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Landscape and Visual Impact Technical Report

Elizabeth Drive Landfill Expansion Environmental Impact Statement

Prepared for:
SUEZ Recycling and Recovery Pty Ltd

July 2019

Document control

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Contents

Glossary of terms and abbreviations

Term	Definition
Landscape Character Zones (LCZ)	These are distinct zones of the landscape that are relatively homogenous in character. They share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes.
Magnitude	A combination of the scale, extent and duration of an impact.
Photomontage	Computer simulation or other technique to illustrate the appearance of a proposal.
SAWT Facility	The Elizabeth Drive Landfill and Advanced Waste Treatment Facility (the 'Site')
View	A sight or prospect of some landscape, scene, etc.
Viewpoint	The location from which the photographs of the assessed views have been undertaken.
Visual Receptor	Individual and/or a defined group/s of people who have the potential to be affected by a proposal.
Zone of Theoretical Visibility (ZTV)	A map, produced using GIS, showing areas of land within which a development is theoretically visible.

Executive summary

This report has been prepared by AECOM Australia Pty Ltd (AECOM) to provide an assessment of potential landscape character and visual impacts associated with the Project as an input to the Environmental Impact Statement (EIS). This report is intended to address the relevant requirement of the Secretary's Environmental Assessment Requirements (SEARs) to undertake a visual impact assessment of the Project at private and public vantage points.

Assessment of the Project's impact upon the landscape character and visual environment was undertaken based upon the existing nature of the surround environment and the raising of the final landform by 15 m. The following methodology was used in this assessment:

- analysis of the existing landscape character and representative views of the Project
- determine the nature and extent of the potential landscape and visual impacts of the Project
- identification of measures to mitigate potential impacts.

This assessment considered impacts on six landscape character zones and nine visual receptors surrounding the Project and of various sensitivities to visual and landscape character changes.

Impacts upon the landscape character ranged between negligible to moderate based upon the additional bulk, height and shape of the final landform.

Visual impacts ranged between low and moderate-high. Locations with greater impacts, such as Twin Creeks and the Badgerys Creek Road/Elizabeth Drive intersection are generally those in closer proximity to the Project that would be subject to greater changes in visual outlook.

Identified potential impacts would be mitigated through the vegetation of the final cap with appropriate grass cover and its ongoing maintenance. Screening vegetation would also be retained and augmented where appropriate. An overview of proposed landscaping following completion of the project is outlined in the Landscape Plan (refer to **Annexure A**).

While some impacts were identified, under future land use scenarios including significant development associated with the Western Sydney Aerotropolis, the landscape context of the Site would change dramatically. This would reduce the sensitivity of surrounding land uses, subsequently reducing the significance of both landscape character and visual impacts.

1.0 Introduction

SUEZ Recycling and Recovery Pty Ltd (SUEZ) currently owns and operates the Elizabeth Drive Landfill and Advanced Waste Treatment (SAWT) Facility (the 'Site') at Badgerys Creek, NSW. The operating landfill facility within the Site, and where the Project would occur, is known as 'Elizabeth Drive Landfill Kemps Creek (the 'Project Area'). In response to future projected market demand for waste disposal in an area experiencing rapid population growth and greater Sydney, SUEZ is proposing to increase the capacity of the Project Area by raising the currently approved finished cap height by 15 metres, from RL80 to RL95 (the 'Project').

SUEZ commissioned AECOM to undertake a landscape and visual impact assessment of the Project. This report describes the findings of the landscape and visual impact assessment.

1.1 Description of the project

The Project Area currently operates as a regional landfill accepting non-putrescible general solid waste and restricted solid waste. The Project would provide an additional landfill airspace capacity of approximately 4.8 million cubic metres and extend the life of the landfill by approximately 5½ years.

The existing landfill currently accepts on average approximately 750,000 tonnes per annum (tpa) of non-putrescible general solid waste and restricted solid waste. It is envisaged that the rate of filling would increase slightly to take into account changes in the volume of waste being generated and disposed of in NSW and the industry capacity to receive the waste. Under the Project approximately 950,000 tpa of non-putrescible general solid waste and restricted solid waste is expected to be received during the proposed extended life of the landfill.

Landfilling operations would generally be undertaken in a manner consistent with the current practices and as outlined in the existing Landfill Environmental Management Plan (LEMP) for the Site. Waste would continue to be deposited, spread and compacted in layers. At the end of each working day, exposed waste surfaces would be covered with tarps and/or virgin excavated natural material (VENM) to reduce environmental impacts such as the escape of litter, odour etc, in compliance with the Environmental Protection Licence for the Project Area.

The landfill cap would be progressively constructed and stabilised as soon as practicable after reaching final landform levels. It is anticipated that capping material would be predominantly sourced from material stockpiled during historic quarrying activities within the site or imported from suitable external sources. At a minimum the final cap would be rehabilitated with grass cover to encourage binding and stabilisation of the soil.

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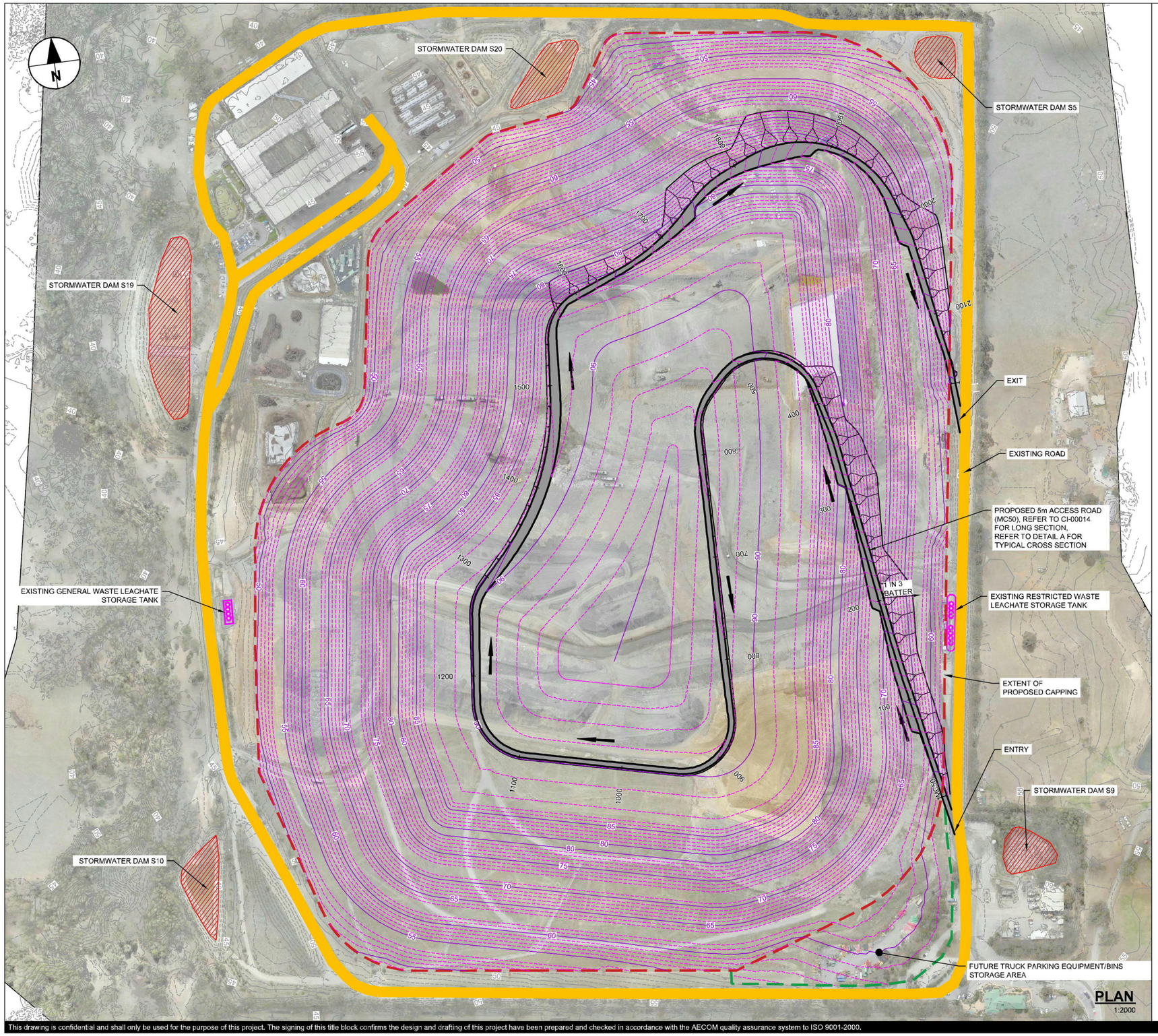

PLAN
1:2000

LEGEND:

- EXISTING GROUND CONTOURS MAJOR (5m)
- EXISTING GROUND CONTOURS MINOR (1m)
- PROPOSED DESIGN CAP CONTOURS MAJOR (5m)
- PROPOSED DESIGN CAP CONTOURS MINOR (1m)
- SITE BOUNDARY
- EXTENT OF APPROVED CAPPING
- EXISTING ROAD
- EXISTING STORMWATER POND
- EXISTING LEACHATE STORAGE TANKS
- EXTENT OF PROPOSED NEW CAPPING
- EXTENT OF FUTURE PARKING/STORAGE AREA
- EXTENT OF APPROXIMATE CATCHMENT
- EXTENT OF STAGE FILLING BOUNDARY
- PROPOSED ROAD
- DIRECTION OF SHEET FLOW
- BENCH DRAIN
- SLOPE / SWALE DRAIN

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AECOM

CONSULTANT

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PROJECT

SUEZ BADGERYS CREEK LANDFILL EXPANSION PROJECT

CLIENT

SUEZ

0 50 100 m
1:2000

PROJECT MANAGEMENT INITIALS		
QL		
DESIGNER	CHECKED	APPROVED

PROJECT DATA			
DATUM	AHD	SURVEY	MGA 56

ISSUE/REVISION		
B	04.02.2019	FINAL DRAFT REVISED
A	01.11.2018	FINAL DRAFT
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60571292

SHEET TITLE

FIGURE 1.1 PROPOSED FUTURE LANDFILL CAP DESIGN – PLAN VIEW

SHEET NUMBER

60571292-SHT-CI-00013

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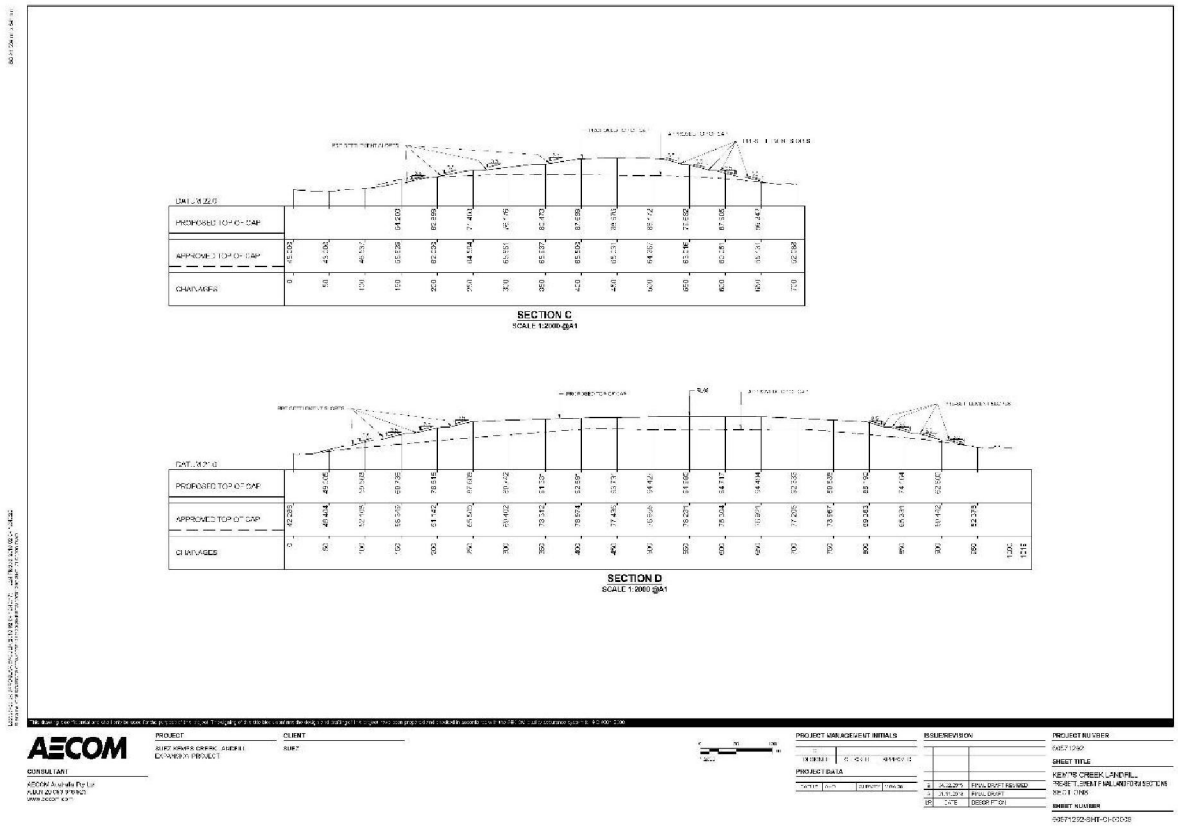


