

VISUAL IMPACT MANAGEMENT PLAN

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Prepared for



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1.0 INTRODUCTION

1.1 Project Background

The Badgerys Creek Quarry and Brickmaking facility is circa 200ha and was run and operated by Boral which had been making bricks since the 1970s. Boral mothballed the site in 2012 and CSR purchased the site in 2016, CSR then lodged a modification to the current project approval in 2019 known as Modification 3 & 4. This was approved by the Department of Planning, Infrastructure and Environment (DPIE) in August 2020 and is known as the 'preferred approval' which the combines MOD 3 and MOD4 approval.

This Visual Impact Management Plan (VIMP) relates to Modifications 3 & 4 of the CSR Badgerys Creek Quarry and Brickworks (MP10_0014-Mod-3 & MP10_0014-Mod-4) and the subsequent Minister's condition of consent 37D.

The Modification 3 approval was based on the following proposals:

Advanced Manufacturing - Brick Production

- Upgrade and extend the existing brickmaking facility and increase the building footprint by 10,660 sqm.
- Refurbish and build offices, innovation centre and NATA laboratory.
- Increase brick production.
- Approved a new quarry pit 3 to extract raw material.

Modification 4 included the following additional changes:

- Dewatering of Pit 1,2 and Dam 3.
- Commence rehabilitation by backfilling Pit 1,2 and Dam 3 by importing VENM into the site.

1.2 This Report, Author and VIMP Report Structure

Geoscapes Pty Ltd has been commissioned by CSR to produce a VIMP for the above mentioned development. This VIMP has been written by Ben Gluszkowski (Geoscapes Director and Registered Landscape Architect) who has over 17 years' experience in the field of Landscape Architecture. He has previously been involved in high profile Landscape and Visual Impacts Assessments (LVIA) on developments within the UK, including the M1 & M62 motorway road widening, several wind farms and energy from waste facilities.

Within Australia, Ben has completed several visual impact assessments for some of the largest industrial developments in Sydney. These were either submitted as part of an Environmental Impact Statement (EIS) for State Significant Development (SSD) to the DPIE, or to local council. Clients have included Boral, Snackbrands Australia, Jaycar, Frasers, Altis, DCI, ESR, Charter Hall and Airtrunk.

This VIMP report has been structured to cover the following:

- Planting plans detailing treatments to earth mounds as proposed by CSR and AT&L (refer to separate dwgs sheets SSD-000 to SS-601).
- Assessment of the visual impacts to surrounding receivers, using photomontages which include the MOD3 proposals and proposed visual mitigation specified in the planting plans.
- A landscape management plan for the management and maintenance of the proposed earth mounds and landscaping.
- Monitoring and reporting the effectiveness of the mitigation measures.

1.3 Project Approval Conditions and Criteria

Following the approval by the Minister of Modification 3 & 4 in August 2020, consolidated conditions of consent were issued. The criteria covering this VIMP is governed by Condition 37D Schedule 3 of the project approval.

Table 1 – Conditions of approval

Condition	Requirement	VIMP Section
37D	Within 6 months of approval of Modification 3 and 4, the Proponent must prepare a Visual Impact Management Plan for the project to the satisfaction of the Secretary. This plan must:	Extension granted
	(a) be prepared by a suitably qualified and experienced person/s;	1.2
	(b) be prepared in consultation with Council, TfNSW and relevant WSA authorities;	10.1
	(c) describe the measures to be implemented to minimise the visual, landscaping and off-site lighting impacts of the project to the WSA and surrounding community;	3.0, 4.0, 5.0, 6.0 Off-site lighting 1.4
	(d) include a landscaping strategy to shield public views of the project (including views from the Eastern Airport Ring Road) that includes:	7.0
	the measures identified in the EA (Mod 3 and 4); • a vegetation strategy utilising a diversity of local provenance tree species from the native vegetation community (or communities) that occur or once occurred on the site, and would minimise wildlife attraction;	7.0 and Landscape Plans SSD-000 to SSD-601
	• a bund vegetation and maintenance schedule; and	7.3
	• procedures to notify, consult with and implement site-specific mitigation measures at affected privately-owned residences;	8.0 and EMS
	(e) include a program to monitor and report on the implementation and effectiveness of the mitigation measures; and	8.0
	(f) include a protocol to update the plan to include the requirements of condition 37A and 37B of this Schedule, once the Secretary has been advised of the confirmed Eastern Airport Ring Road alignment, as required under condition 25C of this Schedule.	8.2
	The Proponent must implement the Visual Impact Management Plan as approved by the Secretary.	

1.4 Future updates to this VIMP

The alignment of the Eastern Airport Ring Road has yet to be finalised by Transport NSW. Until detailed information is provided assumptions have been made regarding the alignment and level of the road. It is intended that photomontages, visual impact analysis and landscape design drawings are updated when such detailed design information is made available to the client and consultant team.

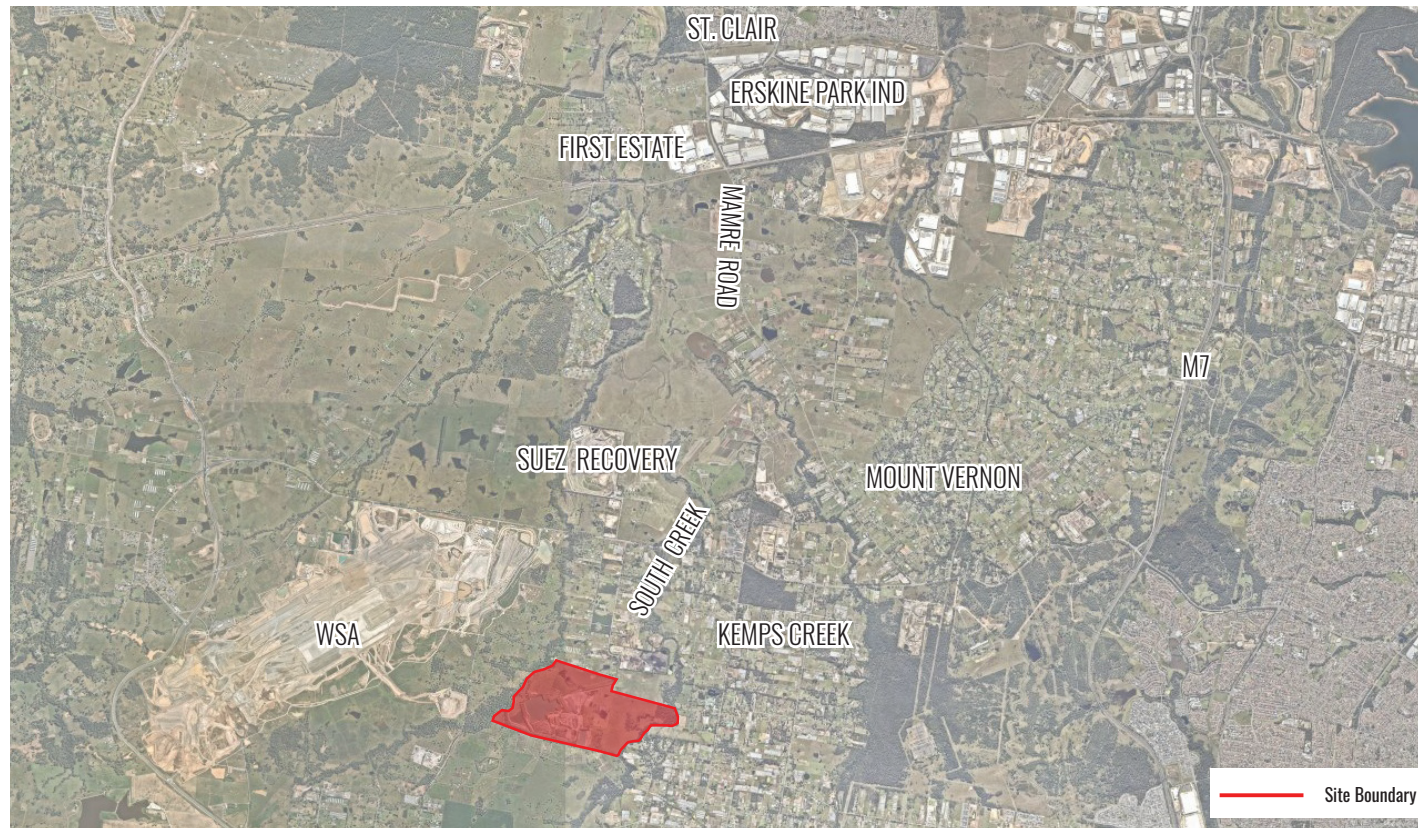


Figure 2: Site Context (Source: Nearmap 2021)

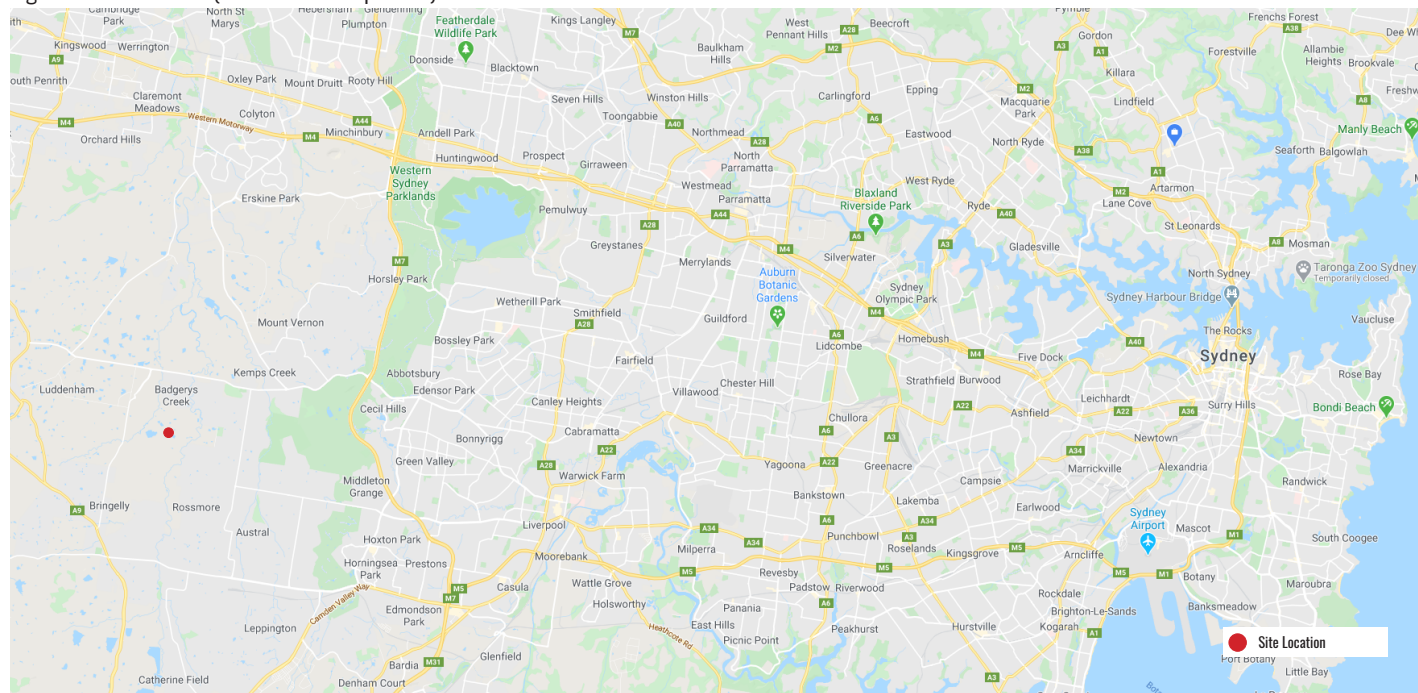


Figure 3: Site Location (Source: Google Maps)

2.0 THE SITE AND SURROUNDING CONTEXT

2.1 Location

The site is located at 235 Martin Road in the suburb of Badgerys Creek within Liverpool Local Government Area (LGA).

