

LUDDENHAM ROAD, ORCHARD HILLS  
**VISUAL ASSESSMENT  
REPORT**

PREPARED FOR

**HBB PROPERTY PTY LTD**

9 SEPTEMBER 2021

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# 1.0 INTRODUCTION

## BACKGROUND

HBB Property Pty Ltd (the Proponent) seeks, through a Planning Proposal, to amend the Penrith Local Environmental Plan 2010 (PLEP 2010) for the land known as **Alspec Industrial Business Park, 221-235 Luddenham Road, Orchard Hills (the Site)**.

HBB Property, through this Planning Proposal, seek to amend the PLEP 2010 zoning for this land from RU2 to part IN1 and part IN2.

A separate DA will be prepared for the development of an industrial estate at the site.

## PROPOSED DEVELOPMENT

The Planning Proposal seeks to rezone the land applicable to the site, under the PLEP 2010, in accordance with Section 3.33 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The intended outcome of this Planning Proposal is to amend the PLEP 2010 as follows:

- Rezone the applicable land from RU2 Rural Landscape to IN1 General Industrial and IN2 Light Industrial, and retain existing SP2

Infrastructure, E2 Environmental Conservation and part RU2 Rural Landscape zones in line with the Structure Plan included with the Planning Proposal.

- Amend the PLEP 2010 Minimum Lot Size map to reduce the minimum lot size to 1,000m<sup>2</sup>.
- There is no maximum height control applicable to the site
- The proposed amendment will facilitate redevelopment of the land for industrial warehouses across three stages, including the following features that will be visible;
- Twenty-four (24) high-quality warehouse buildings across fourteen (14) lots, each accompanied with an ancillary office, associated parking and business identification signage for legibility and easy way-finding;
- Landscaped internal estate roads including two round-abouts, a cul-de-sac and entry roads for improved amenity; and
- Electrical easement and an environmental zone and basins.

## PURPOSE OF REPORT

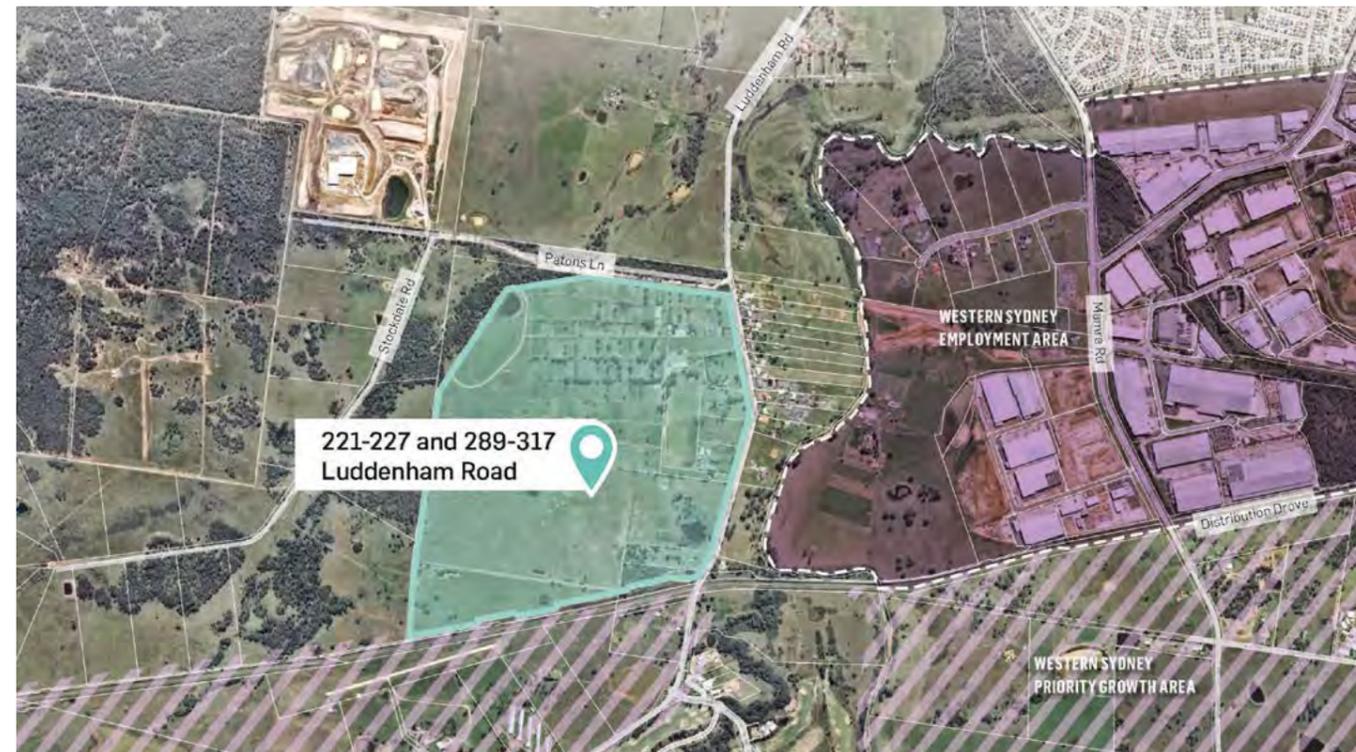


FIGURE 1 SITE LOCATION

To assess the potential visual effects and visual impacts that would result subsequent to the approval of this planning proposal and construction of built forms as proposed and modelled.

## DESCRIPTION OF THE SITE

The site is known as Alspec Industrial Business Park, 221-235 Luddenham Road, Orchard Hills and has a total area of 125.34 ha. It is legally described as Lot 242 in DP1088991 and Lot 1 in DP1099147. The site is relatively cleared of vegetation and currently comprises five (5) farm dams, a riparian corridor running north-south in the north-west corner of the site, a singular dwelling and two barns.

The site is situated approximately 13.6km north-east of the future Western Sydney International (Nancy-Bird Walton) Airport, 15km west of the Western Sydney Parklands and 30km west of Parramatta CBD. The site is surrounded by the following land uses:

- The site adjoins Patons Lane and a riparian corridor to the north. To the north-west, Patons Lane RCC is currently under construction. A transmission line easement crosses the north-west area of the site.
- Directly south of the site is primarily agricultural lands and 'St Mary's/Kennetts Airfield Airstrip'. The Warragamba pipeline runs east-west south of the site along the proposed future Western Sydney Freight Line.
- Directly east of the site is Bosna Croatian Club, Luddenham Oval, a number of individual residential dwellings along Luddenham Road and South Creek that runs in a north-south direction. Further east is the Erskine Business Park and First Estate which comprise industrial land uses and is nearing completion.
- The site is bound to the west by the Outer Sydney Orbital corridor, which in turn is adjacent to the North-South rail corridor. Further west is the Orchard Hills Defence Establishment.