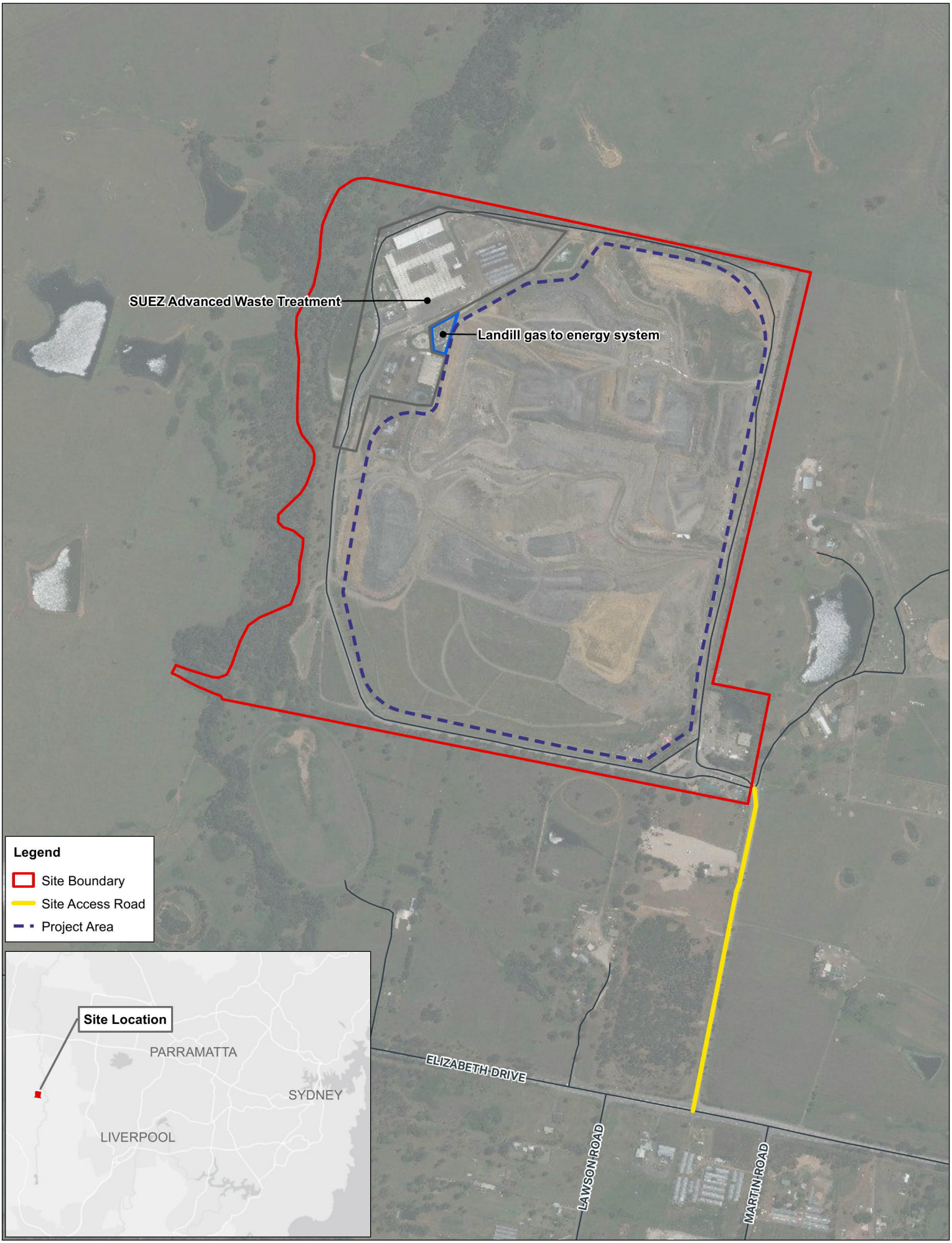
Figure 1.2 Proposed future landfill cap design – typical cross sections

1.2 Project location

The Site is located at 1725 Elizabeth Drive in the suburb of Kemps Creek, approximately 41 kilometres west of the Sydney Central Business District (CBD), within the Penrith Local Government Area (LGA). Under the *Penrith Local Environmental Plan 2010*, the Site is primarily zoned as RU2 Rural Landscape. An area along the western boundary of the Site, adjacent to Badgerys Creek, is zoned as E2 Environmental Conservation.

The Site is located on approximately 85 hectares of land owned by SUEZ, and is described as Lot 740 on DP810111 and Lot 1 on DP542395. Of the 85 hectares, the Project Area covers an area of approximately 60 hectares, the SAWT Facility covers an area of approximately seven hectares, and the remainder of the Site is reserved for buffers and other facilities (such as a landfill gas to energy system, administration offices, staff amenities, car parking, equipment maintenance workshop and weighbridge). The Project is proposed to be contained wholly within the boundary of the existing landfill. The existing and active development consents for the SAWT and landfill gas to energy system would not be affected by the Project. An overview of the Site is shown in **Figure 1.3**.

The surrounding area is comprised of primarily rural and industrial land uses with smaller areas of residential and commercial development. This includes a variety of agricultural production including fruits, vegetables and grazing activity, as well as intensive poultry farming. Industrial activities include metal fabrication and quarrying, particularly for brick manufacture. The surrounding area is the subject of a number of significant proposed future infrastructure items and broad land use changes. Primary amongst these is the proposed and approved Western Sydney Airport, whose closest boundary is located approximately 600 metres to the south west of the Site. Stage 1 of the Western Sydney Airport was approved in December 2016, with construction expected to commence in late 2018. The airport is proposed to commence operations in December 2026.



SUEZ ELIZABETH DRIVE LANDFILL

FIGURE 1.3: SITE LOCATION

AECOM

suez

0 50 100 200 m

N

DATE	10/07/2019
SCALE	1:8,604
PROJECT	60571292
DRAWN	CP

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Version: 1, Version Date: 18/07/2019

1.3 Purpose of this report

The purpose of this report is to provide a landscape and visual assessment of the impacts associated with the Project, and to address the relevant Secretary's Environmental Assessment Requirements (SEARs) provided by the NSW Department of Planning and Environment (DPE).

Table 1.1 sets out the relevant SEARs alongside the desired performance outcome of the Project, as well as the corresponding chapter of the EIS that summarises this report.

Table 1.1 SEARs – Landscape and visual impact assessment

SEARs	Corresponding EIS chapter
Visual: • an impact assessment at private and public vantage points	**Section 5.0**

1.4 Structure of this technical report

The structure of this report is as follows:

- **Section 1.0:** provides an introduction to the Project, including an overview of the Project and the purpose of this assessment
- **Section 2.0**: contains the assessment methodology
- **Section 3.0**: outlines relevant legislation, policies and guidelines for the assessment
- **Section 4.0**: provides the landscape character assessment of the Project
- **Section 5.0**: provides the visual impact assessment of the Project
- **Section 6.0**: contains the recommended mitigation measures, and
- **Section 7.0**: provides the conclusions of the assessment.

2.0 Assessment Methodology

The following method assesses landscape character and visual amenity effects arising from the Project and has been derived from an analysis of the preliminary design drawings prepared by AECOM (2018). The method is undertaken with reference to the *'Guidelines for Landscape and Visual Impact Assessment'*, 2013, Third edition (GLVIA 3), Landscape Institute and Institute of Environmental Management & Assessment (UK), and comprises a source of international best practice. The method:

- analyses existing landscape character and representative views of the Project
- determines the nature and extent of the potential landscape and visual impacts of the Project
- identifies measures to mitigate potential impacts.

The Project (the proposed final landform at a height of RL 95) is assessed for landscape character and visual impacts (GLVIA 3) against the approved final landform of RL 80).

However, the landscape within which the Project is located will be subject to a radical change in landscape character in response to the approval of the Western Sydney Airport, located just two kilometres south-west of the Site, for which the Aerotropolis Structure Plan (*Western Sydney Aerotropolis: Land Use and Infrastructure Implementation Plan – Stage 1: Initial Precinct, Department of Planning and Environment*) has been prepared. As this land is yet to be formally rezoned, a further qualitative assessment has been undertaken against the future proposed surrounding land uses (refer **section 4.3** of this report). This high level assessment has been included to provide a more representative assessment of impacts into the next decades and beyond.

2.1 Desktop assessment and fieldwork

Key resources have been identified and reviewed as a component of the desktop assessment. This included review of topographic maps and aerial photography of the Project Area and surrounding landscape and preparation of Zone of Theoretical Visibility (ZTV) mapping. These materials were used to identify potential receptor locations. The desktop assessment also outlined the visual character of the surrounding landscape including features such as landform, elevation, land cover and distribution of residential properties.

Fieldwork was conducted to review assumptions regarding landscape character and visibility of the Project, and photograph the Project from key visual receptor locations.

2.2 Landscape character impacts

Assessment of landscape character impact deals with the impact of change and development on landscape as a resource. The concern here is with how the proposal would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character (GLVIA 3, para. 5.1). The assessment comprises the combination of the following criteria.

2.2.1 Sensitivity of landscape to visual change

The identification of the sensitivity of the landscape to a specific change encompasses the following components:

Susceptibility to change

This means the ability of the landscape (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies GLVIA 3, para. 5.40).

Value of the landscape

This identifies the value of the landscape based on:

- its existing character designations, e.g. internationally, state, regionally or locally recognised landscapes, and/or

- the value of particular landscape elements or notable aesthetic, perceptual or experiential qualities of the landscape.

These individual criteria are combined to achieve a landscape sensitivity rating that could broadly be defined in **Table 2.1**.

Table 2.1 Sensitivity of landscape to change

Sensitivity of landscape to changes	
High	Landscapes of international designation (e.g. the Greater Blue Mountains World Heritage Area) and/or landscapes that have high sensitivity to the type of development proposed which could have a detrimental impact on the landscape character or value. Mitigation measures would be unlikely to reduce all of the impacts of the change.
Moderate	Landscapes of regional designation or valued more locally and tolerant of moderate levels of change. Any change would be unlikely to have a significant adverse impact on the landscape character or value and mitigation would neutralise some of the impacts.
Low	Landscapes of local designation that are more commonplace and potentially tolerant of noticeable change or are undergoing substantial development themselves, with mitigation measures likely to neutralise or improve the landscape character.
Negligible	Landscapes of local designation and/or with low sensitivity to the type of change proposed with mitigation likely to completely neutralise any impacts or not required at all.

2.2.2 Magnitude of landscape impact

The magnitude of landscape impacts is comprised of the following components:

Size or scale of change

This relates to the size or scale of change in the landscape likely to be experienced as a result of the Project. This takes account of:

- the extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape – in some cases this may be quantified
- the degree to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components, of the landscape or by the addition of new ones, e.g. the introduction of tall buildings or structures that may alter open skylines
- whether the effect changes the key characteristics of the landscape, which are critical to its distinctive character (GLVIA 3, para. 5.49).

Geographical extent of impacts

This considers the geographical extent over which the landscape impacts would be felt, and is distinct from the size or scale of the change. There may for example be moderate loss of landscape elements over a large geographical area, or a major addition affecting a very localised area. In general, effects may have an influence at the following scales:

- at the site level, within the development site itself
- at the level of the immediate setting
- at the scale of the landscape type or character area within which the proposal lies
- on a larger scale, influencing several landscape types or character areas (GLVIA 3, para. 5.50).

Duration and reversibility of the impacts

These are separate but linked considerations. Duration is judged on a scale of short term (zero to five years), medium term (five to ten years) and long term (ten to thirty years).

Reversibility is a judgement about the prospects and practicality of the impact being reversed in, for example, a generation. For example, while some forms of development, like housing, can be considered permanent, others, such as wind farms, are often argued to be reversible since they have a limited life and could eventually be removed and/or the land reinstated (GLVIA 3, para. 5.52).

These individual criteria are combined to achieve a magnitude of landscape rating that could broadly be defined in **Table 2.2**.

Table 2.2 Magnitude of landscape impact

Magnitude of landscape impact	
High	A substantial change to the landscape due to total loss of, or obvious change to important elements, features or characteristics of the landscape. The effects of the change would generally be felt at the scale of several landscape types or character areas. The duration of the effect would be long term, and unable to be reversed within several generations, if at all.
Moderate	Discernible changes in the landscape due to partial loss of, or change to key elements, features or characteristics of the landscape. The effects of the change would generally be felt at the scale of landscape type or character area within which the proposal lies. The duration of the effect would be medium term, with potential to be reversed within a generation.
Low	Minor loss or alteration to a small number of key landscape features or characteristics, or the introduction of new elements that would be compatible with the existing landscape. The effects of the change would generally be felt at the at the level of the immediate setting. The duration of the effect would be short term, and would be able to be reversed within a generation.
Negligible	Almost imperceptible or no change in the landscape or views as there is little or no loss of, or change to the elements, features or characteristics of the landscape. The effects of the change would generally be felt at the site level. The duration of the effect would be short term, and would be able to be reversed within that timeframe.

2.2.3 Overall rating of landscape character impacts

Once the sensitivity of the landscape and the magnitude of the impact are established, a rating matrix is used to determine the overall significance of the landscape character impact (**Table 2.3**).

Table 2.3 Overall significance of landscape character impacts

		Magnitude of impact			
		High	**Moderate**	**Low**	**Negligible**
Sensitivity	**High**	High	High - moderate	Moderate	Negligible
	Moderate	High - moderate	Moderate	Moderate - low	Negligible
	Low	Moderate	Moderate - low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

2.3 Assessment of visual impacts

An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character

of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements (GLVIA 3, para. 6.1).

Viewpoints

Viewpoints are the location from which the photographs of the assessed views have been undertaken. Viewpoints also include the use of Google street view in instances where it was considered unsafe to pull off the road and photograph, or where a suitable viewpoint could not be pinpointed during the inspection due to intervening screening of the Site.

Each viewpoint was assessed for the key visual receptor types likely to be impacted by the Project (refer **section 2.2.1**).

Visual envelope mapping

The potential for the Site to be visible to receptors in the surrounding area is determined largely by the existing landform, e.g. hills and valleys. Areas with a potential direct line of sight to the Site are defined as being within its 'visual envelope'.

The visual envelopes of both the currently approved landfill (RL 80) and the Project (RL 95) were produced. These maps are considered 'worst case' as they are based on landform only and do not account for the screening affect provided by vegetation. As such the actual visual envelope is likely to be much smaller than shown on the mapping in certain places.

Photomontages

Photographs of the Site from nominated receptor locations were used to assist in the analysis process. The photographs were taken during a site visit on 9 August 2018. Photomontages for the most affected receptors were then prepared to illustrate the likely visual changes as a result of the Project.

All photographs and photomontages illustrating views of the Site have been taken form publicly accessible areas only due to access and privacy issues. This has included photos from residential and arterial roads and streets.

The photomontages focussed on viewing the Project in its wider setting, at a nominal pedestrian eye height of 1.7 metres.

To prepare photomontages, a 3D model of the Project was developed and confirmed against plans, elevations and sections. Photographs were corrected for distortion using specific camera and lens profiles, and camera coordinates were then merged with the 3D model to allow a 'virtual camera' to be set up using these coordinates. Camera matching was undertaken using reference points common to the 3D model and physical features in the photographs. The model was then rendered with the photographs and edits to the foreground and background elements made as necessary.

2.3.1 Sensitivity of visual receptors

Each visual receptor, meaning the particular person or group of people likely to be affected at a specific viewpoint, is assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.

Susceptibility of visual receptors to change

The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of the activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the view.