Figure 2 provides the immediate site context, Figure 3 provides the site's location.

2.2 Site Description

The site description is summarised in Figure 1 below:

Figure 1 – Site Description

Component	Description
Address	235 Martin Road, Badgery Creek, NSW 2555
Legal description	LOT 1 & 2 in DP1035249, LOT 1 in DP373863. LOT 54,55,56,57,58 & 59 in DP3050
Current use	The site is the former Badgerys Creek Quarry and Brick making facility. Zoned ENT (SEPP WSA)

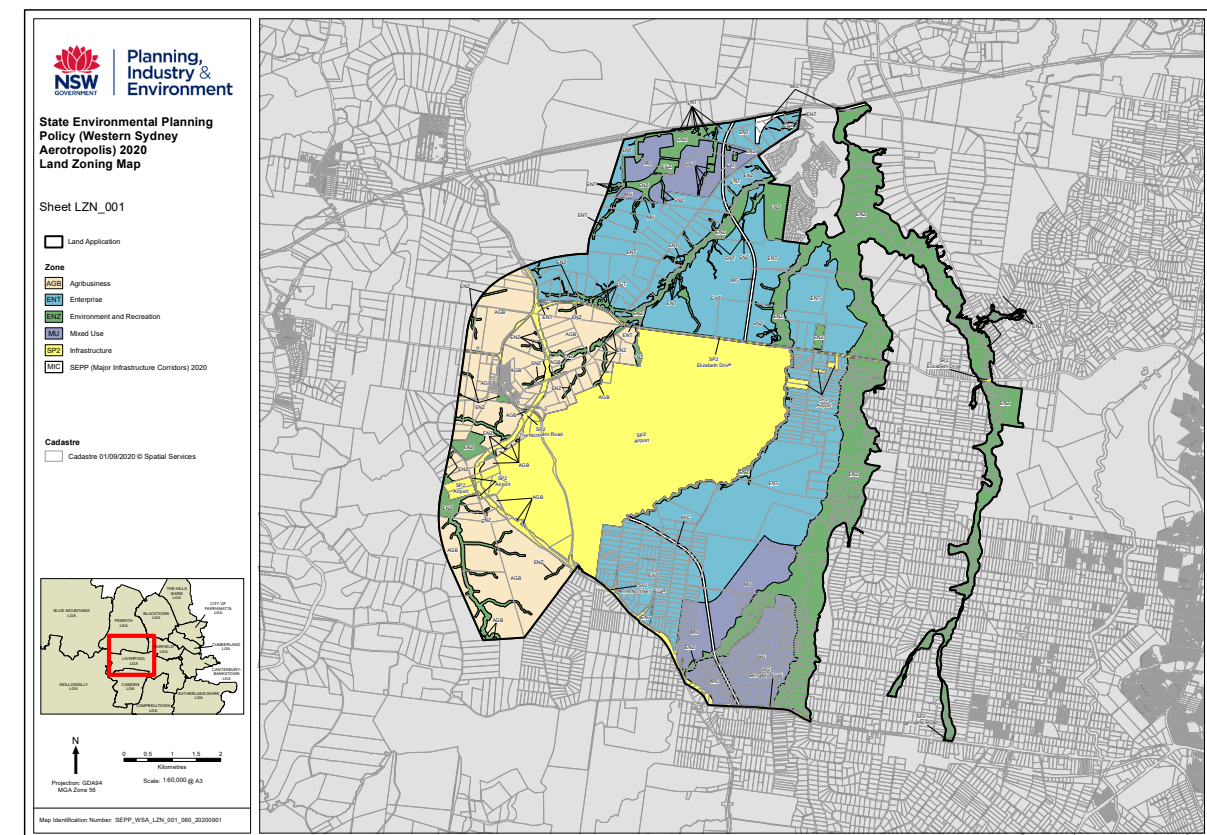


Figure 4: Land Zoning Map SEPP WSA 2020 (Source: DPIE)

2.3 Context

Badgerys Creek is approximately 41 km south west of Sydney and 17 km west of Liverpool. Badgerys Creek is currently a small community comprising rural residences, agricultural activities, quarrying and industry. The locality supports a number of small rural residential holdings and a limited number of larger agricultural properties, agricultural enterprises (chicken farms, nurseries), composting and resource recovery facilities and market gardens. The site falls with the Badgerys Creek Precinct of the Western Sydney Aerotropolis (WSA).

The site is surrounded by the following specific land uses:

- Directly north of the site are existing rural dwellings and associated farm and pastoral lands. This land is now zoned for Enterprise (ENT) use as per the SEPP WSA 2020 (see Land Zoning Map in Figure 4).
- To the south is open pastoral lands now also zoned ENT.
- To the east is South Creek and vegetation now zoned Environment and Recreation (ENZ).
- To the west is Badgerys Creek and the associated vegetated corridor zoned ENZ.

2.4 Aerial Photography

During the Drone photography that was carried out within the site boundary on the 19th April 2021, (refer to section 5.0 and Figures 14-17) aerial shots were also taken at an AGL of 120m. These prove useful in the following ways:

- Demonstrating the site context in which the development sits and highlighting key features of the surrounding landscape;
- Analysing the existing landscape character and confirming locations of potential individual receptors.

3.0 APPROVED DEVELOPMENT PLANS AND REPORTS

3.1 General

The following description is based on the plans, elevations and sections shown in Figures 5, 6a, 6b and 8. As described in Section 1.0, approval has been granted for a number of new structures and groundworks on site. These include the extension to the main brickmaking facility, dewatering and backfilling. Landscaped earth mounds were also indicatively shown within Figure 7 (Page 6). Also indicated in Figure 8 is a preliminary alignment for the Eastern Airport Ring Road, this alignment was adopted by the Draft Western Sydney Aerotropolis Plan 2020. The ring road cuts through the CSR site from north to south and will link Western Sydney Airport to Greater Sydney. This indicative alignment has been used for visual assessment purposes within this VIMP report and is intended to be updated following the receipt of final detailed road design.

3.2 Extension to Brickmaking Facility

Figure 5 shows the PGH Site Plan detailing proposed works relating to the existing facility, this also includes several small buildings, office extension, additional parking and new access road extension. As shown in Figure 6a the proposed extension is not as tall as the existing facility with a height of 7.8m at the eastern facade, the extension then joins the existing facility at an approx height of 10m. A second Kiln stack is also being added which will be the same height as the existing stack. Therefore, the extension should not be significantly more visible from within the surrounding area then the existing facility.

3.3 Colour / Materials & Finishes

Figure 6b indicates the colours and facade treatments to the new brick making facility. The existing building will also be refurbished to present a unified coherent development. A standard palette of colours and materials is proposed that is typical of this type of facility, this includes metal cladding with Dulux colors of 'shale grey' and monument.

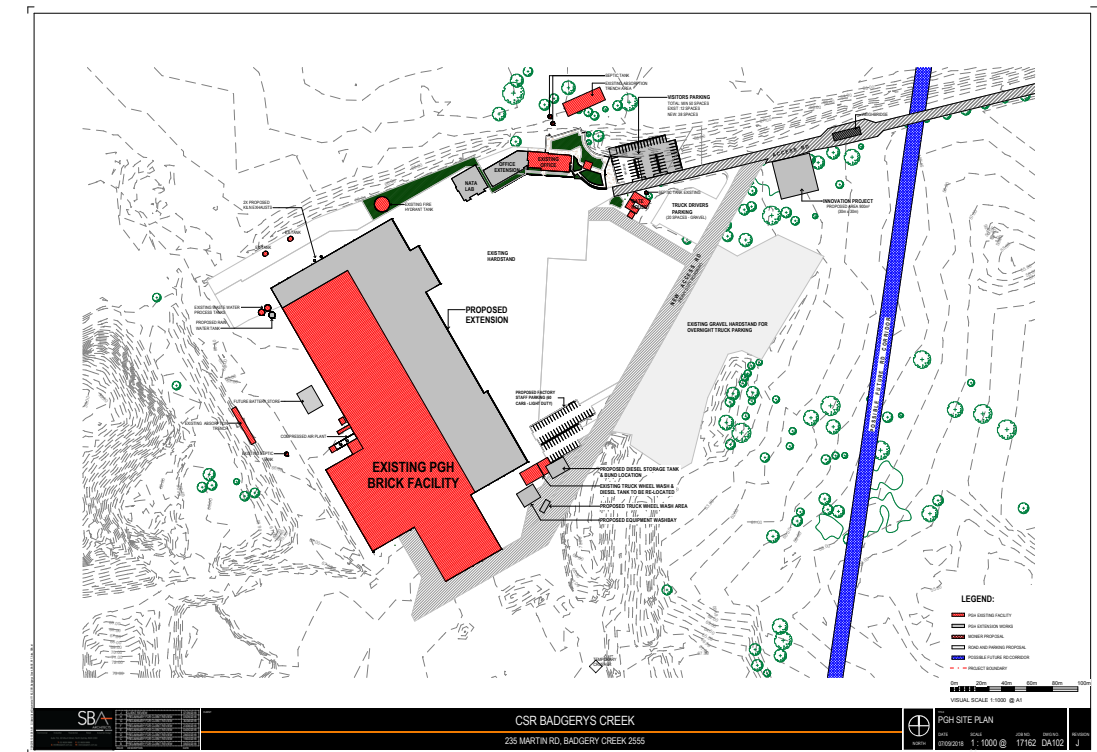


Figure 5: PGH Site Plan - (Source: SBA)

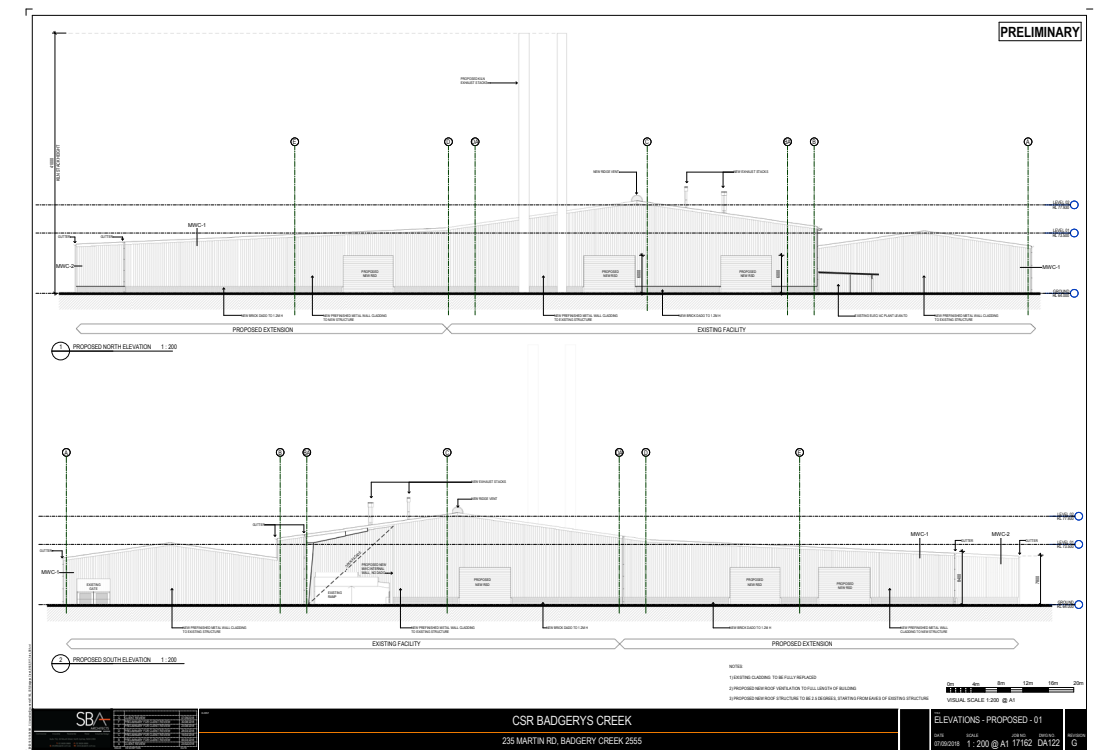


Figure 6a : Elevations - Proposed - 01 - (Source: SBA)

