WESTLINK STAGE 1 URBAN DESIGN REVIEW

URBIS

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We acknowledge Aboriginal and Torres Strait Islanders as the traditional custodians of all the lands throughout Australia. We recognise and respect the connection to their land, cultural heritage and community, and we pay respects to their Elders past, present and emerging.

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INTRODUCTION

1.1 INTRODUCTION

Urbis was engaged by ESR to advise on the suitability of the tiered retaining wall at the corner of Abbotts Road and Aldington Road as part of their Westlink Industrial Estate project in the Mamre Road precinct. The project is a State Significant Development Application under assessment by the Department of Planning and Environment.

In particular, the Urban Design assessment considers the appropriateness of Control 4.4.1 Development on Sloping Sites in the Mamre Road DCP, as the following conditions may compromise the ability to fully comply with the controls:

- Steep topography of the site;
- Demand for large format warehouses in Western Sydney which require flat sites; and
- Need to deliver balanced cut and fill.



Figure 1 Site Photo (Source: GEOSCAPES Landscape Architecture)

1.2 DEMAND FOR LARGE FORMAT WAREHOUSES

The NSW market for warehouse and logistics uses is the tightest held market in the world. The current vacancy rate is 0.3%. With greater demands on warehouse and logistic uses, the need for land supply is critical. Mamre Road Precinct plays an important role into unlocking this demand with the NSW Government rezoning 850 hectares for employment uses.

The market for Western Sydney is different compared to Eastern and Central Sydney. The connection to the M4, M7 and M31 provides a strategic location for warehouse and logistics business to connect interstate. The reach of these businesses will only broaden with the delivery of Western Sydney Airport to international markets. In comparison, warehouse and logistic uses in Eastern and Central Sydney tend to focus on last mile logistics, which requires proximity to large population centres.

Based on market and operational conditions, large format warehouses seek to locate their business in Western Sydney. This is due to the quantum of product moving through the warehouse but also the adoption of technology to make the storage and distribution of good efficient. These warehouses have a specialised fit out which requires the quantum of floor space.

Any recommendation to reduce the scale or split the size of a warehouse into multiple would cause significant disruption to operations including:

- Increased transport costs for trucks as they would need to pick up orders at multiple warehouses
- Increased traffic on streets
- Reduced efficiencies in racking



Figure 2 Rendered Perspective (Source: SITE IMAGE Landscape Architects)

 Many logistics providers are now placing corporate staff in offices adjacent to warehouse operations. This is critical to have centralised office to create a better blend between warehouse staff and office employees.

1.3 SECTION 4.4.1 DEVELOPMENT OF SLOPING SITES

Section 4.4.1 of the Mamre Road Precinct DCP has the following Objectives and Controls:

Objectives

a) To ensure site planning considers the stability of land, its topography, geology and soils.

b) To ensure land is appropriately stabilised and retained. NSW Department of Planning, Industry and Environment | 66 Mamre Road Precinct –Development Control Plan (November 2021)

c) To minimise the extent of earthworks when creating a building site.

d) To minimise disturbance of vegetation that stabilises land, particularly on sloping sites.

e) To encourage reuse of fill material from within the Precinct.

 f) To ensure that earthworks and retaining wall construction is suitably designed and landscaped to ameliorate its visual presentation to and from the public domain and adjacent properties.

Control

1) Site planning is to respond to the natural topography of the site and protect vegetation, particularly where it is important to site stability.

2) Where practicable, site design shall balance cut and fill and minimise the extent of earthworks and need for retaining walls (refer Section 3.1).

3) A Geotechnical Report is to be submitted with applications proposing to change site levels.

4) Excavation and fill shall be adequately retained and drained in accordance with Council's Engineering Works and Construction Standards.

5) Level transitions must be managed between lots and not at the interface to the public domain.

6) Finished ground levels adjacent to the public domain or public road shall be no greater than 1.0m above the finished road level (or public domain level).

7) Where a level difference must exceed 1.0m and adjoins the public domain or public road, the retaining wall must be tiered. Each retaining wall tier element shall be no more than 2.0m. A 1.5m wide deep soil zone with suitable landscaping is to be provided between each tier. An indicative tiered retaining wall is shown in Figure 23. The maximum cumulative height of any retaining walls adjoining the public domain is 6.0m. (As shown in Figure 3) 8) The toe (fill retaining wall) or top (cut retaining wall) of all retaining walls are to be setback 2.0m into the property boundary and the setback is to be suitably landscaped.

9) The highest retaining wall element is to be suitably fenced for safety.

10) Imported fill it is to be Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) and validated by a suitably qualified person.

11) Where possible, fill material should be sourced from within the Precinct.

12) On sloping sites, site disturbance is to be minimised by using split level or pier foundation building designs.

13) All retaining walls proposed for the site are to be identified in the development application for the proposed development.

14) Retaining wall design and materials shall complement architectural and landscape design.

15) Topsoil shall be preserved on site and suitably stockpiled and covered for re-use.

