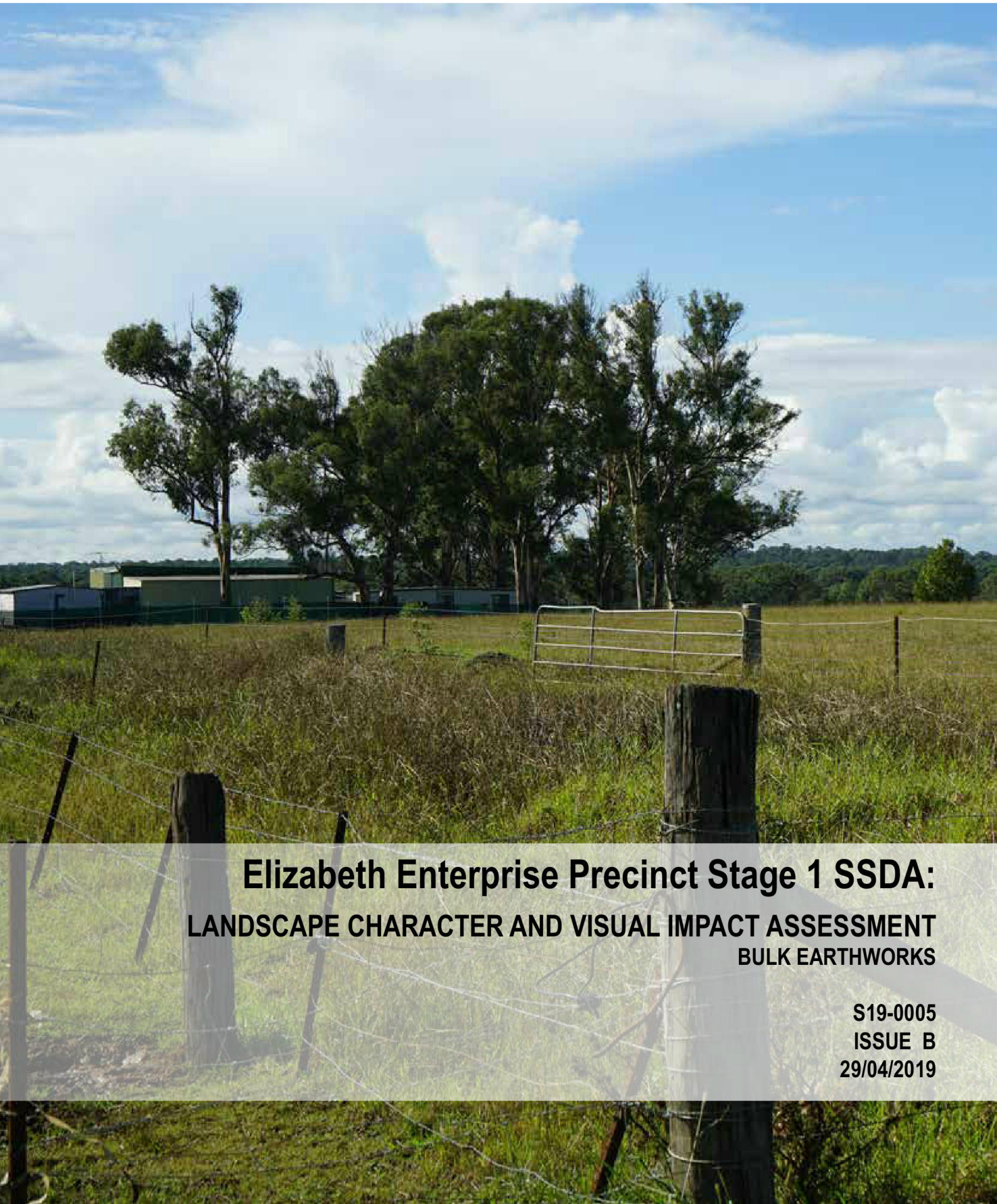
CLOUSTON associates



Elizabeth Enterprise Precinct Stage 1 SSDA:

LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT

BULK EARTHWORKS

S19-0005
ISSUE B
29/04/2019

ELIZABETH ENTERPRISE PRECINCT
STAGE 1 SSDA : BULK EARTHWORKS

LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT

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Document	Issue	Date	Status	Reviewed	Verified	Validated
S19-0005	A	29/03/19	Draft	JT	CL	
S19-0005	B	29/04/19	Final	JG	JT	CL

Note: This document is Preliminary unless Validated.

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EXECUTIVE SUMMARY

CLOUSTON Associates has been engaged to conduct a Landscape Character and Visual Impact Assessment (LCVIA) of Mirvac's proposal for employment lands adjoining Elizabeth Drive and Badgery's Creek known as Elizabeth Enterprise Precinct, which will include extensive warehoses and associated offices. This LCVIA will address bulk earthworks associated with Stage 1 of the precinct only.

The site is part of an existing rural landscape. The landscape character and typical land use types that surround the site can be described as rural, infrastructure, primary production, low density residential as well as creek corridors.

After undertaking a visual catchment assessment a number of suitable viewpoints were selected to analyse. These covered views from the public domain (principally streets), views of pedestrians and cyclists, close and direct views and views from transport (private and public) and the views from adjacent residential properties.

Of the 8 viewpoints selected and analysed the visual impact ratings are as follows:

- 5 'moderate' impact ratings
- 2 'moderate/high' impact ratings
- 1 'high' impact ratings

At this juncture, no visual mitigation measures such as new plantings are proposed until the rezoning application is prepared.

The visual impact of the bulk earthworks if unmitigated by future plantings will be significant. However, the bulk earthworks are a temporary pre-development stage and, with associated new plantings for a future rezoning application, it could be anticipated that these impacts would reduce significantly over time as those plantings grow.

INTRODUCTION

PURPOSE OF THIS REPORT

Mirvac is proposing to construct a new enterprise precinct on the site of existing rural land adjoining Elizabeth Drive at Badgerys Creek. The site will be known as 'Elizabeth Enterprise Precinct' (EEP), comprising of four stages of development.

CLOUSTON Associates has been commissioned by Mirvac to prepare this Landscape Character and Visual Impact Assessment (LCVIA) to evaluate the visual impacts of the initial bulk earthworks required to be part of the site for future development. A separate LCVIA will be prepared at a later date, addressing the impacts of proposed built form, as part of a rezoning application.

APPROACH TO VISUAL IMPACT ASSESSMENT

Visual Impact Assessment evaluates how the surroundings of individuals or groups of people may be affected by change in the landscape, both quantitatively and qualitatively. We aim to ensure all possible effects of change and development in the landscape, views and visual amenity are taken into account.

The significance of the effects is determined by a process of reasoning, based on analysing existing conditions, identifying receptors and assessing their sensitivity, as well as the magnitude and nature of the changes that may result from any development.

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

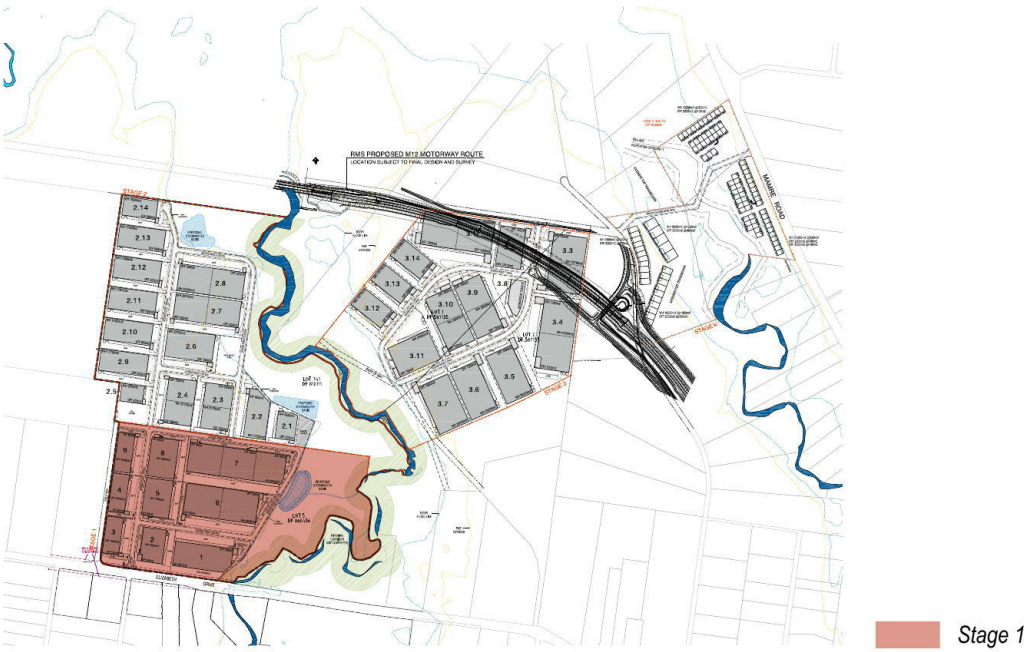


Figure 1.0 Proposed development of Elizabeth Enterprise Precinct Stage 1 - 4, resource TDESIGN

THE SITE

Figure 2.0 Context map

Figure 3.0 Surrounding suburbs map

THE SITE

The Stage 1 site is located at 1669-1723 Elizabeth Drive, Badgerys Creek (Lot 5 DP860456) in the local government area of Penrith. The total area of the stage one site is approximately 58 Ha. and is approximately 42km west of the Sydney CBD, and 15km south-east of Penrith.

The site is zoned as RU2 Rural Landscape. It is bound by Elizabeth Drive to the south, adjoining the low-density residential lots that is zoned for special activities. The site is about 800m north-west to the entry of future Western Sydney Airport .

To the east of the site is South Creek and to the west of the site is the SUEZ Kemps Creek Resource Recovery Park adjacent to Badgerys Creek.

To the north of the site is the existing rural land, which is proposed as Elizabeth Enterprise Stage 2 development. The Stage 3 and Stage 4 development locate to the north-east of the site, bounded by the South Creek to the west and Mamre Road to the east.

Figure 4.0 Site map

THE PROJECT

The completed project will comprise an industrial subdivision with warehouses, offices, parking and associated landscape (see Figure 5.0). The bulk earthworks assessed under this LCVIA are illustrated in Figure 6.0.