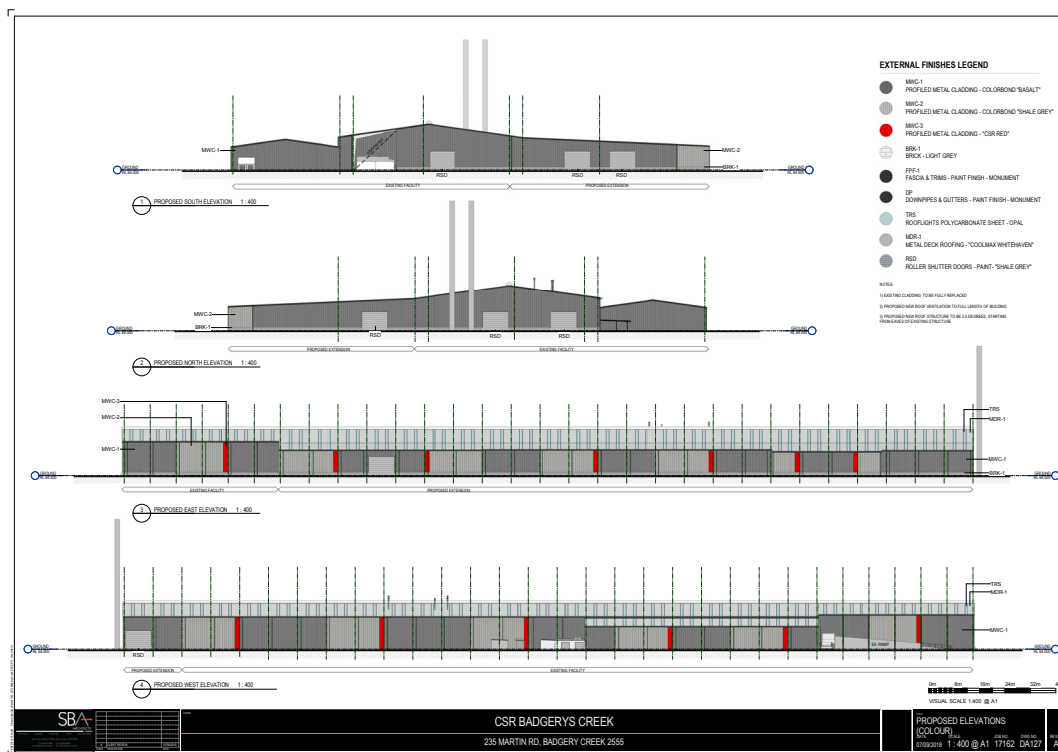


Figure 6b : Proposed Elevations Colour - (Source: SBA)

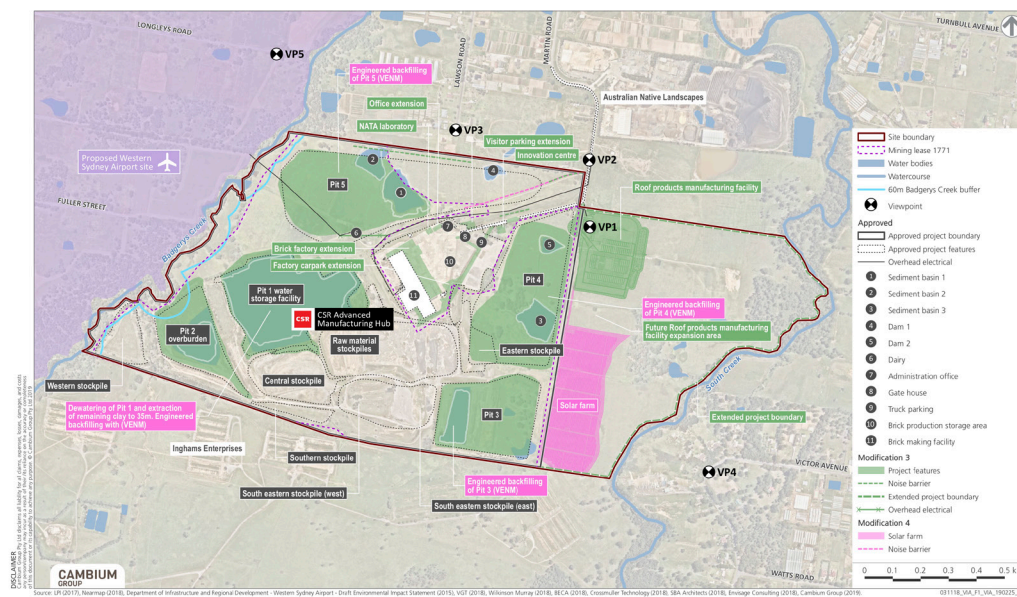


FIGURE 6.1: ASSESSED VIEWPOINTS³⁴

³⁴ Base figure provided by Element Environment. Viewpoint positions provided by Envisage Consulting.

BADGERYS CREEK BRICK MAKING FACILITY, MODIFICATION 3 - VISUAL IMPACT ASSESSMENT

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Figure 7: MO3 Assessed Viewpoint - (Source: Envisage DPIE Major Projects)

Figure 1
Overview of Preferred Project

CSR ADVANCED MANUFACTURING HUB
Modification 3 and 4



Figure 8: Overview of Preferred Project - (Source: CSR & Element)

3.4 Previously Assessed Visual Impacts

The development has been subject to two previous visual impact assessments. The first was completed within the original EA, the second formed part of the MOD3 application and was written by Envisage Consulting in 2019. Figure 7 shows the locations that were assessed for the MOD3 proposals.

The table on Page 7 provides a summary of visual receptors assessed in the MOD3 report and those assessed within this VIMP:

Envisage Report VP No.	Envisage Significance of Impact	Geoscapes VP No.	Notes
VP1 - Dairy Farmer's Residence	N/A	-	Belongs to CSR & falls within the site boundary. Not assessed
VP2 - Martin Road	Construction - Low/moderate Operation - Low/moderate	VP1	Moved further north for VIMP report.
VP3 - Lawson Road	Construction - Low/moderate Operation - Low	VP3	Same location.

VP4 - Victor Avenue	Construction - Low Operation - Low	-	Not assessed in this VIMP. Dense vegetation results in no or little view of CSR site. Receptors affected extremely small and to the rear of land.
VP5 - Longleys Road	N/A	-	Not assessed properties no longer exist.

For further details regarding justification of viewpoints selected in the VIMP, refer to section 5.0.

3.5 Summary

The building is to adopt a colour scheme of greys and earth tones which is seen on many other industrial type buildings and facilities within the Western Sydney Employment Area.

All colours are recessive and this combined with landscaping is aimed at not only presenting a high quality facility, but is also designed to reduce visual impacts for those receptors within the surrounding area.

Previous visual impacts assessed in the MOD3 Envisage report suggested that the proposals would only generate low/moderate visual impacts to potentially the most sensitive receivers on Lawson and Martin Road. This VIMP considers those viewpoints again, but now also includes proposed mitigation in the form of earth mounds and screen planting as described in condition 37. Although at an early planning stage the future eastern airport ring road alignment has been considered, potential visual impacts have been included for assessment from two locations to the north and south (refer to section 5.0 and 6.0).

4.0 MITIGATION MEASURES

4.1 Strategy and Mitigation

Figure 8 indicates the approved Overview of Preferred Project. This shows the new facilities and features of the MOD 3 & 4 scheme including the anticipated position of the Eastern Airport Ring Road (Martin Road Extension).

As part of the approved project ‘Landscaped earth bunds’ and ‘Landscaping including screen planting’ are conceptually shown as dashed grey and dashed green lines respectively. These are intended to provide mitigation through vegetated screening to future users of the Eastern Airport Ring Road and existing properties in the surrounding area.

As per Condition 37D, landscaped bunds and screen planting are to be constructed within 3 months of commencing quarrying operations in Pit 3. The landscaping must also be maintained until the Pit 3 area has been fully rehabilitated.

Condition 37D also states that within 6 months of the Secretary being advised of the confirmed Eastern Airport Ring Road alignment, CSR must construct landscaped earth bunds and plant vegetative screens around the brickmaking facility and raw material stockpile. This must be maintained for the life of the project.

Regular maintenance and management of the earthen bunds and vegetative screen will be delivered through the Landscape Management Plan within Section 7.0 of this VIMP. This will ensure that the intended purpose to visually screen the development is established and maintained throughout the life of the development.

4.2 Detailed Landscape Proposals

Geoscapes have also prepared drawings SSD-000 to SSD-601 which form part of this VIMP and must be read in conjunction with this report. These detail a vegetation approach which utilises a diverse range of local provenance tree and plant species. This will not only provide mounds and a

vegetative screen intended to mitigate visual impacts for visual receivers, but will increase canopy cover for the site.

As identified in the project AECOM Environment Assessment report the following communities were found within the study area.

- River Flat Eucalypt Forest on Coastal Floodplains (RFEF)
- Cumberland Plain Woodland - Shale Plains Woodland & Shale Hills Woodland

Only Shale Plains Woodland was found within the project site itself and proposed landscaping as shown in the Geoscapes plans utilises species as listed from the Cumberland Plain Woodland - Shale Plains Woodland.

The site is listed as being within bushfire prone land and as per advice from David Peterson Bushfire, any landscape areas within close proximity to buildings is to be designed in accordance with NSW RFS Planning for Bush fire Protection 2019. The proposed locations for the vast majority of the earth mounds are at a substantial distance away (200m+) from the MOD 3 buildings. Therefore, there is significant defendable space from any potential bushfires. As a result of the bushfire analysis, screen planting to the mounding has been detailed to be densely planted in order to achieve the intended visual mitigation.

In the small number of locations where earth mounding is in close proximity to any building, planting has been designed in accordance with the RFS guidelines. This results in trees and shrubs being separated from buildings.

Refer to section 7.0 for details of the ongoing maintenance and management of the landscape visual mitigation.

5.0 REASONING & METHODOLOGY OF ASSESSING VISUAL IMPACTS FROM SURROUNDING VISUAL RECEIVERS

5.1 General

As part of the response to fulfill condition 37D of the ministers conditions of consent, a further visual impact assessment has been carried out for the following existing and future visual receptors:

- VP1 - Martin Road, Badgerys Creek (previously VP2 in the MOD3 Visual Assessment)
- VP2 - Future Eastern Airport Ring Road North
- VP3 - Lawson Road, Badgerys Creek (previously VP3 in the MOD3 Visual Assessment)
- VP4 - Future Eastern Airport Ring Road South
- VP5 - Aerial View Close to Western Sydney Airport

Refer to Figure 10 on page 13 for the viewpoint location map.

As summarised in section 3.0, a visual impact assessment was previously carried out for the original part3A submission, and also for the recent MOD3 approval. Recommendations for landscape mitigation were proposed in the MOD3 report. To fulfill condition 37D, this VIMP presents further judgments on visual impacts from surrounding visual receptors, including the potential impacts from the future Eastern Airport Ring Road and includes a representation of proposed earth mounds and screen planting within the photomontages. The residual effects (those that remain on completion of the development, which includes landscaping) are considered within the significance of visual impacts given.

Photomontages have now been produced showing how the vegetated mounds are expected to look at year 0 (immediately following installation) and perform at year 15 following maturity. Refer to Section 4.0 and Section 6.0.

VP1 has been moved further north from the original position within the MOD3 VIA, this was as a result of a site visit which confirmed that the new

position will present a slightly more open view.

