

Our Ref: 16015 Huntlee - MOD 21 (MP10_0137) Ecology Advice 7-part test 11-07-2022
Via: email

Date: 11 July 2022

Attn: Emma Butcher
Department of Planning, Industry and Environment
4 Parramatta Square, 12 Darcy Street
Parramatta NSW 2150

Dear Emma

RE: HUNTLEE - MOD 21 (MP10_0137 MOD 21) ECOLOGICAL ADVICE EEC

MJD Environmental has been engaged by Huntlee Pty Ltd, to provide a review and ecological validation to accompany 4.55 Modification (MOD 21) to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury.

This validation specifically relates to modifications to be made to the Huntlee Stage 1 approval development consent comprising (**Attachment 1**):

- Extension of the Stage 1 Project boundary to the west to create additional allotments within substage TC6, including;
 - o Extension of the Town Centre boundary to include commercial lots;
 - o Adjustment to the existing school allotments to accommodate the additional commercial lots;
 - o Subdivision of new residential allotments within substage TC6;
- Creation of new roads and connecting infrastructure;
- New open space areas; and
- Future allotment for a Local Water Centre

The current modification seeks to increase the Stage 1 approval area via an extension to the west into lands wholly contained in the concept approval. In addition, a 100m temporary bushfire Asset Protection Area (APZ) shall be established over future development areas to the north-east, south and west of MOD 21.

We acknowledge previous correspondence issued by the NSW Department of Planning, Industry and Environment (DPIE) and the Biodiversity and Conservation Division (BCD) relating more broadly to Huntlee project Modifications with regard to the S34 Certification and the requirement for additional ecological information relating to Endangered Ecological Communities (EEC) as detailed in the Huntlee Ecological Assessment Report [EAR] (2010) and the need for a 7-part test under the former legislative arrangements.

The following summarises EEC presence within MOD 21 and temporary APZ area based on review of the EAR 2010.

Map Unit	LHCCREMS Map Unit	Status (ha)	
		Removed	Retained
13	Central Hunter Riparian Forest (CHRF)	0.34*	37.48*
18	Central Hunter Ironbark - Spotted Gum - Grey Box Forest (CHISGGBF)	57.66	568.36*
Water	Water Body / Dam	0.17	-
X	Disturbed	0.55	-

* removed for temporary APZ within future development lands

+ retained in conservation lands per Table 5.4 Huntlee Ecological Assessment Report (2010)

The following is provided in relation to the overall conservation outcomes relating to EECs:

Central Hunter Ironbark - Spotted Gum - Grey Box Forest

- The outcome described in Table 5-4 of the Huntlee Ecological Assessment Report [EAR] (2010) for CHISGGBF indicates that conservation of 568.36ha of this community will occur within the Huntlee Development Area, Huntlee Reserve and Persoonia Reserve. The Huntlee development area will remove 341.24ha of this community.
- Section 5.4 including Table 5-3 of the EAR states that CHISGGBF is the dominant community at Huntlee and 341.24ha of the community occurs outside dedicated conservation areas. Some additional retention within ancillary development area (i.e. open space areas, ephemeral creekline areas) was considered likely. Additionally, Table 5-3 estimates that an overall net loss of this community could occur, however impacts are to be considered against the numerous beneficial holistic outcomes provided by the Huntlee offsets package.

In the context of the above, CHISGGBF will be retained within the riparian zone situated in the south of the MOD 21 development area thereby maintaining consistency with the EAR (2010).

We note, the MOD 21 amendment is entirely consistent with intent for watercourse management outlined within the original approved documentation pertaining to riparian corridors prepared by Worley Parsons (Huntlee Project Principles of Stormwater and Riparian Corridor Management 18 August 2010, Figure 4 provided as Attachment 1). The key elements of the WorleyParsons report identified that the tributary along the southern boundary of the MOD 21 area was a 1st order creek, comprising a total CRZ width of 25m that includes a 10m CRZ to each side of the watercourse and nominal 5m channel. The WorleyParsons Report also identifies that asset protection zones will occur immediately adjacent to the riparian corridor, which is also in line with what is proposed in MOD 21 and is consistent with all other approved Huntlee development areas.

The CRZ widths noted above (now known as VRZ) still remain as per the NSW Natural Resource Access Regulator standard requirements for VRZ widths noted in their Guidelines for Riparian Corridors on Waterfront Land.

MOD 21 does not reduce the originally approved riparian corridor widths and the asset protection zones are located adjacent to the CRZ location also as outlined in the original approval documentation, as such there is no additional environmental impacts that need to be assessed as a result of the riparian corridors or development areas proposed in MOD 21.

In summary, the proposed MOD 21 amendment does not affect the conservation outcomes of the originally approved EAR (2010) with regards to CHISGGBF.

Central Hunter Riparian Forest (CHRF).

- The outcome described in Table 5-4 of the EAR for CHRF indicates that that 62.30ha of this community occurs in development areas of which 37.48ha will be retained in Huntlee Development Area and Huntlee Reserve (being the Huntlee offset lands). The 37.48ha is comprised of –
 - o 37.45ha is situated in Huntlee Reserve; and
 - o 0.03ha occurs in the existing (approved) large lot site on the central southern boundary (refer to red region shown on inset below).

The remaining areas of CHRF contained within the Huntlee lands do not form part of the 37.48ha conservation area stated in the EAR (2010).

- Section 5.4 including Table 5-3 of the EAR states that, 'impacts could occur to the majority of extant vegetation within the proposed Huntlee development precincts which includes areas of EEC's'. Additionally, Table 5-3 estimates that a 2/3 of this community is likely to be retained with the Huntlee site including within dedicated conservation reserves (37.45ha detailed in the point above). Notwithstanding impacts are to be considered against the numerous beneficial holistic outcomes provided by the Huntlee offsets package.

In the context of the above, CHRF will retained within the conservation reserves and large lot development area as reported in the EAR (2010) thereby maintaining consistency with the EAR (2010). While not the subject of MOD 21:

- It is anticipated that additional retention of CHRF will occur within riparian zones to be retained within future Stage 2 development areas.
- To the west of the approved large lot development area, a mapped patch of CHRF occurs covering an area of 0.66ha (Refer to inset below). This patch represents an additional retention of CHRF beyond that reported in the EAR (2010).

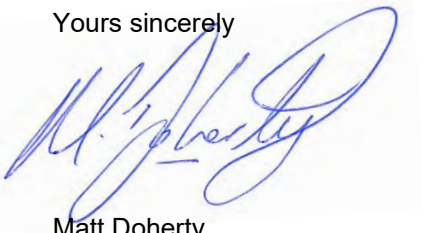


A 7-part test for MOD 21 has been provided as **Attachment 2**. This assessment has been completed based on the status of the land as at the time of this advice preparation. This assessment concluded that it is unlikely that the proposal will have an adverse effect or adversely modify the extent of threatened entities recorded across Huntlee (development and conservation areas) such that an entity is likely to be placed at risk of extinction.

In summary the MOD 21 does not impact the original Ecological Assessment Report conservation outcomes that informed the major project approval.

We trust this is sufficient for your purposes, however should you require any further information or clarification, please do not hesitate to contact the writer.