16) Earthworks in the floodplain must address Section 2.5 and Clause 33H of the WSEA SEPP.



Figure 3 Indicative tiered retaining wall cross-section from DCP (Source: DPIE)

1.4 THE PROPOSAL

The Westlink Stage 1 proposes two warehouses north and south of the extension of Abbotts Road. Warehouse 1 has a Gross Floor Area (GFA) of 61,271 square metres and Warehouse 2 has a GFA of 16,785 square metres.

Warehouse 1 requires the provision of a tiered retaining wall at the corner of Aldington Road and Abbotts Road which does not conform with the provisions of Section 4.4.1 in the DCP.

Figure 4 Architectural Plan within Aerial Map (Source: GEOSCAPES Landscape Architecture)

CONTEXTUAL ANALYSIS

State 1

2.1 MAMRE ROAD PRECINCT

The Westlink Industrial Estate is located at the south eastern end of the Mamre Road Precinct at the corner of Aldington Road and Abbotts Road. The eastern boundary of the site adjoins the Mt Vernon rural residential housing estate.

LEGEND:

2.2 TOPOGRAPHY

The Mamre Road Precinct has steep topography, particularly along a north-south ridge which is located east of Aldington Road on the southern end and west of Aldington Road at the northern end.

The elevation along the ridge ranges between RLs 90 and 113 while the areas towards Mamre Road and Abbotts Road range between RLs 40 and 50. Broadly, maximum elevation difference is about 70m. Within the site, the maximum elevation difference is also reached 40m.

The development of large format warehouses, which require flat pads, will requires significant earthworks in the vicinity of this ridge, which will compromise the ability of future developments to comply with Control 7 of Section 4.4.1. in the DCP.

LEGEND:

2.3 SLOPE

For the development of industrial and logistics uses, nearly level or gentle slope land is required, i.e. located on less than 5% slope. On the contrary, as shown in the map, the existing considerable area of land within the site has a steeper slope, which is not suitable for this type of development.

The areas north and south of the ridge have slopes over 18% which will require significant earthworks to provide suitable platforms for large format warehouses, which will compromise the ability to comply with Control 7 of Section 4.4.1. in the DCP.

LEGEND:

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3.1 ELEVATION DIFFERENCE

There is a significance difference of approximately 40 metres in elevation between the north east corner of the site for Warehouse 1, which is at RL90 and the corner of Aldington Road and Abbotts Road, which is at RL50.5.

Given this level difference, and the proposed built form, it is impractical to limit the height of the retaining wall at the corner of Aldington Road and Abbotts Road to 6m, as required in Section 4.4.1 of the DCP, unless significant export was allowed or change to existing road RLs along Aldington and Abbotts Road.

LEGEND:

3.2 DESIGN TREATMENT

The proposal incorporates a heavily vegetated zigzagged 4 tier retaining wall at the corner of Aldington Road and Abbots Road to mitigate the visual impact along the public domain. There is also further setback for landscape provided than the standard 1.5m setback set out in the DCP.

The zigzag nature of the wall creates visual interest while breaking the rigidity of the straight wall along both roads.

At its lowest point, the proposed wall has a level difference of 14.3 metres which does not comply with the requirement of a maximum 3 tier / cumulative height of 6 metres in Section 4.4.1 of the DCP.

As the road levels of both Aldington Road and Abbots Road rise from this corner, the level difference of the tier wall also reduces. The ultimate wall at the lowest point (the lowest tier of retaining wall that adjacent to the road) has a height of 3.5m, which is lower than 6m.

 ∇ Lowest Point within Site

Figure 10 Aldington Road Retaining Wall (Source: SITE IMAGE Landscape Architects)

Figure 11 Aldington Road Retaining Wall (bird-eye view) (Source: Nettleton Tribe) Prepared by Urbis for ESR 15

3.3 LANDSCAPE DESIGN

In accordance with the DCP, the proposed spacing between the tiered walls has sufficient deep soil area to allow for the planting of trees shrubs and hanging plants.

In order to create a variety of materials and colours, the tiered wall will be delivered in the following materials:

- First tier: Sandstone packed gabions
- Second and third tiers: Sandstone logs
- Forth tier: Keystone

The following table (Figure 12) indicates the selection of vegetation that will be planted between tiered walls.

The proposed planting has a mix of low maintenance native and exotic species in accordance with the requirements in the DCP.

Further, the battering between retaining walls provides a soil depth to enable trees to grow and thrive during their life. ESR is working with the landscape architect and structural engineer to ensure vegetation can be maintained for the life of the development.

Kalanchoe 'Silver Spoons' Lomandra 'Tanika' Westring

Figure 13 Section for Aldington Road Retaining Wall (Source: SITE IMAGE Landscape Architects)

3.4 PUBLIC DOMAIN INTERFACE

The proposal provides an aesthetically suitable treatment to the public domain considering the following challenges:

- 40m level difference across the site
- Need to provide a flat site for a large format warehouse with a GFA of over 60,000 square metres
- Provide a balanced cut and fill earthworks

As shown in the following photomontages, once the vegetation is fully mature, the exposure of the wall to the public domain will be minimal and the interface to the public domain will be appropriate for the employment lands character of the Mamre Road Precinct.