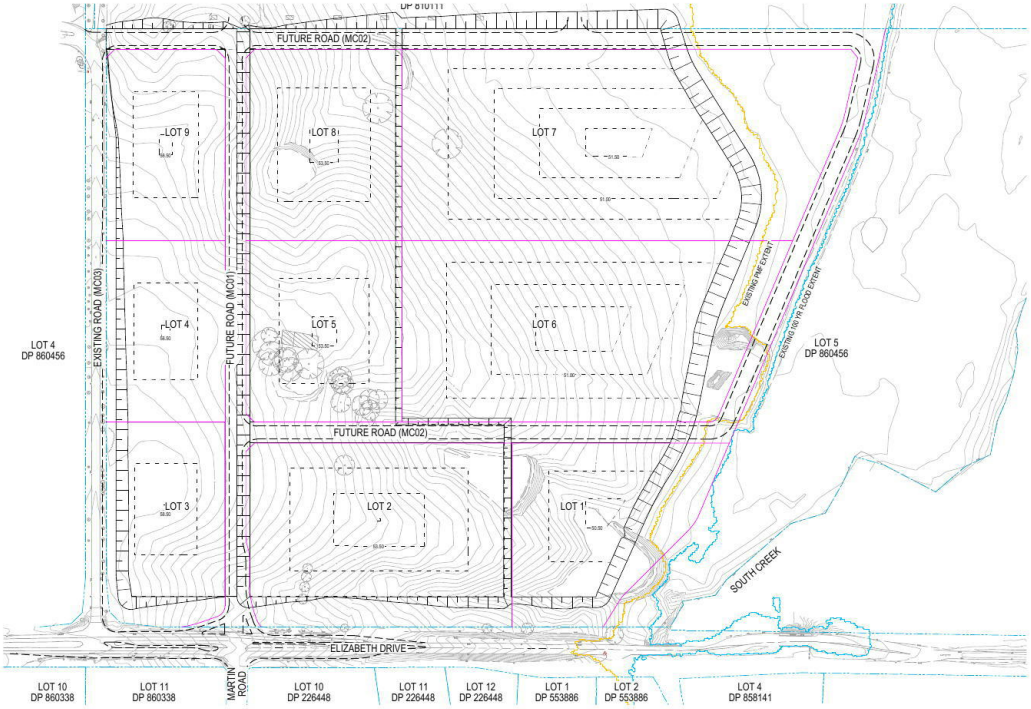


Figure 5.0 Site Plan. Source AT&L Civil Engineers and Project Managers

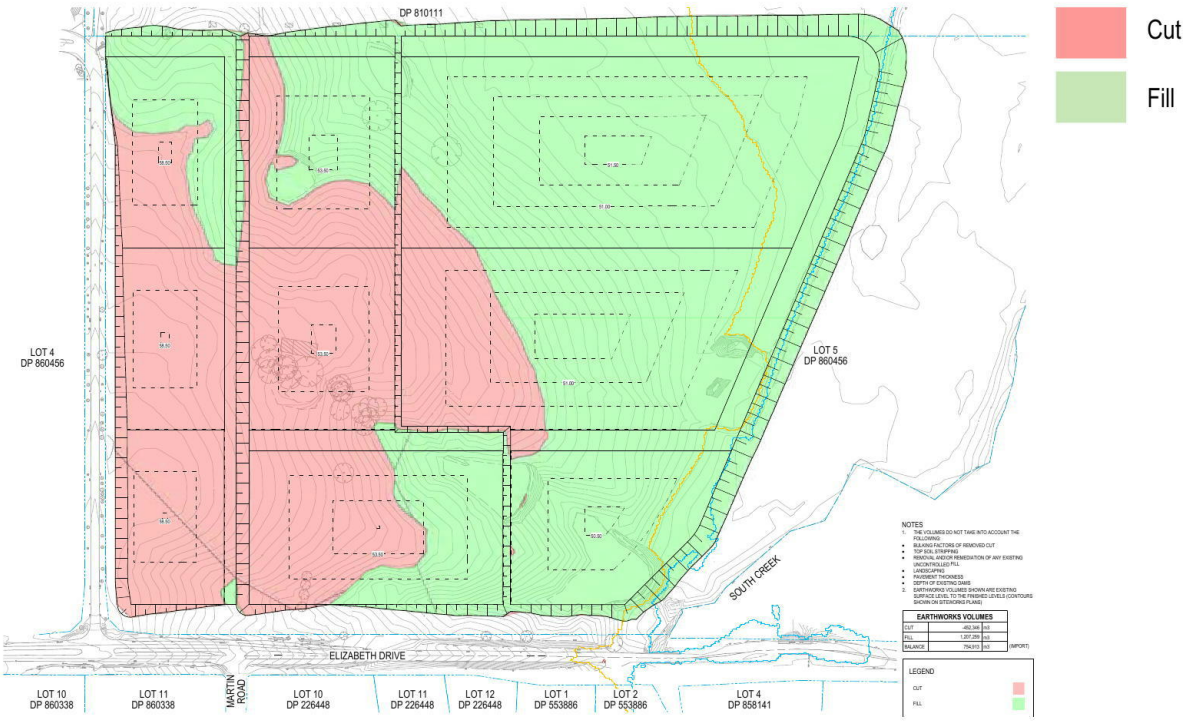


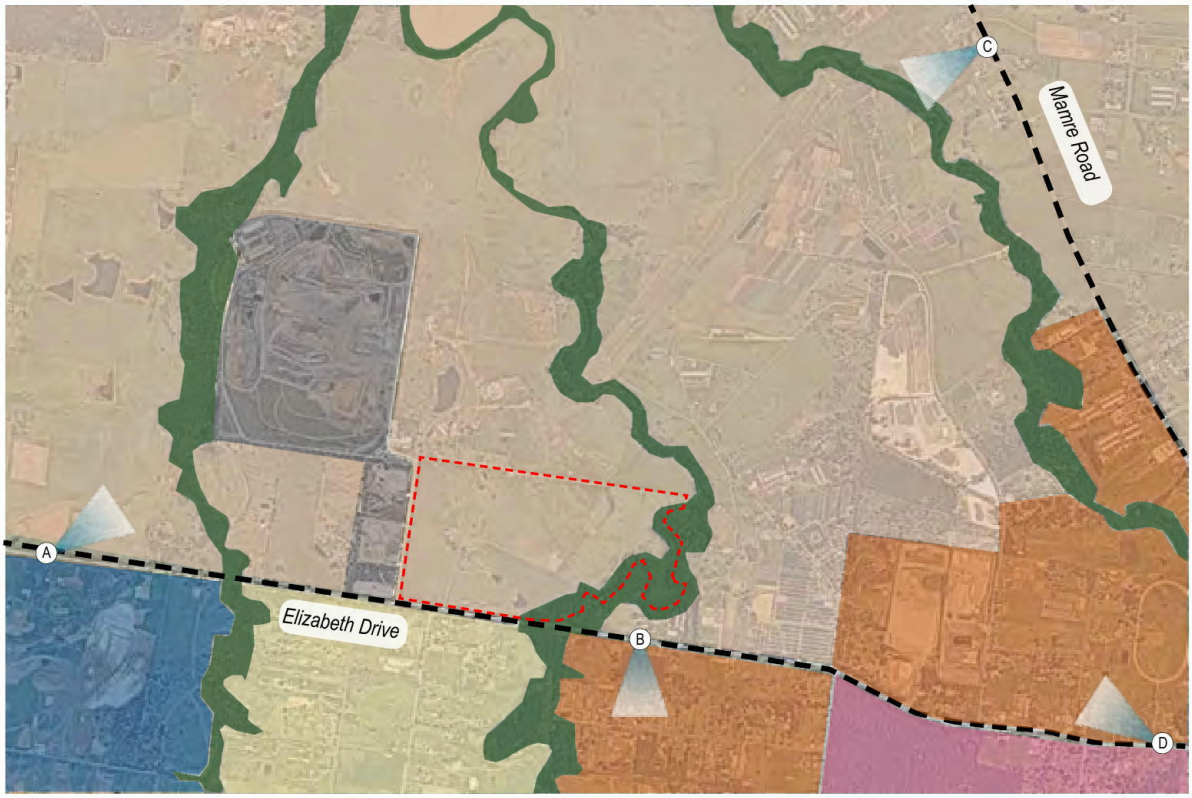
Figure 6.0 Cut & Fill Earthworks Plan. Source AT&L Civil Engineers and Project Managers

LANDSCAPE CHARACTER

Figure 7.0 below and the photos that follow broadly illustrate the typical existing land use types around the site that characterise the local lanscape.

The geography of the area is largely defined by gentle rolling topography, open pasture, scattered groups of trees (especially along the road), and long views to distant horizons. South Creek to the east of the site retains the most significant tree canopy.

The project site slopes from west to east towards South Creek. There is a single residential dwelling and 4 dams on the site.



Site Boundary

Major Road

Sydney Region Growth Centre

Industrial

Primary Production

Rural Landscape

Creek corridor

Primary Production: Small Lots

Special Activities (Western Sydney Airport)

Ⓐ Photo location (see over)

Figure 7.0 Existing Land Uses and Photo Location Points.

LANDSCAPE CHARACTER

A - Existing Landscape Character: Rural Landscape and farm dams

B- Existing Landscape Character: Primary Production: Small lots

LANDSCAPE CHARACTER

C - Existing Landscape Character: Rural Landscape with variety of uses, mostly pastural and market gardening.