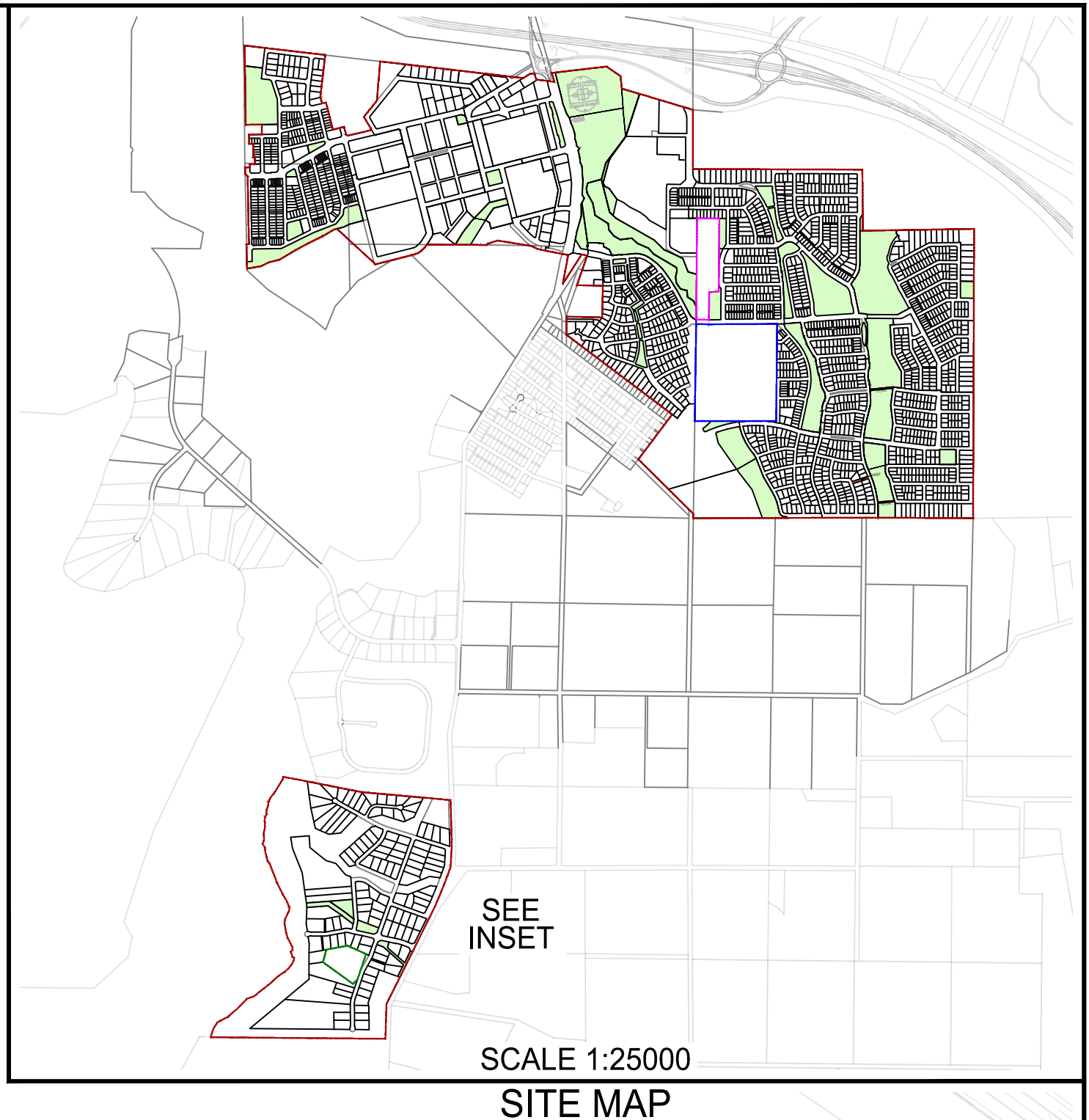
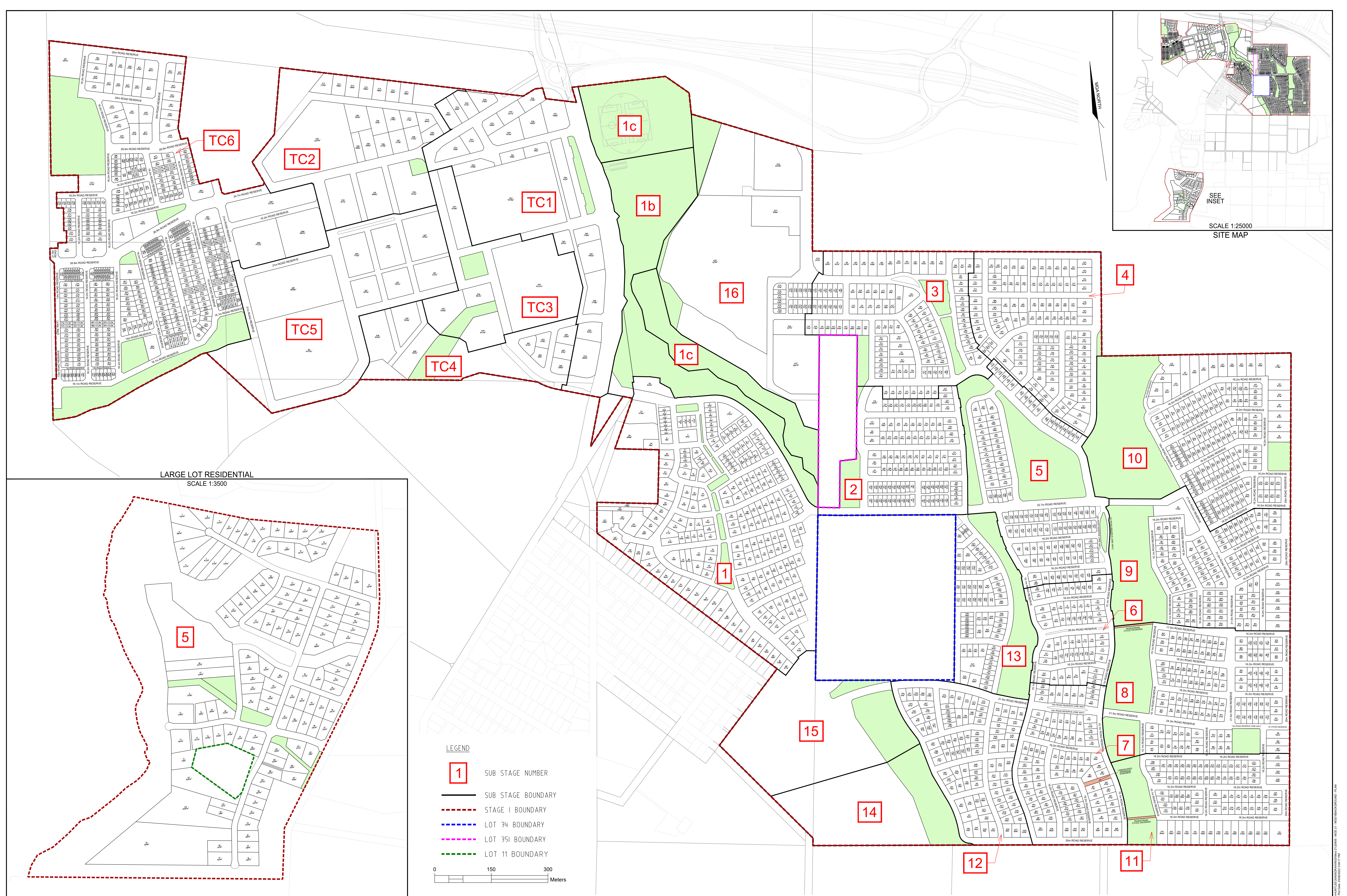
Yours sincerely

A handwritten signature in blue ink, appearing to read 'M. Doherty', is written over a light blue rectangular background.