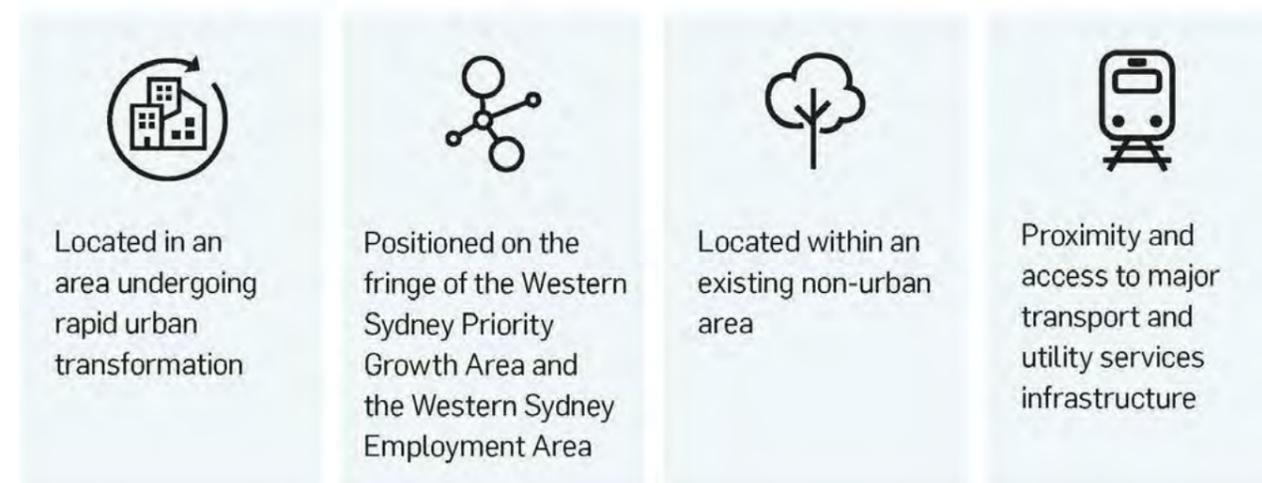
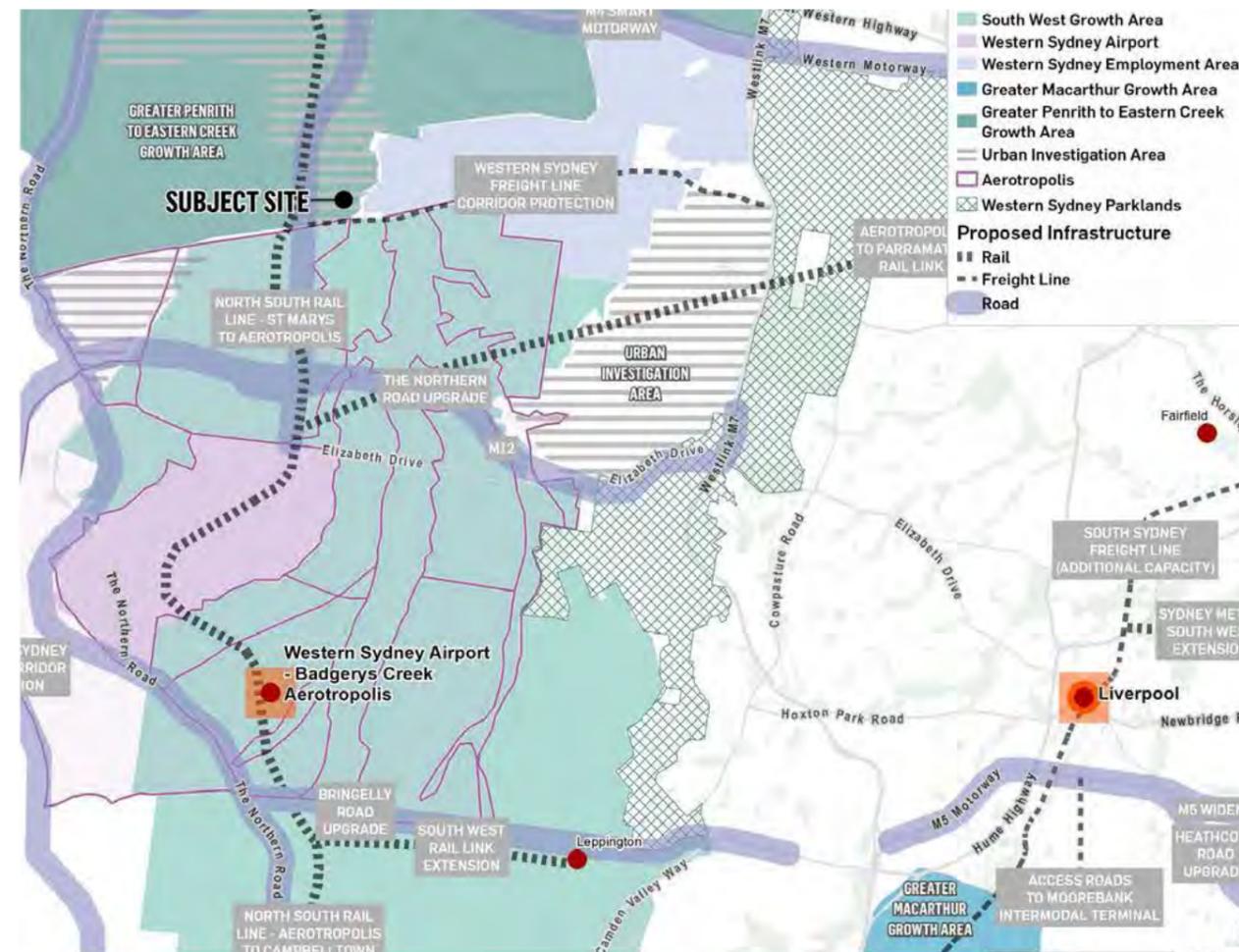


FIGURE 2 REGIONAL CONTEXT PLAN

## 2.0 VISUAL CHARACTER

### THE SITE

The underlying topography of the subject site is relatively flat including only minor undulations in height and minor localised cross-falls from west to east across the northern part of the site. The northern half of the site is characterised by horse agistment paddocks that are relatively uniformly sized and aligned in rows from west to east and include small concrete stables. The majority of the subject site's northern and eastern boundaries are characterised by vegetation so that in places it provides a continuous or semi-continuous vegetative screen.

The southern part of the site includes local knolls reaching approximately RL48m and is characterised by open fields, intermittent vegetation and isolated mature trees across several rural lots include farm sheds and associated structures and dwellings. The south-east corner of the site is the most heavily tread area with its boundary being flanked by the Sydney Water Warragamba to the Prospect Reservoir pipelines (the Sydney Water pipelines).

The subject site is broadly 'C' shaped with the majority of space within the 'C' to the east being occupied by the Bosna Croatian Club and its clubhouse, soccer fields and extensive areas of car parking. We understand that this site forms part of a future land acquisition as does the south-east corner of land adjacent to the site's southern boundary.

The eastern side of the site is flanked by overhead local electricity infrastructure and mature trees, beyond which is Luddenham Road.

### SURROUNDING CONTEXT

#### IMMEDIATE SURROUNDINGS

The approximately 650-metre-wide area of land immediately adjoining the site to the west is undeveloped rural land, which accommodates preserved corridors for the Outer Sydney Orbital and North South Rail Line. The North-South rail line and Outer Sydney Orbital once constructed will serve as a physical and visual feature and will change the existing predominant visual character from rural and semi-rural landscape to one characterised by man-made infrastructure. There is currently no vehicle access or public domain access to the western and southern boundaries of the site. We note

that this will change with the construction of the proposed orbital road.

Further west, 2029 hectares of land is occupied by Defence Establishment Orchard Hills (DEOH). Much of this land is required as a buffer zone for the activities that take place within the site. Many of the buildings at DEOH are heritage listed. The facility consists of a relatively small area used for storage and associated facilities, surrounded by a large vegetated area.

To the north is Transgrid land through which a high voltage electricity transmission line passes in a southwest direction and traverses the north-west of the site. This land to the north is otherwise undeveloped.

At the end of Patons Lane and north-west of the site is Patons Lane RRC, a resource recovery and landfill operation. Land between the sites is heavily vegetated including a linear band of vegetation which flanks the west side of the electricity and easement. The easement includes high voltage electricity lines and pylons which are highly visible features in the immediate visual catchment. A riparian corridor extends in a northeast to southwest alignment to overlap the north-western corner of the master plan site. North-west of the site in the vicinity of Wentworth Road the topography rises in elevation to localised isolated high points for example at the sharp bend at Homestead Lane north-west of the Patons Lane RRC. The lower slopes are occupied by a relatively new (circa 2000) large lot residential development, from which we note there is no visual access to the site.

Rural residential properties are located along the east side of Luddenham Road opposite the site and isolated individual dwellings are located further to the south. The lot sizes and location of individual dwellings varies to include different front setbacks and wide side setbacks between residences so that there are wide spatial separations and the opportunity for views from Luddenham Road to the east. Some of the lots appear to include storage facilities indicated by the number of large sheds and machinery that is present. Beyond this residential development the topography falls in elevation to the east to meet South Creek the eastern side of which is included in the Western Sydney Employment Area (WSEA) and is characterised by large bulky sheds and light industrial developments along Mamre Road and Distribution Drive.