VP2 and VP4 are fully computer generated images, this is because a photograph cannot be accurately taken until further details of the Eastern Airport Ring Road alignment are known. Elevation, cut and fill of the proposed road are presently unknown, so several broad assumptions have been made through discussions with the project civil engineer to setup virtual camera positions that could represent potential views experienced by future motorists. VP2 & VP4 will be updated at a future point in time when more design details are known or the road is physically under construction or completed. Photographs will also be retaken following the completion of the road to enable a true 'baseline' to be established. This will also provide an indication on how the earth bunds and landscaping are performing.

VP3 has been taken from exactly the same position as the MOD3 VIA and is considered to be currently the most sensitive due to its proximity and open views towards the development. However, all land surrounding VP3 has recently been zoned Enterprise (ENT) in the SEPP WSA. This may result in residential visual receptors along Lawson Road no longer being present in the future.

VP5 has been selected to present what aerial views might be experienced by air traffic around the new Western Sydney Airport. Views from the airport itself (terminal buildings and alike) towards the CSR development are likely to be fully screened by dense vegetation to Badgerys Creek. This is highlighted in the drone photography within Figures 13 & 17.

Sections 5.2 to 5.7 describes the standard methodology Geoscapes applies for assessing visual impacts.

5.2 Guidelines

VIA does not follow prescribed methods or criteria. This assessment is based on the principles established and broad approaches recommended in the following documents:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA) – Third Edition (LI/IEMA 2013)
- The Landscape Institute Advice Note 01 (2011) Photography and Photomontage in Landscape and Visual assessment.

In accordance with GLVIA3 the assessment methodology is tailored to the specific requirements of the Proposed Development, its specific landscape context and its likely significant effects. The methodology used for this assessment reflects the principal ways in which the Proposed Development is considered likely to interact with existing landscape and visual conditions as a result of:

- The extension and remediation of an industrial facility into the existing landscape/townscape and visual context.

Landscape assessment is concerned with changes to the physical landscape in terms of features/elements that may give rise to changes in character. Visual appraisal is concerned with the changes that arise in the composition of available views as a result of changes to the landscape, people's responses to the changes and to the overall effects on visual amenity. Changes may result in adverse (negative) or beneficial (positive) effects.

The nature of landscape and visual assessment requires both objective analysis and subjective professional judgement. Accordingly, the following assessment is based on the best practice guidance listed above, information and data analysis techniques, uses subjective professional judgement and quantifiable factors wherever possible, and is based on clearly defined terms (refer to glossary).
As stated in paragraph 1.20 of the GLVIA:

“The guidance concentrates on principles while also seeking to steer specific approaches where there is a general consensus on methods and techniques. It is not intended to be prescriptive, in that it does not follow a detailed 'recipe' that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstances.”

This VIA written by Geoscapes is considered to use a methodology and approach that is appropriate to this type of industrial development.

5.3 Computer Generated Visualisations - Photomontages or Full CGI

It is possible that any receptor with a view towards the development, could potentially receive visual impacts with a resulting high, moderate or low impact. However, it is not feasible or practical to prepare a photomontage for each and every residential dwelling, public open space, cycleway, footpath or road within the project view-shed. Instead a selection of locations have been chosen that present an understanding of views in the surrounding context of the development.

Photography for the photomontages was undertaken by Geoscapes using a Canon 60D (DSLR) camera. A 50 mm focal length prime lens was attached to the Canon.

Photomontages or full CGI have been prepared to create “simulated” views of the proposed development. Although these do not claim to exactly replicate what would be seen by the human eye, they provide a useful “tool” in analysing potential visual impacts from receptor locations.

Those viewpoints selected for photomontages or full CGI, have been presented in this report as before and after images on the same sheet for ease of comparison. The computer-generated images include a representation of landscape mitigation both immediately following installation (which have been described as year 0) and at a mature age of approximately 15-20 years. It is important to note that the year 15 images are simulations of how proposed landscaping may appear at a selected viewpoint. The final appearance of landscape mitigation will be based on many factors including growth rates, maintenance and environmental conditions.

The assessment undertaken at year 15 assumes that such mitigation has had the opportunity to establish, mature and become effective. For the purposes of most VIA, year 15 effects are also taken to be the 'residual effects' of the development. Residual effects are those which are likely to remain on completion of the development including landscaping. These are to be given the greatest weight in planning terms. The significance of visual impacts determined from viewpoint locations (which have been assessed in Section 6.0 of this report), are based on the year 15 residual effects. In certain photomontages or full CGI there may be little or no difference between Year 0 or Year 15 images, this may be due to the development being partially obscured, that there is no proposed landscaping on a particular side of a development or that landscaping will be behind existing vegetation in the foreground.

The horizontal field of view (FOV) within the photomontages exceeds the parameters of normal human vision. While the human eye FOV is understood to be approximately 160°, the actual amount of detail in focus is much less and deteriorates towards the outer extents of the FOV. The 'Cone of Visual Attention' of the human eye is thought to be 55° however, in reality the eyes, head and body can all move and, under normal conditions, the human brain would 'see' a broad area of landscape within a panoramic view. Each of the photomontage panoramas within Section 6.0 of this report has a horizontal viewing angle of approximately 67°. A single photographic image from a 50mm lens has a horizontal viewing angle of 39.6°. Whilst a photomontage can provide an image that illustrates a photo-realistic representation of a development in relation to its proposed location and scale relative to the surrounding landscape, it must be acknowledged that large scale objects in the landscape can appear smaller in photomontages than in real life. This is partly due to the fact that a flat image does not allow the viewer to perceive any information relating to depth or distance. An extract taken from the Photography and Photomontage in Landscape and Visual Impact Assessment, Landscape Institute Advice Note 01/11 states that:

'it is also important to recognise that two-dimensional photographic images and photomontages alone cannot capture or reflect the complexity underlying the visual experience and should therefore be considered an approximate of the three-dimensional visual experiences that an observer would receive in the field'.

5.4 Visual Receptor Sensitivity

People's (visual receptors) overall visual sensitivity has been assessed by combining consideration of their visual susceptibility with the value or importance that they are likely to attribute (or not) to their available views.

Factors which influence professional judgement when assessing the degree to which a particular view can accommodate change arising from a particular development, without detrimental effects would typically include:

- Judgements of value attached to views take into account recognition of the value attached to particular views e.g. heritage assets or through planning designations; and
- Judgements of susceptibility of visual receptors to change is mainly a function of the occupation or activity of people experiencing the view at particular locations; and the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations.

Assessment of the sensitivity of visual receptors may be modified (either up or down) by consideration of whether any particular value or importance is likely to be attributed by people to their available views. For example, travelers on a highway may be considered likely to be more sensitive due to its scenic context or residents of a particular property may be considered likely to be less sensitive due to its degraded visual setting. Typically, sensitivity of visual receptors may be judged to be very high, high, medium, low or very low. Definitions of these indicative categories as appropriate to this assessment are set out in the table opposite.

Table: Visual Receptor Sensitivity

Category	Definition
Very High	Designed view to or from a heritage / protected asset. Key protected viewpoint e.g. interpretive signs. References in literature and art/or guidebooks and tourist maps. Protected view recognised in planning policy designation [LEP, DCP, DoPE]. Views from the main living space of residential properties, state public rights of way e.g. bush trails and state designated landscape feature with public access. Visitors to heritage assets of state importance.
High	View of clear value but may not be formally recognised e.g. framed view of high scenic value from an individual private dwelling or garden. It may also be inferred that the view is likely to have value e.g. to local residents. Views from the secondary living space of residential properties and recreational receptors where there is some appreciation of the landscape e.g. golf and fishing. Local public rights of way and access land. Road and rail routes promoted in tourist guides for their scenic value.
Medium	View is not promoted or recorded in any published sources and may be typical of the views experienced from a given receptor. People engaged in outdoor sport where an appreciation of the landscape has little or no importance e.g. football and soccer. Road users on main routes (Motorway/Freeway/Highway) and passengers on trains.
Low	View of clearly lesser value than similar views experienced from nearby visual receptors that may be more accessible. Road users on minor roads. People at their place of work or views from commercial buildings where views of the surrounding landscape may have some importance.
Very Low	View affected by many landscape detractors and unlikely to be valued. People at their place of work or other locations where the views of the wider landscape have little or no importance.

For the visual receptors identified, the factors above are examined and the findings judged in accordance with the indicative categories below in the table to determine the magnitude of change.

Table: Visual Receptor Magnitude of Change Criteria

Category	Definition
Very High	There will be a substantial change to the baseline, with the proposed development creating a new focus and having a defining influence on the view. Direct views at close range with changes over a wide horizontal and vertical extent.
High	The proposed development will be clearly noticeable and the view will be fundamentally altered by its presence. Direct or oblique views at close range with changes over a noticeable horizontal and or/vertical extent.

Medium	The proposed development will form a new and recognisable element within the view which is likely to be recognised by the receptor. Direct or oblique views at medium range with a moderate horizontal and/or vertical extent of the view affected.
Low	The proposed development will form a minor constituent of the view being partially visible or at sufficient distance to be a small component. Oblique views at medium or long range with a small horizontal/vertical extent of the view affected.
Very Low	The proposed development will form a barely noticeable component of the view, and the view whilst slightly altered will be similar to the baseline situation. Long range views with a negligible part of the view affected.

In some cases, there may be no magnitude of change and the baseline view will be unaffected by the development (e.g development will be fully screened existing bushland). In this case a category of 'no change' will be used.

5.5 Significance of the Visual Impact

For each receptor type, the sensitivity of the location is combined with the predicted magnitude of change to determine the level of effect on any particular receptor. Having taken such a wide range of factors into account when assessing sensitivity and magnitude at each receptor, the level of effect can be derived by combining the sensitivity and magnitude in accordance with the matrix in the table below:

Receptor for Sensitivity	Magnitude of Change					
		Very High	High	Medium	Low	Very Low
	Very High	Substantial	Major	Major/Moderate	Moderate	Moderate/Minor
	High	Major	Major/Moderate	Moderate	Moderate/Minor	Minor
	Medium	Major/Moderate	Moderate	Moderate/Minor	Minor	Minor Negligible
	Low	Moderate	Moderate/Minor	Minor	Minor Negligible	Negligible
	Very Low	Moderate/Minor	Minor	Minor Negligible	Negligible	Negligible/None

In all cases, where overall effects are predicted to be moderate or higher (shaded grey), this will result in a prediction of a significant effect in impact terms. All other effects are considered to be not significant. If a view from a receptor is judged to be 'no change' in the category of Magnitude of Change, then the significance of impact will automatically be none.

In certain cases, where additional factors may arise, a further degree of professional judgement may be applied when determining whether the overall change in the view or effect upon landscape receptor will be significant or not and, where this occurs, it is explained in the assessment.

Visual effects are more subjective as people's perception of development varies through the spectrum of negative, neutral and positive attitudes. In the assessment of visual effects, Geoscapes will exercise objective professional judgement in assessing the significance of effects and will assume, unless otherwise stated, that all effects are adverse, thus representing the worst-case scenario. The significance of visual impacts are assessed against the CSR development in isolation only.

Ratings of visual receptor sensitivity and magnitude of change which determine the significance of the visual impact, are judged against the current baseline situation as can be seen in the baseline images (if available) within section 6.0. They do not take into account any potential future development to adjoining lands or change of use to the receptor lands. A consideration of any future development and rezoning has been given at the end of each viewpoint assessment. Refer to sections 2.0, 3.0 and 6.0.

5.6 Site Visit and Analysis of Zone of Visibility

A site visit was conducted on the 20th of May by Geoscapes. The consultant team carried out a site inspection to verify the results of a desktop study and to evaluate the existing visual character of the area. Analysis from inside of the site boundary was undertaken to reconfirm the Zone of Visibility. Photographs taken at eye level from the site would be limiting and only allow a partial judgement on which properties/locations in the immediate vicinity may see the development from ground level to the top of the brickmaking facility. This is due to the presence of existing buildings and vegetation and therefore, it is not possible to gain a complete understanding of visibility without the additional use of drone photography.