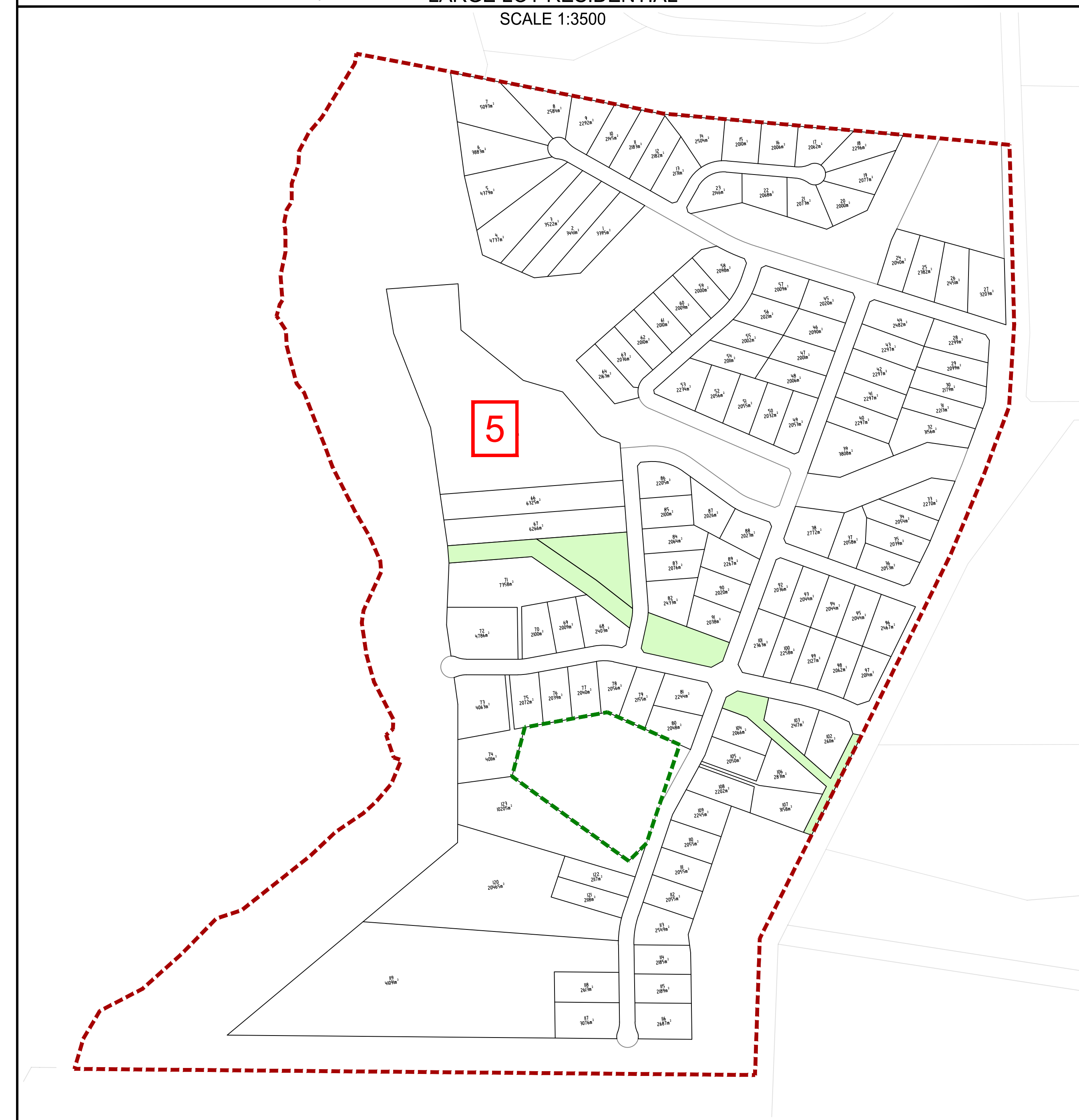
Matt Doherty
Director
MJD Environmental

Encl: Attachment 1 – MOD 21 plans
Attachment 2 –7-part test

Attachment 1 – MOD 21 plans



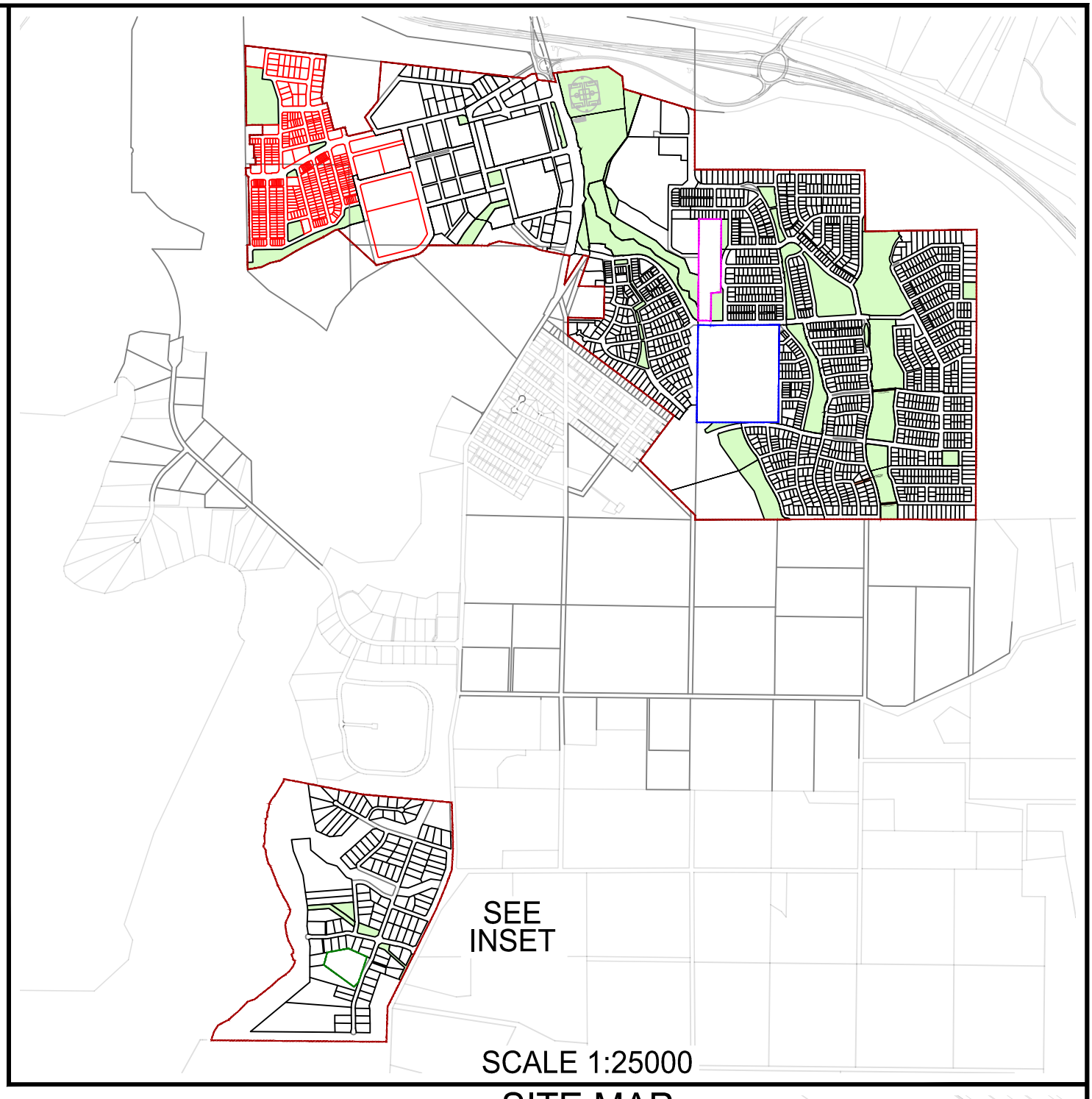
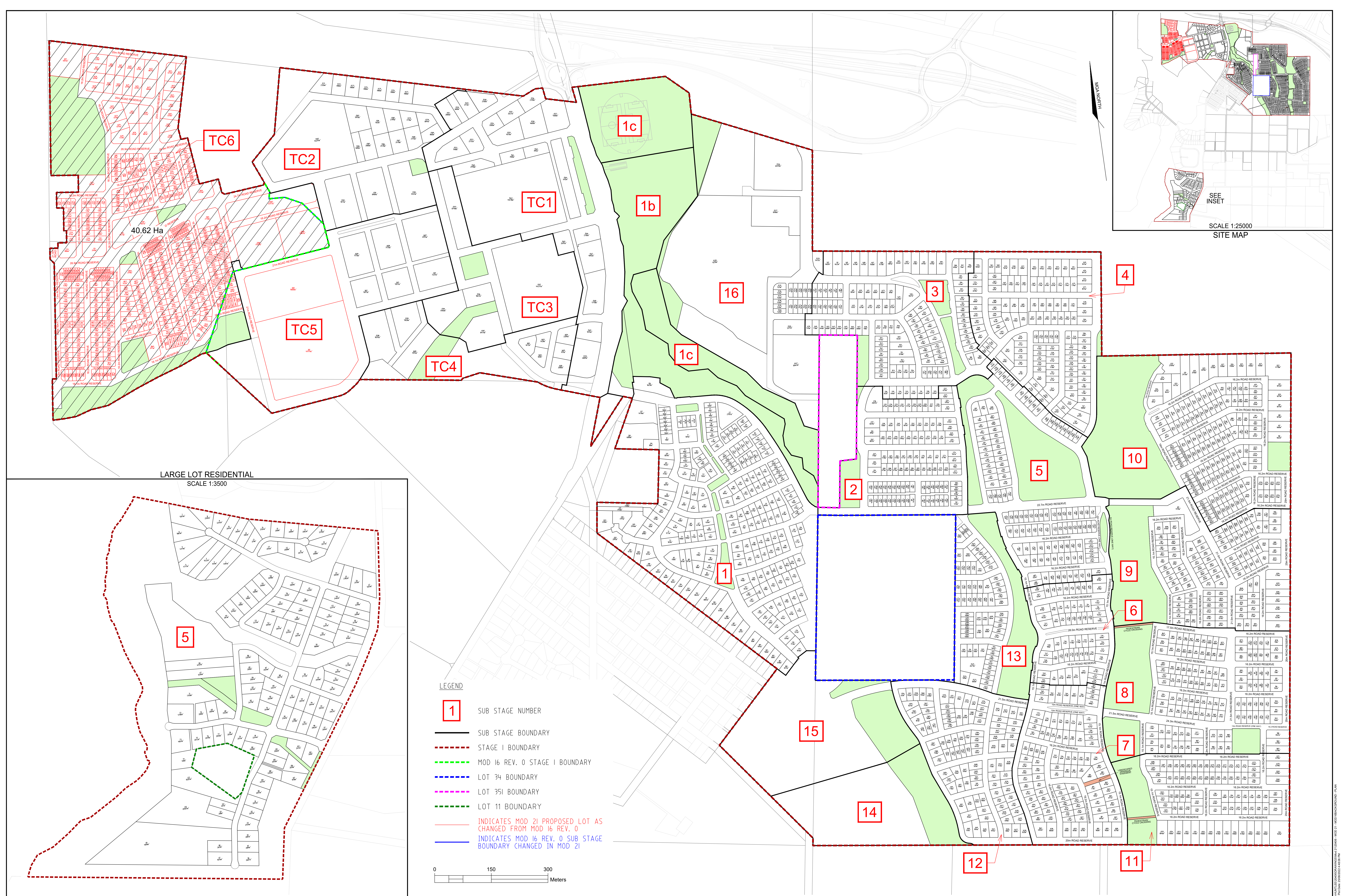
LARGE LOT RESIDENTIAL
SCALE 1:3500