Further east of Luddenham road is South Creek, broadly following its alignment in a north to south alignment between St Clair and

Twins Creeks Golf. This shallow riparian corridor is characterised by vegetation, some of which is partly visible from Luddenham Road. This provides positive visual amenity for residents located opposite the site to the south within the Twins Creeks Golf course development.

To the south the visual context is typical of the wider Cumberland Plains including low rolling hills and wide shallow valleys in the rain shadow of the Blue Mountains, characterised by remnants and regenerating areas of Cumberland Plain Woodland and Sydney Coastal River Flat Forest Parts. The Sydney Science Park occupies a large area of relatively open land south of and adjoining the Sydney Water Warragamba pipelines and the Twin Creeks Golf and Country Club is located to the south-east.

The Western Sydney Freight Line is planned to follow the southern site boundary traversing the landscape from east to west so that once constructed it can facilitate the future movement of goods and services between the Western Sydney Employment Area and Western Sydney Priority Growth Areas. We note that the strategic future use of these areas and infrastructure will generate changes to the existing visual context and character of the landscape surrounding the site.

## SUB REGIONAL CONTEXT

The site is within the Greater Penrith to Eastern Creek Growth Area (GPEC). The GPEC Growth Area has been identified as an 'economic corridor' which will facilitate future transport corridors including the Outer Sydney Orbital and North South Rail Line.

The Sydney Metro Greater West will provide access to new jobs and services throughout the Western Parkland City and future Western Sydney (Nancy-Bird Walton) International Airport, which will be located 5km southwest of the site.

The site is located west of the Western Sydney Employment Area (WSEA) and north of the Aerotropolis. We anticipate that visual character in line with such land-uses for example the WSEA would not be dissimilar to that of Erskine Business Park located approximately 1.8km east of the site which extends towards the Western Sydney Parklands. Land release within the WSEA such as the Erskine Business Park is indicative of the land uses intended for the north-south corridor. We observed that the Erskine Business Park is characterised by long, bulky warehouses up to approximately 12m in height and 300m long separated by large areas of car parking and hard standing as well as wide road corridors for example; James

Erskine Drive four-lane road. The bulky shed-like built forms are visible from parts of Luddenham Road and form residences along its east side opposite the subject site.

The intention of the Aerotropolis is to establish a new high-skill jobs hub across aerospace and defence, manufacturing, healthcare, freight and logistics, agribusiness, education and research industries. The nature of these industries dictate that the required built form will comprise a mixture of built forms, including industrial and warehouse type structures.

In summary, the immediate and wider visual context of the subject site is set to change significantly in character as is intended via the strategic reservation of land for the development of infrastructure and the expansion of employment related land uses.

## SCENIC QUALITY

Scenic quality relates to the likely expectations of viewers regarding scenic beauty, attractiveness or preference of the visual setting of the subject site and is baseline factor against which to measure visual effects. Criteria and ratings for preferences of scenic quality and cultural values of aesthetic landscapes are based on empirical research undertaken in Australia by academics including Terrance Purcell, Richard Lamb, Colleen Morris and Gary Moore.

Moore (2006) summarises the theoretical and methodological constructs in the field of environment, behaviour and society (EBS) and discusses the largest body of research in this area prepared by Associate Professor Terry Purcell and Dr Richard Lamb. The research details results in relation to the experience, perception and aesthetics of natural and cultural landscapes, affective experience of the environment, and the perception of scenic quality.

Therefore, analysis of the existing scenic quality of a site or its visual context and understanding the likely expectations and perception of viewers is an important consideration when assessing visual effects and impacts. The site would be considered in isolation and within its visual setting as having moderate-high scenic quality given its wide open green-spaces, vegetation and under development across the wider school site and subject site within it.

## VIEWER SENSITIVITY

Viewer sensitivity is a judgement as to the likely level of private interest in the views that include the proposed development and the potential for private domain viewers to perceive the visual effects.

The spatial relationship (distance) the length of exposure and the viewing place within a dwelling are factors which affect and overall rating as to the sensitivity to visual effects.

The most sensitive private domain locations include dwellings that are located along the east side of Luddenham Road and particularly those aligned with Stage 1 works proposed for the north-east corner of the site.

These close dwellings include numbers, 202, 212, 216, 222, 225, 226, 230, 236, 240, 246, 250, 256 and 262 Luddenham Road. One uninvolved isolated dwelling at 320 Luddenham Road is located opposite the south end of the site and would have potential views to built forms proposed as part of Stage 3. The extent of exposure to the visual effects of the proposal depends on the location of the dwelling, their orientation, internal floor layout and screening effects of intervening vegetation.

The front set back of dwellings varies along Luddenham Road for example 202 Luddenham Road has a wide front setback to its west elevation that is slightly orientated towards the west-north-west and in this regard will have less direct access to the north-east part of the site compared to 212 Luddenham Road which is set closer to the road and appears to include living areas with large windows that present towards the site.

Those potentially most affected by built forms proposed as part of Stage 1 will be dwellings located opposite the north end of the subject site including 212, 216, 222 and 226 Luddenham Road. Potential views to the site from the majority of these dwellings will include a foreground of street tree vegetation, which will be retained and augmented by proposed planting.

## HERITAGE

The site is not located within the immediate visual catchment of any listed item, or conservation area. However, there are two local heritage items located east of the site, specifically:

- Item 232: Leeholme Horse Stud Rotunda, 391–395 Mamre Road
- Item 843: Luddenham Road Alignment

Neither of these items would be impacted by the proposed development. 391–395 Mamre Road is located 1 kilometre away from the site. The Luddenham Road Alignment will not be impacted by the development and its heritage listing does not relate to any visual property.

## PLANNING CONTROLS RELATING TO VISUAL IMPACTS

Part E10 Orchard Hills of the Penrith DCP includes the subject site, however it also encompasses a much wider area within the Penrith LGA. Part E10 describes Orchard Hills as demonstrating:

*'...a predominately rural character with undulating hills and scenic vistas. Historically, its landscape was mainly overlaid with orchards and grapevines, and with rural farmhouses and outbuildings. A prominent line of hills mostly with an east-west orientation defines the topography of the area. Today, Orchard Hills retains a largely rural character predominantly used for rural living on 2 hectare lots. There are also a number of intensive agricultural uses in operation throughout the locality.'*

Broadly, the objectives of the DCP relevant to visual impact are to retain the open, semi-rural character and regionally significant landscape setting, and for non-residential development to not alter the character or scenic quality of the locality and detract from the existing landscape setting. Buildings are to be a maximum of two storeys in height and measures are to be undertaken to retain existing vegetation.

The site is within a flatter part of the Orchard Hills as topography gently falls towards South Creek and does not include obvious areas of undulating hills or unique attributes that could be considered as scenic vistas. The existing character of the subject site has been modified over time due to previous, historical uses and in this regard could be described as being semi-rural-modified and of vernacular scenic quality. In other words, it is not unique, does not include any

particular scenic features and is representative of the wider semi-rural visual character of Orchard Hills.

Given the context of the immediate surroundings, (i.e. the Patons Lane RCC to the north-west and the Erskine Park industrial area less than 1 kilometre to the east) we do not consider that the site and its immediate surroundings as constituting a regionally significant landscape setting.