A drone was used to take panoramic photographs looking north, south, east and west, at two separate locations within the site boundary (refer to Figure 9). A height was flown by the drone to approximately represent the maximum RL of the main roof facility (13m APL), refer to figures 11 to 13. The stacks do reach a height of approx 41m APL, however the majority of the massing of the building is much lower. Photographs at 13m APL therefore represent the maximum zone of visibility of the main facility. The flight was performed on the 19th April 2021 by Pixel Media Productions.

These photographs reconfirm which receptors in the wider context, will be able to see the top of the facility. Not all residential properties/public spaces able to see the development are highlighted on figures 11 to 13, as some properties are simply obscured by existing vegetation. However, the properties or publicly accessible locations that have been shown, reconfirm the receptors within the surrounding context, that the development will be most visible to. It is important to note that it is simply unfeasible to photograph every single possible view corridor to and from the site.

As with any VIA, due to the number of receptors that may have views of the development, it is not possible to provide analysis for every single possible visual receiver within the immediate context of the development. It may also not be deemed relevant to provide visual impact assessment for a particular receptor due to other overriding factors such as planning designations or specific land zoning (refer to section 3.0 & 5.0 for details on viewpoint selection).

5.7 Photographic Recording

From desktop study, site visits and photography, locations were reconfirmed that will potentially be subject to visual impacts from the proposal.

Viewpoints were selected and single photographs were taken by Geoscapes Landscape Architects using a Canon 60D DSLR Camera and a 50mm lens. Photographs were stitched together using an automated software process to create panoramic images, however, no perspective fixing was used. GPS recordings were taken and locations mapped using topographical survey data. This information was later used to create the photomontages.

In Figures 11 to 17 drone photography has also been stitched together to increase the field of view. As the drone uses a wide-angle lens, in some images there is quite distinct distortion where two images join in the foreground. However, as these images are used only for analysis and identifying potential visual receptors, this does not affect the validity of their use within this report.

5.8 Visualisation of the Development

From site plans and elevations, Morphmedia created a 3D model. Morphmedia then prepared the model for VIA using Autodesk 3Ds Max. The model included all aspects of the approved development as listed in the Modification 3 & 4 proposals. This was combined with the landscape design and mitigation earth mound planting proposed by Geoscapes.

Views were generated from the model that matched the camera positions of photographs taken from selected viewpoints. These were then combined with the photographs to create simulated views of the proposal.

Photomontages are intended to be printed at A3 and are to be held at a comfortable distance by the viewer, this is generally accepted by current guidelines to be anywhere from 300mm to 500mm away from the eyes and held in a flat projection.

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Legend

— Site Boundary

① Drone Position 1 -
13m APL
33°53'41.6"S
150°45'18.0"E

② Drone Position 2 -
120m AGL
33°53'46.0"S
150°45'20.9"E

③ Drone Position 3 -
40m AGL
33°53'30.8"S
150°45'04.3"E

Figure 9: Drone Panoramic Photograph Positions

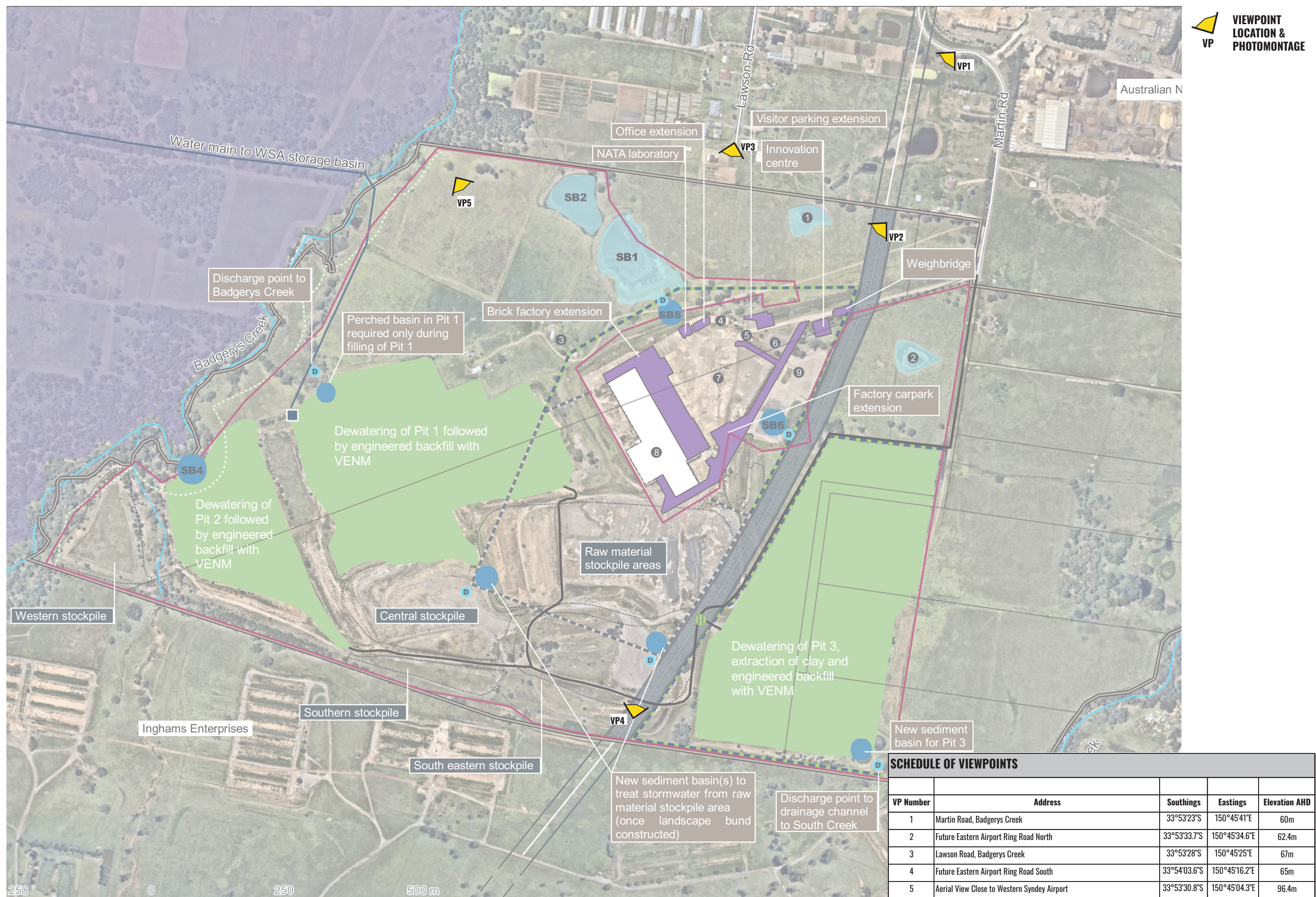


Figure 10: Viewpoint Locations



Figure 11: Drone at Position 1 - 13m APL - Looking North



Figure 12: Drone at Position 1 - 13m APL - Looking East



Figure 13: Drone at Position 1 - 13m APL - Looking West



Figure 14: Drone at Position 2 - 120m AGL looking North



Figure 15: Drone at Position 2 - 120m AGL looking East



Figure 16: Drone at Position 2 - 120m AGL looking South

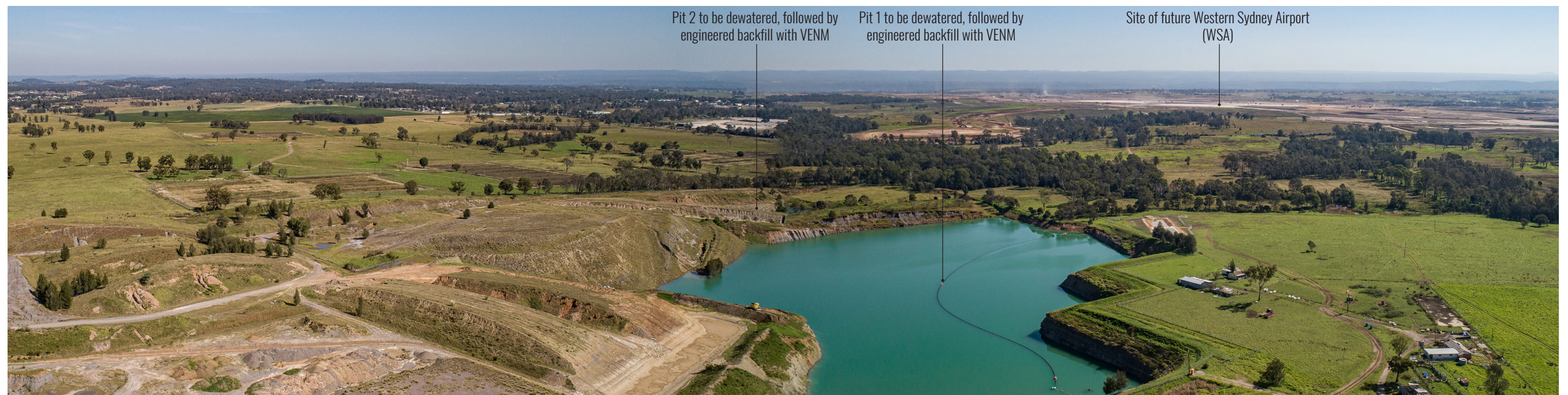


Figure 17: Drone at Position 2 - 120m AGL looking West

6.0 VISUAL IMPACT ASSESSMENT

6.1 Viewpoint 1

Viewing Location	Martin Road, Badgerys Creek - Looking Southwest
GPS	33°53'23"S, 150°45'41"E
Elevation (Eye-level)	60m
Date and Time	20th May 2021 - 12.28am
Existing View & Photomontage Figure	Figure 18
Visual Description	
Approx. Viewing Distance from Site Boundary	330m
View description & prominence of the development	<p>This receptor was selected for visual assessment as Martin Road was previously assessed for the MOD3 VIA by Envisage (refer to section 3.0 for further details). The photograph location is slightly further north along Martin Road as it was judged during the site visit that views were slightly more open due to the higher elevation. It is representative of a number of rural properties close to the north east corner of the site including 217 Martin Road. The photograph was taken from a gravel lay-by opposite Australian Native Landscapes on the southern side of the road. To the right of the image are properties located along Lawson Road.</p> <p>The view is fairly typical of those currently experienced along this section of road and within the immediate area. In the foreground are private rural lands which lead toward the site. There is the presence of existing scattered mature vegetation throughout the landscape and along roads. The development site is situated in the background of the image.</p>
Visual Receptor Sensitivity	The previous visual assessment for MOD 3 rated the sensitivity of properties along Martin Road to be 'Moderate'. Geoscapes have assessed the sensitivity and present a similar conclusion. The view has a pleasant pastoral outlook with fields and scattered trees within the landscape. However, the existing facility is partially visible behind earth-mounds along the site entrance. Therefore, the sensitivity has been judged to be medium .
Magnitude of Change	The previous visual assessment for MOD 3 rated the Magnitude of Change to be Low. From the viewpoint location shown in the existing view, with the exception of the stacks, the MOD 3 brickworks extension is now expected to be completely screened by the earth mounds and proposed landscape planting at Year 15. Therefore, it is judged that the residual magnitude of change is very low .
Significance of Visual Impact	The significance of the visual impact at this location is judged to be negligible .*

***NOTE :** This visual receptor (and other surrounding visual receptors) is located within land that has been zoned ENT (Enterprise) within the SEPP WSA 2020. Therefore, residential properties within this area are may not exist at a future point in time. Should the land be acquired in the short to medium term and the property removed, any visual impacts assessed would no longer be of any relevance.