LEGEND

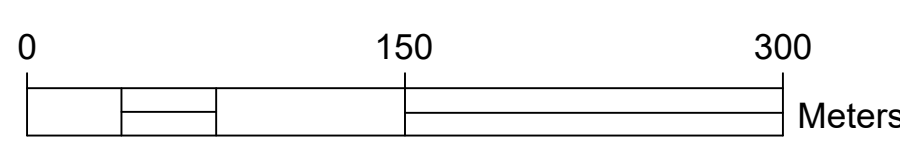
- 1** SUB STAGE NUMBER
- SUB STAGE BOUNDARY
- STAGE I BOUNDARY
- LOT 34 BOUNDARY
- LOT 35I BOUNDARY
- LOT 11 BOUNDARY

0 150 300 Meters



LARGE LOT RESIDENTIAL
SCALE 1:3500

- LEGEND
- 1 SUB STAGE NUMBER
 - SUB STAGE BOUNDARY
 - STAGE I BOUNDARY
 - MOD I6 REV. 0 STAGE I BOUNDARY
 - LOT 34 BOUNDARY
 - LOT 35I BOUNDARY
 - LOT 11 BOUNDARY
 - INDICATES MOD 21 PROPOSED LOT AS CHANGED FROM MOD I6 REV. 0
 - INDICATES MOD I6 REV. 0 SUB STAGE BOUNDARY CHANGED IN MOD 21



NOTE: BAL ONLY APPLICABLE TO RESIDENTIAL LOTS

NOTE: BAL ONLY APPLICABLE TO RESIDENTIAL LOTS

NOTE: BAL ONLY APPLICABLE TO RESIDENTIAL LOTS

SCALE 1:25000
SITE MAP

LARGE LOT RESIDENTIAL
SCALE 1:3500

LEGEND

- 1** SUB STAGE NUMBER
- SUB STAGE BOUNDARY
- STAGE I BOUNDARY
- MOD I6 REV. 0 STAGE I BOUNDARY
- LOT 34 BOUNDARY
- LOT 35I BOUNDARY
- LOT 11 BOUNDARY
- INDICATES MOD 21 PROPOSED LOT AS CHANGED FROM MOD I6 REV. 0

BUSHFIRE RATINGS (BAL)

125 19 29 40 FZ

0 150 300
Meters

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CLIENT



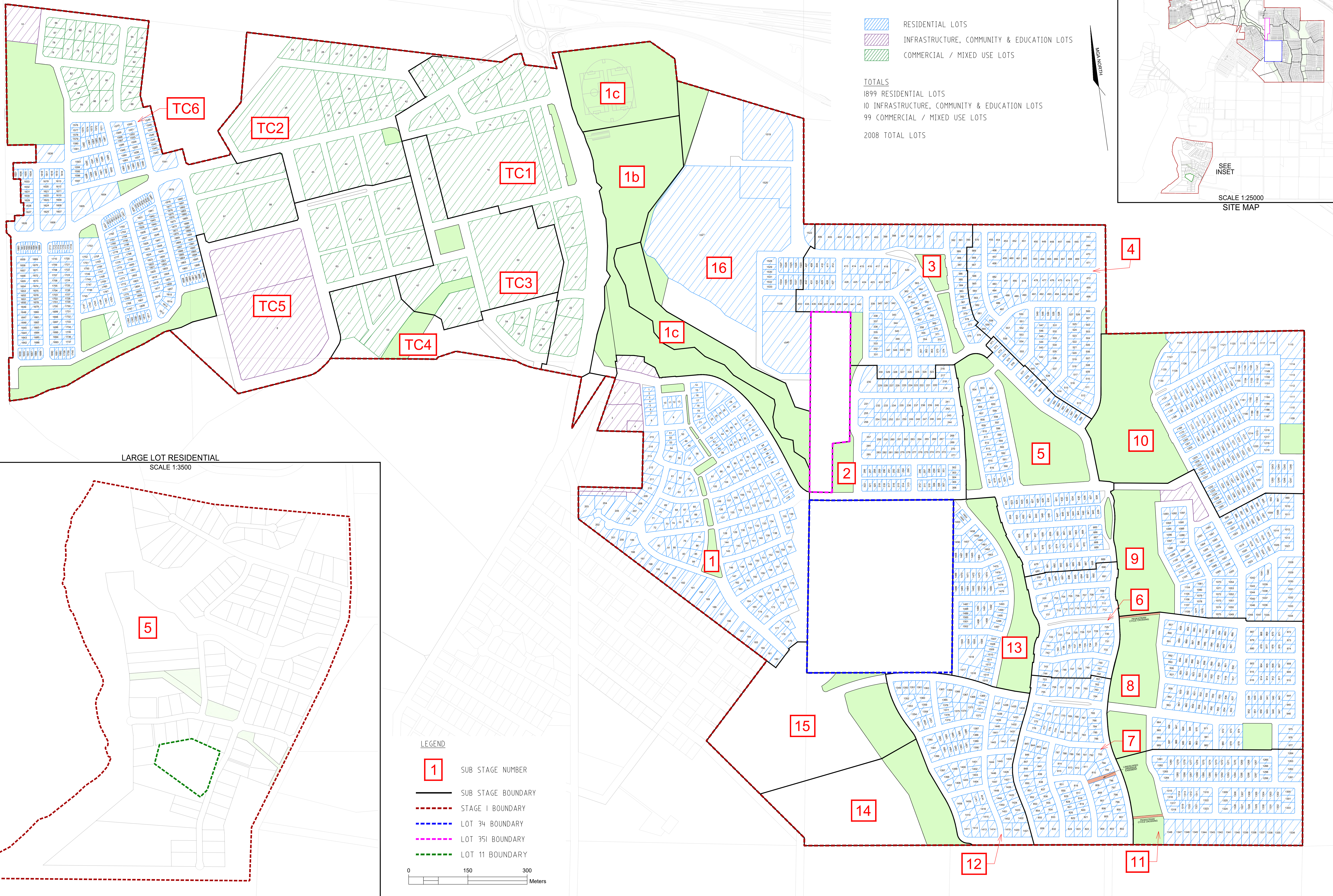
SCALE
1:3000
SHEET SIZE
A0
DRAWN BY
RB
CHECKED BY
ADM

DRAWING TITLE
1 TO 3000(MOD21) CONSTRAINTS ON AMENDED LOTS
PROJECT
HUNTLEE STAGE 1 - DEVELOPMENT AREA
WINE COUNTRY DRIVE, HUNTLEE
CLIENT
HUNTLEE PTY.LTD.