D - Existing Landscape Character: Small clusters of shops

VISUAL CATCHMENT ANALYSIS

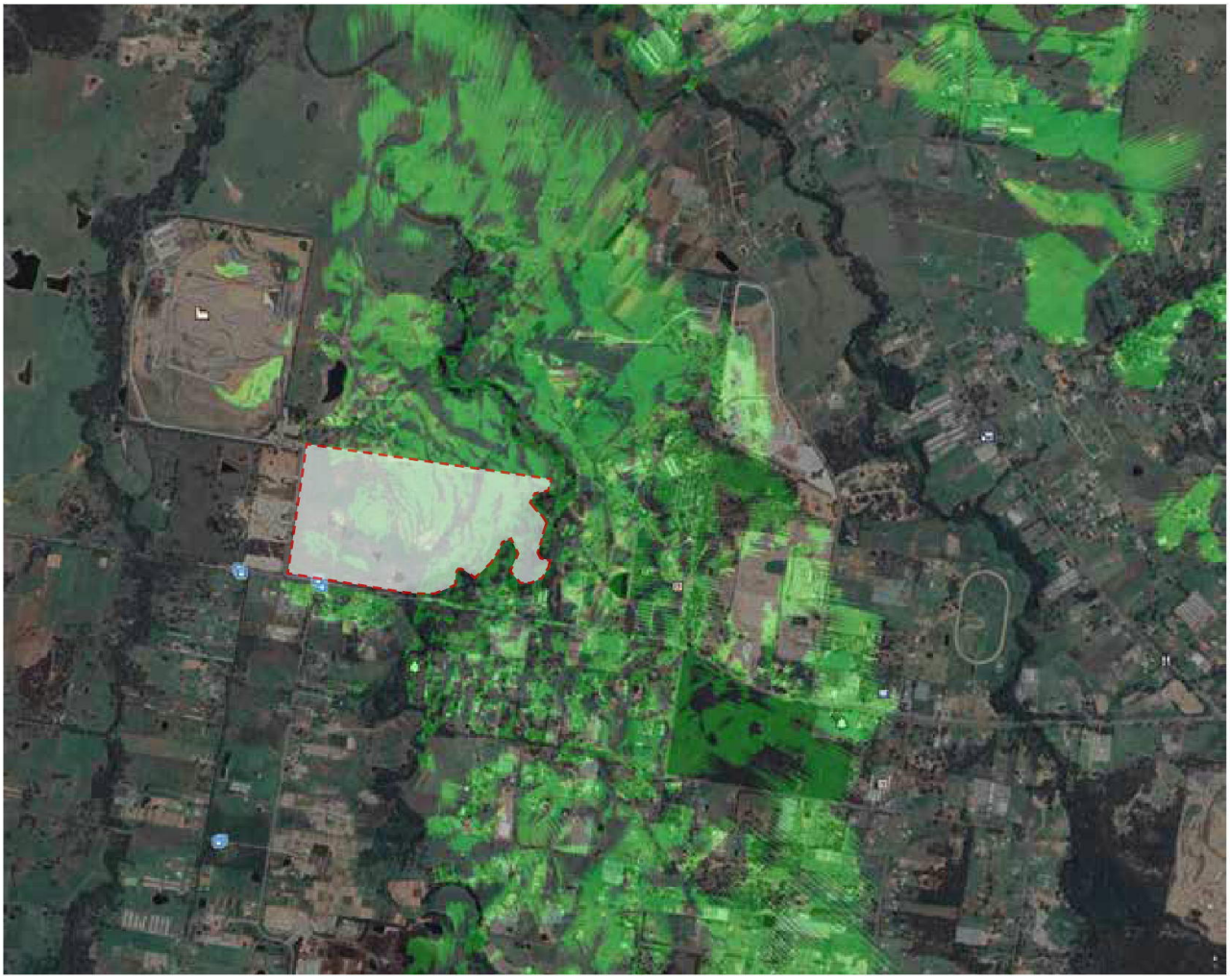


Figure 8.0 - Viewshed of the site based solely on topography, excluding existing buildings and trees. (Source Google Earth)

Legend

Site

Estimated viewshed based on topography only

VIEW SELECTION CRITERIA

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
- Desktop mapping
- Viewshed analysis - see Figure 8.0
- In field evaluation undertaken for this report.
- SEARS as issued by the NSW Department of Planning

Based on the above, the selection criteria for the views assessed in detail include, in order of priority:

- Views from the public domain (principally streets, parks and roads)
- Views of pedestrians and cyclists (generally limited in number, given the absence of paths and cycleways on Elizabeth Drive)
- Close and direct views from adjacent residential properties (the closest are immediately to the southern side of Elizabeth Drive)
- Views from transport (private and public)

As may be seen in figure 8.0, with the land on the project site sloping mostly west to east, the principal visual catchment is to the east of the site.

While there are residential properties to the south of the site, the landform generally obscures the site from this aspect, with the exception of one property.

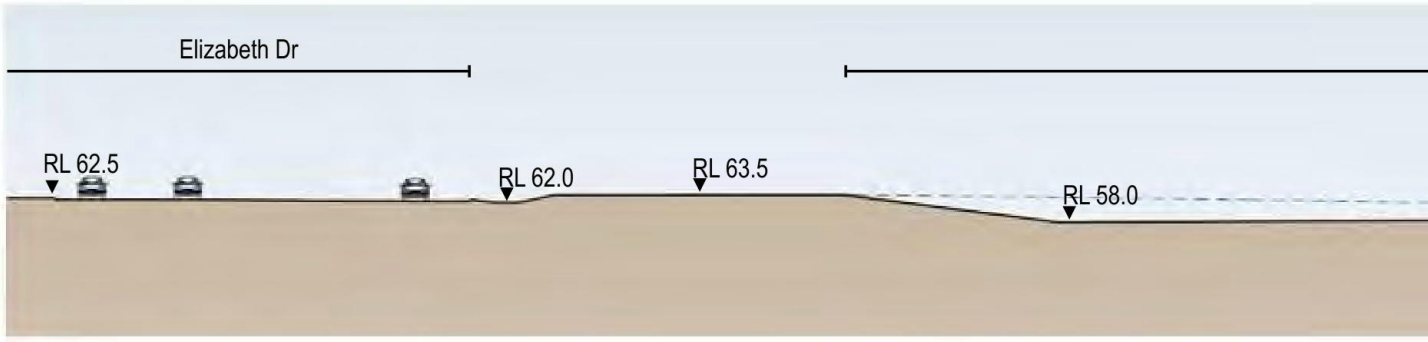
In light of the above, the views selected for detailed analysis are chosen from the most viewed public locations along Elizabeth Drive and on the access road to the Resource Recovery Park (See Figure 9.0).

SELECTED CROSS SECTIONS

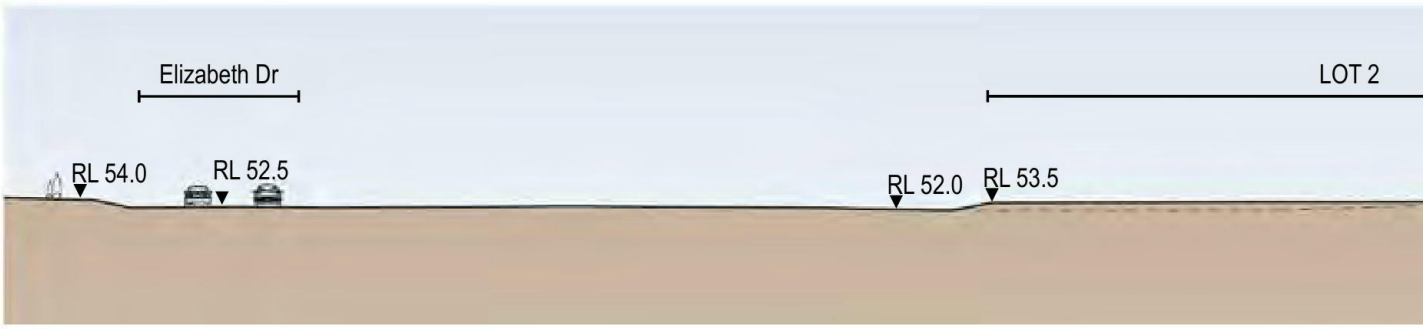
To assist in understanding potential view impacts from various of the eight selected viewpoints, a series of cross sections is provided in Figure 11.0.