Existing View



Photomontage - Year 0



Photomontage - Year 15

Figure 18: Viewpoint 1 - Martin Road, Badgerys Creek - Looking Southwest (Photomontage)

Approx Angle of View - 67°

6.2 Viewpoint 2

Viewing Location	Future Airport Eastern Ring Road North - Looking Southwest
GPS	33°53'33.7"S, 150°45'34.6"E
Approximate Elevation (Eye-level)	62.4m
Date and Time	N/A (Computer Generated Image)
Photomontage Figure	Figure 19
Visual Description	
Approx. Viewing Distance from Lot Development Boundary	N/A (within the present site boundary). Distance to main brickmaking facility - 52m
View description & prominence of the development	This viewpoint has been selected as part of a response to assess the potential visual impacts of the MOD3 development upon motorists traveling south along the Future Airport Eastern Ring Road. As the zone of development around the future road is at this time unknown and the road does not physically exist, the images presented are fully computer generated and do not contain a baseline photograph.
Visual Receptor Sensitivity	Although the surrounding vistas and views along the future Eastern Ring Road may present some scenic qualities, the road does travel directly through land zoned enterprise as per the SEPP WSA 2020. Therefore, commercial and industrial uses are likely to change the current character over the next 10-20 years. Views will also be transient and for a short time period only, therefore, the visual sensitivity has been judged to be low .
Magnitude of Change	Views of the MOD 3 brickworks extension are expected to be filtered and screened through landscape planting and behind earth mounds at Year 15. Therefore, it is judged that the residual magnitude of change is low .
Significance of Visual Impact	The significance of the visual impact at this location is judged to be minor negligible .



6.3 Viewpoint 3

Viewing Location	Lawson Road, Badgerys Creek - Looking South
GPS	33°53'28"S, 150°45'25"E
Elevation (Eye-level)	67m
Date and Time	20th May 2021 - 12.37pm
Existing View & Photomontage Figure	Figure 20

Visual Description

Approx. Viewing Distance from Lot Development Boundary	100m
View description & prominence of the development	<p>This receptor was selected for visual assessment as Lawson Road was previously assessed for the MOD3 VIA by Envisage (refer to section 3.0 & 5.0 for further details). The baseline photograph has been taken in the same location. It is representative of a number of rural properties close to the northern boundary of the site that experience open views towards the development. The photograph was taken at the end of the Cul-de-sac to the front of the access that leads to property No. 255.</p> <p>As can be seen within the baseline image the existing facility is prominent and is already significantly affecting the view. Existing scattered trees and embankment do screen some of the building.</p>

Visual Receptor Sensitivity	The previous visual assessment for MOD 3 rated the sensitivity at this location to be 'Low'. Although the existing facility is present within the view, this location represents residential receivers and people are usually more critical of their view, the proximity of the development is also very close. Geoscapes therefore, judge the sensitivity of this visual receptor to be medium .
Magnitude of Change	As can be seen in the photomontages, in the shorter term at Year 0, the proposed MOD 3 is visible above earth mounding. The MOD3 proposal will extend the existing development in the horizontal plane. However, following the introduction proposed site landscape mitigation mounding & planting, the development becomes much less apparent and presents a coherent vegetated screen. It is judged that the residual magnitude of change is very low .
Significance of Visual Impact of Proposed Scheme	The significance of the visual impact of the proposed scheme at this location is judged to be minor negligible*

***NOTE : This visual receptor (and other surrounding visual receptors) is located within land that has been zoned ENT (Enterprise) within the SEPP WSA 2020. Therefore, residential properties within this area are may not exist at a future point in time. Should the land be acquired in the short to medium term and the property removed, any visual impacts assessed would no longer be of any relevance.**



Existing View



Photomontage - Year 0



Photomontage - Year 15

Figure 20: Viewpoint 3 - Lawson Road, Badgerys Creek - Looking South (Photomontage)

Approx Angle of View - 67°

6.4 Viewpoint 4

Viewing Location	Future Eastern Ring Road South - Looking North
GPS	33°54'03.6"S, 150°45'16.2"E
Approximate Elevation (Eye-level)	65m
Date and Time	N/A (Computer Generated Image)
Existing View & Photomontage Figures	Figure 21
Visual Description	
Approx. Viewing Distance from Lot Development Boundary	N/A (within the present site boundary) Distance to main brickmaking facility - 43m
View description & prominence of the development	Similar to Viewpoint 2, this viewpoint was selected as part of a response to assess the potential visual impacts of the MOD3 development upon motorists traveling along the Future Airport Eastern Ring Road. VP4 is intended to represent views which might be experienced while traveling northbound. As the zone of development around the future road is at this time unknown and the road does not physically exist, the images presented are fully computer generated and do not contain a baseline image.
Visual Receptor Sensitivity	Although the surrounding vistas and views along the future Eastern Ring Road may present some scenic qualities, the road does travel directly through land zoned enterprise as per the SEPP WSA 2020. Therefore, commercial and industrial uses are likely to be more present in the medium to longer term. Views will also be transient and for a short time period only, therefore, the visual sensitivity has been judged to be low .
Magnitude of Change	The MOD 3 brickworks extension is expected to be seen through landscape planting and behind earth mounds at Year 15. Therefore, it is judged that the residual magnitude of change is low .
Significance of Visual Impact	The significance of the visual impact at this location is judged to be minor negligible .

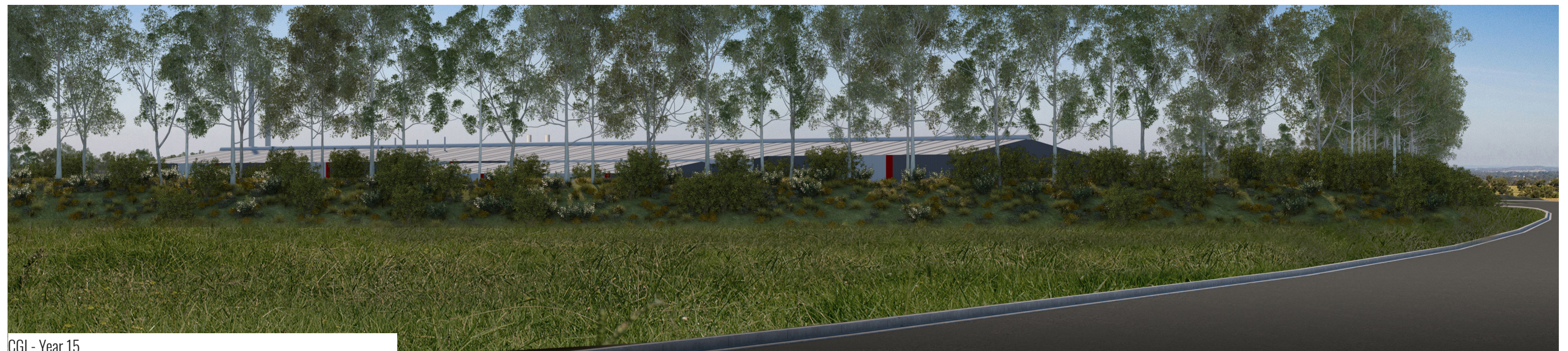
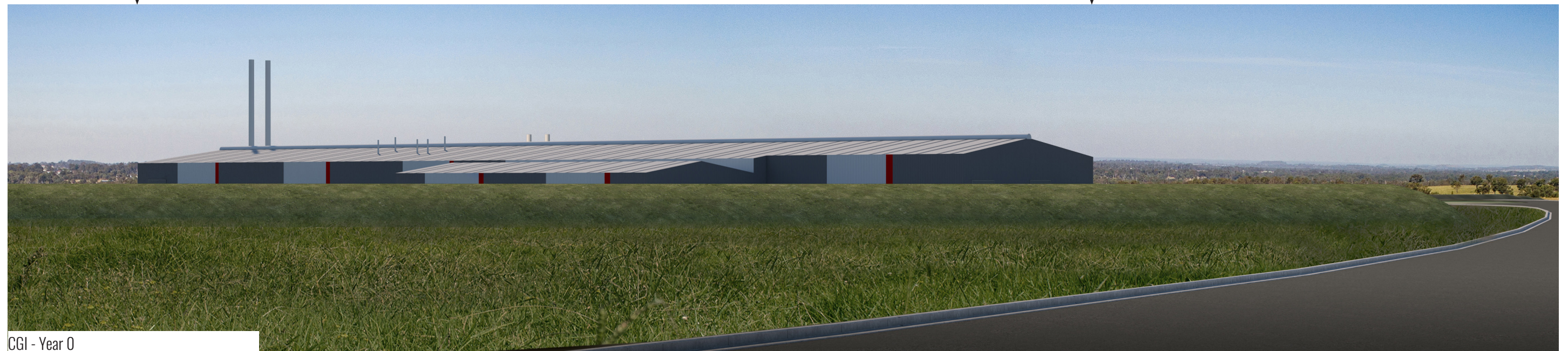


Figure 21: Viewpoint 4 - Future Eastern Airport Ring Road South - Looking North (Computer Generated Image)

6.5 Viewpoint 5

Viewing Location	Aerial View Close to Western Sydney Airport - Looking Southeast
GPS	33°53'30.8"S, 150°45'04.3"E
Approximate Elevation (Eye-level)	96.4m
Date and Time	19th April 2021 - 12.53pm
Existing View & Photomontage Figure	Figure 22

Visual Description

Approx. Viewing Distance from Lot Development Boundary	N/A (within the present site boundary)
View description & prominence of the development	This aerial view was included to indicate what kind of views might be experienced from the air when flying into or out of the future Western Sydney Airport. It also gives a good indication of how earth mounds and planting will be arranged. As discussed within Section 5.0, views from the airport terminal towards the CSR site are likely to be screened by dense vegetation along Badgerys Creek. As the image could not be taken from above the airport itself an aerial view from within the site boundary is used, this is at closer range than what view might actually be experienced.

Visual Receptor Sensitivity	As anyone likely to experience this type of view would be on an aircraft, the view will only be experienced for a short time only. Therefore, It is judged that the sensitivity of this visual receptor is medium .
Magnitude of Change	Proposed mounding and landscape planting will help to sit the development more comfortably within the landscape. Even from an elevated perspective the development is expected to be effectively screened and softened. Therefore, it is judged that the residual magnitude of change is low .
Significance of Visual Impact	The significance of the visual impact at this location is judged to be minor* .

***NOTE : Surrounding land to the site has been zoned ENT (Enterprise) within the SEPP WSA 2020. Therefore, visual impacts are likely to reduce in the longer term as more industrial / business development influences the area and visual sensitivity decreases.**



Existing View



Photomontage - Year 0



Photomontage - Year 15

Figure 22: Viewpoint 5 - Aerial View Close to Western Sydney Airport (Photomontage)

7.0 LANDSCAPE MANAGEMENT PLAN (LMP)

7.0.1 The Role of the LMP

As shown in Geoscapes landscape plans SSD-000 to SSD-601 several mounds proposed in the approved MOD3&4 scheme have been detailed to fulfill DPIE condition 37D. A series of 1m high earth mounds are to be placed in the north and east and earthmounds to a height of 3m to the south, these are to be planted with local endemic species to help mitigate any visual impacts received by nearby adjacent visual receptors, including Western Sydney Airport and the future Eastern Ring Road. Mounds are to be created using a 1:2 ratio.

As identified by Condition 37 and this VIMP report, visual screening with the use of landscape planting is an important part of the development. The visual appearance and scale of the built form can be reduced with the maintenance of earth mounds and new native tree and shrub species. The ongoing management of these zones is therefore, fundamental in maintaining visual mitigation of the development into the future.

7.0.2 Areas to which this the LMP Applies

This plan will apply to the following areas within the site boundary, these are:

- All landscaped earthmounds as documented in Geoscapes landscape documentation SSD-000 to SSD-601

7.0.3 Landscape Maintenance Responsibility

The Landscape Contractor awarded the contract, will hold the first level of responsibility for the implementation of the Landscape Management Plan. The on-going, day-to-day implementation, monitoring and reviewing of the LMP will be undertaken by CSR.