Visual receptors most susceptible to change are likely to include:

- residents at home
- people who are engaged in outdoor recreation, and whose attention is likely to be focussed on the landscape and on particular views
- visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience; communities where views contribute to the landscape setting enjoyed by residents in the area.

Travellers on road, rail or other transport routes tend to fall into an intermediate category of moderate susceptibility to change. Where travel involves recognised scenic routes awareness of views is likely to be particularly high (GLVIA 3, para. 6.33).

Visual receptors likely to be less sensitive to change include:

- people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape, e.g. people playing a game of tennis
- people at their place of work whose attention may be focussed on their work or activity, not on their surroundings, and where the setting is not important to the quality of working life (GLVIA 3, para. 6.34).

Value attached to views

Value attached to the views experienced can encompass a range of factors important to the community or particular receptors. This may include views associated with heritage items, those designated in policy or design documents, those associated with tourism (such as those noted in guidebooks and maps) or those referred to in literature or art.

This assessment considers:

- the value attached to particular views, either in relation to heritage assets or through planning designations, planning policy or other existing planning or urban design studies
- indications of the value attached to views, either through inclusion in guidebooks or on tourist maps, provision of facilities for their enjoyment such as sign boards and interpretive material
- references to them in literature or art.

These components are combined to produce a sensitivity assessment that ranges from High to Negligible.

2.3.2 Magnitude of the visual impacts

The magnitude of visual impacts is comprised of the following components:

Size or scale of the change

This relates to changes in the view with respect to:

- the amount of loss or addition of features in the view
- the degree of contrast or integration of any new features or changes and characteristics in terms of form, scale and mass, line, height, colour and texture
- the nature of the view of the Project and whether views of it would be full, partial or glimpses.

Geographical extent of impacts

The geographical extent of a visual impact would vary with different viewpoints and is likely to reflect the horizontal angle of the view, the distance of the viewpoint, and the extent of the area over which changes would be visible.

Duration and reversibility of the impacts

Duration is judged on a scale of short term (zero to five years), medium term (five to ten years) and long term (more than ten years). Reversibility is a professional judgement about the prospects of the impact being reversed. An example would be a solar farm, which, being generally lightweight structures, may have a good potential to be reverted back to farmland.

The above components are combined to produce a magnitude of visual impact assessment that ranges from High to Negligible.

2.3.3 Overall significance of visual impacts

Once the sensitivity of the visual receptor and the magnitude of the visual impact is established, a rating matrix is used to determine the overall significance of the visual impact (**Table 2.4)**.

Table 2.4 Overall significance of visual impacts

		Magnitude of impact			
		High	**Moderate**	**Low**	**Negligible**
Sensitivity	**High**	High	High - moderate	Moderate	Negligible
	Moderate	High - moderate	Moderate	Moderate - low	Negligible
	Low	Moderate	Moderate - low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Where it is determined that no view is likely to be available from a viewpoint, a rating of 'No Impact' is applied.

2.4 Assumptions

The following assumptions have been made for the purposes of assessing the Project's landscape and visual impacts:

- the final landform would initially have batter slopes of 1:3.5 (vertical:horizontal). These are anticipated to decrease in slope to 1V:4H as the landform settles. It is assumed that approximately 90% of the settlement would occur within the first three years post-completion
- the benches and top of the landform would have a cover of landfill gas extraction infrastructure comprising black poly pipe which it is has been assumed to be buried to facilitate tractor slashing
- the final landform would remain in perpetuity in its final post-settlement form
- the final landform would initially have a grassed cover sufficient to secure the surface material. Once sufficient settlement and reduction in batter slopes to 1V:4H had occurred, the landform would comprise a grassed, regularly slashed and managed structure with provision for in perpetuity management in this state
- the existing riparian corridors surrounding the Project would remain as vegetated, natural creek lines
- on completion of the final landform, the SAWT may remain operational as a waste management facility
- the landscape within which the Project is proposed is likely to be subject to significant change within the context of the approved Western Sydney Airport, and the *Western Sydney Aerotropolis: Land Use and Infrastructure Implementation Plan – Stage 1: Initial Precincts* (refer **Figure 3.2**).

3.0 Legislation, Policy and Guidelines

3.1 Legislative framework

There is no accepted nationally published guidance on landscape and visual amenity impact assessment specific to Australia. Therefore, the assessment is made with reference to the *Guidelines for Landscape and Visual Impact Assessment, Third Edition (2013)* developed by the Landscape Institute and Institute for Environmental Management (United Kingdom). These guidelines are widely recognised as 'good practice' by Landscape and Visual Impact Assessment (LVIA) practitioners

The content and structure of this report addresses the SEARs issued by the DPE (SEAR 1239, dated 19 July 2018).

3.2 Penrith Development Control Plan (DCP) 2014

The Penrith Development Control Plan 2014 (Penrith DCP 2014) sets out detailed planning and design guidelines that support/supplement the provisions of the *Penrith Local Environmental Plan 2010* (Penrith LEP 2010).

The Penrith DCP 2014 identifies particular locations within the Penrith LGA that are visible from major roads and other public places and have important scenic and landscape values. These locations are identified on the Penrith LEP 2010 Scenic and Landscape Values Map (refer **Figure 3.1**).

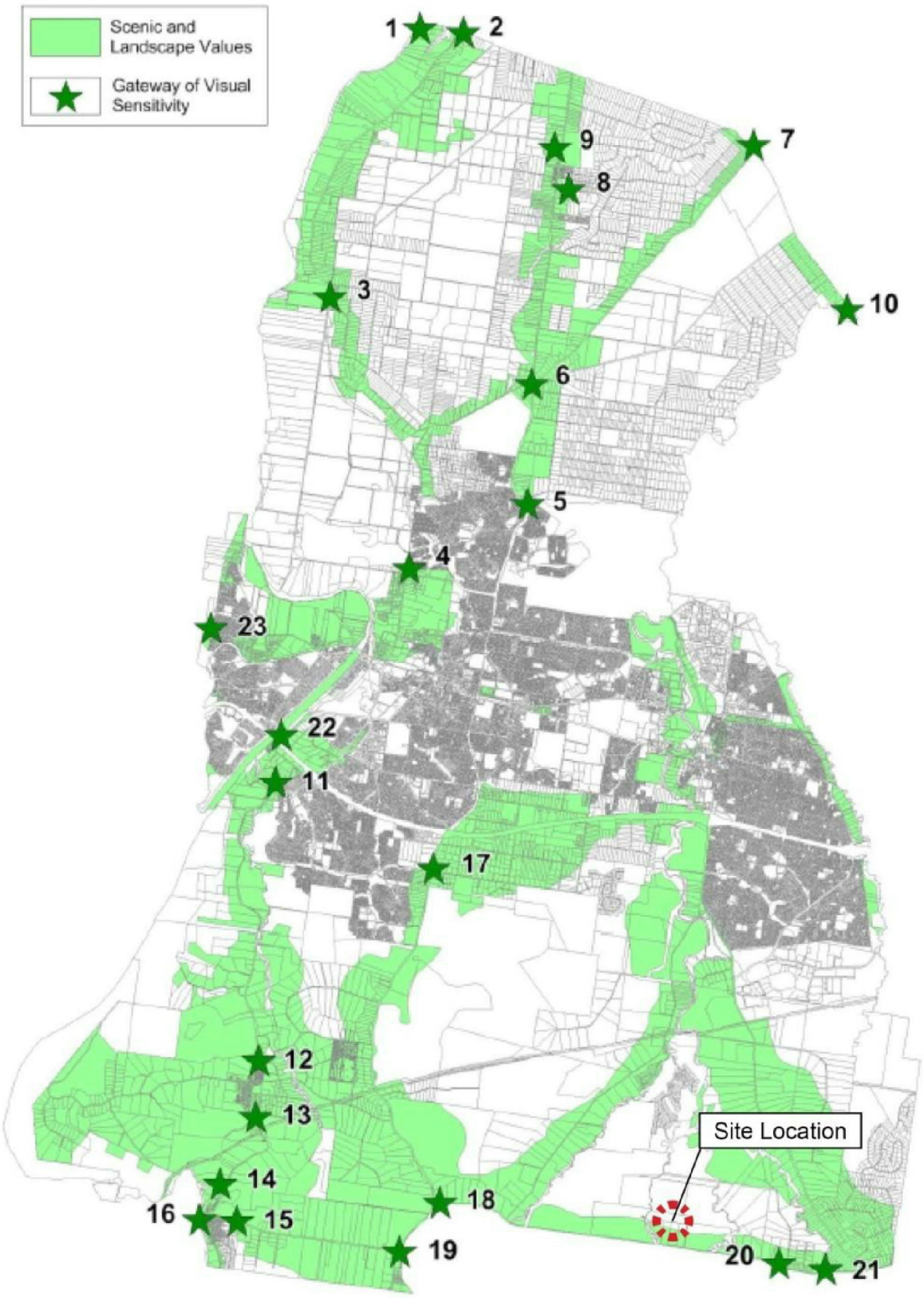


Figure 3.1 Scenic and landscape values map (*Penrith Development Control Plan, 2014*)

3.3 Western Sydney Aerotropolis

A Land Use and Infrastructure Implementation Plan (LUIIP) has been prepared for the proposed Western Sydney Aerotropolis. The Aerotropolis is a 11,200 hectare site consisting of nine 'precincts', which combined would deliver an 'economic hub' as part of the vision for the Western Parkland City vision. The catalyst for the Aerotropolis is the Western Sydney Airport which would support the construction of new rail and roads and the delivery of employment lands and residential development that would benefit from the accessibility to the airport.

Three initial precincts have been identified as the impetus for the Aerotropolis growth;

1. Aerotropolis Core – Offering a diversity of industries based around defence and aviation technologies, Science, Technology, Engineering and Mathematics (STEM) based universities, an Aerospace Institute and a public high school
2. Northern Gateway – A second centre at the airport's entrance with a focus on education, technology, research and development based around food production and processing
3. South Creek – The central element of the urban design and water management through a connected open space network that provides for active transport links to community facilities.

As part of the LUIIP, a 'Structure Plan' has been prepared for future development within the Aerotropolis. This considers site conditions, the catchment of South Creek and floodplains, and future infrastructure / transport corridors to map out suitable land uses and their distribution.

The result of the Aerotropolis proposal is that there would be a major change to landscape character that the area currently enjoys. The undulating hills and rural character would be replaced by an airport, highways, rail and a built environment of varying scales.

The Structure Plan suggests that the Site:

- would fall within the 'flexible employment' land use area and be adjoined by the proposed M12 Motorway to the north
- would be closely adjoined by large scale 'business park' style development, potentially in the order of two to four storeys in height (as illustrated within the Structure Plan).

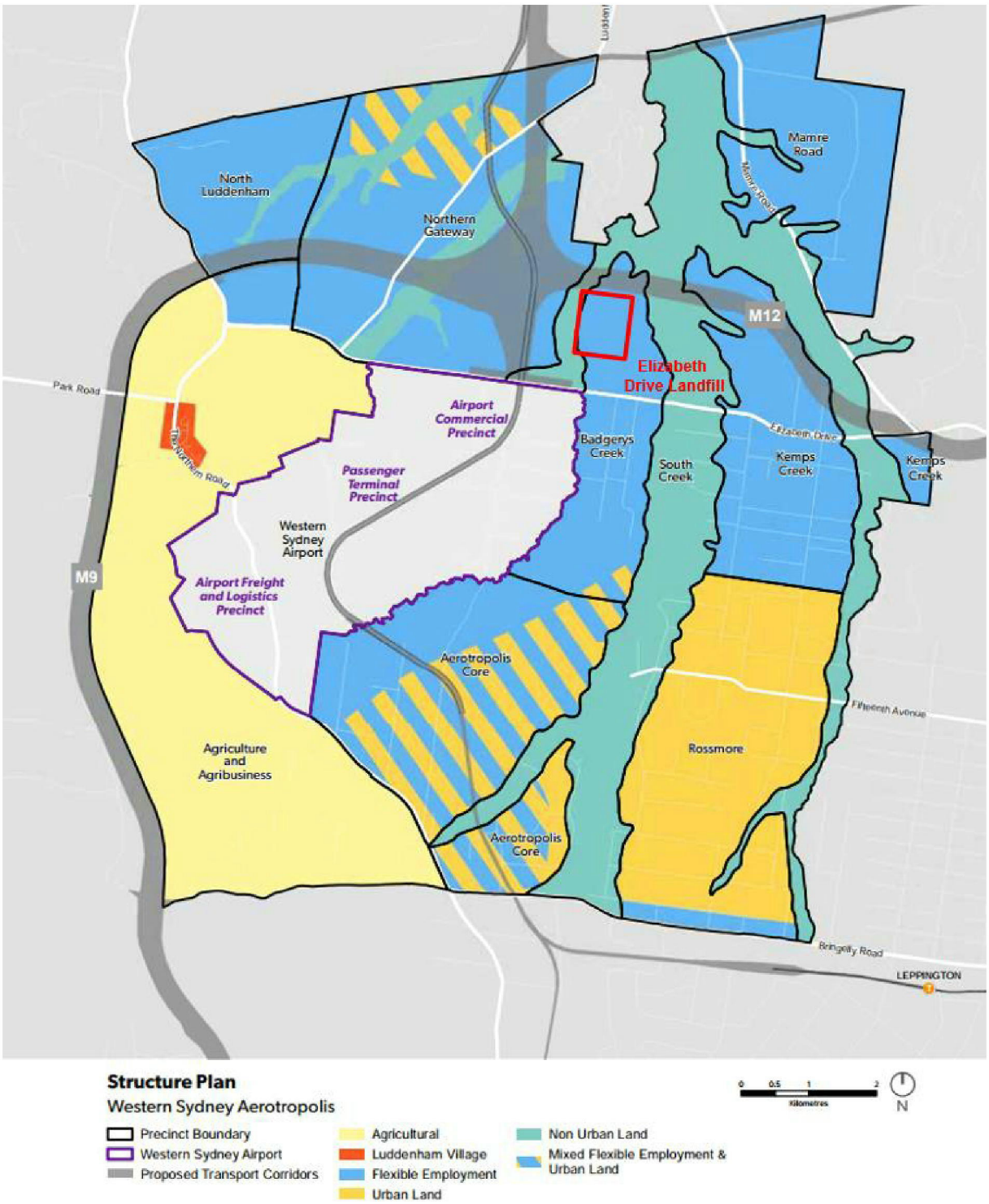


Figure 3.2 Western Sydney Aerotropolis (*Source: Western Sydney Aerotropolis: Land Use and Infrastructure Implementation Plan – Stage 1: Initial Precincts; Department of Planning and Environment*)