KEY VIEWS AND VISTAS

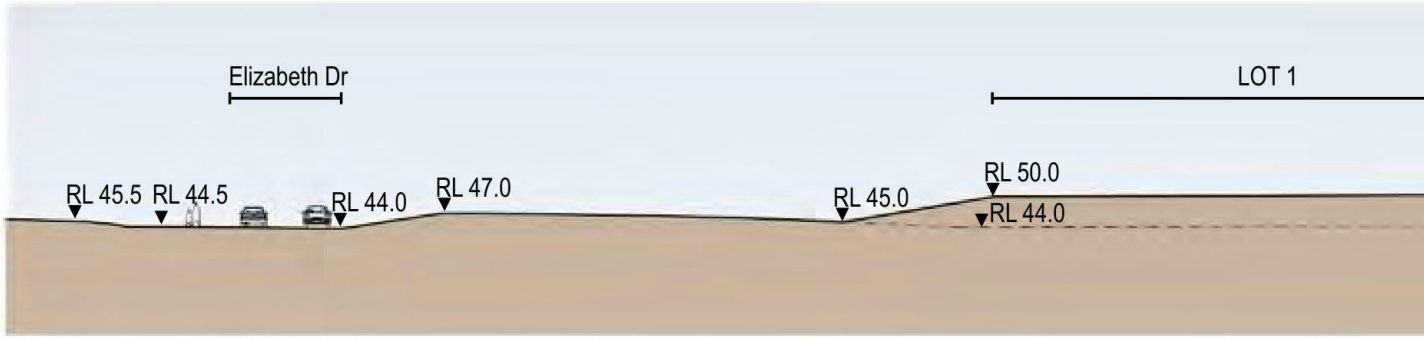
Figure 9.0 - Key Views and Vistas



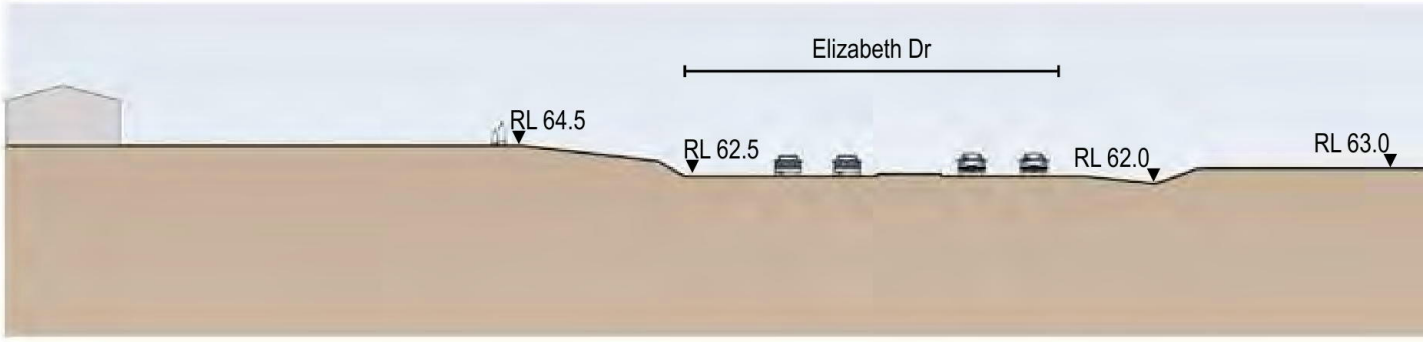
Section A (View 2) 1:500



Section B (View 5) 1:500



Section C (View 7) 1:500

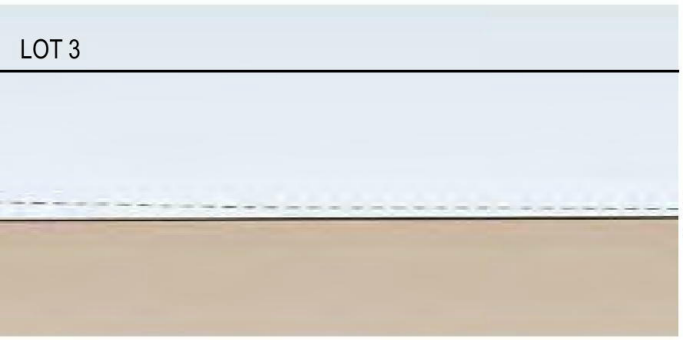


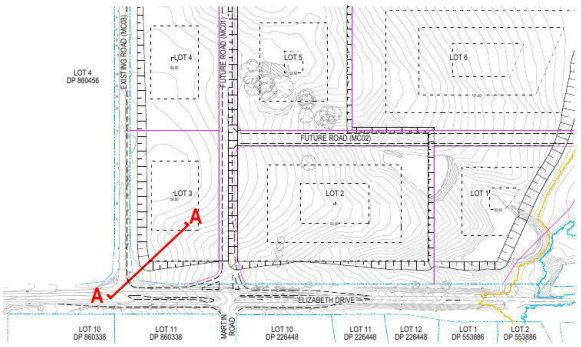
Section D (View 8) 1:500

Figure 11.0 - Selected Cross Sections

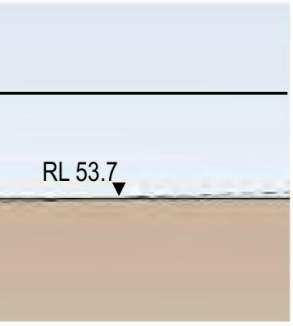
1:500 @A3

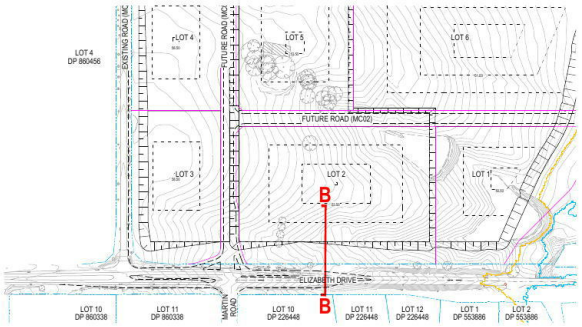
0 5 10 15 25m



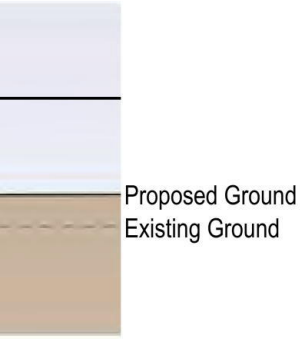


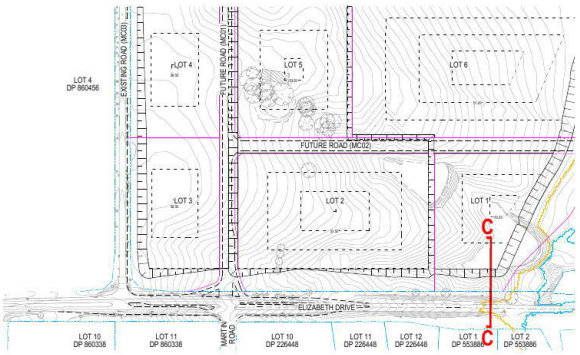
Section A Location



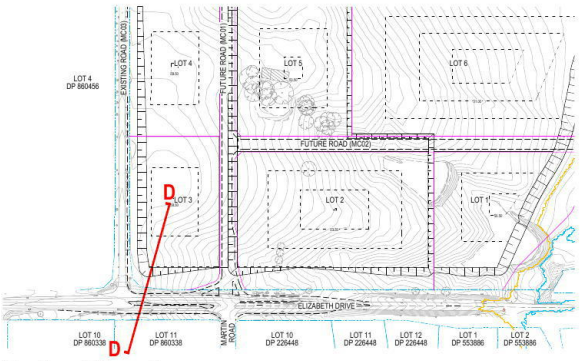


Section B Location

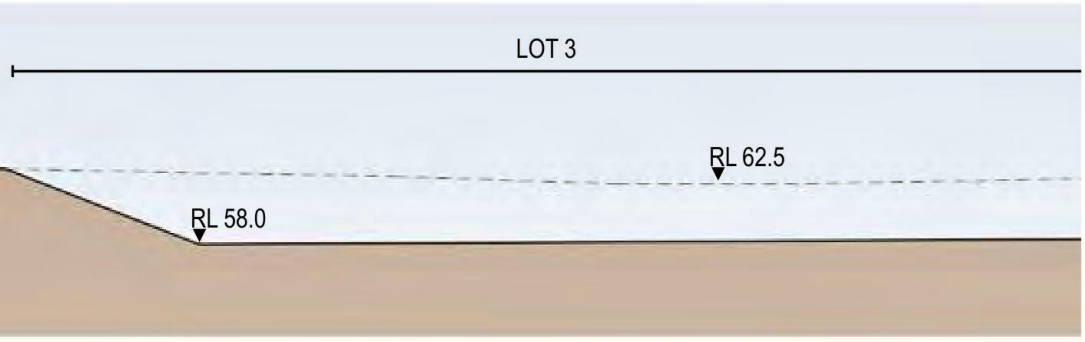




Section C Location

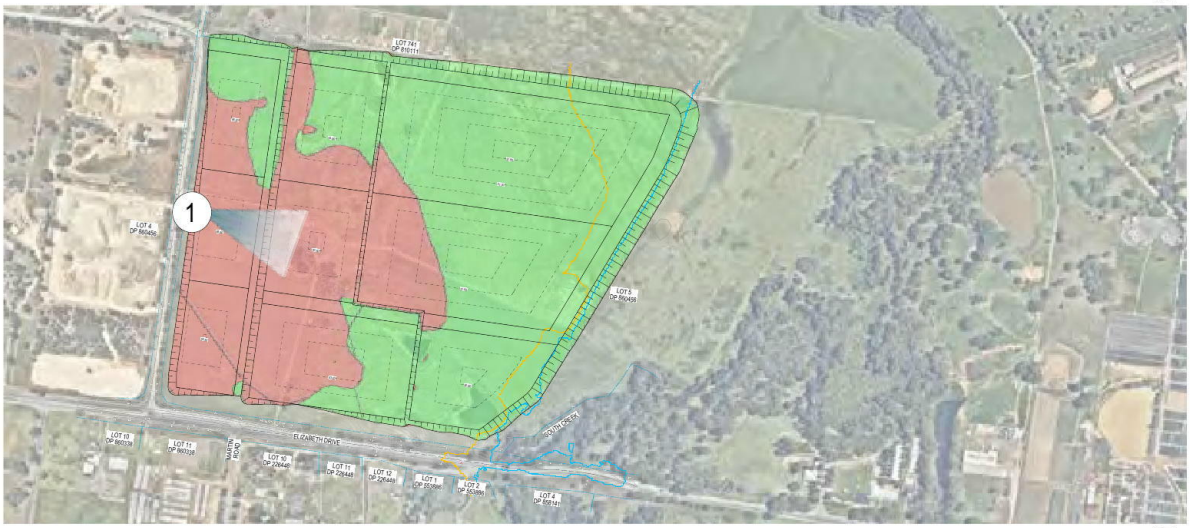


Section D Location



VIEWPOINT 1

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 1 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 1

LOCATION	Access road at the west of the site
DISTANCE	1m
RECEPTORS	Road users
NO. OF VIEWERS	Low
EXISTING VIEW	The current view shows open grassland with scattered groups of trees in the foreground and midground, and the existing landform gently sloping to the east of the site, where the South Creek riparian corridor forms a continuous line of vegetation in the background.

EXPECTED VISUAL IMPACT

This view of the existing semi-rural land on site will be replaced with views of the bulk earthworks. The foreground views of the earthworks will be largely obscured due to the sloped batter that finishes approximately 3m below the existing road level, however more distant views to the east will show changes to the undulating landscape.

At present the road that runs along the western boundary of the site only services the Kemps Creek Resource Recovery Park and as such the receptor sensitivity is low.

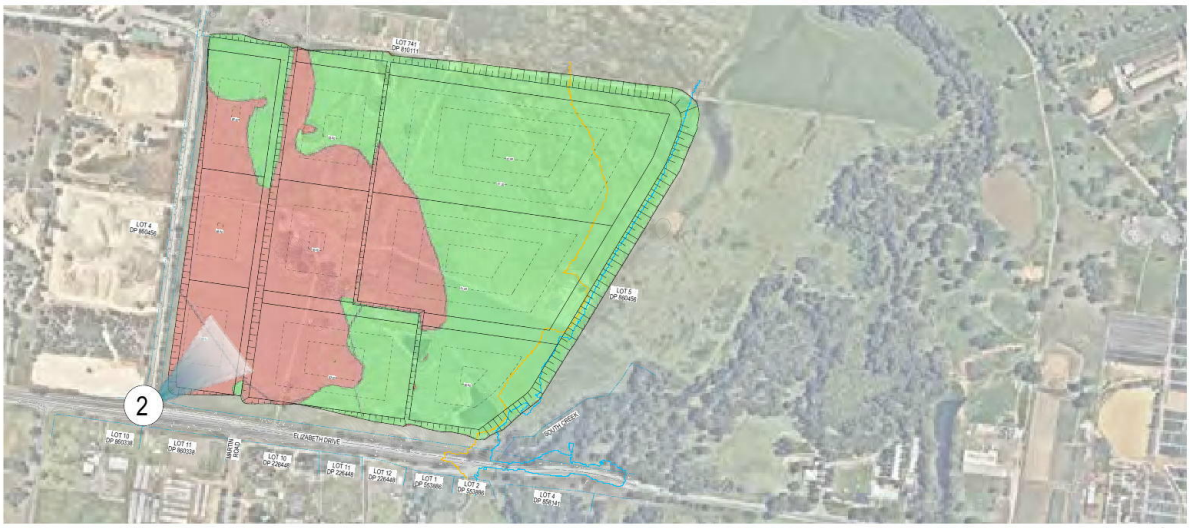
It is anticipated that a **moderate** visual impact will occur. Although the earthworks will remove the existing grass and vegetation the sloped batters will minimise the visual impact in the foreground; however, longer views will be un-obscured and will show changes to the pastoral landscape.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	1	3	2	1	2	1.8
Visual Impact Rating	MODERATE					

Impact assessment table.

VIEWPOINT 2

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 2 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 2

LOCATION	Elizabeth Drive
DISTANCE	20m
RECEPTORS	Road users
NO. OF VIEWERS	Medium
EXISTING VIEW	This scene is from the intersection of Elizabeth Drive and the public drive looking north-east towards the site. The view is partly filtered by the roadside existing vegetation that dominates the foreground.