The proposed retaining wall will also serve as an amenity for the public domain. The tiered form of retaining wall at the southwest corner allows to maximize the solar access of the public domain under a significant height difference.

Lush vegetation on the retaining walls will provide shade to the public domain and inject positive elements into the micro climate. Especially within an industrial precinct dominated by hard space, such a soft and green amenity would be a positive factor for the public domain.

BASELINE PHOTO

Figure 14 Proposed Retaining Wall at the Corner of Abbotts Road and Aldington Road (Source: GEOSCAPES Landscape Architecture)

3.5 COMPLIANCE WITH OBJECTIVES IN THE DCP

The table below demonstrates how the proposed retaining wall meets the objectives of Section 4.4.1. Development on Sloping Site in the DCP.

Objectives Stated in DCP	Compliance
a) To ensure site planning considers the stability of land, its topography, geology and soils .	ESR has undertaken significant work to understand the existing topography of the subject site. The existing characteristics reflect undulating, hilly topography. To meet the overall intentions of the Precinct and meet its employment objectives, it requires flat pads to support industrial and logistics uses. Westlink has been designed to meet this commercial requirement, while balancing the site. It is further responding to the requirement in Section 3.1 of the DCP, Control 3, which requires balanced cut and fill. Therefore, the proposed response is a result of the existing site conditions and zoning/precinct objectives and considers the geology and soils to ensure a sound, safe construction of retaining structures fronting public domain.
b) To ensure land is appropriately stabilised and retained.	Geotechnical works, including bore hole drilling throughout the site, confirms the proposed retaining walls can be safely constructed to ensure earth is retained and stabilised to support future employment uses.
c) To minimise the extent of earthworks when creating a building site.	Earthworks has been contained to the site boundaries. There is no export or import of fill material. The height of the pads have been set based on this requirement and the need to create sized pad areas to support customer requirements.
d) To minimise disturbance of vegetation that stabilises land, particularly on sloping sites.	ESR has worked extensively with the landscape architect and engineer to ensure the proposed retaining walls, especially fronting public domain, can viably support planting including trees. The inground retaining wall structures will enable deep soil planting and appropriate funding has been allocated to support its ongoing maintenance to ensure viability of plant species.
e) To encourage reuse of fill material from within the Precinct.	ESR has proposed a balance cut and fill strategy which wholly reuses cut material within the site. There will be no import or export of fill material.
f) To ensure that earthworks and retaining wall construction is suitably designed and landscaped to ameliorate its visual presentation to and from the public domain and adjacent properties ."	The retaining wall entering the estate is a key element and has been designed to act as the estate entry feature. While the proposed retaining wall does not meet one control in this section of the DCP (Control 7), it meets all the objectives outlined above and the remaining controls. It also responds to further requirements in other sections of the DCP. These are based on the existing conditions of the site and the need to create commercially viable pads to support customer requirements. The proposed response meets the most objectives and controls within the DCP to create a visually and aesthetically pleasing entrance into the estate. Alternative considerations such as reducing retaining walls will create extensive amounts of export/import into the site, which does not meet Section 3 or Section 4.4 objectives. It also further creates significant risk to reducing the pad size of the warehouse, which would result in a commercially unviable development and would result in a loss of investment and jobs due to a resultant reduction in floor space.

(Source: Ethos Urban)

CONCLUSION

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4.1 CONCLUSION

The Mamre Road Precinct has significant slopes and level differences that will compromise the ability of the proposal to meet the requirements of Section 4.4.1. Development on Sloping Site of the DCP, given the need to manage a balanced cut and fill and deliver large format warehouses.

We support the need to provide controls that improve visual and landscape design interface of high retaining walls with the public domain and avoid outcomes similar to those in other parts of the Western Sydney Employment Area (WSEA).

We consider that the design approach of the proposal, with a variety of materials, forms, plants and large trees will deliver an appropriate interface and visual amenity to the public domain.

The Department of Planning and Environment should be open to considering alternative and innovative design solutions to those outlined in the Mamre Road DCP as it very likely that other sites will encounter the same challenges as the Westlink Industrial Estate.

When assessing similar cases, the Department of Planning and Environment should consider the form and design treatment of the wall, and its contribution to the streetscape, in addition to whether it satisfies the height control.. In the case of Westlink Stage 1, the tiered form minimizes the impact of significant height differences on the public domain, as well provides amenity in terms of vegetation, solar access, micro climate improvement, and visual interest. Set of pictures on the right illustrate how different forms determine the different impacts of retaining walls to the public domain.

Figure 15 Outcome to be Avoided, Retaining Wall along Johnston Cres

Figure 16 Proposed Outcome, Corner of Abbotts Road and Aldington Road (Source: GEOSCAPES Landscape Architecture)