FIGURE 3 PRELIMINARY LANDSCAPE MATER PLAN

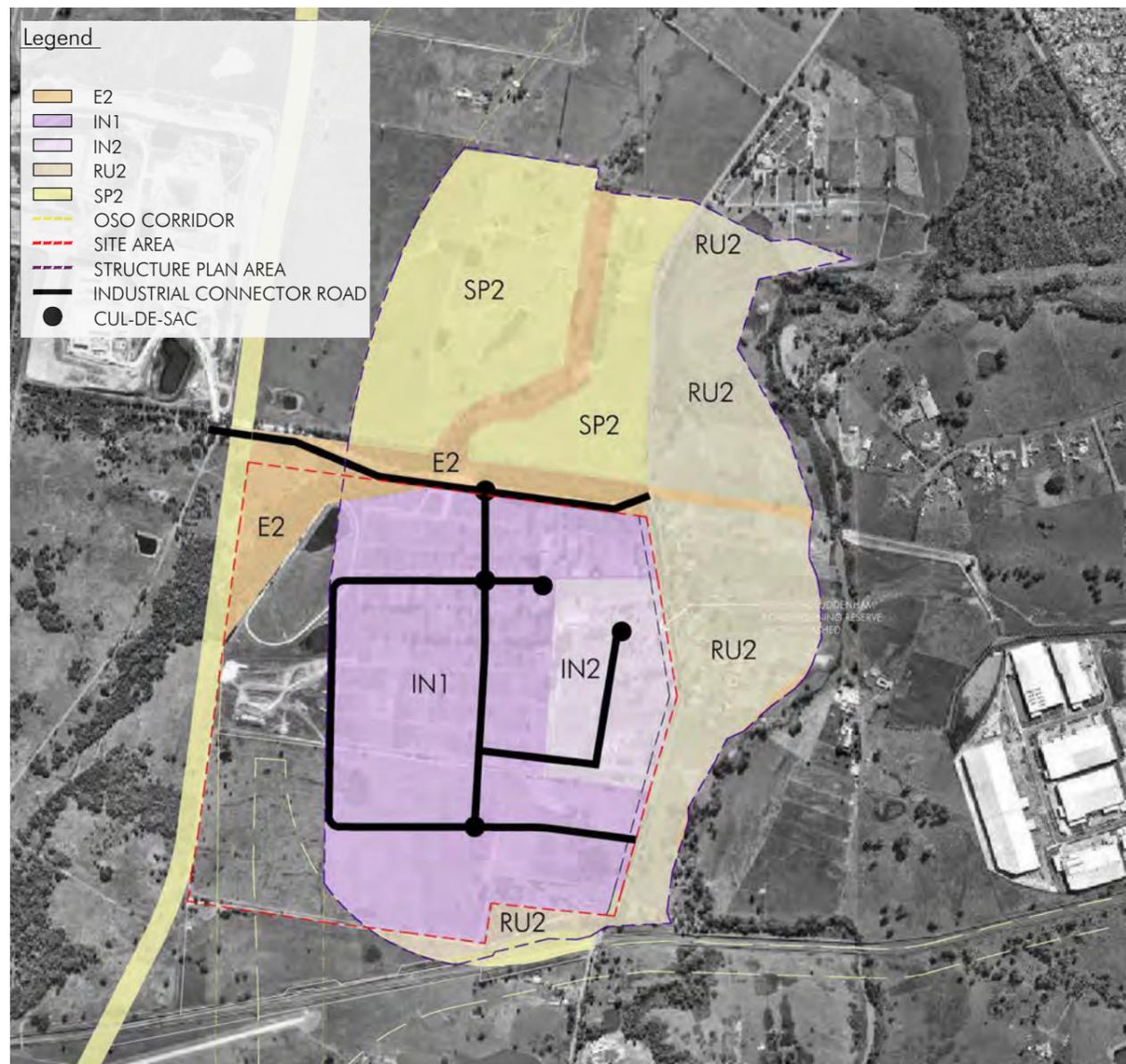


FIGURE 4 STRUCTURE PLAN



FIGURE 5 DETAILED MASTER PLAN

## 3.0 VISUAL CATCHMENT

### EXTERNAL VISIBILITY

In the field of visual impact assessment, it is accepted and acknowledged in statutory and non-statutory planning that public domain views are given greater weight than private domain views. Public domain views are considered as being more sensitive to the potential visual effects and impacts of a development because they attract higher user numbers, often for sustained periods of time and in some cases they affect locations from which there are viewer expectations of high visual quality and character in relation to the composition of views, for example views from a heavily used road such as Luddenham Road .

We consider the proposed development to have a small potential visual catchment given the flat landscape and the relatively low height of the proposed structures. Areas west of the site cannot be accessed due to the existence of the Outer Sydney Orbital corridor, the North-South Rail Link corridor and Defence Establishment Orchard Hills (DEOH) (stretching five kilometres westwards) and land to the north-west is occupied by the under construction Patons Lane RRC. There are only two public roads in the vicinity of the site which provide opportunities for views towards the site including Patons Road to the north and Luddenham Road to the east.

### PUBLIC DOMAIN

Due to the relatively flat landscape across the site and to its west, the lack of publicly accessible roads and the presence of vegetation there are limited locations from which the site and proposed development would be visible.

Intermittent views are available from Patons Lane close to the site, for example adjacent to the electricity easement and looking south-west from near the intersection of Patons Lane and Luddenham Road. North of Patons Lane, views from Luddenham Road are constrained by intervening vegetation and the alignment of the road which curves to the east as it approaches Mamre Road. Intermittent views are available from Luddenham Road adjacent to the site and from residential development along the east side of the road.

The southern part of the site is more exposed to potential views from Luddenham Road given there is less road-side vegetation present to screen views. There is limited view access available to the site from a short section of Luddenham Road, south of the Sydney Water pipelines approximately to the entrance to Twin Creeks Drive.

South of Twin Creeks Drive distant views to parts of the site may be available from the more open sections of Luddenham Road. In this southern part of the visual catchment, Luddenham Road undulates over local low crests between which views to the site are limited or unavailable.

### PRIVATE DOMAIN

All potential private domain views will be from the northeast, east and southeast of the site from rural residential properties. Land to the west is occupied by DEOH land and to the north-west is a Waste Management Facility.

Dwellings potentially most affected by built forms proposed as part of Stage 1 will be those located opposite the north end of the subject site including 212, 216, 222 and 226 Luddenham Road. Potential views to the site from the majority of these dwellings will include a foreground of street tree vegetation however, which will be retained and augmented by proposed planting.

Parts of the proposed development are expected to be visible from dwellings further south at 225, 230, 236, 240, 246, 250, 256 and 262 Luddenham Road. One uninvolved isolated dwelling at 320 Luddenham Road is located opposite the south end of the site and would have potential views to built forms proposed as part of Stage 3. The extent of exposure to the visual effects of the proposal depends on the location of the dwelling, their orientation, internal floor layout and screening effects of intervening vegetation.

### VISUAL EFFECTS ON PUBLIC VIEWS

The proposed development includes structures which will be visible in close range public views from Patons Lane and Luddenham Road. North of Patons Lane, views to the site are constrained by intervening, dense vegetation situated north of Patons Lane. Views to the site are available from the driveway of each neighbouring dwelling. Approaching from the south along Luddenham Road, parts of the proposed development will be visible to the west between intervening road side vegetation.

## VISUAL EFFECTS ON PRIVATE VIEWS

In relation to private domain views the built forms will be visible to varying extents from neighbouring residential development. The most relevant planning principle to private domain view loss is *Tenacity Consulting v Warringah* [2004] NSWLEC 140 - Principles of view sharing: the impact on neighbours (*Tenacity*).

View loss or blocking effects refers to the extent to which a proposal is responsible for blocking access to an existing view or part of the composition of a view. *Tenacity* concerns private domain view loss and describes what features are considered to be scenic and valuable. The principle also describes the extent of view loss using a qualitative scale and takes into consideration the value of features in each composition and from where the views are available.

The application of the *Tenacity* planning principle Roseth SC is applicable when considering the effects of a private development on private domain views however in some situations may not be relevant or useful. *Tenacity* defines a four-step process which are sequential and conditional meaning that proceeding to further steps may not be required if the conditions for satisfying the preceding threshold is not met in each view or in relation to each residence considered.