EXPECTED VISUAL IMPACT

The visibility of the earthworks and associated elements in the foreground will be partially obscured due to the sloped batter and the platform level being approximately 5.5m below the level of the existing road.

The removal of existing vegetation on the corner of Elizabeth Drive will result in unobscured long distance views to the North East of the site-wide bulk earthworks (See Section A View 2, Figure 11.0).

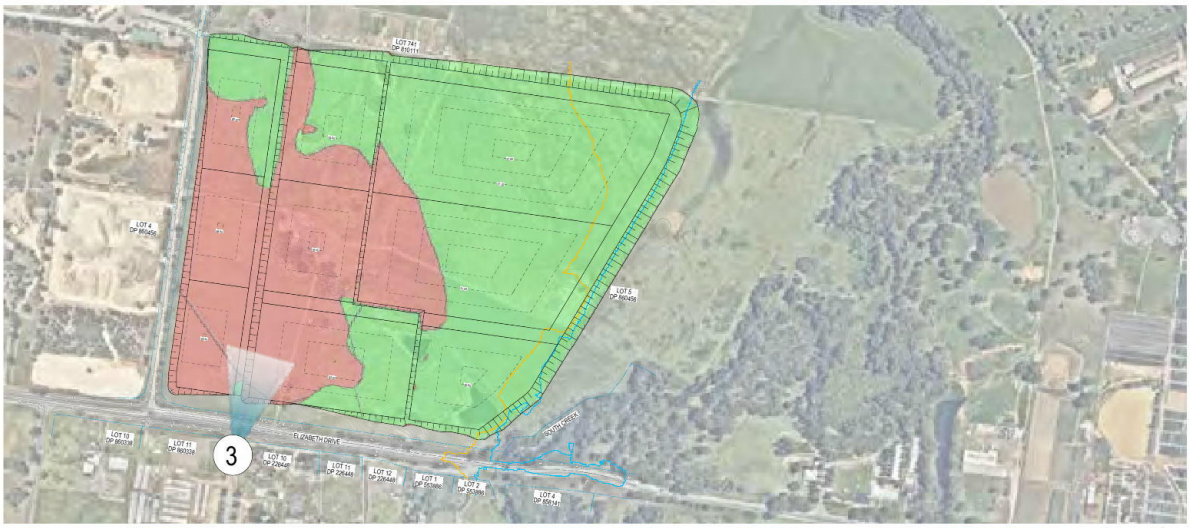
It is anticipated that a **moderate** visual impact would occur assuming the existing vegetation in the foreground is retained. Future planting will potentially mitigate the visual impact from this view.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2	3	1.5	1	2	1.9
Visual Impact Rating	MODERATE					

Impact assessment table.

VIEWPOINT 3

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 3 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 3

LOCATION	Martin Road
DISTANCE	35m
RECEPTORS	Road users
NO. OF VIEWERS	Low
EXISTING VIEW	The current view shows Elizabeth Drive in the foreground and the open undulating pasture with existing tall grasses and scattered groups of trees in the midground. These trees will be removed as a result of earthworks to create the new benches.

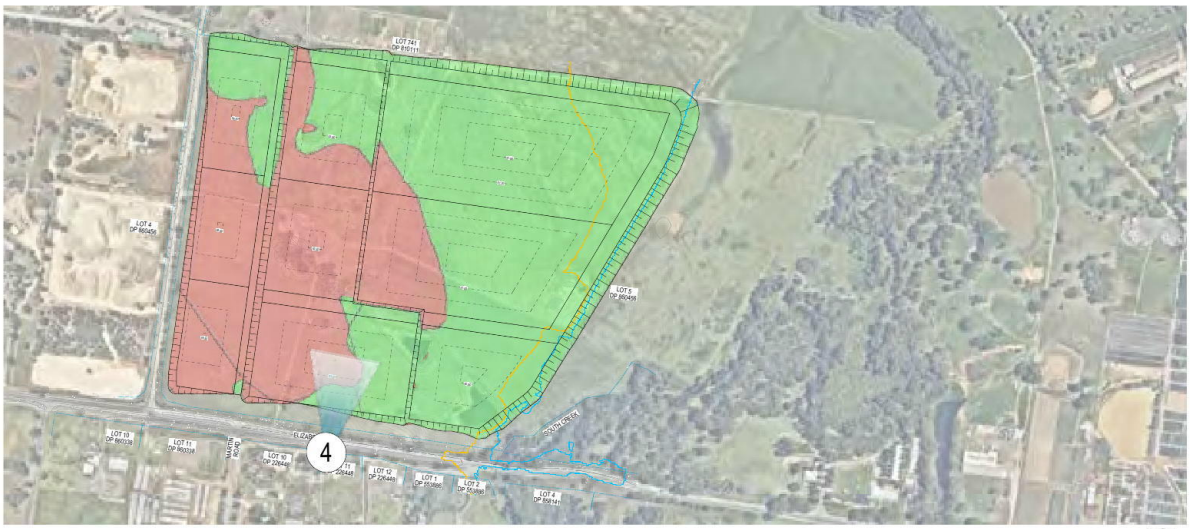
EXPECTED VISUAL IMPACT
The earthworks platform for Lot 2 will be visible from this viewpoint. From this view the undulating landform of the pasture will be cut away as part of the bulk earthworks to form sloped batters and level benches. Existing vegetation will also likely be removed as part of this construction. Long distant views of the earthworks to the north of the site will be visible from this viewpoint. It is anticipated that a **moderate** visual impact will occur from this viewpoint. The excavation and regrading of the land will be a noticeable alteration to the landscape.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2	3	2.5	1	2	2.1
Visual Impact Rating	MODERATE					

Impact assessment table.

VIEWPOINT 4

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 4 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 4

LOCATION	Elizabeth Drive
DISTANCE	2m
RECEPTORS	Road users
NO. OF VIEWERS	Low
EXISTING VIEW	The view is taken from the southern side of Elizabeth Drive looking towards the open pasture with a small number of mature trees in the foreground and midground. The riparian corridor and the rising landform can be seen in the distant background.

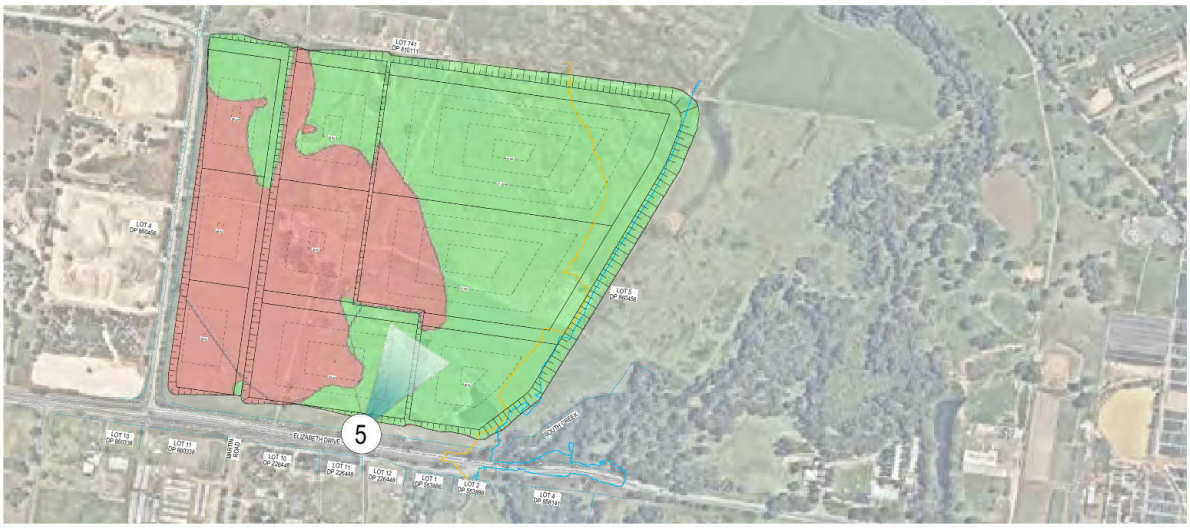
EXPECTED VISUAL IMPACT
The proposed earthworks will result in a level change of approximately 1 metre above the existing surface level of Elizabeth Drive, and there are very few existing trees between this viewpoint and the new site. This will result in direct views to the raised batter and earthworks for Lot 2 in the foreground as well as more distant views towards the other lots to the North. From this view elements associated with bulk earthworks such as silt fences and temporary water detention basins will be highly visible. It is anticipated that a **moderate/high** visual impact will occur as a result of the visibility of the site earthworks. Future planting would be likely to reduce the visual impact from this viewpoint.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2	3	3	1	3	2.4
Visual Impact Rating	MODERATE/HIGH					

Impact assessment table.

VIEWPOINT 5

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 5 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 5

LOCATION	Elizabeth Drive
DISTANCE	1m
RECEPTORS	Road users
NO. OF VIEWERS	Low
EXISTING VIEW	This view shows tall grasses along the southern edge of the project site, the open pasture sloping towards the east, and the line of tree canopy along the distant riparian corridor.

EXPECTED VISUAL IMPACT

The proposed earthworks for Lot 1 and 2 will occupy a significant portion of view from this viewpoint. The foreground will be dominated by the raised batter of lot 2, which will rise approximately 4m above existing ground level. This has the potential to obscure views to vegetation associated with South Creek in the background, but may also reduce longer distant views of the bulk earthworks across the site (See Section B View 5, Figure 11.0).

The bulk earthworks will result in a change to the pastoral character of the area. The existing tall grasses partially filter the view, but even if retained will not have a significant effect on concealing the bulk earthworks and other associated elements.