7.0.4 Landscape Management Principles

The following landscape management principles have been identified as being consistent with the approved scheme aims and objectives:

- Minimise environmental impacts that may result from landscape management activities and utilise environmentally sustainable practices. Disturb only the minimum area necessary.
- Control dust with best management principles.
- Water sprays and/or covers will be employed for material stockpiles, particularly during adverse weather conditions, to minimise dust generation.
- Stockpiles are to be covered overnight.
- Mark clearance boundaries prior to commencement of construction to ensure that there is no removal of native vegetation.
- Strengthen, enhance and promote local character with the use of endemic planting in all landscape areas and for any replacement plantings.
- Construct, manage and maintain fully structured landscape screen planting.
- Adopt a low water use, low maintenance approach with the use of endemic native species.

- Provide clear site lines for trucks and vehicular users.
- Provide a safe environment, minimising potential risks to people, buildings and property.
- Best practice landscape maintenance in landscaped areas.
- Target environmental weeds and feral animals through the use of integrated pest management approaches, as per section 7.4.2 of this LMP.
- Manage bushfire risk in accordance with the principles of Appendix 5 of Planning for Bushfire Protection 2019 guidelines and the bushfire consultants report.
- Undertake monitoring, auditing and maintenance activities to ensure an effective and a resilient landscaping outcome and to review the effectiveness of landscape planting to mitigate visual impacts of the operations and built form of the brickmaking facility.
- Appropriately fund, plan and manage landscape maintenance to provide sufficient resource to achieve a long term quality landscape.

7.0.5 Intensity of Use

A key factor in the frequency and types of landscape maintenance activities required for particular areas is the intensity of their use.

All planting areas

Planting occurs on earth mounds away from the main facility activities. These will generally be of low activity.

The areas of mass planting upon earth mounds will not be generally susceptible to compaction from pedestrian usage, therefore heavier textured soils can be used if required.

7.1 GENERAL SITE CONDITIONS

7.1.1 Soil

The site has previous industrial uses and has now been remediated. Therefore, all topsoil is to be imported for new planting works, refer to section 7.3.

7.1.2 Existing Vegetation

Any existing vegetation as identified is to be retained and protected during any construction works on site.

7.2 PROPOSED PLANTING SPECIES

7.2.1 Species List

The following species are taken from the Cumberland Plain Woodland (Shale Plains Woodland & Shale Hills Woodland) community and are proposed to be extensively planted upon the earth mounds.

Code	Botanical Name	Common Name	Mature Height	Spacing	Pot Size	Cumberland Plain Shale Woodlands	Quantity
Top of Mound							
Trees							
ACA IMP	<i>Acacia implexa</i>	Hickory Wattle	2-15m	As shown	Tubestock	✓	66
ACA PAR	<i>Acacia parramattensis</i>	Parramatta Wattle	2-15m	As shown	Tubestock	✓	66
GOR MAC	<i>Corymbia maculata</i>	Spotted Gum	20m	As shown	Tubestock	✓	130
EUC BEN	<i>Eucalyptus benthamii</i>	Camden White Gum	35m	As shown	Tubestock	✓	130
EUC CRE	<i>Eucalyptus crebra</i>	Narrow-Leaved Ironbark	35m	As shown	Tubestock	✓	105
EUC FIB	<i>Eucalyptus fibrosa</i>	Red Ironbark	35m	As shown	Tubestock	✓	105
EUC MOL	<i>Eucalyptus moluccana</i>	Grey Box	25m	As shown	Tubestock	✓	91
EUC TER	<i>Eucalyptus tereticornis</i>	Forest Red Gum	20m	As shown	Tubestock	✓	105
EXO CUP	<i>Exocarpos cupressiformis</i>	Native Cherry	8m	As shown	Tubestock	✓	91
MEL DEC	<i>Melaleuca decora</i>	White Feather Honeymyrtle	7m	As shown	Tubestock	✓	156
Grasses							
ARI ram	<i>Aristida ramosa</i>	Purple Wiregrass	1m	5/m2	Tubestock	✓	3776
DIC mic	<i>Dichelachne micrantha</i>	Plumegrass	1m	5/m2	Tubestock	✓	3776
THE tri	<i>Themeda triandra</i>	Kangaroo Grass	1.5m	5/m2	Tubestock	✓	3776
LOM fil	<i>Lomandra filiformis</i>	Wattle Mat-Rush	0.5m	5/m2	Tubestock	✓	3776
LOM mul	<i>Lomandra multiflora</i>	Many-Flowered Mat-Rush	0.8m	5/m2	Tubestock	✓	3776
ERA lep	<i>Eragrostis leptostachya</i>	Paddock Lovegrass	1m	5/m2	Tubestock	✓	3776
Side of Mound							
Shrubs (14m wide mound 1 plant per 15m2 & 6m wide mound 1 plant per 10m2)							
ACA fal	<i>Acacia falcata</i>	Sally	5m	As shown	Tubestock	✓	172
ACA pub	<i>Acacia pubescens</i>	Downy Wattle	5m	As shown	Tubestock	✓	188
BRE obl	<i>Breynia oblongifolia</i>	Coffee Bush	3m	As shown	Tubestock	✓	214
BUR spi	<i>Bursaria spinosa</i>	Blackthorn	1.5-4m	As shown	Tubestock	✓	240
DAV uli	<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	2m	As shown	Tubestock	✓	240
DIL sie	<i>Dillwynia sirberi</i>	Prickly Parrot-Pea	2.5m	As shown	Tubestock	✓	146
DOD vis	<i>Dodonaea viscosa</i>	Sticky Hop Bush	8m	As shown	Tubestock	✓	240
LIS str	<i>Lissanthe strigosa</i>	Peach Heath	1m	As shown	Tubestock	✓	240
MIC min	<i>Micromyrtus minutiflora</i>	Heath-Myrtle	2m	As shown	Tubestock	✓	172
Groundcovers							
ASP con	<i>Asperula conferta</i>	Common Woodruff	0.2m	5/m2	Tubestock	✓	11933
BRU aus	<i>Brunoniella australis</i>	Blue Trumpet	0.3m	5/m2	Tubestock	✓	11933
GOO hed	<i>Goodenia hederacea</i>	Ivy Goodenia	0.8m	5/m2	Tubestock	✓	11933
PIM spi	<i>Pimelea spicata</i>	Spiked Riceflower	0.5m	5/m2	Tubestock	✓	11933
PUL par	<i>Pultenaea parviflora</i>	Sydney Bush Pea	1m	5/m2	Tubestock	✓	11933
Vines/Climbers							
DIC rep	<i>Dichondra repens</i>	Kidney Weed	0.3m	1/20m2	Tubestock	✓	799
HAR Vio	<i>Hardenbergia violacea</i>	Native Sarsparilla	2m	1/20m2	Tubestock	✓	799

7.2.2 Earth Mound Planting

The earth mounds will be planted with trees, shrubs and groundcovers that form part of the Cumberland Plain Woodland - Shale Plains Woodland Community. Approximately 1000 trees are proposed to be planted to create vegetative screens to mitigate visual impacts. All species are listed in the schedule opposite and the landscape documentation and must also be read in conjunction with this LMP.

7.3 LANDSCAPE MANAGEMENT ACTIVITIES

7.3.1 General

All plant species are endemic to the area and have been selected from the Shale Plains Woodland community which has been found on site within previously environmental assessment reports. The landscape set out planting, specify densities, spacings and installation methodology. Areas shall be weed free and mulched to suppress weed growth and retain moisture content within the soil. A open weave jute mesh is to be placed over the mulch and pinned top and bottom of the embankments. All tree and shrubs are to have plastic sleeve guards during establishment.

The key differences in the management of native plants are their requirement for low-phosphorous fertilisers and a lower fertiliser rate than exotic species generally. Plants of the Pea group (including Acacias, Daviesia and Pultenaeas) and Casuarinas are also able to fix their own Nitrogen. Natives also have lower water requirements in comparison to exotics and are adapted to the harsher Australian conditions.

For the above reasons native endemic plantings make a more sustainable option in respect of the long term landscape management and should there be failures the original species specified on the landscape plans must always be reused.

7.3.2 Mulching & Replacement

To prevent erosion of mounding during establishment, mulch must be used under a covering of biodegradable erosion protection, such as pegged and overlapped open-weave jute mesh.

Tubestock is used throughout for optimal establishment and to adapt better to the soil conditions, therefore a 10-15% failure rate is to be expected through the establishment stage. The contractor is to monitor and replace failed tubestock immediately.

7.3.3 Soil Management

As a general rule native mass planting require a sandy loam to clay loam topsoil mix which is suitable for the planting of grasses, woody and herbaceous perennials and trees. The following mix is suitable for plants that do not have high nutrient requirements and are not susceptible to compaction. Note that if phosphorous sensitive natives are used, the phosphorous levels of all components must be checked for suitability. Additional drainage may be required depending on the situation.

The following table outlines suggested components, that may likely meet the physical requirements of the soil for all landscape areas:

Sandy loam soil or site won topsoil Composted soil conditioner conforming with AS 4454	70-100% by volume 0-30% by volume	e.g. 8 parts washed sand/2 parts sandy loam/1 part AS 4454 compost
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(Leake and Haege 2014, p.87)

7.3.4 Fertilising & Composting

To ensure the health and vigor of screen plating is maintained. Mass planted areas will perform better when the soil conditions are healthy. Building healthy soils is the key to achieving the long term maintenance goals of mass planted landscape areas. Soil health is primarily achieved with regular applications of organic soil conditioners such as animal manures, decomposed green waste or proprietary blends of compost.

Fertilising and composting are not critical maintenance activities except where there are obvious deficiencies, but are to be assessed on an annual basis by observation and leaf analysis.

7.3.5 Pruning

Remove dead or dying plant material from mass planted areas on the site as required. This may become necessary as plantings mature, after damage or adverse environmental conditions. Pruning will be carried out on trees and shrubs that require it to remove the dead and damaged branches and to retain natural shape and to improve health and vigour. Where die-back of plant material has been identified new plants will be planted as soon as possible, using species originally specified.

7.3.6 Weeding

Weeding is often a concern in new areas of landscaping planting. As of 1 July 2017 the NSW Noxious Weeds Act 1994 was repealed and replaced with the NSW Biosecurity Act 2015 and its accompanying Biosecurity Regulations. Under the act, plants are no longer termed “noxious weeds” nor do they have “classes” of weeds. The new legislation provides greater flexibility to respond to, manage and control all weed species. All plants are assessed for their biosecurity risk. This is the risk that the introduction, presence, spread or increase of a plant will have, or may potentially have, an adverse effect on the economy, the environment or the community.

Environmental weeds are non-local plants that can invade and change natural areas and threaten the survival of native plants and animals. After land clearing, environmental weeds are considered to be the next greatest threat to our indigenous biological diversity. Environmental weeds have the potential to readily invade planting bed areas and potentially impact on the adjacent lands.

In addition to the environmental hazard posed by weeds, weeds occurring in mass planted beds or those growing from the base of trees and from pavement can be unsightly and presents an untidy appearance.

Appendix 1 of the Greater Sydney Regional Strategic Weed Management Plan 2017-2022 lists all priority weeds for the Greater Sydney region that have prescribed requirements under the NSW Biosecurity Act 2015. It also lists other regional priority weeds and the minimum outcomes that demonstrate compliance with the general biosecurity duty.

NSW WeedWise is a NSW Department of Primary Industry website which profiles over 300 high priority weeds across the State and Greater Sydney

Region. It describes the Biosecurity duty required under the Biosecurity Act 2015 for each plant and outlines their methods of control (including registered herbicide options).

Another guide for the control of weeds on the site is the New South Wales Weed Control Handbook a guide to weed control in non-crop, aquatic and bushland situations NSW DPI management guide, seventh edition.

A copy of the handbook can be downloaded at the link:

https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0017/123317/weed-control-handbook.pdf

To ensure that environmental weeds do not reproduce within or spread into mass planted areas and compete with plantings and spread to other areas, weeding and weed control is considered to be a critical maintenance action.