Urbis have not undertaken views inspections from adjoining residences at this stage but instead have observed potential view access from the driveway of each dwelling and have analysed the visual effects of the proposed development as modelled from those locations. In this context we have described our understanding of the planning principle and its relevance in this case.

*"The first step is the assessment of views to be affected. Water views are valued more highly than land views. Iconic views (eg of the Opera House, the Harbour Bridge or North Head) are valued more highly than views without icons. Whole views are valued more highly than partial views, eg a water view in which the interface between land and water is visible is more valuable than one in which it is obscured."*

The principle focusses on an understanding of what is important and valued about views and how much of the value of a view could be shared. In that context, if there is no substantive loss, or if the items lost are not considered to be valued in *Tenacity* terms, the threshold is not met and there is no justification for proceeding to Step 2, or to other steps beyond Step 2. In other words, proof that something will be lost to view is not sufficient for the remainder of the principle to have any work to do, unless there is potential for the other steps to be relevant.

In our opinion, the proposed development including bulky warehouse forms will be present in the foreground of some view compositions from dwellings close to the subject site. The built forms will block part of a vernacular semi-rural composition and will not result in the blocking of views to scenic or highly valued features as described in *Tenacity*. In other words, notwithstanding the built forms proposed as defined in *Tenacity* but rather a change of character of the view. The change of character may be justifiable taking into consideration the strategic planning context for the immediate and wider area.

Private land to the north-west, north and west of the site is occupied by a Waste Management Facility, Transgrid and DEOH respectively. These are not sensitive land uses and therefore view sensitivity would be considered low.

## 4.0 ANALYSIS OF PHOTOMONTAGES

Our assessment of the visual effects and potential visual impacts of the proposed development on public domain views is based on an analysis of block-model photomontages. Each photomontage has been taken from a publicly accessible area including some which represent a potential view from adjoining residences. We note that the views modelled are aligned with the entry or driveway of dwellings opposite, but between 10 and 15m forward (west) of the dwellings. These views represent a 'worse case' scenario of the potential view for a dwelling given that they are unconstrained by the internal walls or structures of at each dwelling.

The existing vegetation on the western side of Luddenham Road and at its intersection with Patons Lane will partially screen views to the site. Vegetation at the northeast of the site will be retained and augmented by additional planting proposed in the structure planting plan. We note that the filtering effects of the vegetation, especially along the eastern boundary, will reduce the potential visual impacts of the proposed development on views and on the semi-rural character of the views.

We also note that the properties pictured in viewpoint C and D are designated as future land takes.

### VIEWPOINT A:

#### VIEW FACING SOUTH-WEST FROM INTERSECTION OF PATONS LANE AND LUDDENHAM ROAD

This view is orientated towards the south-west from the intersection of Patons Lane and Luddenham Road. This close focal view is the most sensitive public domain view and will be experienced from moving, viewing situations for short periods of time. The upper parts and north elevation of some parts of the closest warehouse will be visible. Vegetation within the site and within both road reserves will be retained and augmented by additional tree planting and shrub planting across low earth mounds which will increase the vegetative screen and reduce the extent of visibility of the proposed buildings.

The height and bulk of Warehouse 1b will be largely blocked by retained foreground vegetation. Whilst the proposed buildings will create significant change to the existing character and scenic quality of the views to and across the subject site, they do not block views of scenic features or highly valued items as described in *Tenacity*

### VIEWPOINT B:

#### VIEW FACING WEST FROM 212 LUDDENHAM ROAD

This view is from near the driveway to 212 Luddenham Road and represents a potential view from this dwelling, albeit this viewpoint is located closer to the site than the dwelling.

The warehouse would be visible in the foreground of this view between existing trees and fencing and would introduce a new built form into an area that is predominately occupied by open space. Whilst the built form does not block views to scenic or highly valued features it will change the character and existing scenic quality of the view. Existing trees within the road reserve and additional proposed planting will provide some screening effects in views.

### VIEWPOINT C:

#### VIEW FACING WEST FROM THE CROATIAN CLUB ENTRANCE, OPPOSITE 230 LUDDENHAM ROAD

This view is to the west from the eastern side of Luddenham Road through the entrance gates to the Croatian Club approximately opposite 230 Luddenham Road. Warehouse 2a will be visible in the distance and will form part of the local horizon, replacing trees which are currently visible. Large gum trees visible along the driveway remain visible and are a focal point of this view.

Whilst the built form does not block views to scenic or highly valued features it will change the character and existing scenic quality of the view. The proposal will result in a larger area of open sky being revealed. In this view the form, scale and character of the buildings proposed is not dissimilar to development located to the south of the site and to the east within the Erskine Park Industrial Estate.

## VIEWPOINT D:

### VIEW FACING WEST-SOUTHWEST FROM 256 LUDDENHAM ROAD

This view faces west-south-west from the eastern side of Luddenham Road, across rural residential properties situated in between the site and Luddenham Road. A lack of roadside vegetation within this area allows unimpeded views across the property over fields and isolated trees.

Warehouses 2a, 2b and 12a will become visible above the existing horizon, displacing existing trees within the site that will be removed and resulting in a larger area of open sky becoming visible.

At this distance and scale the warehouses will appear not dissimilar to farm buildings and those used in agricultural produce industries, uses which are permitted within the current RU2 zone of the land.

Whilst the built form does not block views to scenic or highly valued features it will change the character and existing scenic quality of the view. The proposal will result in a larger area of open sky being revealed. In this view the form, scale and character of the buildings proposed is not dissimilar to the Erskine Park Industrial Estate or large farm buildings and sheds that are present within the visual context.

## VIEWPOINT E:

### VIEW FACING NORTH FROM 320 LUDDENHAM ROAD

Existing vegetation in the mid-ground composition blocks views to the proposed buildings. The western part of warehouses 11 and 14 are visible and form part of land-sky horizon.

Whilst the built form does not block views to scenic or highly valued features it will change the character and existing scenic quality of the view. The proposal will result in a larger area of open sky being revealed. In this view the form, scale and character of the buildings proposed is not dissimilar to development located to the south of the site and to the east within the Erskine Park Industrial Estate.

## SUMMARY OF VISUAL EFFECTS

- The proposal will create significant visual change to the existing semi-rural character of the site and to view compositions which include it.
  - The built forms proposed are long low shed-style forms and are not dissimilar in character to farm buildings or those used in agricultural industries.
  - The built forms proposed are not dissimilar in form or scale to those that are visible to the east within the WESA.
  - The proposed development is considered compatible with the existing and likely future character of the area. In the longer term the site will become enclosed by significant transport corridors (the Outer Sydney Orbital and the north south rail link) and therefore commercial and industrial uses at this site would become logical.
  - In distant views from public places, the proposed warehouses will not appear dissimilar in character to farm buildings and those used in agricultural produce industries for example to the south at the Sydney Science Park and, depending on the architectural detailing, materiality and colour schemes, would cause a moderate change to the visual character of the wider setting.
  - In close views the warehouse buildings will be partially screened by intervening vegetation which will be further augmented by proposed planting.
  - Notwithstanding the close proximity of some dwellings to the site and the significant change to the composition of some views that would arise from subsequent construction of warehouses on the site, the built forms proposed will not create view loss to documented scenic or highly valued features as described in *Tenacity*.
  - Though regionally significant landscape setting and scenic vistas are described in the DCP, we do not identify any in the vicinity of this site.
  - The greatest level of visual change and impact on the character of views will be experienced from close viewing locations, where parts of the proposed development will be visible between but partly screened by vegetation.
- In the majority of views the built form is a background feature and does not dominate the view composition and blocks views of vegetation, open space or sky. In this regard a minor level of visual effects would be experienced in views from viewpoints A, C, D and E.
  - A moderate to high level of visual effects would be experienced from close viewpoints directly opposite the north-east corner of the subject site and Stage 1 buildings for example at viewpoint B. In time, as the proposed planting becomes more established, we anticipate the visibility of built forms would diminish, as shown in the rendered photomontage which shows planting forms at 5 years post construction.