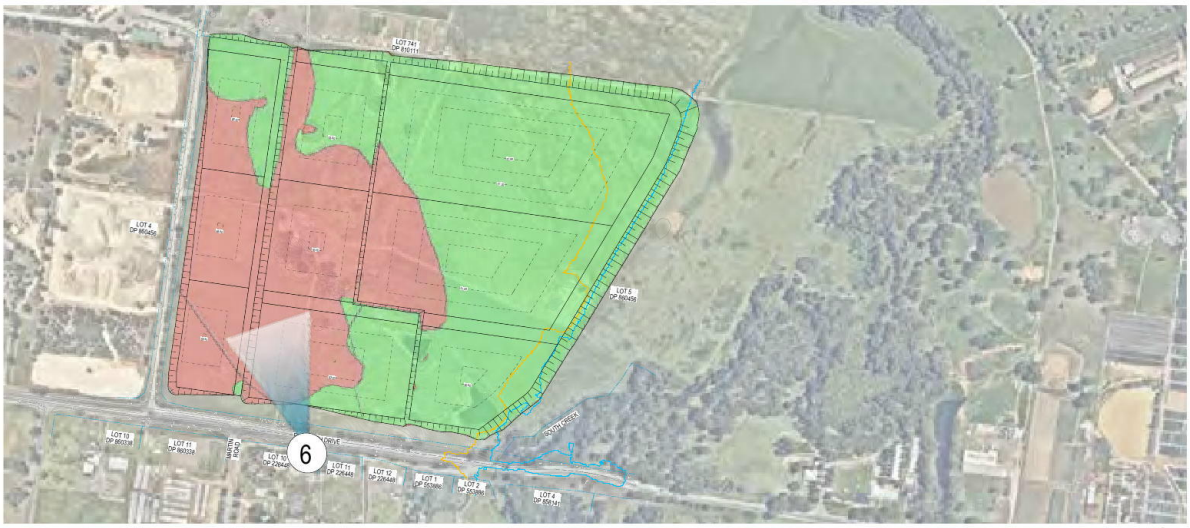
It is anticipated that a **moderate** visual impact will occur. Future vegetation along the southern border will significantly help to reduce the visual impact from this view point.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2	3	2.5	1.5	2.5	2.3
Visual Impact Rating	MODERATE					

Impact assessment table.

VIEWPOINT 6

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 6 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 6

LOCATION	Elizabeth Drive, adjacent to the residential lot
DISTANCE	30m
RECEPTORS	Road users, Residents
NO. OF VIEWERS	Low
EXISTING VIEW	The foreground on the scene is comprised of the carriageway of Elizabeth Drive. The midground is comprised of existing vegetation along the southern edge of the site and the undulating pasture forming a crest to the right of the scene. A barrier of existing vegetation can be seen in the distance behind the gentle topography.

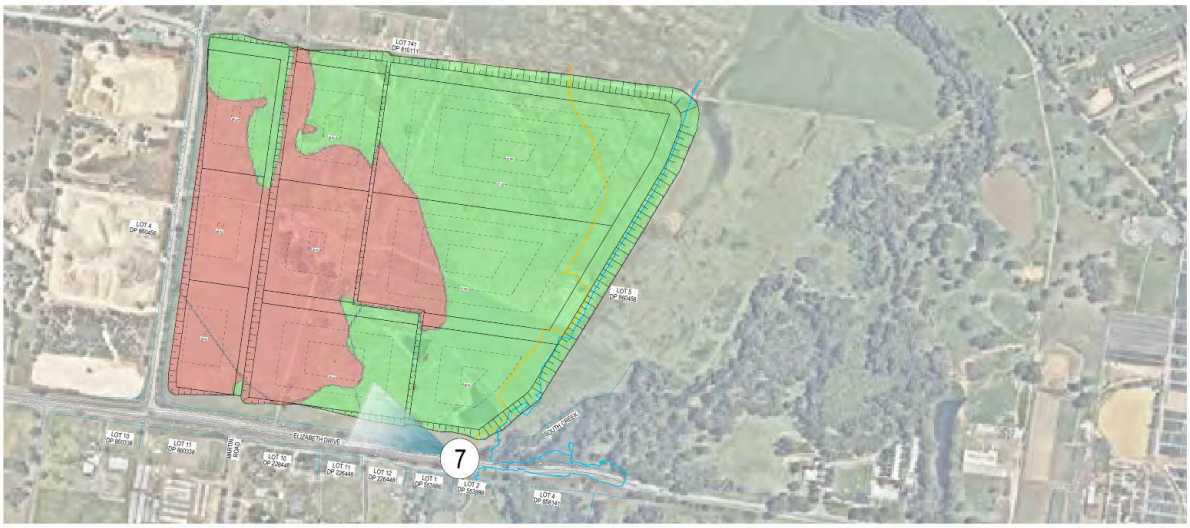
EXPECTED VISUAL IMPACT
Due to the proposed earthworks, the platform level of the proposed lot 2 and 3 will be lower than the surface level of existing ground and Elizabeth Drive. The earthworks in the foreground will therefore be partially obscured from view, however more distant views of lots 4 & 5 and the sloped batters along the western border, especially when driving east to west, will clearly show the alteration to the landscape. It is anticipated that a **moderate/high** visual impact will result. The difference in levels between the site and its surrounds helps to obscure some of the bulk earthworks associated with lot 2 & 3, but will do little to conceal more distant views of earthworks.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2.3	3	2.5	2	2.2	2.4
Visual Impact Rating	MODERATE/HIGH					

Impact assessment table.

VIEWPOINT 7

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 7 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 7

LOCATION	Elizabeth Drive adjoining South Creek
DISTANCE	20m
RECEPTORS	Road users
NO. OF VIEWERS	Low
EXISTING VIEW	This view is taken from the southern side of Elizabeth Drive adjacent to South Creek. The scene is comprised of the carriageway of Elizabeth Drive in the foreground, the scattered existing trees in the midground filtering the landscape in the background.

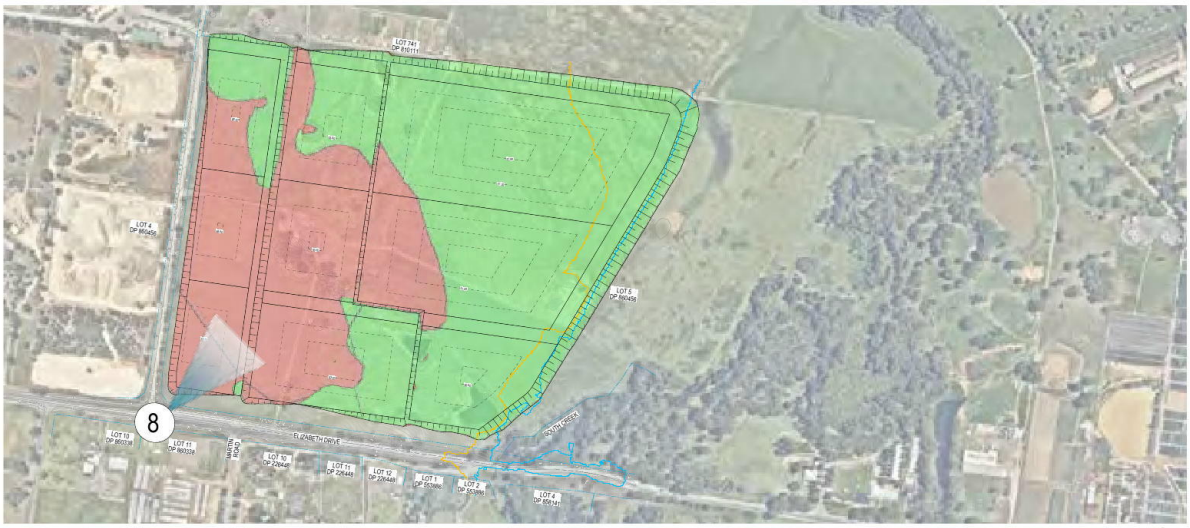
EXPECTED VISUAL IMPACT
Looking west along Elizabeth Drive the site is partly obscured by the existing embankment and mature vegetation running along the site's southern boundary. The proposed earthworks will result in an approximate 3 metre rise above existing ground level, meaning that the view of the earthworks batter will be discernible but filtered by the existing vegetation in the foreground. This raised batter will also contribute to concealing more distant views across the site, reducing the perceived visual impact (See Section C View 7, Figure 11.0). It is anticipated that a **moderate** visual impact will occur as a result of proposed earthworks batter rising above the level of the existing landscape. Retention of existing vegetation along the southern and south-eastern edge of the site will reduce the visual impact.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	2	3	2	1.5	1.8	2.0
Visual Impact Rating	MODERATE					

Impact assessment table.

VIEWPOINT 8

Viewpoint location



Viewpoint location overlayed on Cut & Fill plan

Viewpoint 8 - Indicative Site Extent (conveys the lateral site extent and does not portray the proposed building height)

VIEWPOINT 8

LOCATION	Elizabeth Drive, adjoining the residential lot
DISTANCE	30m
RECEPTORS	Road users, residents
NO. OF VIEWERS	Low
EXISTING VIEW	This view from the closest residential property is comprised of the carriageway of Elizabeth Drive in the foreground, and the scattered groups of trees and shrubs in the midground. In the background, the undulating pasture slopes down to the east of the site.

EXPECTED VISUAL IMPACT
From this viewpoint the earthworks platform for Lot 3 is approximately 4.5m below the existing level of Elizabeth Drive. This change in level will largely obscure the earthworks and associated elements along the southern edge of the site. However, the removal of existing vegetation along Elizabeth Drive will create long distance views across the site to the North East. These long distance views of site wide bulk earthworks will create a significant change to the landscape character across the site (See Section D View 8, Figure 11.0). It is anticipated that a **High** visual impact will occur. As the residential property on the southern side of Elizabeth Drive is elevated with limited vegetation in the front yard. Although the mature existing vegetation will help to reduce the impact to the left of the scene, the residents will have a direct view towards the site with a long period of view during the day, resulting in a significant visual impact.

RECEPTOR TYPE	RECEPTOR SENSITIVITY	MAGNITUDE				SUMMARY OF RATINGS
		DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	
Public	3	3	2	3	2.6	2.7
Visual Impact Rating	HIGH					

Impact assessment table.

MITIGATION

APPROACHES TO MITIGATION

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

- The Design Brief - typically best practice for visual management of a proposed development entails identification of significant views in planning documents and the integration of these into the Design Brief, also including any specific guidance as to how the design should respond to minimising such impacts
- 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 materials and colours, minimised reflectivity and 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 (generally, this option is only adopted in agreement with the affected receptor/s).
- Management – in this approach the mitigation response typically entails an operational or management action such as construction management to minimise impacts during construction or a particular approach to planting maintenance to achieve an ongoing mitigation.

RECOMMENDED MITIGATION

As this LCVIA applies to bulk earthworks no mitigation measures such as new plantings are proposed.