Maintenance Action Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Remove by hand in the first instance (where infestations are low). Ensure that the entire weed including all roots is removed. Dispose of the weeds off site.	Monthly
Remove by Herbicide application any weeds which cannot be controlled by hand removal. Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.	
Herbicide use to be in accordance with regulation rates and manufacturers recommendations. Herbicide use must comply with the requirements of the Noxious and environmental weed control handbook. A guide to weed control in non-crop, aquatic and bushland situations. NSW Department of Primary Industry Management Guide, Seventh Edition.	
After spraying, lop any dead weeds flush with the ground surface and dispose of the cuttings.	Monthly
Use of bio-degradable herbicide is mandatory	

7.4 IRRIGATION, DISEASE AND INSECT CONTROL

7.4.1 Temporary Irrigation

All planting to earth mounds as identified on the landscape plans will have a temporary irrigation system installed to help establish planting within the first 6 months. The irrigation system is to be designed, supplied and installed by an experienced specialist irrigation contractor, nominated by the Landscape Contractor and approved by the Head Contractor or their landscape consultant. After selection they will be required to prepare irrigation plans and specifications for approval prior to commencing work. The Landscape Contractor will co-ordinate the irrigation installation to the client /

landscape architects approval. Ensure completion of the irrigation system before the commencement of any other landscape works, so as to provide a readily available supply of water to planting areas.

Upon completion of the installation of irrigation works, the Landscape Contractor is to run through the system to ensure that it is operating correctly and instruct the client's representative in the correct operation and maintenance of the system.

The following principles are to apply:

Maintain adequate soil moisture – match supplemental irrigation water needs to climate conditions and available soil water
 Water effectively – apply water so that it reaches the root systems with minimal losses
 Encourage extension of the root system – apply water to extremity of root system and beyond
 Remove competition for water – maintain mulch around the plants

7.4.2 Disease, Insect and Feral Animal Control

Always consider biological and non-chemical controls in favour of chemical controls in the first instance because the margin for error is far smaller with chemicals. For example most insecticide will also harm beneficial insects as well as the target species. For a comprehensive reference to the identification, diagnosis and control of pests and diseases refer to "What Garden Pest or Disease Is That? Organic and Chemical Solutions for Every Garden Problem" by Judy McMaugh 2000 New Holland.

If feral animals become a problem refer to Greater Sydney Regional Strategic Pest Animal Plan 2018 - 2023.

The plan can be found at the following location:

https://www.lls.nsw.gov.au/_data/assets/pdf_file/0003/820794/greater-sydney-strategic-pest-plan-web.pdf

7.5 PROTECTIVE MEASURES

7.5.1 Protection of Existing Vegetation

Existing vegetation needs protection during construction and establishment.

7.5.2 Tree Protection

Tree protection must comply with the Australian Standard 4970 – 2009 Protection of trees on development sites.

The relevant Australian Standards are:

- AS 4970 Protection of trees on development sites.
- AS 4687 Temporary fencing and hoardings

7.5.3 Erosion, Contamination and Sedimentation Control

During construction, all precautions necessary must be undertaken to prevent erosion, contamination, and sedimentation of the site, surrounding areas and drainage systems, including but not limited to the following:

- Construction of temporary drains and catch drains
- Diversion and dispersal of concentrated flows to points where the water can pass through the site without detrimental impacts
- Construction and maintenance of silt traps to prevent discharge of scoured material to downstream areas
- Stabilisation of exposed soil surfaces
- Use of erosion and sediment control measures to collect sediment and to reduce flow velocities
- Construction of sediment fencing and erosion controls as per Landcom's Managing Urban Stormwater: Soils and Construction 2004.
- Regular monitoring and maintenance of all erosion and sediment control structures throughout the construction and operational phases of the development to ensure their effective function.

7.6 LANDSCAPE MAINTENANCE AND REPORTING

A Maintenance Schedule is shown on page 32 which describes general maintenance tasks and timing. A log book must be used to record daily/ weekly/monthly visits. All maintenance actions are to be recorded in the log book.

Regular inspections of all landscape areas will be undertaken initially by the appointed contractor and then by lot owners following handover. This is to ensure that maintenance is carried out according to the plan. Inspections must include the ongoing protection of landscape works during its establishment period.

CATEGORY	TIMEFRAMES / FREQUENCY				Tasks and Specification
	Daily/Weekly	2 Weekly/Monthly	3 to 6 Months	As Required	
1. Weeding and Rubbish Removal		✓			Weed planting areas manually or with approved herbicide. Prior approval required for Herbicide use. Approved Herbicide use to be in accordance with regulation rates and manufacturer's recommendation. Protect plants from overspray and avoid if rain is likely within 12 hour period. Dispose of any waste material using appropriate methods and at designated disposal sites. Maintain weeds for a period of 12 months, with more frequent weeding in the summer months.
2. Leaf Litter Removal		✓	✓		Remove leaf litter as per Bushfire recommendations. Remove leaf litter from pathways
3. Mulching		✓	✓		Reapply mulch to maintain to a depth of 75mm in areas that are deficient. Soil should be aerated before placing mulch. After 12 months, mulching will have broken down and should be topped up to ensure a depth of 75mm. A slow release, low phosphorous fertiliser should also be applied
4. Plant Fertiliser			✓		Fertilise all plants at specified rates based on soil testing results. Prior approval required for fertiliser use. Slow release fertiliser N:P:K ratio- 18:3:10 at manufacturer's recommended rate per plant. Initial fertilising at planting based on soil testing results
5. Pest & Disease Control		✓		✓	Check for incidence of fungal and insect attack. Avoid use of chemical sprays. Apply appropriate treatment for fungal and insect attack if necessary subject to approvalPrior approval required of chemical to be applied. Check for damage by animals, seek specialist advice is persistent damage is observed
6. Pruning, Trimming, Stakes and Ties		✓			Remove deadwood, remove suckering roots from rootball, check ties. Improve plant shape and promote new growth. Adjust ties and stakes as necessary. Stakes can be removed once plants are self-supporting. Notify in writing to Management any perceived need for tree structural work. Adjust ties and stakes as necessary.
7. Plant Removal & Replacements		✓			Inspect for failed or dying plants requiring replacement and record probable cause. Replant after dead or failed plant removal. Densities, sizes and species to be in accordance with Landscape Plans LAN-100.09 and relevant drawing sheet no. Water replacement plantings for a minimum of 12 weeks after planting.
8. Urgent Works	✓				To be actioned within 7 days.
9. Watering	✓	✓			Water as necessary every day especially during periods of hot weather. 2 week interval watering should be maintained until planting is fully established. Best practice watering is early morning or late afternoon to reduce evaporation.

8.0 MONITORING, REPORTING MEASURES & VIMP SUMMARY

8.1 Monitoring and Reporting

Inspection, monitoring and auditing will be undertaken to assess and record whether implementation of the mitigations measures described within this VIMP are effective.

Through the Community Consultation Committee the project will update the committee of any project updates and changes that affect the visual receivers identified and update them with any further mitigation strategy that might arise from any specific monitoring strategy that has arisen.

The table below outlines program of tasks and actions to be adopted following completion of the project:

Task	Action	Frequency
Inspect all landscaping areas to ensure planting is establishing	Liaise with landscape contractors installing the works and estate management regarding on-going maintenance. Ensure that the LMP is being followed as per Section 7.0. Create an inspection report and identify any areas for rectification. Following any rectification works, re-visit the site to ensure works have been carried out correctly.	Following project completion and at 12 month intervals for a period of 5 years.
Review the effectiveness of landscape planting to reduce visual impacts	Take photographs from the viewpoint locations identified within Sections 5.0 & 6.0 to record how landscaping is effectively mitigating visual impacts as identified in Section 6.0. Present findings within a report. If after 5 years it is identified that the landscape mitigation measures are not expected to be effective, then a further study is to be carried to investigate additional mitigation measures. A Visual Impact Assessment report and landscape plans are to be submitted to the DPE outlining further mitigation measures.	12 months after completion and every 24 months thereafter for a total period of 15 years.

8.2 Protocol to update this plan

This plan will be updated as per the below:

Condition	Measure	Responsible
37A	3 months prior to commencing quarrying of Pit 3 plan is to be updated	Site Manager
37B	Within 6 months of the Secretary being advised of the confirmed Eastern Airport Ring Road alignment, plan will be updated to reflect new alignment and the construction of the landscape earthbunds and plant vegetation screens around the brickmaking facility and raw material stockpile.	Site Manager

8.3 Summary

The main purpose of this Visual Impact Assessment (VIMP) is to fulfill the DPIE Minister's Condition 37D of the approved Badgerys Creek Mod 3 - Upgrade Brick Making Facility. The response to condition 37D includes landscape planting plans (refer to separate drawings SSD-000 to SSD-601) upon proposed earth mounds to provide visual mitigation of the development and further visual analysis to demonstrate how effective the screen planting will be to nearby visual receptors and the future Eastern Airport Ring Road.

It is the intention that this report is updated following the receipt of information relating to the detailed design of the airport ring road. This will include final alignment, levels and cut & fill.

As per condition 37D, planting species have been selected from the Cumberland Plain Shale Woodland community which has been found on site and documented in ecology reports that formed part of the approval. A landscape management plan has also been included which provides details of ongoing management and maintenance of these areas for the life of the project.

As concluded in the previous MOD3 visual assessment report prepared by Envisage, operational visual impacts were found to be either low or low/moderate from selected visual receptors within the immediate surrounding context. This report concluded that with the introduction of the earth mounds and landscape planting, following maturity, visual impacts are further reduced to **minor** or **negligible**. Predicted visual impacts from the future Eastern Airport Ring Road are also judged to be minor.

9.0 GLOSSARY OF TERMS

Term	Definition
GLVIA	Guidelines for Landscape and Visual Impact Assessment (UK Landscape Institute)
LVIA	Landscape and Visual Impact Assessment
VIA	Visual Impact Assessment
DPIE	Department of Planning Industry and Environment
AGL	Above Ground Level
APL	Above Proposed Warehouse Pad Level
Baseline	The existing current condition / character of the landscape or view
Visual Receptor	A group or user experiencing views of the development from a particular location
Visual Sensitivity	The degree to which a particular view can accommodate change arising from a particular development, without detrimental effects.
Viewing Distance	The distance from the point of projection to the image plane to reproduce correct linear perspective.
Magnitude of Change	The magnitude of the change to a landscape receptor or visual receptor
Significance of Impact	How significant an impact is for a landscape or visual receptor

10.0 APPENDIX

10.1 Consultation

Consultation was conducted with Liverpool Council, TfNSW and relevant WSA authorities. Below is a table with responses to each query raised by the relevant authority;

Liverpool Council

No objections from Council

Transport for NSW

Description	CSR Response	VIMP Section
The Visual Impact Management Plan prepared by Geoscapes Landscape Architecture and submitted (as outlined below) has been reviewed and it is advised that Condition 37D in the Consent has been satisfied.	No further action	-

WSA Authority

Description	CSR Response	VIMP Section
Lighting impacts management to WSA	Those requirements form part of Phase 1b works, the VIMP will be updated once Phase 1b works timing is known. Once CSR moves with the redevelopment of the Brick Factory all lighting design requirements and impacts will be issued to WSA for review	
Landscaping management measures to manage wildlife impact on WSA	Works are associated with Phase 1b of the project and detail landscape management plans and wildlife management plan will be prepared for Phase 1b works. Once the Eastern Ring Road has been approved and CSR commences quarrying of Pit 3, the Wildlife management plan will be prepared and issued to WSA for comments and consideration	
As discussed, WSA's comments on the Visual Impact Management Plan at this time are limited to the proposed landscaping. WSA would welcome the opportunity to further discuss the proposed landscaping species as some of the proposed species will likely be bird attracting. In addition, WSA requests that a Wildlife Management Plan be prepared for the site. We note your advice that the timing of Phase 1b works is not yet known and request that WSA be further consulted in relation to landscaping and lighting prior to Phase 1b works commencing.	CSR will consult with WSA as part of the updating the VIMP for Phase 1b works. Once the Eastern Ring Road alignment and construction timeline has been approved CSR will consult with WSA with the detail plans including the wildlife management plan.	