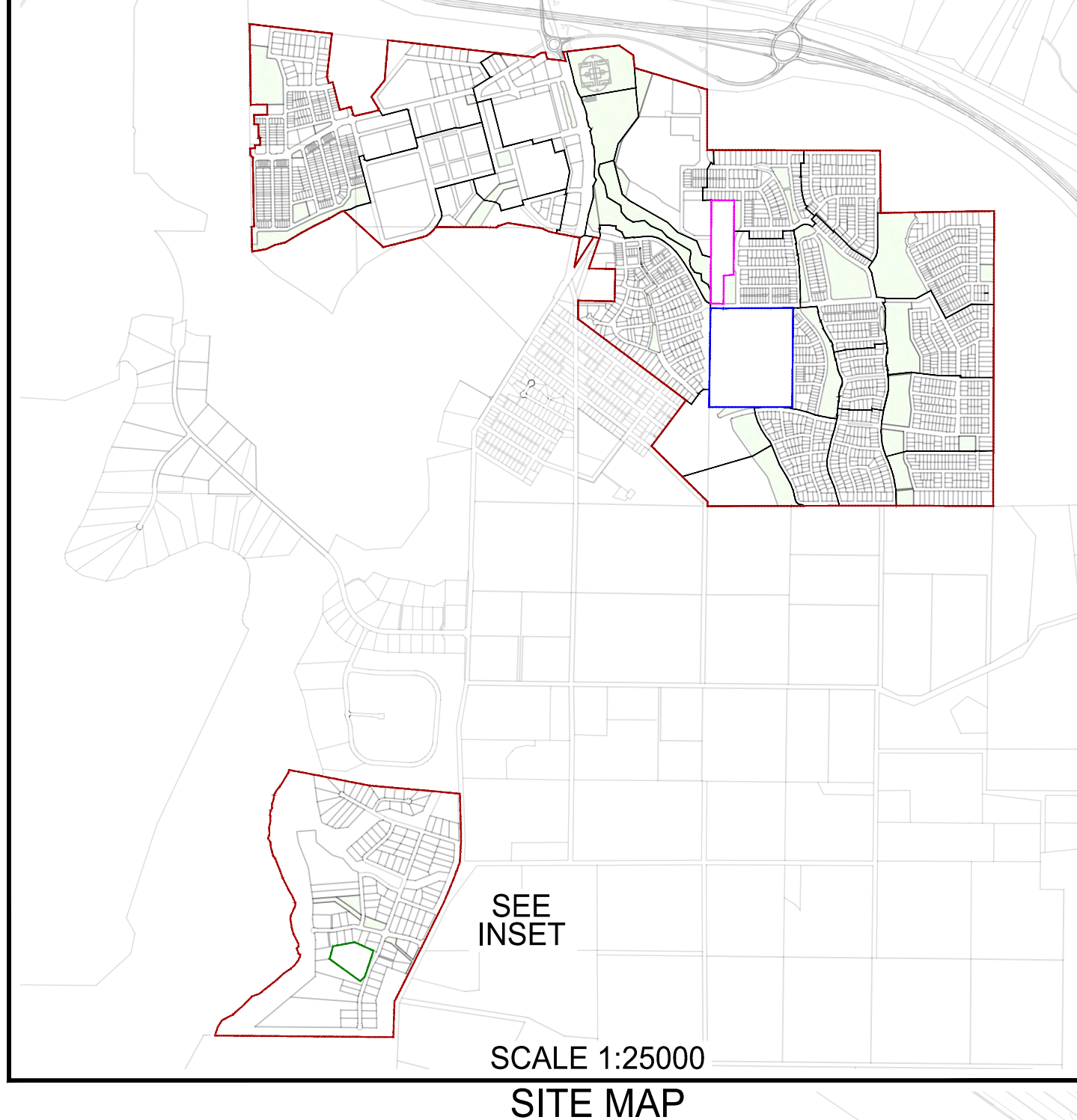
A: 6 Doylson Street,
Mortdale NSW 2264
A: 4/9 Lambton Road,
Broadmeadow NSW 2293
T: (02) 4972 2745 F: (02) 4970 5366
E: mail@daly-smith.com.au
DALYSMITH.COM.AU

DALY.SMITH JOB NO:
20406
SHEET NO:
1 OF 1



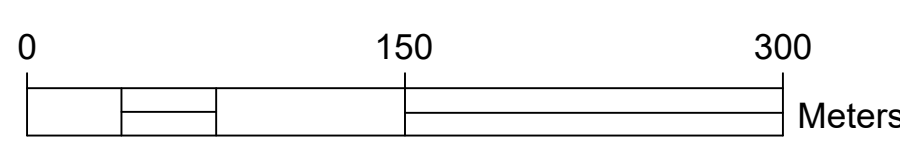
- RESIDENTIAL LOTS
- INFRASTRUCTURE, COMMUNITY & EDUCATION LOTS
- COMMERCIAL / MIXED USE LOTS

TOTALS
1899 RESIDENTIAL LOTS
10 INFRASTRUCTURE, COMMUNITY & EDUCATION LOTS
99 COMMERCIAL / MIXED USE LOTS
2008 TOTAL LOTS



