959	97.91	Power pole
53	316082.084	6262048.301	97.91	Power pole
54	316072.172	6262040.417	90.39	Top of wall

Note: Camera height should be added to the supplied RL of each corresponding photo location.

Yours faithfully,
CMS Surveyors Pty Limited


Damon Roach



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MBS GREEN & ASSOCIATES
(Mona Vale)

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VIRTUAL IDEAS

North Rocks Car Park VIA_Survey Brief

View 02
Points to survey
1 x corner of brick letterbox
2 x corners of beam of cable pole
1 x top of sign
1 x top of cable pole

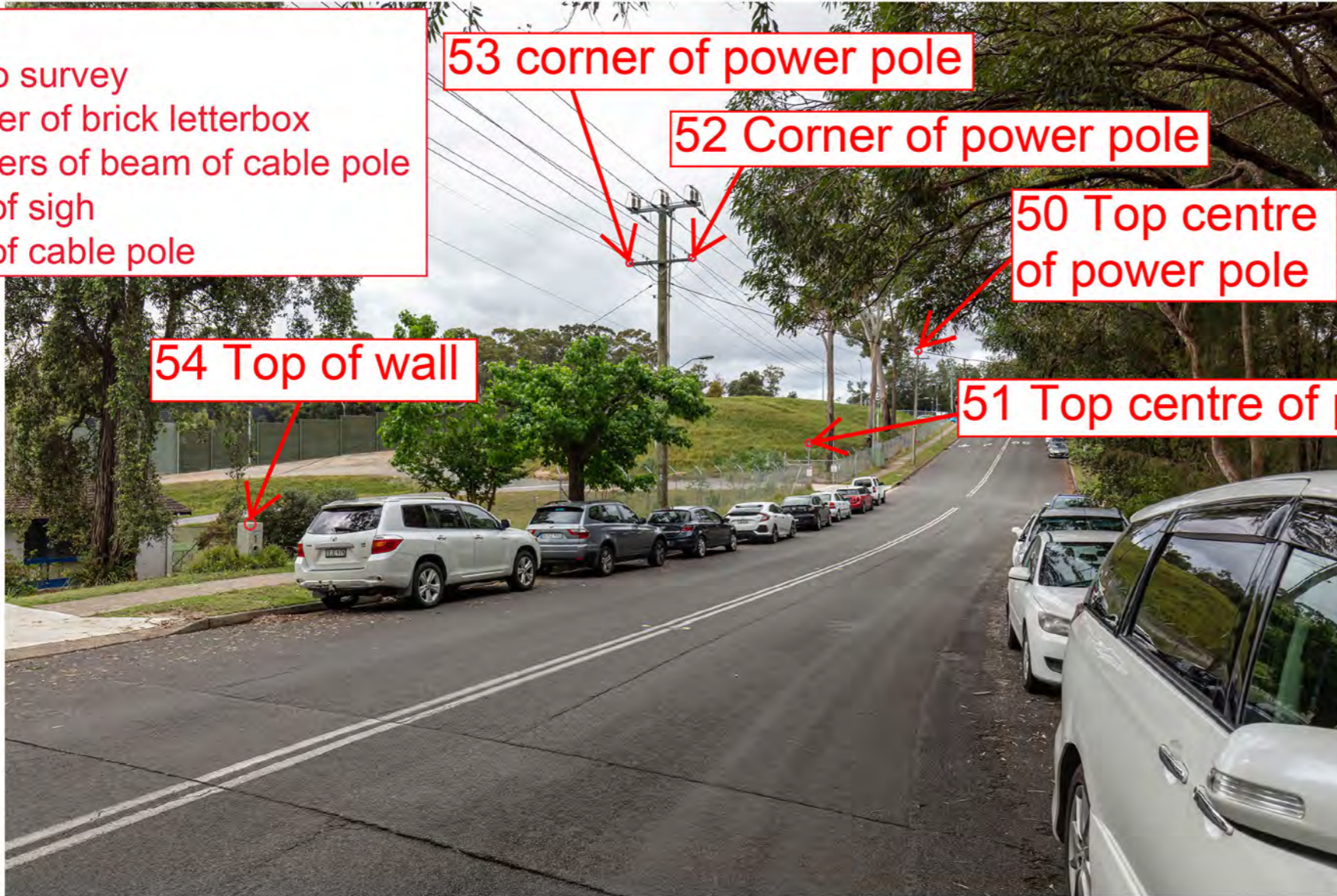
53 corner of power pole

52 Corner of power pole

50 Top centre of power pole

54 Top of wall

51 Top centre of post



View 02_24mm_02