50MM STANDARD VIEW - REFERENCE

ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**

VP A : (PHOTO 252) VIEW SOUTH-WEST, FROM INTERSECTION PATONS LANE AND LUDDENHAM ROAD | EXISTING PHOTO : 2020-07-29 13:46 AEST

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_A1  
REV: -



ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



## 221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT

VP A : (PHOTO 252) VIEW SOUTH-WEST, FROM INTERSECTION PATONS LANE AND LUDDENHAM ROAD | REFERENCE 3D MODEL - CAMERA MATCH

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_A2  
REV: -



EXISTING FOREGROUND VEGETATION  
LOCATED OUTSIDE OF PROJECT SITE  
- TO BE RETAINED

VEGETATION SCREENING  
WAREHOUSES BEYOND

50MM STANDARD VIEW - REFERENCE

DISTANCE TO NEAREST PROPOSED WAREHOUSE : 90M  
(BASED ON EXTENT OF VIEW)

ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



# 221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT

VP A : (PHOTO 252) VIEW SOUTH-WEST, FROM INTERSECTION PATONS LANE AND LUDDENHAM ROAD | PHOTO-SIMULATION

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_A3  
REV: -



ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



# 221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT

VP A : (PHOTO 252) VIEW SOUTH-WEST, FROM INTERSECTION PATONS LANE AND LUDDENHAM ROAD | PHOTO-SIMULATION - 5 YEAR VEGETATION

DATE: 24.08.2020  
JOB NO: P0007737  
DWG NO: VP\_A4  
REV: -



ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP B (PHOTO 212) : VIEW LOOKING WEST, FROM 212 LUDDENHAM ROAD | EXISTING PHOTO : 2020-07-29 12:34 AEST

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_B1  
REV: -



3D POINT CLOUD

3D SITE SURVEY AND DIGITAL  
ELEVATION MODEL

ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP B (PHOTO 212) : VIEW LOOKING WEST, FROM 212 LUDDENHAM ROAD | REFERENCE 3D MODEL - CAMERA MATCH

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_B2  
REV: -



DISTANCE TO NEAREST PROPOSED WAREHOUSE : 70M  
(BASED ON EXTENT OF VIEW)  
ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP B (PHOTO 212) : VIEW LOOKING WEST, FROM 212 LUDDENHAM ROAD | PHOTO-SIMULATION

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_B3  
REV: -



ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**

VP C (PHOTO 234) : VIEW LOOKING WEST, CROATIAN CLUB ENTRANCE, OPPOSITE 230 LUDDENHAM ROAD | EXISTING PHOTO : 2020-07-29 12:41

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_C1  
REV: -



3D POINT CLOUD

3D SITE SURVEY AND DIGITAL ELEVATION MODEL

ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW



# 221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT

VP C (PHOTO 234) : LOOKING WEST, CROATIAN CLUB ENTRANCE, OPPOSITE 230 LUDDENHAM ROAD | REFERENCE 3D MODEL - CAMERA MATCH

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_C2  
REV: -



**DISTANCE TO NEAREST PROPOSED WAREHOUSE : 320M  
(BASED ON EXTENT OF VIEW)  
ORIGINAL PHOTO EXTENT - 50MM STANDARD VIEW**



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP C (PHOTO 234) : VIEW LOOKING WEST, CROATIAN CLUB ENTRANCE, OPPOSITE 230 LUDDENHAM ROAD | PHOTO-SIMULATION

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_C3  
REV: -



50MM STANDARD VIEW - REFERENCE

ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP D (PHOTO 297) : VIEW LOOKING WSW, FROM 256 LUDDENHAM ROAD | EXISTING PHOTO : 2020-07-29 14:33 AEST

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_D1  
REV: -



3D POINT CLOUD

3D SITE SURVEY AND DIGITAL ELEVATION MODEL

50MM STANDARD VIEW - REFERENCE

ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP D (PHOTO 297) : VIEW LOOKING WSW, FROM 256 LUDDENHAM ROAD | REFERENCE 3D MODEL - CAMERA MATCH

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_D2  
REV: -



**EXTENT OF VISIBILITY**

**50MM STANDARD VIEW - REFERENCE**

**DISTANCE TO NEAREST PROPOSED WAREHOUSE : 380M  
(BASED ON EXTENT OF VIEW)**

**ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW**



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP D (PHOTO 297) : VIEW LOOKING WSW, FROM 256 LUDDENHAM ROAD | PHOTO-SIMULATION

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_D3  
REV: -



50MM STANDARD VIEW - REFERENCE

ORIGINAL PHOTO EXTENT - 35MM STANDARD WIDE VIEW



**221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT**  
VP E (PHOTO 323) : VIEW LOOKING NORTH, FROM 320 LUDDENHAM ROAD | EXISTING PHOTO : 2020-07-29 14:58 AEST

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_E1  
REV: -



## 221-227 AND 289-317 LUDDENHAM ROAD, ORCHARD HILLS - VISUAL ASSESSMENT

VP E (PHOTO 323) : VIEW LOOKING NORTH, FROM 320 LUDDENHAM ROAD | REFERENCE 3D MODEL - CAMERA MATCH

DATE: 19.08.2020  
JOB NO: P0007737  
DWG NO: VP\_E2  
REV: -



## DESCRIPTION OF COLLECTED DATA

### PHOTO-SIMULATIONS PREPARED BY:

Urbis, Level 10, 477 Collins Street, MELBOURNE 3000.

### DATE PREPARED :

19th August 2020

### VISUALISATION ARTIST:

Ashley Poon, Urbis – Lead Visual Technologies Consultant  
Bachelor of Planning and Design (Architecture) with over 15 years' experience in 3D visualisation

### LOCATION PHOTOGRAPHER:

Jane Maze-Riley, Urbis - Associate Director, National Design

### CAMERA:

Canon EOS 6D Mark II - 26 Mega pixel digital SLR camera (Full-frame sensor) - with GPS enabled

### CAMERA LENS AND TYPE:

Canon EF24-105mm f/3.5-5.6 IS STM

### SOFTWARE USED:

- 3DSMax 2021 with Arnold 4.0 (3D Modelling and Render Engine)
- AutoCAD 2016 (2D CAD Editing)
- Globalmapper 16 (GIS Data Mapping / Processing)
- Photoshop CC 2020 (Photo Editing)

### DATA SOURCES:

- 3D Model of the proposed development received from Architects - Netteton Tribe - 2020-08-10
- Landscape plan of the proposed development received from Urbis - 2020-08-05
- Site survey data received from LTS Surveyors - 2020-04-29
- Point cloud and Digital Elevation Models from NSW Government Spatial Services datasets - Penrith 2019-07
- Aerial photography from Nearmap - 2020-06-08

## METHODOLOGY

Photo-simulations provided on the following pages have been produced with a high degree of accuracy to comply with the requirements as set out in the practice direction for the use of visual aids in the Land and Environment Court of New South Wales.

The process for producing these photo-simulations are outlined below:

- Photographs have been taken on site using a full-frame GPS enabled digital camera coupled with a quality lens in order to obtain high resolution photos whilst minimising image distortion. Photos are taken hand-held and at a standing height of 1.6m above natural ground. Photos have generally been taken at 35mm to cover a wider context, with a 50mm reference window provided to assist with standardising the set for a standard view. A photo taken using the 50mm focal length on a full-frame camera (equivalent to 40° horizontal field-of-view / 46.8° diagonal field-of-view) is an accepted photographic standard to approximate human vision.
- Using available geo-spatial data for the site, including independent site surveys, aerial photography, digital elevation models and LiDAR point-clouds, the relevant datasets are validated and combined to form a geo-referenced base 3D model from which additional information, including proposed architecture, landscape and photographic viewpoints can be inserted.
- Layers of the proposed development are obtained from the architect/landscape architect as digital 3D models and 2D plans. All drawings/models are verified and registered to their correct geo-location before being inserted into the base 3D model.
- For each photo being used for the photo-simulation, the GPS location, camera, lens, focal length, time/date and exposure information is extracted, checked and replicated within the 3D base model as a 3D camera. A camera match is created by aligning the 3D camera with the 3D base model against the original photo, matching the original photographic location, orientation.
- From each viewpoint, a reference 3D model camera match is generated to verify an accurate match between the base 3D model (existing ground survey/vegetation etc) and original photo. A 3D wireframe image of the 3D base model is rendered in the 3D modelling software and composited over the original photo using the photo-editing software.