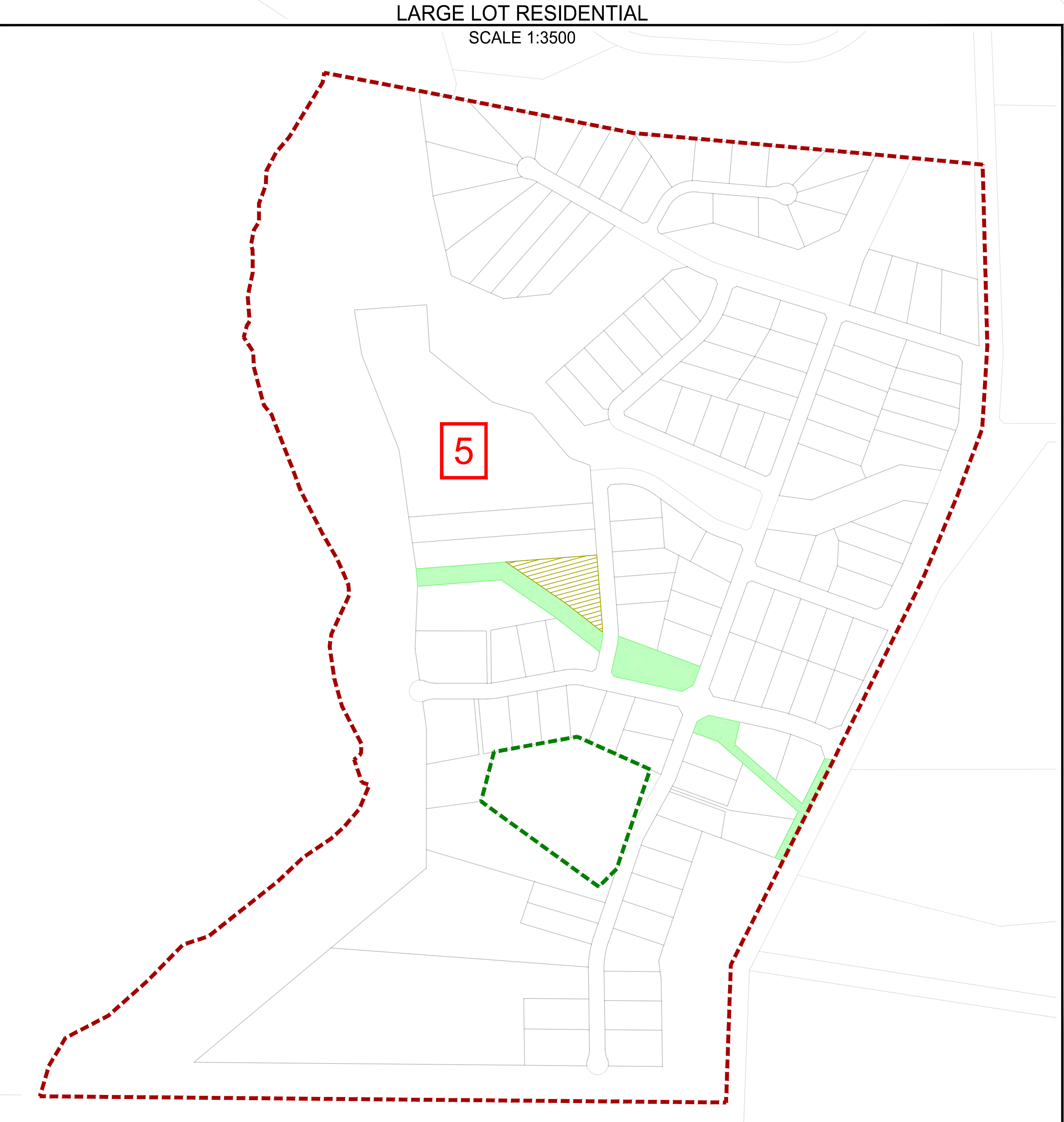
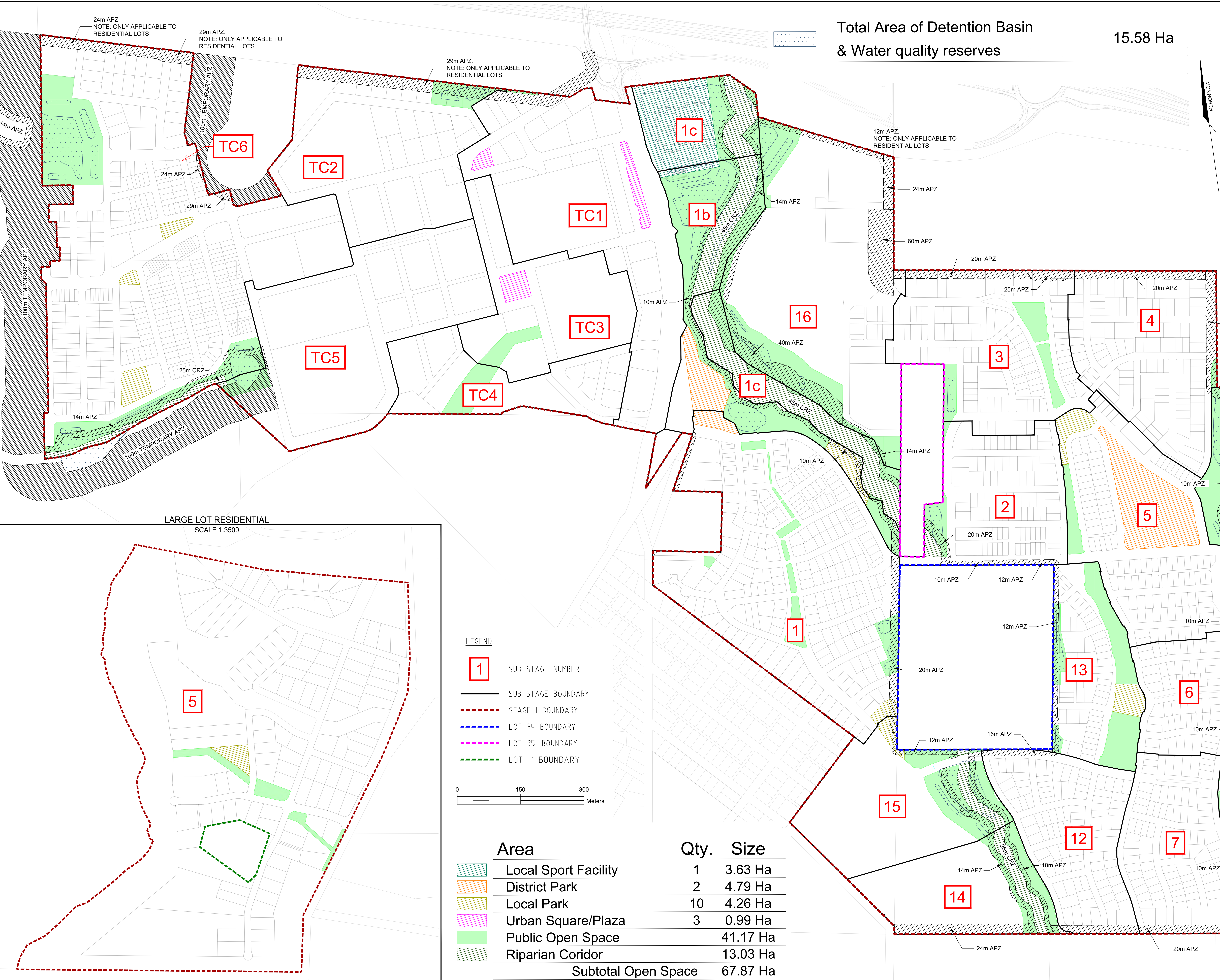
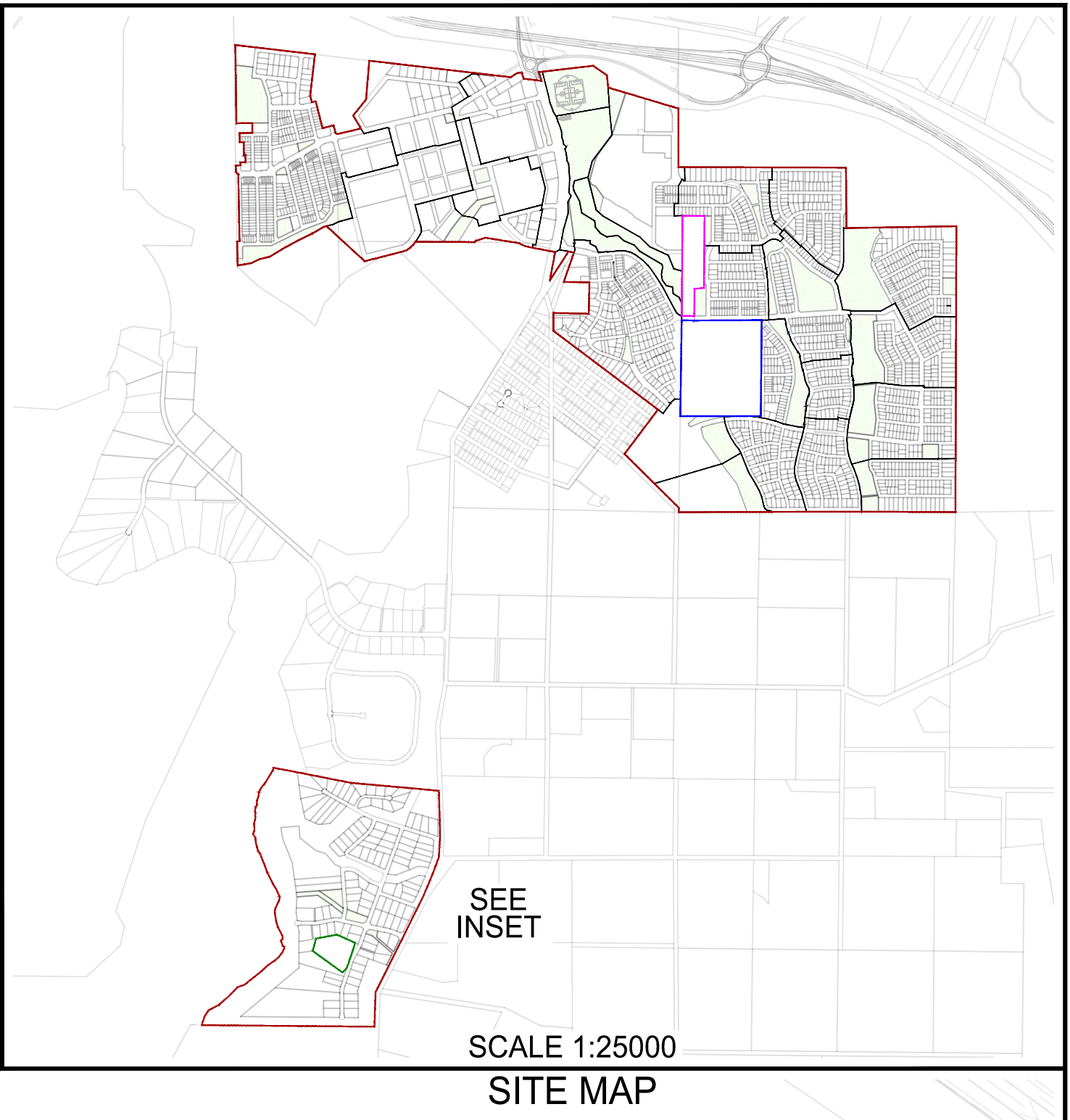
LARGE LOT RESIDENTIAL
SCALE 1:3500