4.0 Landscape Character Assessment

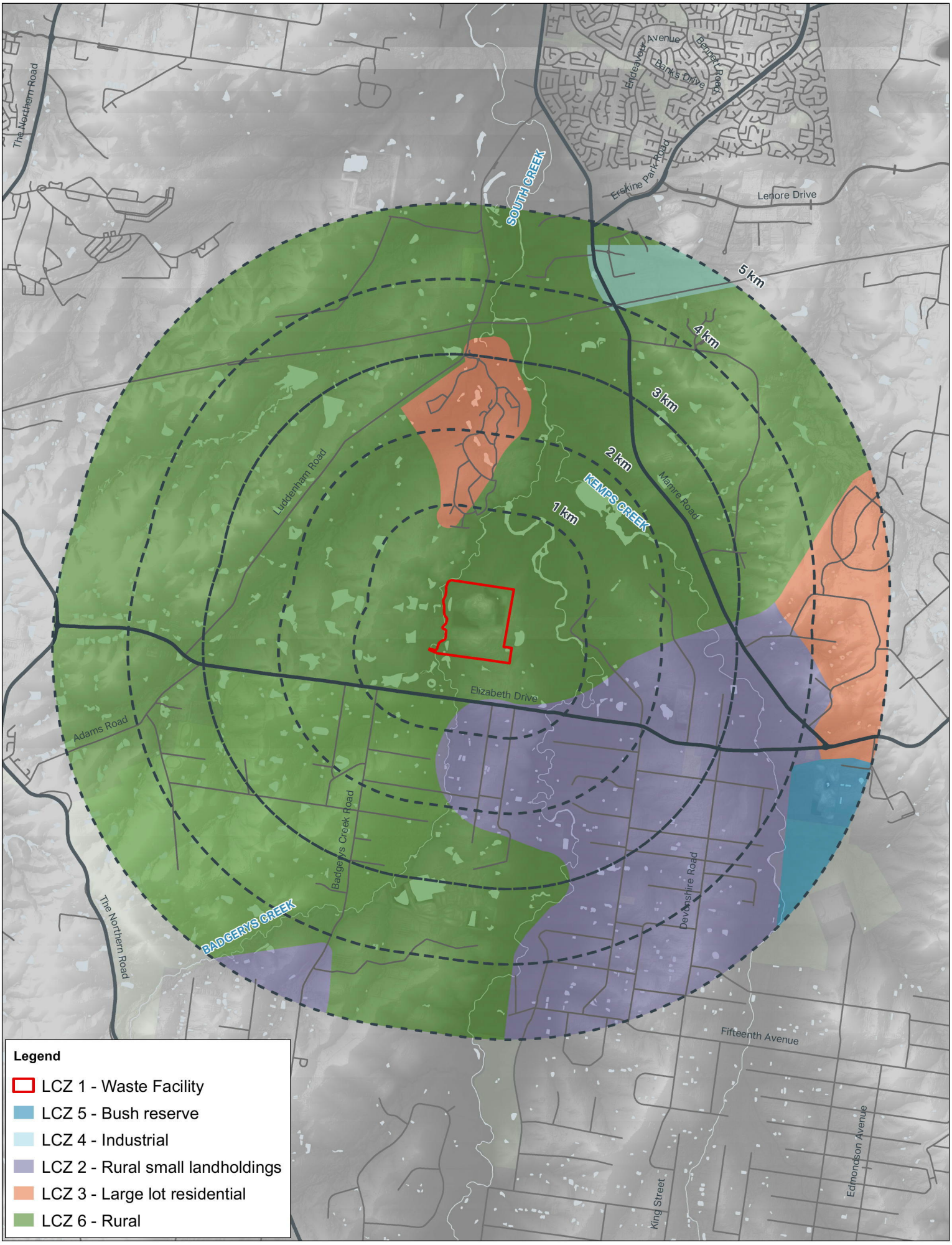
4.1 Landscape Character Zones

Six Landscape Character Zones (LCZ) have been identified within the study area, comprising;

- LCZ 1: Waste Facility (i.e. the Site)

- LCZ 2: Rural Small Landholdings
- LCZ 3: Large Lot Residential
- LCZ 4: Industrial
- LCZ 5: Bush Reserve
- LCZ 6: Rural.

Figure 4.1 presents the extent of the landscape character zones. For the purpose of this assessment, the key area of focus is considered to be those LCZs occurring within five kilometres of the Site. Beyond this area, it is anticipated that the combined impacts of intervening landform, vegetation and distance from the Site would combine to substantially limit landscape and visual impacts of the Project.



SUEZ ELIZABETH DRIVE LANDFILL

FIGURE 4.1: LAND USES

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PROJECT 60571292
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Document Set ID: 8776831
Version: 1, Version Date: 18/07/2019

4.1.1 Landscape Character Zone 1 – Waste Facility

This LCZ is effectively the Site and is identifiable by the large exposed earth stockpiles rising above the gently rolling rural landscape that immediately surrounds it. It is recognisable as an operating waste facility due to the movement of trucks and earthmoving machinery traversing the LCZ. The topography and formation of the LCZ is constantly changing as waste is transported to the Site, effectively adding 'layers' of landform. The lower portions and edges of the LCZ have been grassed with a pasture mix which broadly blends with the surrounding rural landscape. Bordering the LCZ is a row of semi-mature planted native trees creating a defined edge and offering a visual buffer when in close proximity to the Site.

4.1.2 Landscape Character Zone 2 – Rural Small Landholdings

This LCZ is characterised by a mix of rural and industrial business operations as well as residential dwellings situated on small rural lots. The built form is of variable quality, and numerous properties have a broad range of elements stored across their sites, resulting in localised low levels of visual amenity. A number of quarries and small waste management facilities have 'scarred' the landscape, altered the topography and are visually prominent in some locations. Remnant vegetation aligning the road edges and numerous vegetated riparian corridor crossings provides reminders of the past landscape aesthetic and enhances the rural setting of the LCZ.

Figure 4.2 Typical character of LCZ 2 – Rural Small Holdings

4.1.3 Landscape Character Zone 3 – Large Lot Residential

This LCZ is characterised by predominantly large, prestige residential dwellings situated on large suburban and small rural blocks. The area, locally known as 'Capital Hill', comprises houses set amongst remnant trees with many having high quality, well-manicured garden settings. Capital Hill rises above the rural flat lands and affords long distance views of the Great Dividing Range to the west. To the north of the Project Area, the Twin Creeks Estate comprises a relatively new golf course/prestige residential development, set on a low, gently undulating landform dominated by the open setting of the golf course, large houses and tracts of remnant vegetation associated with the riparian corridors.

Figure 4.3 Typical character of LCZ 3 – Large Lot Residential (view looking west from 'Capital Hill')

4.1.4 Landscape Character Zone 4 – Industrial

Erskine Business Park forms this LCZ. It is typical of a business park with wide roads and large commercial and industrial buildings of varying form and scale. The roads and building frontages are landscaped with native street trees providing vertical scale to the large buildings to ensure the built form does not over dominate. A heavily vegetated, extensively wide drainage channel bisects the site and links to areas of remnant bushland within the LCZ. The native planting throughout the LCZ combined with the retained bushland creates a sense of an industrial development in a landscape setting.

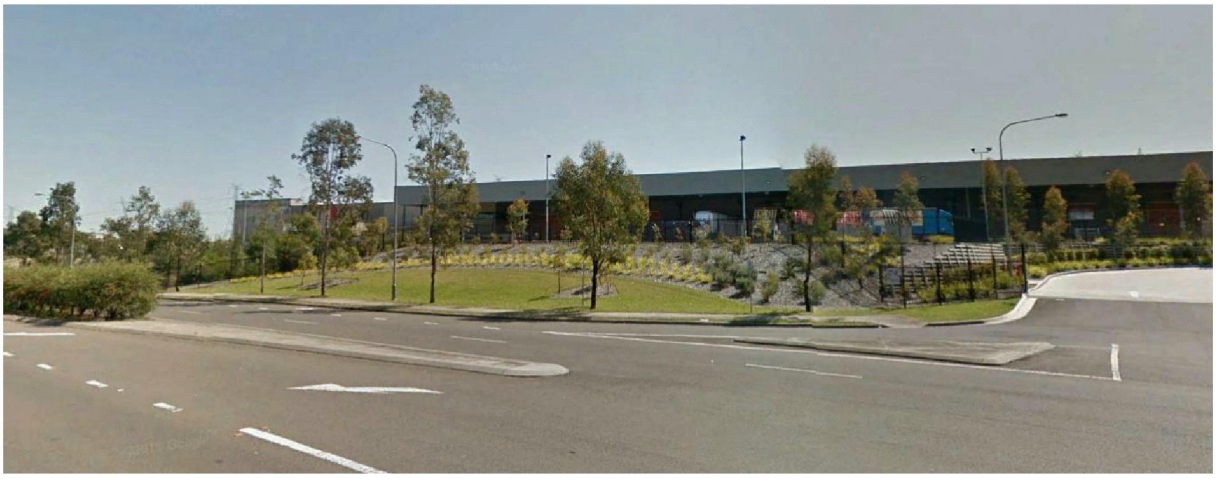


Figure 4.4 Typical character of LCZ 4 - Industrial

4.1.5 Landscape Character Zone 5 – Bush Reserve

This LCZ is characterised by Kemps Creek Nature Reserve which comprises a number of endangered ecological communities such as Cumberland Plain Woodland, River-Flat Eucalypt Forest, Castlereagh Swamp Woodland and Cumberland Plain Shale Woodlands. This 197 hectare reserve is bounded by Kemps Creek to the west and the Cecil Park Precinct of the Western Sydney Parklands to the east. It has been identified as 'Priority Conservation Land' under the Cumberland Plain Recovery Plan and is closed to public access to ensure its function of conservation is maintained.

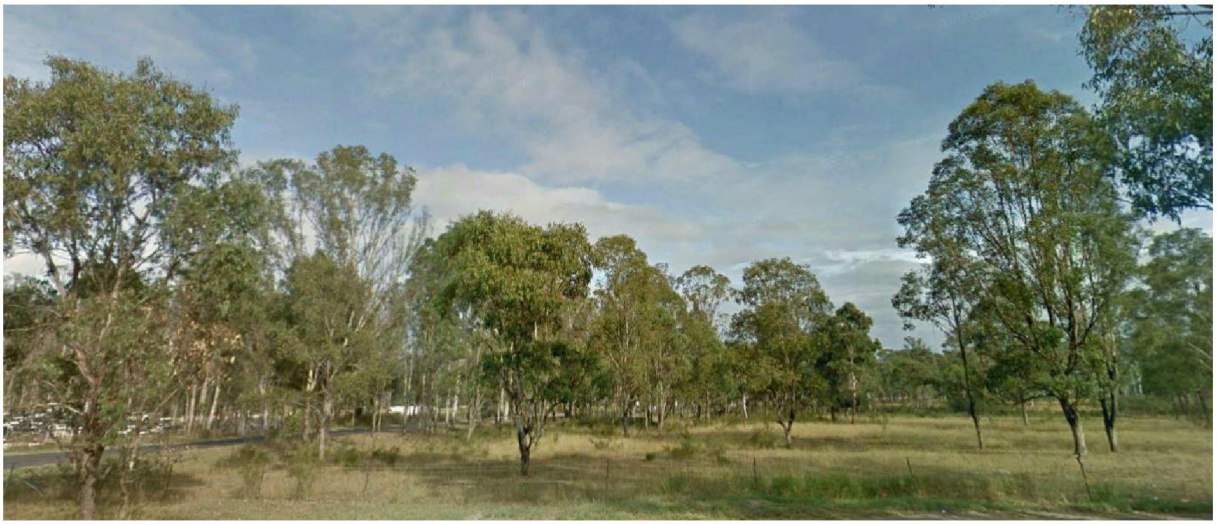


Figure 4.5 Typical character of LCZ 5 – Bush Reserve

4.1.6 Landscape Character Zone 6 – Rural

This LCZ is characterised by predominantly open rural landscape with large rural lot holdings on an undulating grassed landscape. Rural fencing, dams, scatterings of tree-lined windrows and vegetated creeks dominate the rural setting. Sections of the road corridor are lined with remnant trees offering filtered views across the landscape, while other road corridors are clear and provide expansive, uninterrupted views across the landscape. Future development is planned across the majority of the LCZ as part of the Western Sydney Aerotropolis.

Figure 4.6 Typical character of LCZ 6 – Rural (looking east across Cosgroves Creek with part of Site seen beyond)

4.2 Landscape character impacts

An assessment has been undertaken to determine the significance of the Project's potential landscape character impacts on the identified landscape character zones. The assessment of impacts is based on the difference between the current approved final landform and the Project including future landscaping works (refer to **Annexure A**). It takes into account the current operations and the ongoing changes to the landform and makes broad assumptions in regards to future development associated with the Western Sydney Aerotropolis.

Table 4.1 Landscape character impacts assessment – LCZ 1

Landscape Character Zone 1 – Waste Facility
Anticipated change to LCZ The Project would expand the existing stockpiles, extending them above the currently approved elevation. The landform would increase by a further 15 metres above the current approved height of RL 80 (about 30 m above surrounding ground level), to a final height of RL 95 m (about 45 m above surrounding ground level) with broadly symmetrical east/west and north/south cross-sectional forms. The final proposed height of the landfill is approximately equivalent to that of a 15 storey building, when compared to the surrounding natural ground level. The currently approved final landform (RL 80) would be considered visually sympathetic to that of the existing rolling landscape with intermittent low hills, being a gently sloping and rounded 'hill' with batter slopes generally about 1V:8H. The new final landform would change to that of a more visibly engineered landform. This would include 1V:3.5H batters with regular horizontal benches and a large, relatively flat top. This form could be broadly described as a 'mesa-like' or 'plateau' landform. The new structure would include a road suitable for heavy vehicles ascending the eastern and northern batters, and then descending back along separate alignment on the eastern batter. The relationship of height, bulk and scale between the approved landform and the proposed landform would increase substantially, with the height of the Project increasing between about 50% and 200% in height over that of the approved landform, depending on the location within the Site. The nature of the final cap surface itself would be consistent between both the currently approved and proposed final landforms. That is, both would be secured by a grass covering and would be maintained through regular mowing. Weeds would be primarily managed by mowing, with any resistant infestations being managed by selective management, ensuring an ongoing consistent visual scenario across the landform.
Sensitivity to change: High **Susceptibility to change** The ability of this LCZ to accommodate the proposed change without noticeable impacts on its character is considered to be low within the context of the change in form from that of: • a gently sloping, relatively low 'hill' form sympathetic to that of the adjacent rural setting as approved, to that of • a more engineered structure with relatively steep benched sides; a relatively flat top; roughly grassed final land cover which may be difficult to machine manage; and road sufficient to take heavy vehicles up the side and across the top of the structure. Setting this large, engineered structure of regular form within the adjacent generally open, gently to moderately rolling rural landscape would result in a low level of visual integration. **Value of LCZ** LCZ 1 is currently considered to be of negligible value due to the contrasting operational structured form of the proposed landform within the context of the surrounding rolling rural landscape setting. However, the final approved landform would comprise a readily maintainable, relatively low 'hill', broadly sympathetic in form and slope with that of the adjacent rural setting. The value of the LCZ within this rural context would be moderate.