Consequently, most of the visual impacts are in the Moderate, Moderate to High or High range. For the purpose of a future rezoning application for the site development, the following responses would be applicable:

- Avoidance – the site and the locality is zoned for employment to support the pending Western Sydney Airport; thus the land use is appropriate to this location and therefore avoidance would not be applicable. It should be noted that existing use rights apply to current landholders and to this extent reducing visual impacts for these receptors should consider other mitigation measures such as Alleviation

MITIGATION

- Reduction – the size of the lots proposed is tied to their expected uses and to this extent, reducing the scale of the lots would make them uneconomical; reduction is therefore not considered applicable
- Alleviation – this would be the principal recommended approach to mitigate the visual impacts of this project in future development stages. This would entail:
  - retaining and protecting existing roadside vegetation wherever practical and effective, especially on Elizabeth Drive
  - planting the proposed landscape buffer zone on the western and southern boundaries of the site with mixed plantings of tree groups and shrubs, creating filtered views to the site and buildings (not screening them)
  - selecting tree species to match existing landscape character of this locality.
- Off-site Mitigation – this may potentially be an applicable mitigation for one residential receptor whose dwelling stands directly opposite the proposed site entrance (View 8). This dwelling is on elevated land and would have direct views to the site and proposed buildings. Tree planting could be provided on the resident's land if they desired.
- Management – generally there would be no specific management mitigation required beyond normal maintenance in the years after planting to ensure that trees and shrubs remain healthy and achieve the mitigation proposed.

CONSTRUCTION IMPACTS

The Project will involve a construction phase with associated additional visual impacts. The following activities are likely to occur:

- clearing of vegetation
- setting up of site compounds
- stockpiling of imported material
- earthworks
- site fencing and environmental controls (eg. temporary detention basins)
- increased site traffic including heavy vehicles.

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

However, these construction phase impacts will be of a temporary nature and will reduce for all viewpoints once the bulk earthworks are complete.

CONCLUSION

OVERVIEW

A comprehensive visual impact assessment of the proposed development has been carried out. The study has identified and evaluated the existing key views before progressing to an assessment of quantitative and qualitative criteria using best practice methodology.

Whilst it is acknowledged that the perceived visual impact of the proposal will vary from person to person, the methodology used to evaluate visual impact in this instance is informed by internationally accredited approaches and CLOUSTON Associate's experience in the field of visual impact assessment

SUMMARY OF IMPACTS

In weighing up the overall implications of the visual impacts described in this assessment, the key findings are as follows:

- The existing local landscape is heavily modified by agricultural land uses characterised by open grassland, implying that any change will be highly visible (ie the landscape has low visual absorption capacity)
- The zoning of the site is for employment lands which inherently imply some change to the current agricultural and smallholding uses
- Some existing roadside vegetation will filter the project from certain viewpoints, but this is relatively limited in extent
- The benching of the site to accommodate large building footprints will result in a balance of some reduced impacts (in cut) and some increased impacts (in fill).

The following ratings have been assigned to each viewpoint:

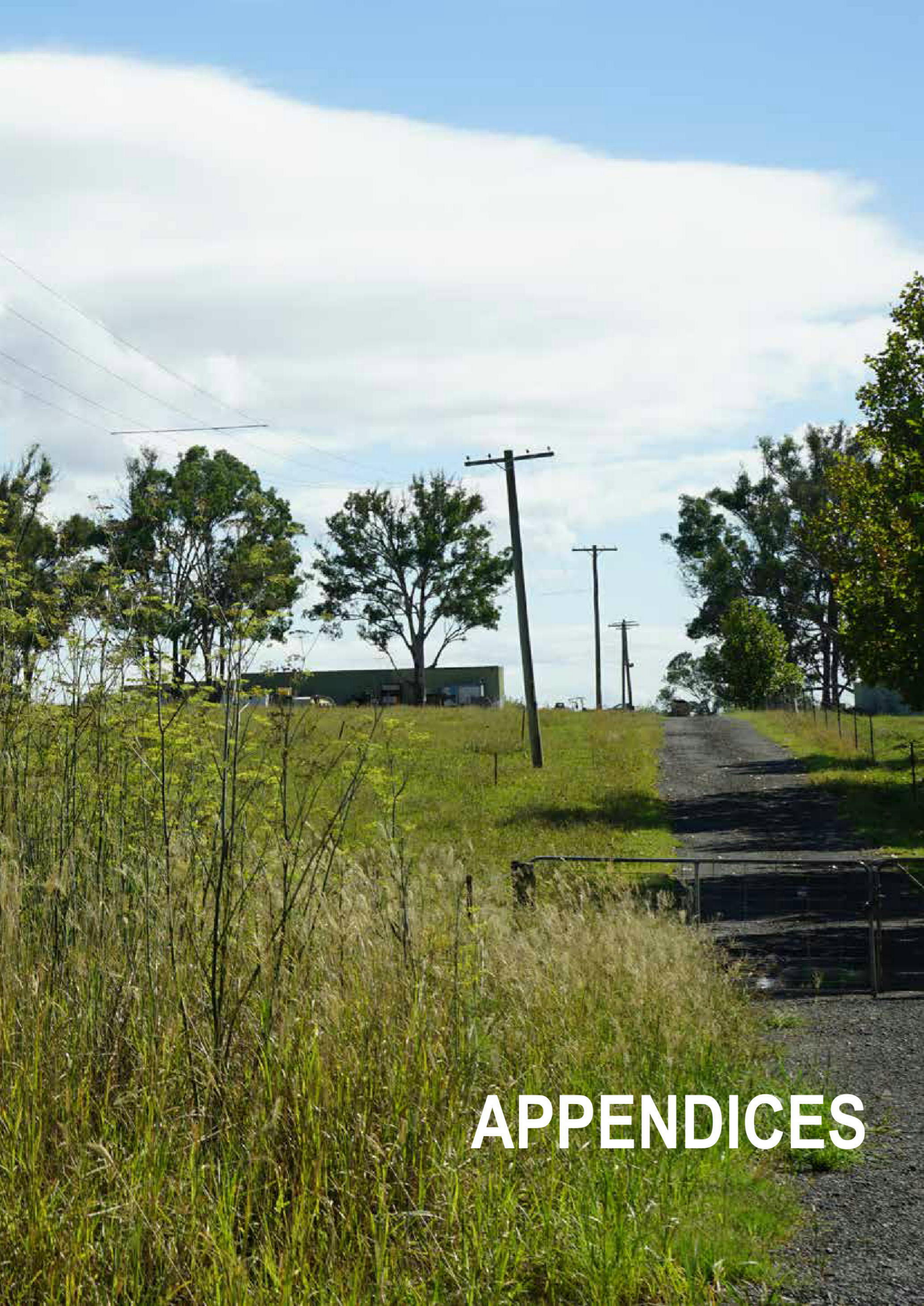
Viewpoint	Location	Rating
1	Access road at the west of the site	Moderate
2	Elizabeth Drive	Moderate
3	Martin Road	Moderate
4	Elizabeth Drive	Moderate/High
5	Elizabeth Drive	Moderate
6	Elizabeth Drive, adjacent to the residential lot	Moderate/High
7	Elizabeth Drive, adjoining South Creek	Moderate
8	Elizabeth Drive, adjacent to the residential lot	High

It should be noted that these impacts are based on a scenario where no landscape design is considered (design has yet to be completed). These impacts could be substantially mitigated by new plantings and it is considered that these would form a major part of the proposed landscape design.

CONCLUSION

CONCLUSIONS

The visual impact of the bulk earthworks if unmitigated by future plantings will be significant. However, the bulk earthworks are a temporary pre-development stage and, with associated new plantings for a future rezoning application it could be anticipated that these impacts would reduce significantly over time as those plantings grew.



APPENDICES

APPENDIX A - METHODOLOGY

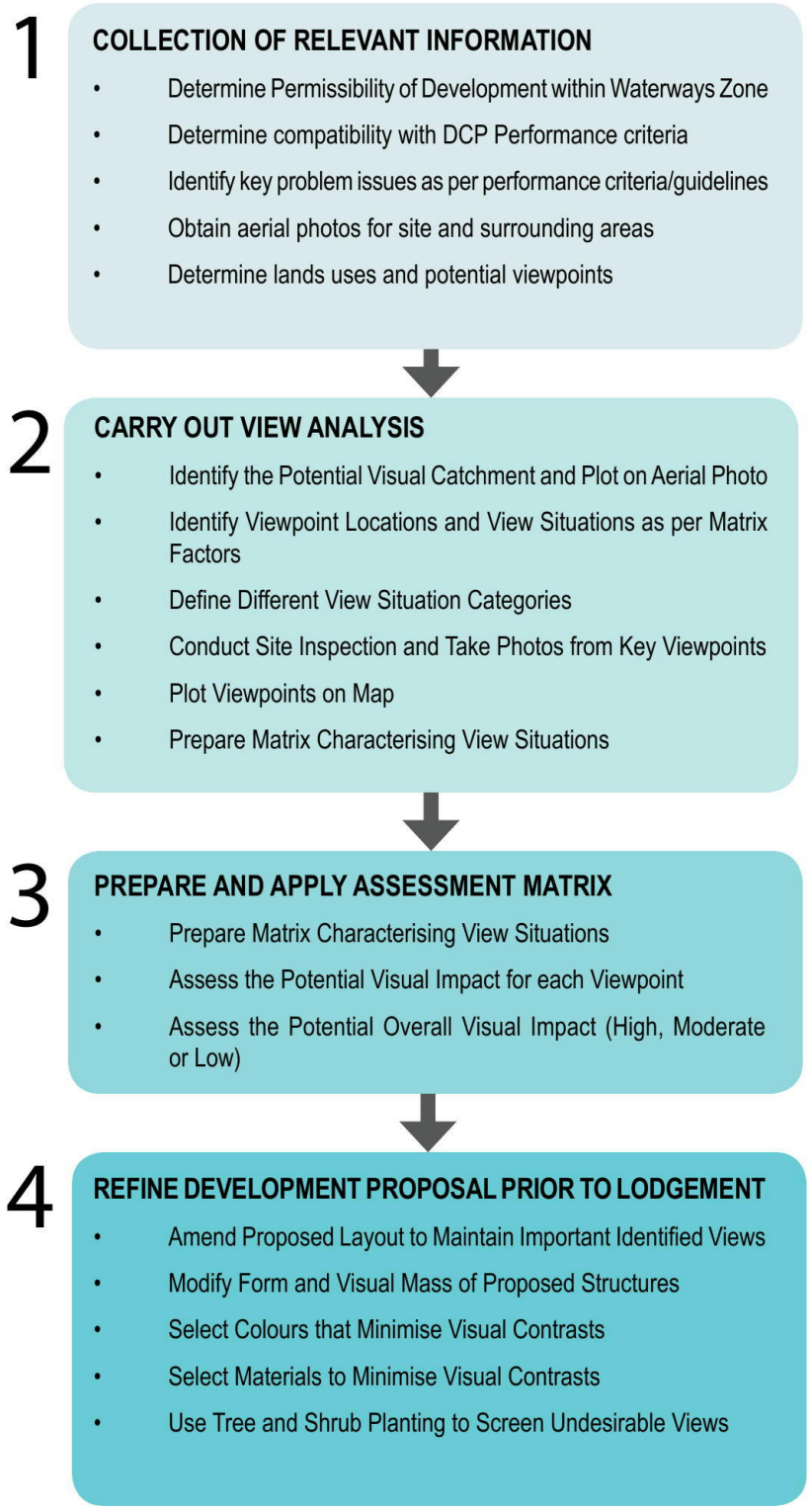


Figure 10 - Summary of methodology

METHODOLOGY

Given the subjective nature of an individual's appreciation of any given scene, Visual Impact Assessment is by its nature not an exact science and consequently methodologies for preparing VIAs vary both in Australia and overseas.