- LEGEND
- 1 SUB STAGE NUMBER
 - SUB STAGE BOUNDARY
 - STAGE 1 BOUNDARY
 - LOT 34 BOUNDARY
 - LOT 351 BOUNDARY
 - LOT 11 BOUNDARY

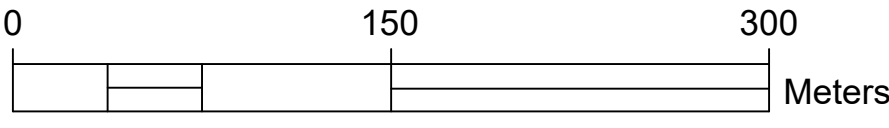


Total Area of Detention Basin
& Water quality reserves

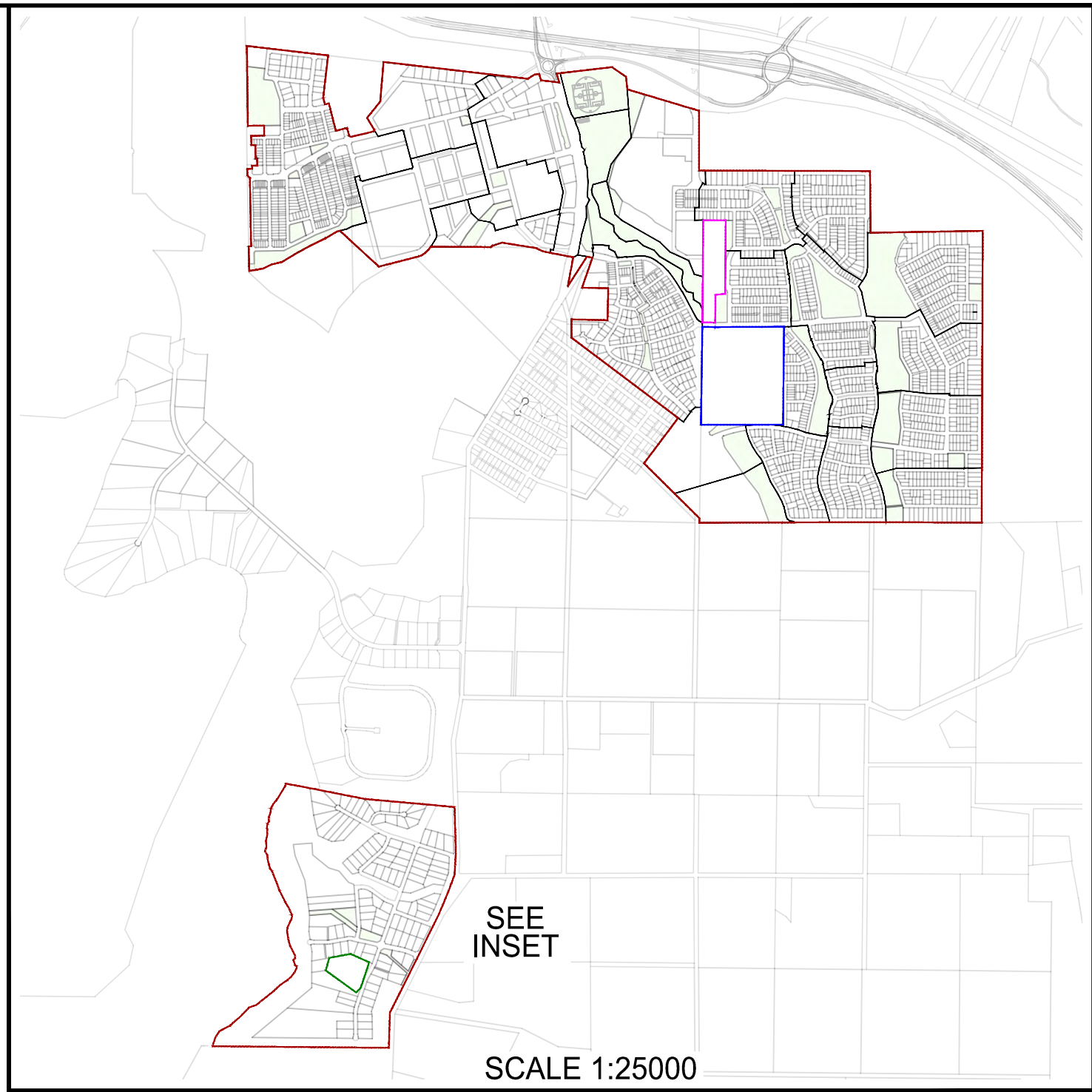
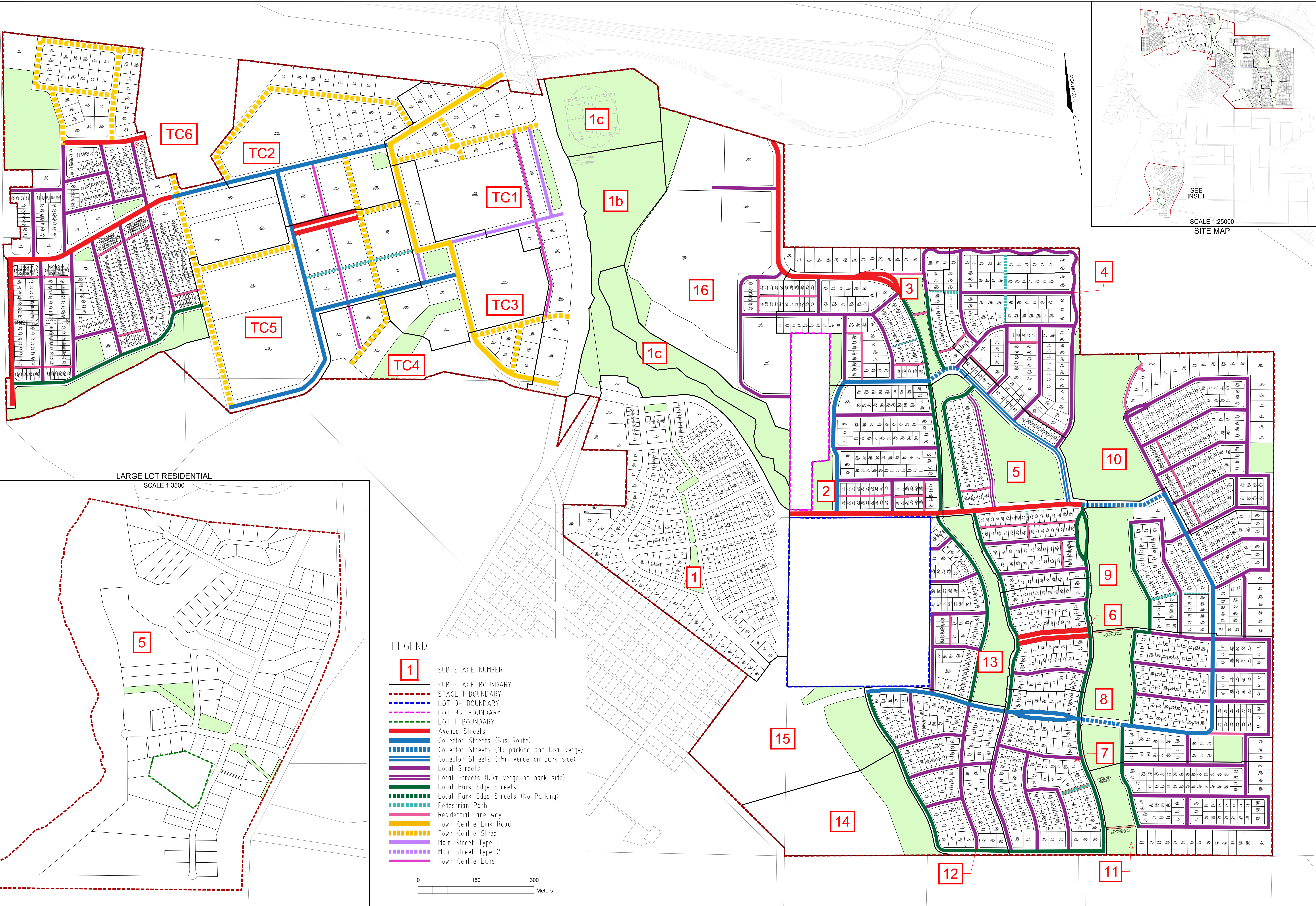
15.58 Ha