Landscape Character Zone 1 – Waste Facility
Magnitude of change: Moderate **Size/scale** The scale of change in the landscape between the approved and the proposed final landform would fall within a range of moderate to high given the: • contrasting forms of the more naturalistic and lower form of the current approved 'hill' landform, and the more engineered structure of the proposed landform • increases of up to 150% in the height (worst case) of the proposed final landform compared to that of the approved final landform (refer **Figure 4.7**) • the surface of the structure changing from one with most batter slopes in the order of 1V:8H and therefore readily able to be grassed and maintained by tractor slasher, to slopes of 1V:3.5H which may be difficult to maintain using a tractor slasher (noting predicted settlement of slopes to around 1V:4H slopes, which still may difficult for tractor slasher management due to issues associated with differential settlement, e.g. safety). **Geographical extent** The geographical area over which the landscape effects of the proposed final landform would be felt is relatively extensive (refer **Figure 5.1** and **Figure 5.2** – Note: These figures represent 'worst case'), due to the addition of the new, more highly structured form of the landfill, contrasting in form, scale, mass and potentially land cover with the surrounding Rural LCZ 2 and Large Lot Residential LCZ 3. **Duration/reversibility** The landscape effects of the Project are long-term and unlikely to be reversible.
Significance of landscape character impact: High-Moderate

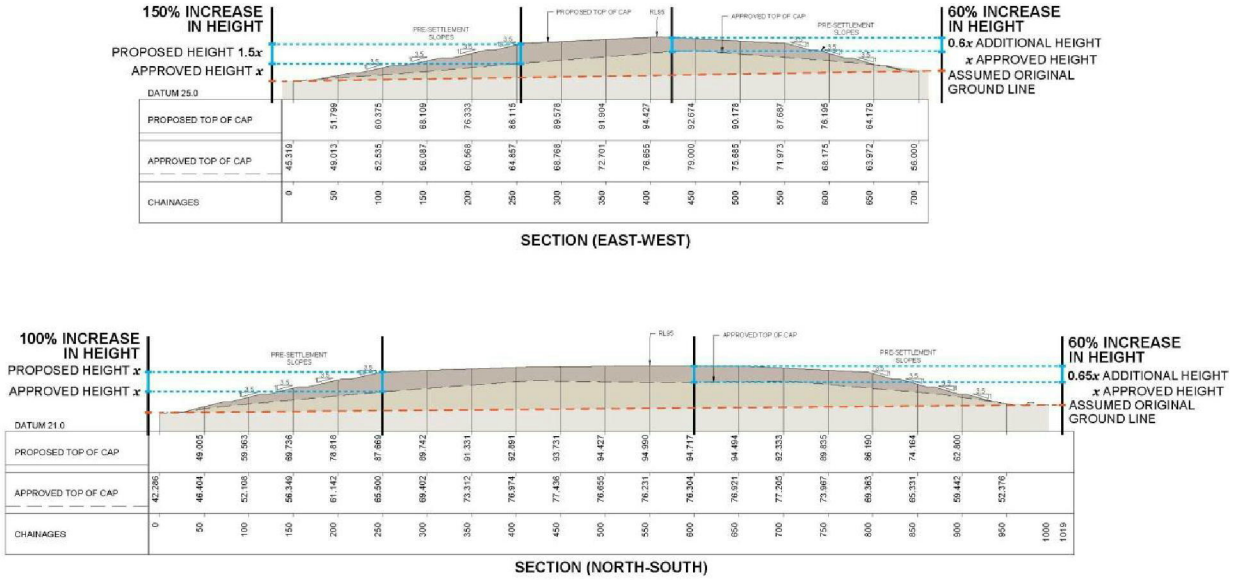


Figure 4.7 Sketch showing typical proportional increases in height between the approved Project and the proposed Project.

Table 4.2 Landscape character impacts assessment – LCZ 2

Landscape Character Zone 2 – Rural Small Landholdings
Anticipated change to LCZ The Project would introduce an uncharacteristic, highly structured landform (as described above for LCZ 1) to areas of LCZ 2 within visual proximity of the Project.
Sensitivity to change: Low **Susceptibility to change** The ability of this LCZ to accommodate the proposed change with limited impacts on its landscape character is considered to be high. This is due to the distance of this LCZ from the Project, and the fact that it comprises a highly altered landscape with a diverse and visually haphazard range of land uses ranging from semi-industrial settings to open market gardens. **Value of LCZ** LCZ 2 is considered to be of low to moderate value due to the number of individual contributors to landscape character including: • tree lined rural roads • extensive areas of riparian corridor; • a significant patchwork of bush land remnants that provide structure to the landscape, including visual enclosure • a visually interesting mix of horticultural and market gardening pursuits.
Magnitude of change: Low **Size/scale** The scale of change in the landscape once operations are complete would be low, given: • there would no landscape elements lost within LCZ 2 • the addition of the proposed final landform adjacent to this LCZ comprises a low to moderate impact on the rural, open setting which LCZ 2 adjoins • the change is not critical to the distinctive character of this LCZ. **Geographical extent** The geographic extent of the effects of the Project will have an influence contained predominantly to areas within one to two kilometres of the Project, and elevated areas further afield such as along parts of Western Road. **Duration/reversibility** The landscape effects of the Project on LCZ 2 are long-term. The effects would be partially reversible with measures such as strategic tree planting within the LCZ 2.
Significance of landscape character impact: Low

Table 4.3 Landscape character impacts assessment – LCZ 3

Landscape Character Zone 3 – Large Lot Residential
Anticipated change to LCZ The Project would comprise a large, contrasting, regular 'engineered' landform with relatively steep sides, rising above the surrounding gently rolling landscape and floodplain/riparian corridors, within visual proximity of LCZ 3. The proposed landform would: • have a noticeably increased height and mass compared with the approved landform • have a noticeably different landscape character from that of the approved relatively low, naturalistic hill form, to that of a large engineered structure with a relatively flat top and regular steep sides • be in strong contrast to the otherwise substantially open rural landscape setting of LCZ 3, including riparian corridors and large patches of conserved bushland.
Sensitivity to change: Moderate **Susceptibility to change** This LCZ would have a low to moderate capacity to accommodate the proposed landform without impacts on its open, rural landscape setting, arising from the proposed increase in uncharacteristic scale, form and height of the Project. The landfill structure would rise considerably above the level of these adjacent landscape features. **Value of LCZ** LCZ 3 is considered to be of moderate to high local value due to the visual amenity of the well maintained residential estate that create a sense of pride in place, in addition to retained riparian corridors for Cosgroves Creek, South Creek and Badgerys Creek. Further, the substantial retained bushland patches within the east and south-eastern area of the development contribute significantly to the landscape character of the floodplain setting within which the LCZ is set.
Magnitude of change: Moderate **Size/scale** The scale of change in the landscape once operations are complete would be moderate to high, given the final landform would comprise a structure of contrasting form, mass, scale and height to that of the floodplain, and the more gently rolling elevated parts of the landscape between the riparian corridors, rising above the adjacent landforms. **Geographical extent** The geographic extent of the effects of the Project will have a moderate degree of visual influence over LCZ 3. **Duration/reversibility** It is anticipated that the proposed landform would remain in its final form permanently and not be reversible (refer s.2.3). However, it is likely that the visual effect of the proposed landform on LCZ 3 would be moderately reversible over time in response to ongoing street tree planting, and shade tree planting within residential lots.
Significance of landscape character impact: Moderate

Table 4.4 Landscape character impacts assessment – LCZ 4

Landscape Character Zone 4 – Industrial
Anticipated change to LCZ The Project would comprise a large, contrasting, regular 'engineered' landform with relatively steep sides, rising above the surrounding gently rolling landscape and floodplain/riparian corridors, within visual proximity of LCZ 4.
Sensitivity to change: Negligible **Susceptibility to change** The LCZ is considered to have a high capacity to accommodate the proposed change without noticeable impact on its character, given the distance from the Project. **Value of LCZ** LCZ 4 is considered to be of local value due to the nature and function of the development within it, which provides employment for industry and business.
Magnitude of change: Negligible **Size/scale** The scale of change in the landscape between the current approved landfill and the proposed Project once complete would be negligible, given the minor proportion of, and relatively minor change, within the existing rural landscape setting. **Geographical extent** The landscape effects of the proposed landform would be negligible with regard to LCZ 4 due to its significant distance from the Project. **Duration/reversibility** Not applicable.
Significance of landscape character impact: Negligible

Table 4.5 Landscape character impacts assessment – LCZ 5

Landscape Character Zone 5 – Bush Reserve
Anticipated change to LCZ There would be negligible change to the LCZ arising from the proposed landform due to distance from the Project.
Sensitivity to change: Low **Susceptibility to change** The ability for this LCZ to accommodate the proposed change without impact on its landscape character is considered to be high due to its substantial separation from the Project. **Value of LCZ** The value of this LCZ is considered high given it is a Nature Reserve (second highest in the hierarchy of reserves after Wilderness). It is important in that it protects biodiversity in the region, and for its broader links to the Western Sydney Regional Parklands open space corridor, which covers over 5000 hectares in Western Sydney and stretches for 27 kilometres.
Magnitude of change: Negligible **Size/scale** The scale of change in the landscape relative to this LCZ once the Project is complete would be negligible, given the distance of the Project from the LCZ. **Geographical extent** The geographic extent of the effects of the Project will have a negligible degree of visual influence over LCZ 5 due to its significant distance and topographical separation from the Project. **Duration/reversibility** Not applicable.
Significance of landscape character impact: Negligible

Table 4.6 Landscape character impacts assessment – LCZ 6

Landscape Character Zone 6 – Rural
Anticipated change to LCZ The Project would comprise a large, contrasting, regular 'engineered' landform with relatively steep sides and near flat 'plateau' top, the footprint of which is in the order of 950m long by 700m wide. It would rise in the order of 25-40m above the high points within the surrounding gently rolling, open rural landscape, and in the order of 25-30m above the height of the adjacent vegetated riparian corridors of Badgerys Creek and South Creek (assuming about a 20m height for existing riparian vegetation). The batters of the proposed landform would be stepped at 10m intervals, with construction batter slopes of 1V:3.5H reducing to about 1V:4H after settlement, compared with: • the batters of the approved landform - 1V:8H • existing proximate LCZ 6 batter slopes which broadly range between 1V:8H and 1V:20H. The proposed landform would be stabilised with a grassed cover similar to that of the surrounding pastoral landscape.
Sensitivity to change: Moderate **Susceptibility to change** The LCZ is considered to have a low potential to accommodate the proposed change within the context of LCZ 6. **Value of LCZ** LCZ 6 is considered to be of moderate value due to the large tracts of rural landscape in the local area, and its contrasting open landscape character relative to adjacent industrial, residential and rural small holding landscapes.
Magnitude of change: Moderate **Size/scale** The scale of change in the landscape relative to the approved landform would be moderate to high, given the above described change arising from the proposed landform. Visual integration the proposed landform within LCZ 6 would be assisted with the proposed grassed cover of the structure. **Geographical extent** The project would comprise the addition of a substantial, contrasting landform, with the landscape effects felt over a geographically moderate area of this LCZ (refer Figure 6-2). **Duration/reversibility** The effects of the final landform on LCZ 6 would be long-term. The prospects and practicality of the landscape effects of the proposed landform on LCZ 6 being reversed would be low.
Significance of landscape character impact: Moderate

4.3 Future landscape character impacts

Future likely changes in land use for the study area are provided within **section 3.3**. As discussed, a Land Use and Infrastructure Implementation Plan (LUIIP) has been prepared for the proposed Western Sydney Aerotropolis. As part of the LUIIP, a 'Structure Plan' has been prepared for its future development (refer **Figure 3.2**). The Aerotropolis would result in a radical change to the landscape across this area. The above described LCZs (refer **section 4.1**) would be replaced by an airport, highways, rail and a built environment of varying scales.

4.3.1 Immediate Site setting

The Structure Plan shows that the site falls within the Badgerys Creek Precinct, within a 'flexible employment' land use area, e.g. large scale 'business park' style development. The Site would be:

- adjoined by the proposed M12 Motorway along its northern boundary, and Badgerys Creek along its western boundary
- located close to the South Creek Corridor along its eastern boundary, which comprises the central element of urban design and water management for the Aerotropolis, incorporating a connected open space network that provides for active transport links to community facilities (note: the northern half of the eastern Site boundary would effectively be adjoined by the South Creek Corridor)
- potentially adjoined by large scale 'business park' style development, possibly in the order of two to four storeys in height (as illustrated within the Structure Plan).

Assuming the above outcome, the proposed landform would be adjoined by riparian corridor along its western boundary and the northern part of its eastern boundary, and adjoined by the proposed M12 Motorway along its northern boundary. The remaining southern and south-western corner of the Site (about 40% of the Site boundary) would be subject to 'business park' style development.

4.3.2 Broader Site setting

The broader setting of the Site would comprise (refer **Figure 3.2**):

- Western Sydney Airport to the south-west - the alignment of the first runway would have aircraft taking off and landing over the Site, with the runway located to the south-west
- South of Elizabeth Drive, 'flexible employment' uses continue about 2.5 km to the south
- To the east, the South Creek Corridor (at a width of about 1 km), beyond which is located further 'flexible employment' land
- To the north, the confluence of Badgerys Creek, Kemps Creek and South Creek, and the Twin Creeks residential estate
- To the west of Badgerys Creek, a relatively narrow band of 'flexible employment' adjoined by the extensive Outer Sydney Orbital/Western Sydney Airport/M12 Motorway Interchange.