- From each viewpoint, the final photo-simulation is then produced by compositing 3D rendered images of the proposed development into the original photo with editing performed to sit the render at the correct view depth. Photographic elements are cross-checked against the 3D model to ensure elements such as foreground trees and buildings that may occlude views to the proposed development are retained. Conversely, where trees/buildings may be removed as part of the proposal, these are also removed in the photo-simulation.
- For photo-simulations where proposed vegetation has been shown, 3D models have been sized to approximate the size and shape of proposed trees at five years after construction. Locations of proposed trees have been placed based on the landscape plan.
- Reference outlines have been overlayed on photo-simulation views to assist in showing the full extent of the proposed development.

# 5.0 DOCUMENTED VISUAL CATCHMENT VIEWS

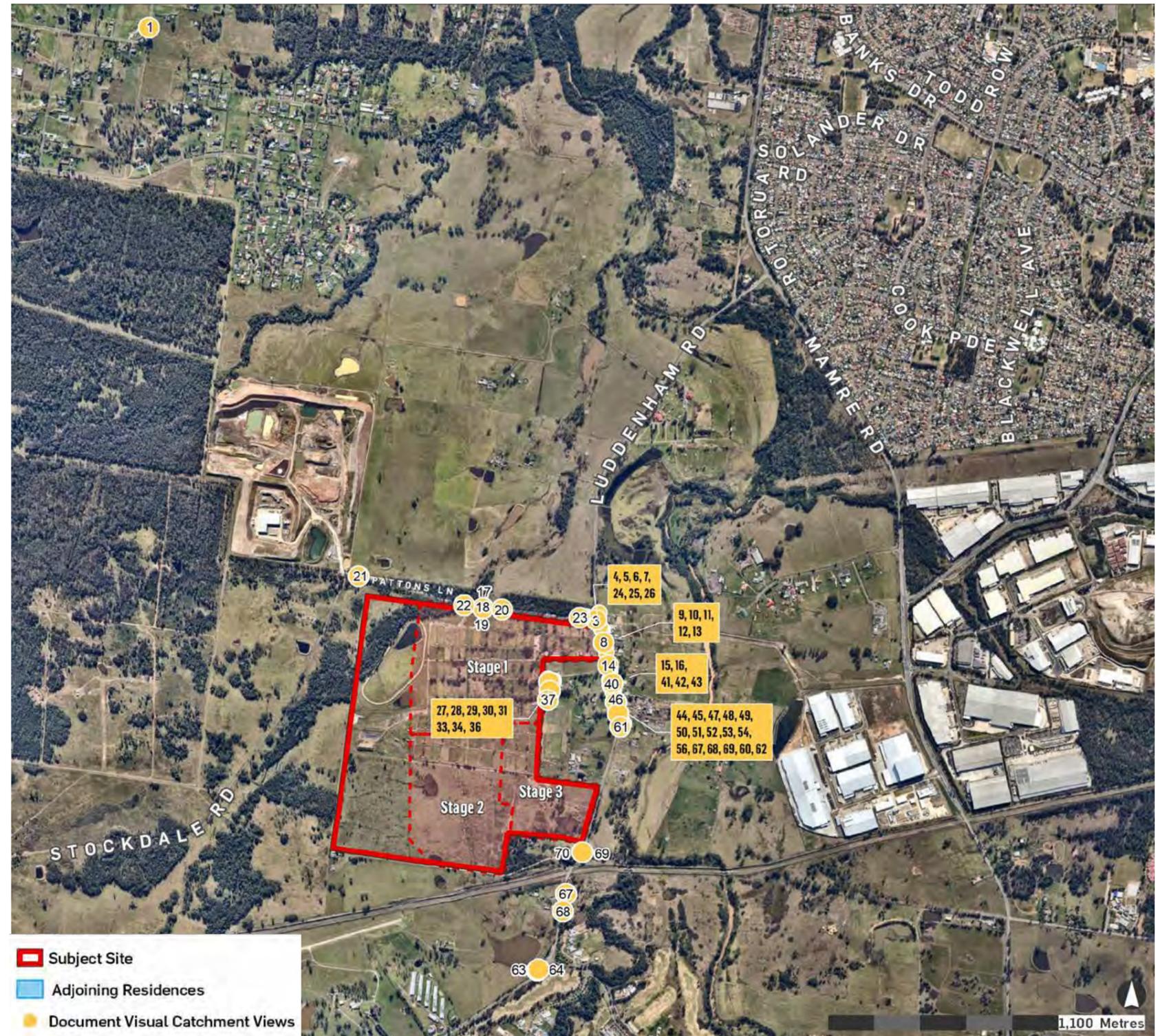


FIGURE 6 PHOTO LOCATIONS MAP 1

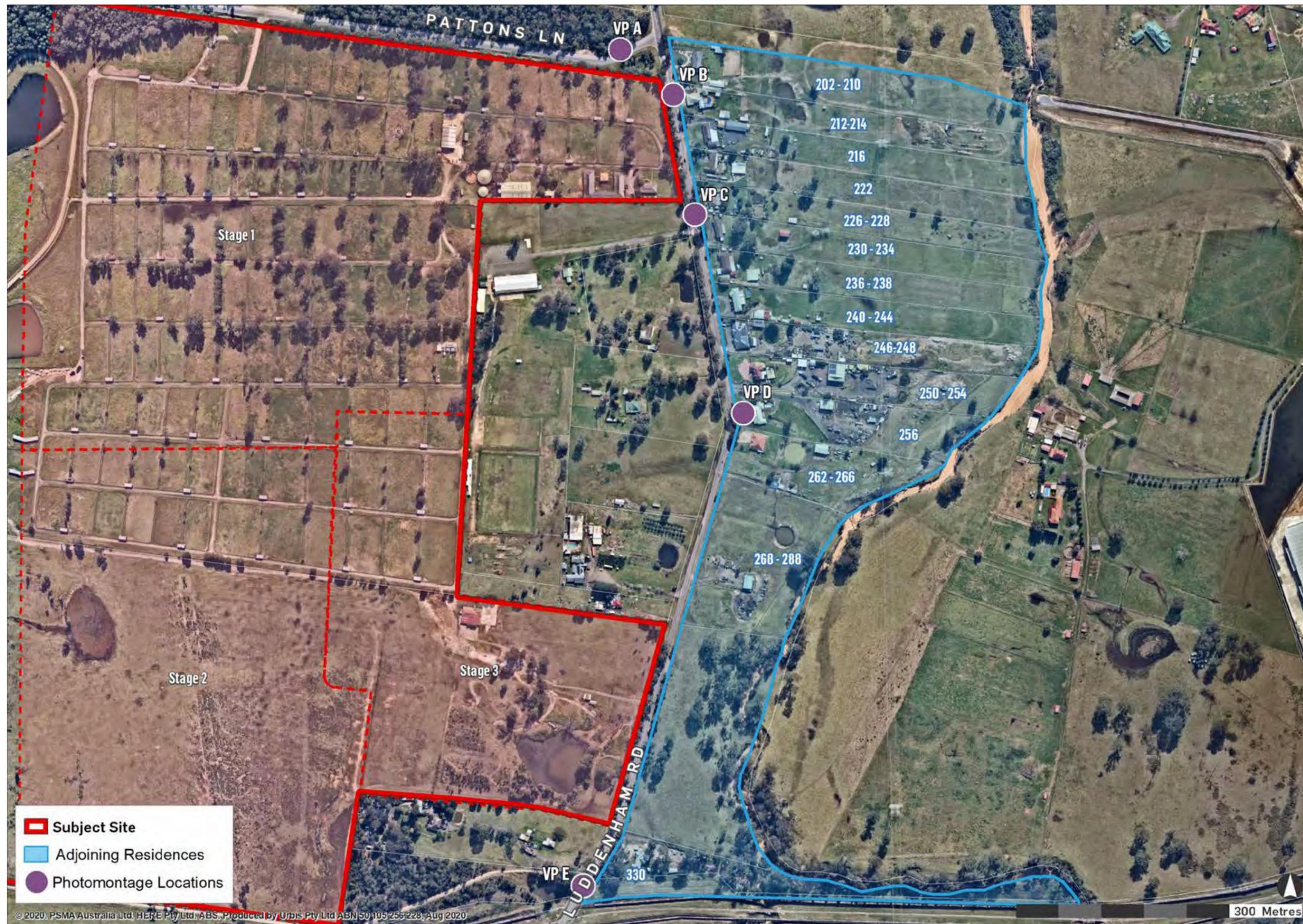


FIGURE 7 PHOTO LOCATIONS MAP 2



**FIGURE 8** VIEW SOUTH EAST FROM HOMESTEAD RD BEND, FOREGROUND IS WENTWORTH RD ESTATE



**FIGURE 9** VIEW TO WESA INDUSTRIAL DEVELOPMENT FROM LUDDENHAM ROAD NORTH OF THE SITE.



**FIGURE 10** VIEW FROM NORTH EAST CORNER OF SITE, FROM PATONS LANE



**FIGURE 11** DETAIL VIEW OF 212 LUDDENHAM RD



**FIGURE 12** VIEW FROM SOUTH SIDE OF 212 LUDDENHAM RD, SETBACK



**FIGURE 13** VIEW FROM 212 LUDDENHAM RD



FIGURE 14 DETAIL VIEW OF 216 LUDDENHAM RD



FIGURE 15 VIEW FROM 216 LUDDENHAM RD



FIGURE 16 DETAIL VIEW OF 222 LUDDENHAM RD



FIGURE 17 VIEW EAST TO INDUSTRIAL DEVELOPMENT IN ERSKINE PARK VIA 222 LUDDENHAM RD, SETBACK



FIGURE 18 DETAIL VIEW OF 225 LUDDENHAM RD



FIGURE 19 VIEW SOUTH FROM 230 LUDDENHAM RD, SETBACK



FIGURE 20 VIEW FROM SOUTH DRIVEWAY - 230 LUDDENHAM RD



FIGURE 21 PATONS LANE SITE ENTRY, VIEW SOUTH WEST



FIGURE 22 PATONS LANE SITE ENTRY



FIGURE 23 PATONS LANE, VIEW SOUTH EAST



FIGURE 24 PATONS LANE, APPROX ENTRY OF PROPOSED ROAD



FIGURE 25 PATONS LANE CULVERT, VIEW SOUTH-EAST



FIGURE 26 NEAR SOUTH END OF PATONS LANE, VIEW SOUTH-WEST



FIGURE 28 VIEW FROM NORTH DRIVEWAY OF 220 LUDDENHAM RD



FIGURE 27 VIEW FROM NORTH DRIVEWAY OF 220 LUDDENHAM RD



**FIGURE 27** CROATION CLUB ENTRY VIEW NORTH



**FIGURE 29** CROATION CLUB ENTRY TO FIELDS, VIEW SOUTH



**FIGURE 30** WEST BOUNDARY OF CROATIAN CLUB, VIEW SOUTH WEST



**FIGURE 31** WEST BOUNDARY OF CROATIAN CLUB, VIEW WEST



**FIGURE 32** WEST BOUNDARY OF CROATIAN CLUB, VIEW NORTH-WEST



FIGURE 34 VIEW WEST TO SITE



FIGURE 35 VIEW NORTH-WEST TO SITE