Potentially subjective assessment material and differences of opinion about how to best assess visual characteristics, qualities, degrees of alteration and viewer sensitivity often arise. As a consequence, and as identified by the NSW Land and Environment Court, the key to a robust process is to explain clearly the criteria upon which an assessment is made:

'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.'

VIA methodologies are often inconsistent and while various governments have generated specific methodologies, no Australian national framework exists. Within NSW, there are two guidelines prepared by the NSW State Government that are recognised as best practice:

- Guidelines for Landscape Character and Visual Impact Assessment, WIA-N04, as published by the Roads and Maritime Service (RMS)
- Appendix D of the Sydney Harbour Foreshore Waterways Area Development Control Plan (SHFWA DCP), as published by the Department of Planning and developed for marina assessment.

CLOUSTON Associates has developed a best practice methodology based on these internationally accredited approaches and 25 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 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)
- providing a clear rationale for how impacts are compared and contrasted
- ensuring to include views from 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).

The methodology employed for this assessment is described in Figure 10.

METHODOLOGY

	FACTOR		NEGLIGIBLE 0 POINT	LOW IMPACT 1 POINT	MODERATE IMPACT 2 POINTS	HIGH IMPACT 3 POINTS
QUALITATIVE	Receptor 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. This sensitivity has a direct bearing on the perception of visual impact experienced by the receptor and qualifies the quantitative impacts. 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.	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.
QUANTITATIVE	Quantum of View	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.	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.
	Distance of View	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.	Over 3000m	Viewing distance of between 1000-3000m.	Viewing distance between 100m and 1000m.	Viewing distance between 0 and 100m.
	Period of View	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.	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	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.	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 1.0 - Magnitude Ratings

METHODOLOGY

Field of View
It is important to note that the process of assigning visual impact ratings to viewpoints has been undertaken during site visits and is calculated from a human vision perspective, on site. Photos should be considered representative only. The photos within this viewpoint analysis are 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.

The Land and Environment Court (*Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor 2013)* states that 'the impact on appreciation of a public domain view should not be subject to any eye height constraint. A public domain view is one that is for the enjoyment of the whole population, old or young and whether able-bodied or less mobile.'

Although the photos within this study have been taken at standing eye level, the assessment of visual impacts on each viewpoint is relevant to both sitting and standing positions. The difference between the two is not considered significant enough from any one viewpoint to justify a separate assessment.

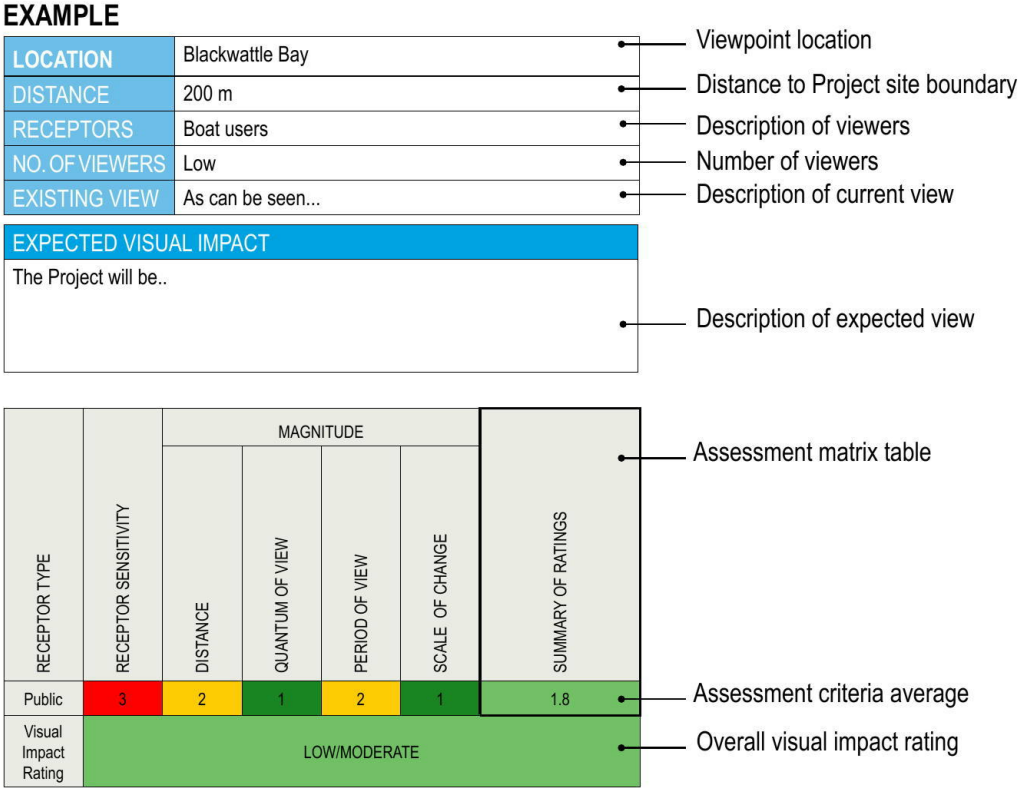
Indicative Site Extent
Viewpoints show the extent of the site within the existing photograph. These viewpoints have not been block modelled or photomontaged. The indicative site extent line is conveying the lateral extent of the site and is not intended to portray the height of the proposed building.

METHODOLOGY

0 - 1	Negligible	Only an insignificant part of the Project is discernible.
1 - 1.3	Low	The Project constitutes only a minor component, which might be missed by the casual observer or receptor. Awareness of the proposal would not have a marked effect on visual amenity.
1.4 - 1.7	Moderate/low	Whilst discernible, the Project does not dominate the visual scene and has only slight impacts on visual character.
1.8 - 2.3	Moderate	The Project may form a visible and recognisable new element within the overall scene that affects and changes its overall character.
2.4 - 2.6	Moderate/High	The Project is a discernible feature of the scene leading to moderately high impacts on visual character.
2.7 - 3.0	High	The Project becomes the dominant feature of the scene to which other elements become subordinate, and significantly affects and changes the visual character.

Table 2.0 - Overall Ratings

EXAMPLE



Example assessment

METHODOLOGY

Rating System
The overall visual impact rating of the Project on any given viewpoint/visual receptor is based on themes of sensitivity and magnitude:

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. Table 1.0 describes the ratings assigned to these quantitative assessments and the numerical score allocated to each impact band.

Overall Rating
The scores for each assessment factor are totalled and an average taken, determining the overall visual impact rating on a six band scale from negligible to high - refer Table 2.0

Common Terms
The following provides a brief explanation of the terms used within this report:

- View: the sight or prospect of some landscape or scene.
- View Corridor: a line of sight of an observer looking toward an object.
- View Frame: the extent of the observable world that can be seen by an observer from a fixed location, moving their head from side to side.
- Visual Accessibility: the extent to which an area or object is visible to an observer.
- Visual Amenity: the measure of the visual quality of a site or area experienced by residents, workers or visitors. It is the collective affect of the visual components which make a site or an area pleasant to be in.
- Viewshed/Visual Catchment: the area which the Project is visible to the human eye from a fixed vantage point.
- Receptor/Receiver: the public or community at large who would have views of the Project site either by virtue of where they live and/or work or from transport routes, paths, lookouts and the like.

APPENDIX B - PLANNING CONTEXT

The policy, statutory and guideline documents that relate to this proposal include:

State Environmental Planning Policy (Infrastructure) 2007
The aim of this Policy is to facilitate the effective delivery of infrastructure across the State by:
(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and
(b) providing greater flexibility in the location of infrastructure and service facilities, and
(c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and
(d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and
(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and
(f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and
(g) providing opportunities for infrastructure to demonstrate good design outcomes.

State Environmental Planning Policy (Western Sydney Employment Area) 2009
This Policy aims to protect and enhance the land to which this Policy applies (the Western Sydney Employment Area) for employment purposes.
The particular aims of this Policy are as follows:
(a) to promote economic development and the creation of employment in the Western Sydney Employment Area by providing for development including major warehousing, distribution, freight transport, industrial, high technology and research facilities,
(b) to provide for the co-ordinated planning and development of land in the Western Sydney Employment Area,
(c) to rezone land for employment or environmental conservation purposes,
(d) to improve certainty and regulatory efficiency by providing a consistent planning regime for future development and infrastructure provision in the Western Sydney Employment Area,
(e) to ensure that development occurs in a logical, environmentally sensitive and cost-effective manner and only after a development control plan (including specific development controls) has been prepared for the land concerned,
(f) to conserve and rehabilitate areas that have a high biodiversity or heritage or cultural value, in particular areas of remnant vegetation.

State Environmental Planning Policy No 33 – Hazardous and Offensive Development
This Policy aims:
(a) to amend the definitions of hazardous and offensive industries where used in environmental planning instruments, and
(b) to render ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in this Policy, and

PLANNING CONTEXT

(c) to require development consent for hazardous or offensive development proposed to be carried out in the Western Division, and
(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account, and
(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact, and
(f) to require the advertising of applications to carry out any such development.

State Environmental Planning Policy No 55 – Remediation of Land
This Policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:
(a) by specifying when consent is required, and when it is not required, for a remediation work, and
(b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and
(c) by requiring that a remediation work meet certain standards and notification requirements.

Fairfield Local Environmental Plan 2013
The aims of this Plan are as follows:
(a) to ensure that appropriate housing opportunities are provided for all existing and future residents and that those housing opportunities accommodate different lifestyles, incomes and cultures,
(b) to ensure that the economic, employment and educational needs of the existing and future community are appropriately planned for,
(c) to ensure that the recreational and social needs of the existing and future community are appropriately planned for,
(d) to ensure that development is properly integrated with, or assists in improving, Fairfield's public services, infrastructure and amenities,
(e) to ensure the proper management of productive agricultural land and prevent the fragmentation of agricultural holdings,
(f) to conserve the environmental heritage of Fairfield,
(g) to protect and manage areas of remnant bushland, natural watercourses and threatened species.

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