Within the context of the above, the proposed landform would have an entirely different relationship with the surrounding landscape to that currently in place, and as assessed in this report. Based on the above high-level assumptions for the immediate site setting (refer **section 4.3.1**):

- the proposed landfill would sit about 45 m above the adjoining 'flexible employment' development
- the 'flexible employment' development would have an assumed height of between 6 m and 12 m (two to four storeys), and be set within 'business park' setting street trees, open space and landscaped development frontages
- subject to the extent of differential settlement of the grassed landform to a batter slope of about 1V:4H, and subsequent capacity for regular slashing (compared with the 1V:8H batters for the approved landform)
- the landform within the immediate Site setting would comprise a contrasting 'monolith' landform with relatively uniform grassed cover, likely to be visible from many locations within the adjoining 'flexible employment' development, and from the M12 Motorway and Elizabeth Drive
- the landform within the broader Site setting would be: visible from the Outer Sydney Orbital (northbound and southbound) and the M12 motorway access to/from Western Sydney Airport; likely to be visible from adjacent 'flexible employment' areas (including from taller buildings and east-west aligned streets); and from aircraft during approach and departure from the airport.

In short, for much of the above areas, the proposed landform has the potential to comprise a visually prominent, engineered landform that rises noticeably higher than proximate surrounding areas.

5.0 Visual Impact Assessment

A total of nine visual receptor locations have been identified to represent viewpoints for the assessment of potential impacts on views as a result of the Project. The visual receptor locations are shown in **Figure 5.3**.

5.1 Visual receptor types

Two main sensitive receptor types have been identified as follows:

5.1.1 Residents

Residents are interested in the outlook from their properties and have a sense of proprietary interest in views from their homes and their local environment. Residents typically have regular and prolonged viewing opportunities from living areas within the home and garden areas, and so are considered likely to have a high level of sensitivity to the proposed change in some instances, e.g. when in close proximity to the Project.

5.1.2 Road users

Road users are generally considered to have less of an interest in the quality of their surroundings as they are passing through the landscape, and the Project would comprise only a small component of the landscape through which they are travelling. However, a large number of vehicles would use Elizabeth Drive on a daily basis. Drivers would typically be expected to be 'local' residents using the road regularly to commute, and workers such as tradesmen and delivery drivers coming to and from the area, who may have much of their attention focussed on road conditions and their work, rather than a specific interest in the landscape through which they are travelling. As such, they are considered to have a moderate to low level of sensitivity to change. Local road users may have a moderate level of sensitivity to change, given the potential for a sense of proprietary interest in their local environment.

5.2 Visual impact assessment

The assessment of visual impacts is based on the difference between the currently approved final landform and the Project including future landscaping works (refer to **Annexure A**). Broad assumptions about the possible visual impacts of the Project in relation to future development are outlined in **section 4.3**.

5.2.1 Operational impacts

The Project is currently operational and has been since the late 1980s. The nature of the Project is that the landform is continually changing due to the importation of waste, the extraction of quarry material and the associated earthworks.

During operation the key activities that may be visible from surrounding areas include:

- major civil earthworks involved with the stockpiling and movement of material across the Site
- plant and equipment moving over the Site
- trucks entering and exiting the Site during normal business daylight hours
- location of communication and security camera towers on elevated areas of the site
- changing colours and form of the stockpiles and final cap as they expand over time and are gradually revegetated with grass cover.

Given the time over which the facility has been operating it can be assumed that regular visual receptors are accustomed to its presence. However, over the operational duration of the Project, the visibility of the Project would increase as it grows towards its new height and shape.

5.2.2 Proposed landfill

When the landfill component of the Project is complete, the final form would broadly appear as a large, engineered structure with steep, evenly sloping sides (1:3.5 gradient) and horizontal benching at 10 m

intervals. It would have a near flat top at an elevation of RL 95. This constitutes an increased elevation of approximately 20 m to the current (late 2019) highest point on the Project Area, and a 15 m increase in height over that approved landfill. The landfill would be revegetated with a pasture grass cover (refer to **Annexure A**). A 5 m wide road would run up the eastern side, around the top, and back down the northern and eastern side of the landform. Where the road would ascend and descend across the batter slopes, it would regularly widen up to about 12 m to provide truck passing bays. The fill batters supporting the road would spill up to about 15 m downslope of it.

Upon completion of the final landform, the Site would remain operational as a waste management facility with the majority of operations contained within the north west portion of the Site at the Elizabeth Drive Landfill and SUEZ Advanced Waste Treatment (SAWT) Facility.

5.2.3 Zone of theoretical visibility mapping

This GIS based Zone of Theoretical Visibility (ZTV) mapping is considered to be 'theoretical' in that it has been modelled using topographic mapping only, i.e. mapping of the landform without its cover of existing trees and buildings, which if included, would reduce the visibility of the project.

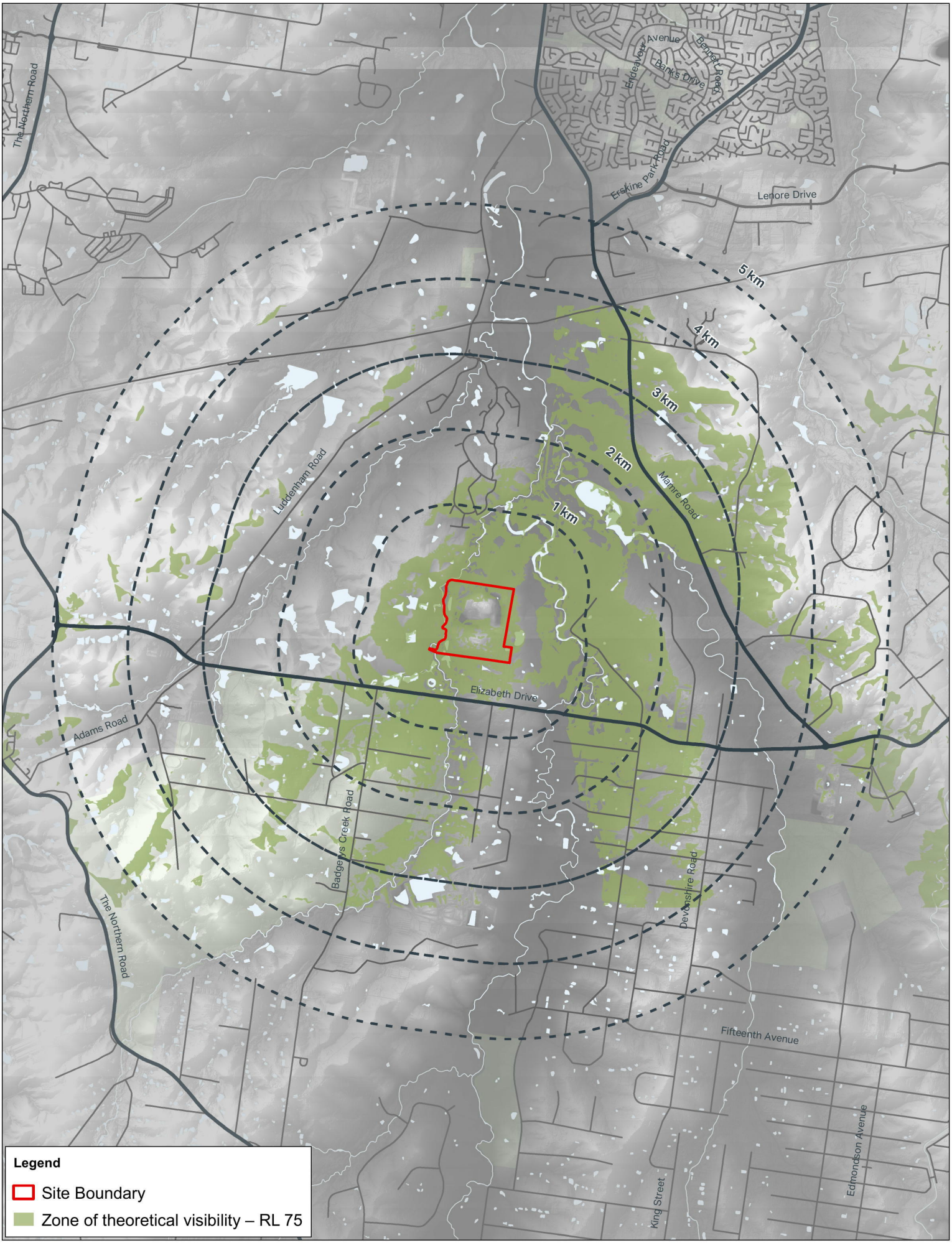
The potential visibility of the existing landfill as seen from surrounding areas has been subject to ZTV mapping (refer to **Figure 5.1**). This provides an indication of where the existing landform is potentially visible from, with the current height (late 2018) being RL75 (5 m less than that for the RL 80 m final height of the proposed landform). Given that the currently approved landform tapers up relatively gently sloping batters (1:8 gradient) to a low rounded top, this is considered to be a suitable height to provide a representative indication of the seen areas of the main body of the approved landform, relative to the proposed landform that has a significant proportion of its mass in the upper layers.

As can be seen from the ZTV for the currently approved landform (refer **Figure 5.1**):

- Within the Twin Creeks residential estate, the existing landfill is seen from the southern end of the development, with small pockets of visibility along the boundary with Cosgroves Creek
- Existing topographical highpoints can be seen to limit the east-west extent of an 'inner' zone of visibility (up to about 2 km):
  - to the west, midway between Cosgroves Creek and Badgerys Creek
  - to the east, midway between South Creek and Kemps Creek
- Outer zones of visibility (3-5 km distance) can be seen:
  - to the north-east broadly aligned with Mamre Road
  - to the west, as narrow lines just west of Luddenham Road, and the eastern end of WSA.

As can be seen from the ZTV for the proposed landform (refer **Figure 5.2**):

- Within the Twin Creeks residential estate, the extent of the seen area has increased substantially, with increased area to the south and centre, and all of the land between Cosgroves Creek and Luddenham Road
- The 'inner' zone now encircles the Site, and has increased substantially:
  - to the east, particularly towards the northern end of Mamre Road across the floodplain, and south of Elizabeth Drive across an area of rural small holdings
  - to the south across rural small holdings
  - to the west across much of WSA, to the eastern side of Luddenham, in a band either side of Luddenham Road, and to high ground further west of Luddenham Road.



SUEZ ELIZABETH DRIVE LANDFILL

FIGURE 5.1: ZONE OF THEORTICAL VISIBILITY - EXISTING LANDFORM, DEC 2018 (RL 75)

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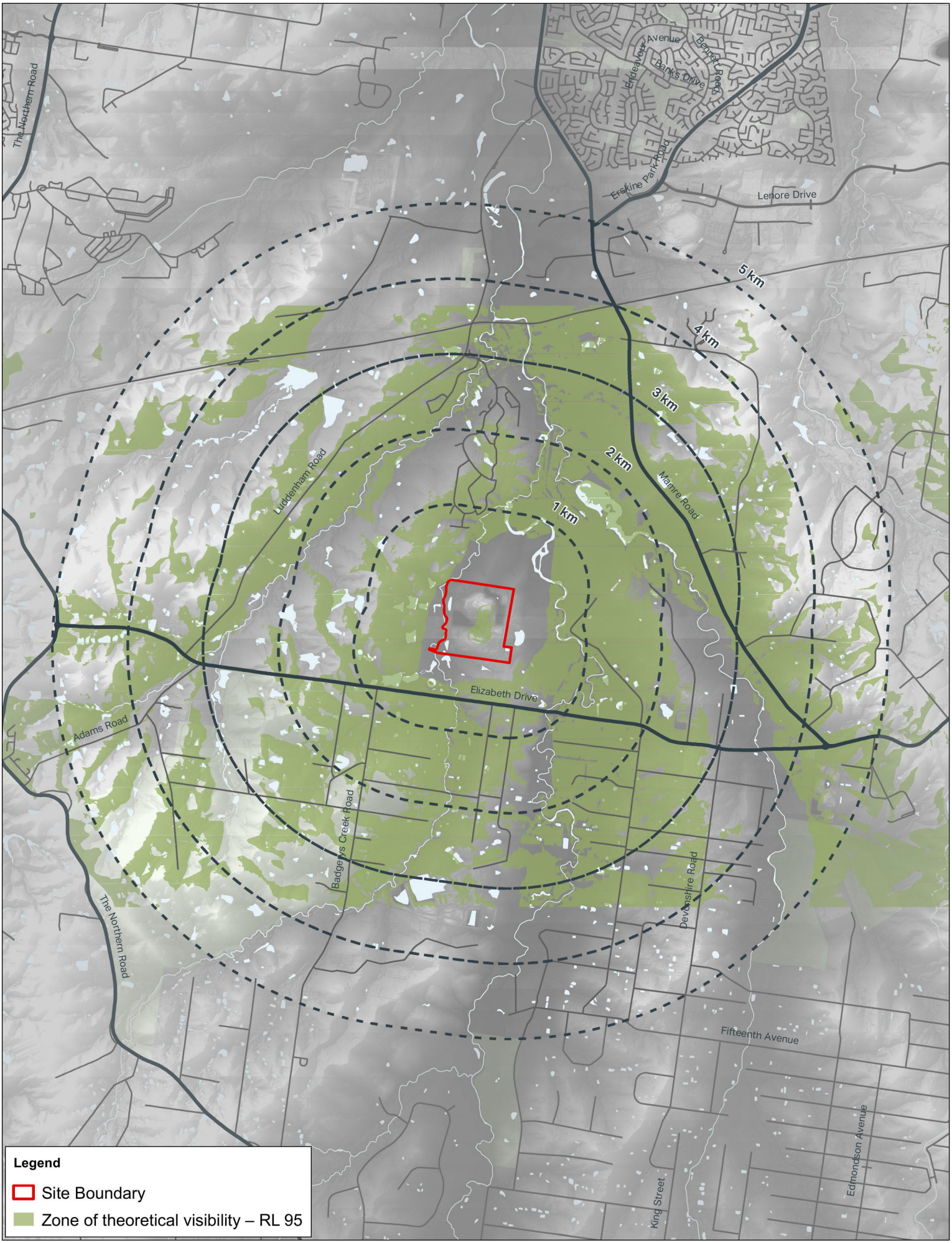

SUEZ ELIZABETH DRIVE LANDFILL

FIGURE 5.2: ZONE OF THEORETICAL VISIBILITY – PROPOSED LANDFORM (RL 95)