FIGURE 36 ADJACENT INDUSTRIAL CONTEXT EAST OF LUDDENHAM RD

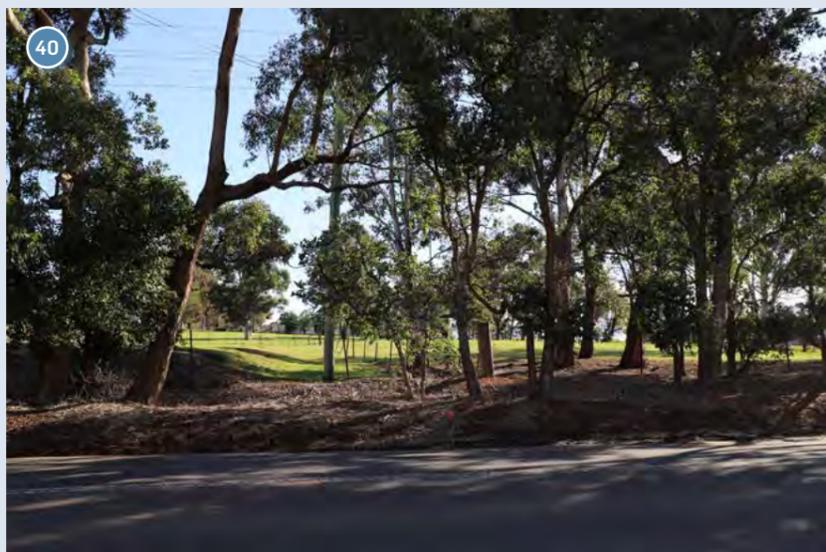


FIGURE 37 VIEW FROM 236 LUDDENHAM RD



FIGURE 38 DETAIL OF 236 LUDDENHAM RD



FIGURE 39 DETAIL OF 240 LUDDENHAM RD



FIGURE 40 VIEW FROM DRIVEWAY OF 240 LUDDENHAM ROAD



FIGURE 41 DETAIL OF 233 LUDDENHAM ROAD



FIGURE 42 VIEW EAST FROM DRIVEWAY OF 246 LUDDENHAM RD



FIGURE 43 VIEW FROM 246 LUDDENHAM RD



FIGURE 44 DETAIL OF 246 LUDDENHAM RD



FIGURE 45 DETAIL OF 250 LUDDENHAM RD



FIGURE 46 VIEW SOUTH WEST FROM 250 LUDDENHAM RD



FIGURE 48 DETAIL OF 256 & 262 LUDDENHAM RD



FIGURE 47 DETAIL OF 256 LUDDENHAM RD



FIGURE 49 NORTH WEST VIEW FROM 256 LUDDENHAM RD

## 6.0 CONCLUSION

The visual catchment of the subject site is relatively constrained due to the limited number of elevated view points from which to view it and its isolation.

Luddenham Road is the only through road from which close views to the site are available and accessible. Public domain views are available from moving viewing situations and for short periods of time.

There are a limited number of private domain views that could be potentially affected by the proposed development, most notably the residences located on Luddenham Road. Land to the west occupied by DEOH, to the north-west (Waste Management Facility) and to the north by Transgrid has a low viewer sensitivity.

Private domain views have not been analysed in detail however based on a review of block-model photomontages in the majority of views, the proposed development does not dominate the view composition.

Notwithstanding that the character and composition of existing views or semi-rural outlook may be valued by residents however the views that could be potentially blocked are of typical semi-rural character and composition and would not be considered as unique or differentiated in relation to the wider visual context.

The proposed development would create a continuation of the industrial and urban visual character that exists to the east. Further, the visual character of the landscape west and south of the site would change as a result of the construction of infrastructure including the Outer Sydney Orbital and rail lines. I

The changes to the visual character and context of the site that would occur as a result of this proposal are considered appropriate given its proximity to the Western Sydney Employment Area and future road and rail routes. The WSEA ends in the vicinity of Mamre Road, however upgrades to Luddenham Road and the construction of the Outer Sydney Orbital justify its continuation west.

In our opinion the level of visual change caused by the proposal is considered to be acceptable.