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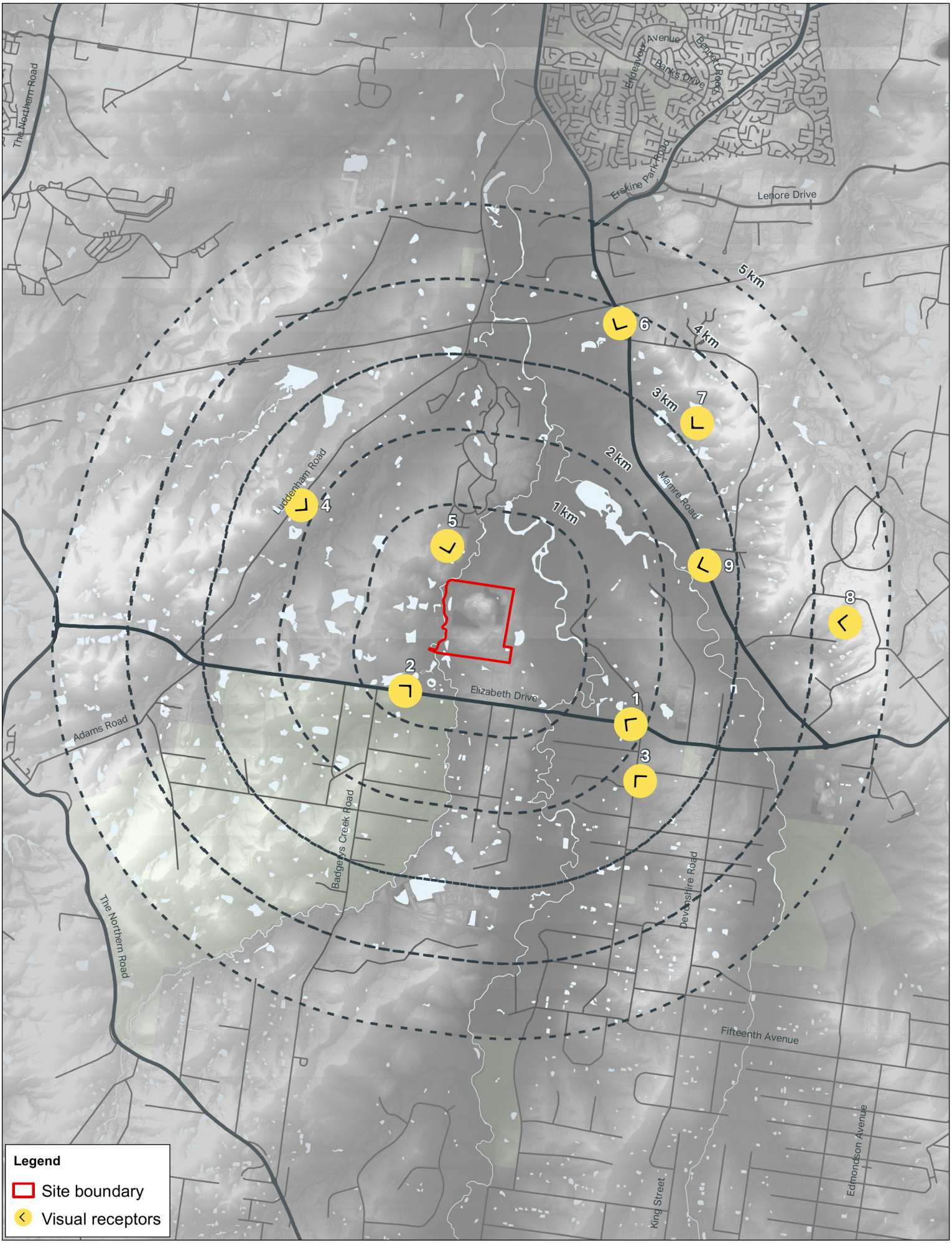

SUEZ ELIZABETH DRIVE LANDFILL

FIGURE 5.3: VISUAL RECEPTORS

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5.2.4 Visual impact assessment rating

An assessment of visual impacts arising from the completed Project has been undertaken to determine the significance of changes to views from sensitive visual receptors.

Table 5.1 Visual impact assessment – V01

V01: Road – Elizabeth Drive
Anticipated change to view Views looking north-west towards the Project would comprise partial glimpse views of the top of the landfill structure beyond the South Creek vegetated corridor and roadside vegetation.
Sensitivity to change: Low **Susceptibility of road user to proposed change** Road users will typically comprise local residents, workers travelling to and from their place of employment, and delivery drivers. The extent to which motorists would focus their attention on this view is considered to be low given the need to focus on the road, and low levels of visual amenity within parts of this area. **Value attached to view** The value attached to the view for motorists travelling along this section of Elizabeth Drive is considered low to moderate, notwithstanding Penrith City Council's 'Scenic and Landscape Values' mapping which categorises this part of Elizabeth Drive as having landscape and scenic values and comprising a 'gateway of visual sensitivity' (refer **Figure 3.1**).
Magnitude of change: Low **Size/scale** The proportion of the view occupied by the project would be low. Views of the project would potentially comprise fleeting glimpses or partial views of the top of the structure, which would have a similar grassed cover to that of the open rolling hills landscape common to the area. **Geographical extent** The viewpoint is located approximately 2,500 metres from the centre of the Project. The extent of the area over which the changes would be visible is low to moderate. **Duration/reversibility** The duration of impacts would be expected to be long term and non-reversible.
Significance of visual impact: Low

Figure 5.4 V01 visual receptor location looking north-west towards the Site

Table 5.2 Visual impact assessment – V02

V02: Road – Badgerys Creek Road/Elizabeth Drive Intersection
Anticipated change to view The proposed landfill would be seen across its nearly one kilometre long edge, rising above the Badgerys Creek riparian corridor. The landfill would change from that of: • a grassed 'hill' form with 1V:8H side slopes and a gently rounded high point (the approved landform); to that of • a more regular engineered form, 15 metres higher than the approved landform, with a relatively flat top, and approximately the upper half of the regularly sloped batters (1V:3.5H reducing to about 1V:4H upon completion of landfill settlement) seen projecting above the Badgerys Creek riparian corridor.
Sensitivity to change: High **Susceptibility to proposed change** Motorists waiting at the intersection of Badgerys Creek Road and Elizabeth Drive Road would primarily be expected to comprise local residents, workers travelling to and from their place of employment, and delivery drivers. The extent to which these motorists would focus their attention on this view is considered to be moderate given there would be times while approaching and queueing at the intersection, where the landfill would comprise a visually prominent element within the landscape. The susceptibility of nearby residents: • south of Elizabeth Drive between Badgerys Creek Road and South Creek is considered broadly to be low given: - the 'working' nature of the rural small holdings environment (e.g. horticultural pursuits, storage of materials, etc.) - limited opportunities to view the Site due to earth bunding and screen planting located along the southern edge of Elizabeth Drive between South Creek and 500 metres south of Badgerys Creek Road - proximity to the often busy Elizabeth Drive for the remaining dwellings - apparent orientation of living spaces within the dwelling near the corner of Badgerys Creek Road away from the Site - extended history of views to the operational landfill site • west of the Site, there are two and possibly three residences located along the ridgeline between Cosgroves Creek and Badgerys Creek, with the dwellings oriented towards the Site, and therefore expected to periodically attract the attention of residents to the view. The residents would have an extended history of views to the operational landfill site. Other than for the landfill, the view would be of moderate to high amenity, looking out across open pasture land and riparian corridors, to a rural small holdings landscape and Mount Vernon large lot residential development on the opposite side of the floodplain valley. The susceptibility of these residents is considered to be moderate to high. • adjoining the southern boundary of the Site, the two residences would have an extended history of views to the operational landfill site. The susceptibility of these residents to the proposed change is considered to be high given the proximity and high visual prominence of Project from most locations within the properties. The susceptibility of the latter two groups of residents in particular to the proposed change would be high given the additional period of some 5½ viewing the operational site, after which the amenity of the view would be substantially improved with the final grassed and maintained landform in place. **Value attached to view** The value attached to the view for motorists travelling along this section of Elizabeth Drive is considered low to moderate for the reasons listed above, notwithstanding Penrith City Council's 'Scenic and Landscape Values' mapping which categorises this part of Elizabeth Drive as having

V02: Road – Badgerys Creek Road/Elizabeth Drive Intersection

landscape and scenic values and comprising a 'gateway of visual sensitivity' (refer **Figure 3.1**).

The value attached to views from residences:

- south of Elizabeth Drive is considered to be low for the above listed reasons
- west of the Site, is considered to be moderate to high, given their expectation of the residents that the landfill was nearing completion, and would be reinstated to a gently sloped (1V:8H) grassed structure that would be broadly visually congruent with the surrounding open, gently rolling hills landscape
- adjoining the southern boundary of the Site, is considered to be moderate to high given:
  - the well managed rural character of their landholdings (which they value)
  - the above described expectation regarding near completion of the approved landfill
  - the adjoining southern face of the existing landfill is already well progressed towards completion.

Magnitude of change: Moderate

Size/scale

The seen area of the proposed landfill above the Badgerys Creek landfill would increase over that of the approved landfill by a factor of about 1 to 3.5. However, the increase in the proportion of the view occupied by the proposed landform would be low.

The combination of increased height and a flatter top would substantially increase the visual scale and mass of the proposed landform compared with that of the gently sloped and rounded form of the approved landform. The regular shaping of the proposed landform would be visually uncharacteristic within the context of the adjacent rolling open hills landscape. The proposed landform would be:

- visually prominent from this location
- seen in sharp relief against the skyline (defining the regular shape)
- viewed within the context of the horizontal line of the Badgerys Creek riparian corridor / floodplain (right of frame), thereby inferring the full height, mass and form of the structure.

The visual integration of the proposed landfill structure would be assisted by the managed grassed land cover, which would be visually congruent with the open pasture cover of the adjoining landscape in terms of colour and texture.

Geographical extent

The viewpoint is located approximately 1,500 metres from the centre of the Project. The extent of area over which the changes would be visible would include: the area within about a 400 m radius of the viewpoint; most of the hillside downslope of the residences to the west of the Site; the adjoining properties to the south of the Site; and to a lesser degree the properties south of Elizabeth Drive.

Duration/reversibility

The duration of proposed change would be long term, and non-reversible.

Significance of visual impact: Moderate to High

Figure 5.5 V02 visual receptor location looking north-east to the existing landfill (late 2018)

Figure 5.6 V02 visual receptor location view of the proposed landfill

Table 5.3 Visual impact assessment – V03

V03: Resident/Employment – Western Road
Anticipated change to view Views north-west across the rural small holdings landscape and the South Creek floodplain towards the Project would be expected to be limited to the upper part of the Project due to intervening tree cover and built form. Where the project was seen, it would be seen in sharp relief against the skyline.
Sensitivity to change: Low **Susceptibility of resident/employee to proposed change** The susceptibility of residents to changes in the view arising from the Project is considered to be low given the 'working' nature of the rural small holdings environment (e.g. horticultural pursuits, storage of materials, etc.), and the varied range of more highly visible elements within the foreground and middle ground of this view. The susceptibility of workers to changes in the view arising from the Project is considered to be low given their attention would for the majority of the time be focussed on their tasks rather than the landscape. **Value attached to view** Notwithstanding the 'working' nature of the rural small holdings environment, the view from this local high point in the landscape is considered to be of moderate value given the likelihood of a substantial view of the Blue Mountains on a clear day.
Magnitude of change: Low **Size/scale** The proportion of the view occupied by the Project would be relatively small. The regular, engineered and grassed form of the Project seen projecting above the South Creek floodplain would comprise an uncharacteristic landform element in terms of scale, mass, form and height. The view of the project would be partial, limited to the upper portion of the structure. The relative amount of time over which residents would take in the view from their homes is estimated to be low to moderate within the context of the 'working' rural small holdings environment view. **Geographical extent** The viewpoint is located approximately 3,300 metres from the centre of the Project Area. The extent of area over which the changes would be visible is broadly located within a 200 m radius of the viewpoint. The Project could also be visible to a lesser degree along east-west running roads and substantial open areas downslope of the above viewpoint area. **Duration/reversibility** The duration of impacts would be long term and non-reversible.
Significance of visual impact: Low

Figure 5.7 V03 visual receptor location existing view looking north-west towards the Project

Table 5.4 Visual impact assessment – V04

V04: Road – Luddenham Road
Anticipated change to view Views to the south-east towards the Project from this elevated position along the road would include glimpses of the landfill structure in the far distance beyond the intervening open ridgeline between Cosgroves Creek and Badgerys Creek, set behind the Cosgroves Creek riparian corridor.
Sensitivity to change: Moderate **Susceptibility of road user to proposed change** The susceptibility of motorists travelling along this section of Luddenham Road is low due to the momentary nature of the view, and the road edge topography and vegetation in the immediate foreground regularly screening views of the Project **Value attached to view** The Luddenham Road corridor is mapped within the Penrith DCP (2014) as having scenic and landscape values (refer **Figure 3.1**). The observed intermittent views looking towards the Project are considered generally to exhibit moderate, and in some instances high levels of visual amenity.
Magnitude of change: Moderate **Size/scale** The scale of change would be moderate given the landfill structure would rise above the intervening open ridgeline between Cosgroves Creek and Badgerys Creek, projecting above the Cosgroves Creek riparian corridor. The structure, which would be seen against the skyline, would protrude noticeably above the ridgeline. However, the proportion of the view occupied by the Project would be relatively small. The form and scale of landfill would comprise an uncharacteristic element, appearing to be set atop the intervening relatively flat ridgeline, and perched above the Cosgroves Creek riparian corridor. However, the grassed cover of the structure would reflect the extensive, gently undulating open pasture cover within the foreground of the view with regards to colour and texture. **Geographical extent** The viewpoint is located approximately 2,800 metres from the centre of the Project Area, resulting in moderate visibility and detail of the Project due to its elevated position. The extent of area over which the Project would be seen would comprise a patchwork of areas between Luddenham Road and Cosgroves Creek defined by regular tree planting along the verge. **Duration/reversibility** The duration of impacts would be expected to be long term and non-reversible.
Significance of visual impact: Moderate

Figure 5.8 V04 visual receptor location existing view looking west from Luddenham Road

Figure 5.9 V04 visual receptor location with proposed landfill

Table 5.5 Visual impact assessment – V05

V05: Resident – Twin Creeks Residential Development
Anticipated change to view The view south towards the Project would contain a noticeably larger grassed landform than that for the approved landform, which would be marginally larger and of similar form to that seen with the existing landform (late 2018) (refer **Figure 5.10**). The proposed landform would be about double the height of the approved landform, and a flatter top and increased visual mass. It would also extend moderately further east and west than for the approved landform. The grassed cover of the proposed landform would reflect the pasture cover of the intervening high ground between the Project and the Twin Creeks Estate. Further, the engineered form of the landfill would be more recognisable as such, than would the approved landform, which could be mistaken for an existing low hill from this location. A change that could foreseeably mitigate the above effects of the Project would be the planting of trees within the Twin Creeks Estate, including street trees and garden trees. However, given the extent of this work is unknown, this potentially mitigating factor is not included in the assessment.
Sensitivity to change: High **Susceptibility of residents to proposed change** The susceptibility of residents to the proposed change in their view is considered likely to be high with the context of the above described changes, and given the expectation of the residents that the landfill was nearing completion. **Value attached to view** The view is considered to be of low value.
Magnitude of change: Moderate **Size/scale** The scale of change would be moderate given that the composition of the view would change from one with a low, naturalistic form in the background, to the proposed landform comprising a visually prominent, engineered landfill form projecting moderately above the existing gently rolling landform. The proportion of the view occupied by the Project would be moderate. The degree of visual contrast for the proposed landform would be moderate, taking into consideration the managed grassed cover of the structure, which would be reflective of the pasture cover of the intervening high ground beyond the Twin Creeks Estate, as above. The view of the project would be seen from indoor living areas and outdoor garden areas facing towards the Project, and when approaching the southern end of the estate by car. The seen area of the proposed landform would comprise about the top half of the structure. **Geographical extent** The viewpoint is located approximately 1,500 metres from the centre of the Project Area. The observer is looking up slope towards the Project, resulting in it being seen in sharp profile against the skyline. The extent of area over which the change would be visible would potentially comprise up to about one third of the Twin Creeks residential Estate (refer **section 5.2.3**). **Duration/reversibility** The duration of impacts would be expected to be long term, and potentially partially reversible by screening of the Project with street tree and garden planting.
Significance of visual impact: High-Moderate

Figure 5.10V05 visual receptor location looking south towards the landform (as at late 2018)

Figure 5.11V05 visual receptor location with the existing approved final landform in place (RL 80)

Figure 5.12V05 visual receptor location with the proposed landform in place (RL 95)

Table 5.6 Visual impact assessment – V06

V06: Road – Mamre Road
Anticipated change to view Views to the south-west from this viewpoint towards the Project would comprise of broad, low lying, generally open rural land with farm residences located close to the road, set against the Kemps Creek riparian corridor in the middle distance. The proposed landform would periodically be seen in the background at a distance of about 4,500 metres, projecting above the riparian corridor.
Sensitivity to change: Low **Susceptibility of road user to proposed change** The susceptibility of motorists to the proposed change travelling along this section of Mamre Road is considered to be low due to limited opportunities for long views, given the extent of trees, houses, rural outbuildings and 'hot house' structures in the foreground of the view. **Value attached to view** The Mamre Road corridor is mapped within the Penrith DCP (2014) as having scenic and landscape values (refer **Figure 3.1**). The observed views looking towards the Project along Mamre Road are considered generally to exhibit low levels of visual amenity within the context of low scenic qualities associated with a number of rural properties.
Magnitude of change: Low **Size/scale** The proportion of the view occupied by the proposed landform would be small within the context of the floodplain view. The degree of integration would be moderate given the 4,500 metres distance to the Project, and the grassed cover of the structure, reflected within the rural landscape. **Geographical extent** The viewpoint is located approximately 4,500 metres from the centre of the Project Area. The extent of the area over which the change would be visible would comprise much of the land between Mamre Road and the Kemps Creek riparian corridor. **Duration/reversibility** The duration of impacts would be expected to be long term and non-reversible.
Significance of visual impact: Low

Figure 5.13V06 visual receptor location existing view looking south-west from Mamre Road towards the Project Site

Table 5.7 Visual impact assessment – V07

V07: Road – Mamre Road
Anticipated change to view The view to the south-west from this viewpoint towards the Project is seen between substantial lengths of rural residences and large rural buildings either side of it. The view would comprise of broad, low lying, generally open rural land with adjacent farm residences located close to the road. Kemps Creek is dammed in this area with no significant riparian edge. South Creek, located between 500 and 1,000 metres beyond also has lost its riparian corridor within this in this reach of the watercourse. Regularly spaced high voltage electricity stanchions track south across the open floodplain. The proposed landform, at a distance of about 3,000 metres would therefore be visible from this location, comprising an uncharacteristic regular landfill form, which would potentially be projecting above the horizon line.
Sensitivity to change: Low **Susceptibility of road user to proposed change** The susceptibility of motorists to the proposed change travelling along this section of Mamre Road is considered to be low due to limited opportunities for long views, given the extent of trees, houses, rural outbuildings and 'hot house' structures immediately either side of this view. The susceptibility of residents to the proposed change to considered to be low within the context of the extensive floodplain views they enjoy. **Value attached to view** The Mamre Road corridor is mapped within the Penrith DCP (2014) as having scenic and landscape values (refer **Figure 3.1**). The observed views looking towards the Project along Mamre Road are considered generally to exhibit low levels of visual amenity within the context of low scenic qualities associated with a number of rural properties.

V07: Road – Mamre Road
Magnitude of change: Low **Size/scale** The proportion of the view occupied by the proposed landform would be relatively small within the context of the floodplain view. The degree of integration would be low to moderate given the 3,000 metre distance to the Project, notwithstanding the grassed cover of the structure, reflected within the rural landscape. **Geographical extent** The viewpoint is located approximately 3,000 metres from the centre of the Project Area, resulting in low visibility and detail of the Project. The extent of the area over which the change would be visible would comprise a large swathe of the Kemps Creek and South Creek floodplain. **Duration/reversibility** The duration of impacts would be expected to be long term and non-reversible.
Significance of visual impact: Low

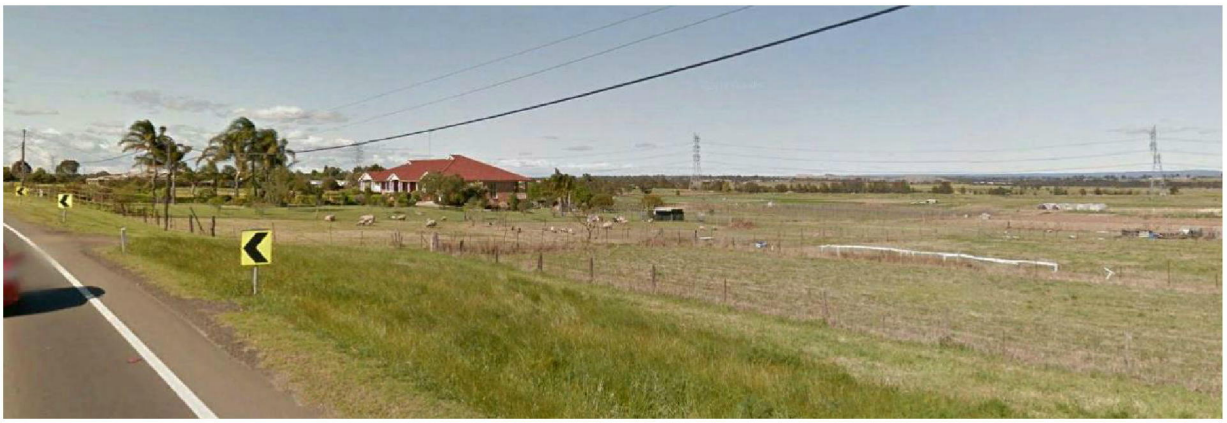

Figure 5.14 V07 visual receptor location existing view

Table 5.8 Visual impact assessment – V08

V08: Resident – Mount Vernon
Anticipated change to view Looking west towards the Project from hillside residences in this locality would provide filtered, distant views of the proposed landform rising above the well vegetated valley floor, and set against the majestic backdrop of the Blue Mountains. Refer **Figure 5.15** and **Figure 4.3**.
Sensitivity to change: Low **Susceptibility of resident to proposed change** The susceptibility of residents to the proposed change in their views moderate given the degree of attention they would be expected to give to the significant view across the South Creek floodplain to the majestic backdrop of the Blue Mountains, but noting that the Project would be unlikely to be a primary focus of viewing within the context of the overall view. **Value attached to view** The view contains significant areas mapped within the Penrith DCP (2014) as having scenic and landscape values, including an extensive area beyond the Site (refer **Figure 3.1**). The view is contained within the majestic backdrop of the Greater Blue Mountains World Heritage Area. The observed views from this locality suggest that at least a moderate number of the dwellings would have access to significant areas of the above described view, notwithstanding many of these views would be partial, framed by or looking over adjacent dwellings.
Magnitude of change: Low **Size/scale** The scale of change would be low given the distance of the Project at this location, and the relatively small proportion of the view it would occupy, notwithstanding that the view is from an elevated location and would to some extent also take in the top of the structure. Given the viewing distance, the grassed structure would be expected to be moderately visually absorbed within the floodplain backdrop (refer **Figure 4.3**). The relative amount of time over which the structure would be viewed would be expected to be low within the context of the broader view. **Geographical extent** The viewpoint is located approximately 5,500 metres from the centre of the Project site. The extent of the area over which the changes would be visible would be dependent of the location of each dwelling and available viewing window. **Duration/reversibility** The duration of impacts would be expected to be long term and non-reversible.
Significance of visual impact: Low

Figure 5.15V08 visual receptor location of glimpse view looking west from 'Capital Hill' towards the Project Site

Table 5.9 Visual impact assessment – V09

V09: Road – Mamre Road
Anticipated change to view This view is looking west from Mamre Road towards the Project. The Kemps Creek riparian corridor is located within about 200 metres of the road, and as such, it is considered highly unlikely that the Project would be visible from this location.
Sensitivity to change: Low **Susceptibility of road user to proposed change** The susceptibility of motorists travelling along this section of Mamre Road to the proposed change is Negligible due to the momentary nature of any potential views through gaps in the riparian corridor to the Project. **Value attached to view** The view comprises part of a significant corridor along Mamre Road mapped within the Penrith DCP (2014) as having scenic and landscape values (refer **Figure 3.1**).The value attached to the view for motorists travelling along this section of Mamre Road is considered to be of moderate visual amenity.
Magnitude of change: No Impact It is considered highly unlikely that the Project would be visible from this location.
Significance of visual impact: No Impact

Figure 5.16V09 visual receptor location existing view

6.0 Mitigation Measures

Mitigation measures to be considered to minimise the level of visual impact during the operation and final form of the Project are outlined below.

6.1 Operation

The nature of change and level of visual impact would change over a long period of time. The landfill would continue to expand in height and bulk, mostly as exposed soil, although becoming progressively capped and grassed over time. Certain operations such as truck movements and stockpiling of materials would become more visible as the height of the landfill structure increases. Following is a mitigation measure that could be considered during operation:

- burial of gas extraction piping to facilitate on-going management of the completed landfill, e.g. tractor slashing.

6.2 Final form

Upon final capping the landfill structure would comprise a ‘monolith’ landform, which would be seen as an uncharacteristic, man-made landform within its predominately rural surroundings. Mitigation measures to be considered include:

- making provision for augmentation of the landfill at a later time to facilitate a landscape feature, or suitable for a range of uses, including ‘noisy’ uses. This would require retention of land around the Project sufficient to facilitate future landform ‘cladding’ of the structure
- using a mix of native grasses and associated ground layer species in lieu of pasture species for:
  - habitat supportive of the adjoining Badgerys Creek riparian corridor
  - visual interest and seasonal colour
  - a medium to long term low maintenance outcome once established
- maintaining, protecting and enhancing the surrounding riparian environmental corridors to safeguard visual and landscape buffers to the Project
- preparation of a landscape management plan for the establishment and long-term management of the proposed landfill.

7.0 Conclusion

7.1 Overview

The Project has been assessed within the context of its current rural setting (refer to **section 4.1**). However, it is recognised that approval for construction of the Western Sydney Airport, and the proposal for the Western Sydney Aerotropolis would dramatically change the landscape. The existing rural/peri-urban landscape character within which the landfill is currently set would instead be situated within a highly urbanised landscape including Western Sydney Airport, motorways, railways and built environment of varying scales.

7.2 Findings

The Project is considered likely to have a moderate level of landscape and visual impact on areas within 2,000 to 3,000 metres of the structure given the following:

- upon completion of the Project, the Site would continue to operate as a waste management facility in its current form with no proposal for alternative uses that would have an increased visual or landscape impact
- the Project area is currently visible as a series of uncovered, constantly changing stockpiles. The grassing of the final landform and removal of the heavy vehicles traversing it would combine to improve the aesthetics of the Project
- the Project would comprise a more regularly shaped landform with increased bulk, scale and height with relatively steep batters, that would project in the order of 20-25 metres above the adjoining Badgerys Creek riparian corridor, compared with the approved landfill which has moderate slopes, a more naturalistic form reflective of the existing of the open rolling landscape, which would project in the order of 5-10 metres above the riparian corridor.

Within the context of the proposed Western Sydney Aerotropolis, the implementation of mitigation measures and alternative land uses for the Project area have the potential to alter the appearance and function of the landform to something more in keeping with an urbanised setting.

Annexure A

Landscape Plan

Existing access road

Existing endemic vegetation cover along Badgerys Creek corridor

Buffer zone to be retained west of site and incorporate the rehabilitation of existing bushland. Degraded areas to be rehabilitated and provide a robust community of endemic plants for screening and habitat opportunities.

The incorporation of well integrated screen planting along the site boundary to minimise the extent of the final landform when viewed from surrounding locations.

Supplementary screen planting to site boundary. The reinstatement of endemic vegetation with characteristics of local plant communities to provide a consistent landscape character. Supplementary screen planting will consist of endemic trees and a bush understorey including shrubs, grasses and groundcovers.

Final cap surface to be stabilised using a mix of grass species and maintained via slashing/ mowing. The specific mix of grass species to be determined based upon ongoing discussions with Western Sydney Airport with view to discouraging congregation of birds.

KEY

- Supplementary screen planting
- Existing vegetation cover
- Buffer zone
- Landfill pasture grass cover
- Stormwater dams
- Site boundary
- Extent of proposed new capping

GENERAL NOTES

- Plant species to be sourced from local suppliers and to be of local provenance.
- Provide rabbit guards to tree and shrub species only.
- Existing endemic vegetation and tree cover to be retained and protected
- Bush regeneration work to be undertaken by members of the Australian Association of Bush Regenerators.

0 200m

AECOM

Client: SUEZ
Date: 24/06/19

Project Name: Badgerys Creek Landfill Expansion Project
Landscape Plan

Landscape Plan L01

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