- LEGEND
- 1 SUB STAGE NUMBER
 - SUB STAGE BOUNDARY
 - STAGE 1 BOUNDARY
 - LOT 34 BOUNDARY
 - LOT 351 BOUNDARY
 - LOT 11 BOUNDARY



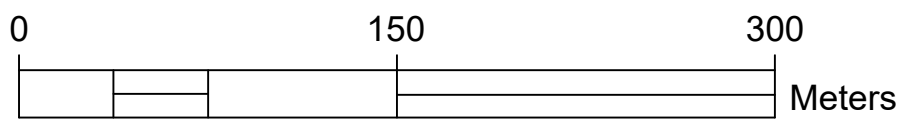
Area	Qty.	Size
Local Sport Facility	1	3.63 Ha
District Park	2	4.79 Ha
Local Park	10	4.26 Ha
Urban Square/Plaza	3	0.99 Ha
Public Open Space		41.17 Ha
Riparian Corridor		13.03 Ha
Subtotal Open Space		67.87 Ha



LARGE LOT RESIDENTIAL
SCALE 1:3500

LEGEND

- 1 SUB STAGE NUMBER
- SUB STAGE BOUNDARY
- STAGE 1 BOUNDARY
- LOT 34 BOUNDARY
- LOT 351 BOUNDARY
- LOT II BOUNDARY
- Avenue Streets
- Collector Streets (Bus Route)
- Collector Streets (No parking and 1.5m verge)
- Collector Streets (1.5m verge on park side)
- Local Streets
- Local Streets (1.5m verge on park side)
- Local Park Edge Streets
- Local Park Edge Streets (No Parking)
- Pedestrian Path
- Residential lane way
- Town Centre Link Road
- Town Centre Street
- Main Street Type 1
- Main Street Type 2
- Town Centre Lane



Attachment 2 – 7-part test

Section 5A of the EP&A Act lists seven factors that must be taken into account in the determination of the significance of potential impacts of proposed activities on ‘threatened species, populations or ecological communities or their habitats’ (threatened biota) listed under the TSC Act. The ‘7-part test’ is used to determine whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats and thus whether a Species Impact Statement (SIS) is required to be produced.

Foremost in the case of threatened species and ecological communities assessed for the Huntlee major project approval it must be acknowledged that MOD 21 maintains the outcomes that were approved under the Huntlee Major Project which takes into account a package of mitigation and offset measures that form part of the proposal that was considered by the Minister. Specifically, the Huntlee major project approval has provided local and regional conservation offsets in recognition of the proposed loss of biodiversity in areas to be developed. Conservation offsets delivered by the project were set out under a VPA executed by the NSW Government (Minister for Planning and Minister for Climate Change and the Environment) and Huntlee and included the following:

- Dedication of 780 hectares of conservation land within Huntlee;
- Dedication of Persoonia Park (17 hectares);
- Dedication of up to 4988 hectares of conservation land elsewhere within the Lower Hunter Region; and
- Funding for the conservation offset management.

The approval was delivered following detailed consideration on a merits basis by the determining authorities and took into account the strategic location of conservation offsets, protection for threatened species, populations and ecological communities through preservation of habitat, establishment and conservation of corridors habitat linkages within the local offset areas and regional offsets across the Hunter Valley.

The loss of the large areas of endangered communities has been offset under the terms of the VPA and covers the entire Huntlee development. The changes proposed under MOD 21 seek to amend lot boundaries and product types within areas which were always nominated for development in the earlier Development Approvals.

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

The areas subject to assessment under MOD 21 were originally identified within the Huntlee Concept Approval and Ecological Assessment informing the same as development areas and not set aside for conservation measures. All known threatened species and their habitat were assessed at the time of Major Project approval. Therefore, the proposed modification to the Stage 1 approval sought under MOD 21 will not have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

This section does not apply to the assessment as an endangered population of a threatened entity has not been identified on the Huntlee areas subject to assessment under MOD 21.

c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

Central Hunter Ironbark - Spotted Gum - Grey Box Forest

Central Hunter Ironbark - Spotted Gum - Grey Box Forest is taken as broadly commensurate with the *Central Hunter Ironbark-Spotted Gum-Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions - endangered ecological community*.

As detailed in the Huntlee EAR (2010):

- The outcome described in Table 5-4 of the Huntlee Ecological Assessment Report [EAR] (2010) for CHISGGBF indicates that conservation of 568.36ha of this community will occur within the Huntlee Development Area, Huntlee Reserve and Persoonia Reserve. The Huntlee development area will remove 341.24ha of this community.

The current MOD 21 proposal maintains the outcomes that were approved under the Huntlee Major Project which takes into account a package of mitigation and offset measures that form part of the proposal that was considered by the Minister. Specifically, the Huntlee major project approval has provided local and regional conservation offsets in recognition of the proposed loss of biodiversity in areas to be developed.

Conservation offsets delivered by the project were set out under a VPA executed by the NSW Government (Minister for Planning and Minister for Climate Change and the Environment) and Huntlee and included the following:

- Dedication of 780 hectares of conservation land within Huntlee;
- Dedication of Persoonia Park (17 hectares);
- Dedication of up to 4988 hectares of conservation land elsewhere within the Lower Hunter Region; and
- Funding for the conservation offset management.

The approval was delivered following detailed consideration on a merits basis by the determining authorities and took into account the strategic location of conservation offsets, protection for threatened species, populations and ecological communities through preservation of habitat, establishment and conservation of corridors habitat linkages within the local offset areas and regional offsets across the Hunter Valley.

The loss of the large areas of endangered communities has been offset under the terms of the VPA and was intended to cover the entire Huntlee development.

In the context of the above, CHISGGBF will be retained within the riparian zone situated in the south of the MOD 21 development area thereby maintaining consistency with the EAR (2010).

The MOD 21 proposal will not clear areas of CHISGGBF beyond the extent that was taken into account by the Minister in awarding major project approval to the Huntlee project. Clearing is not considered to adversely modify the composition or extent of the community in the Huntlee project area (conservation and offset lands) such that the proposal will have an adverse effect on the community such that its local occurrence is likely to be placed at risk of extinction.

Central Hunter Riparian Forest (CHRF).

Central Hunter Riparian Forest is taken as broadly commensurate with the *River Flat Eucalypt Forest on Coastal Floodplains of NSW*.

As detailed in the Huntlee Ecological Assessment Report [EAR] (2010):

- The outcome described in Table 5-4 of the EAR for CHRF indicates that that 62.30ha of this community occurs in Huntlee development areas of which 37.48ha will be retained in Huntlee Development Area and Huntlee Reserve (being the Huntlee offset lands). The 37.48ha is comprised of –
 - o 37.45ha is situated in Huntlee Reserve
 - o 0.03ha occurs in the MOD 14 large lot site on the central southern boundary (refer to red region shown on inset below)

The remaining areas of CHRF contained within the MOD 21 temporary APZ area do not form part of the 37.48ha conservation area stated in the EAR (2010). The current MOD 21 proposal maintains the outcomes that were approved under the Huntlee Major Project which takes into account a package of mitigation and offset measures that form part of the proposal that was considered by the Minister. Specifically, the Huntlee major project approval has provided local and regional conservation offsets in recognition of the proposed loss of biodiversity in areas to be developed. Conservation offsets delivered by the project were set out under a VPA executed by the NSW Government (Minister for Planning and Minister for Climate Change and the Environment) and Huntlee and included the following:

- Dedication of 780 hectares of conservation land within Huntlee;
- Dedication of Persoonia Park (17 hectares);
- Dedication of up to 4988 hectares of conservation land elsewhere within the Lower Hunter Region; and
- Funding for the conservation offset management.

The approval was delivered following detailed consideration on a merits basis by the determining authorities and took into account the strategic location of conservation offsets, protection for threatened species, populations and ecological communities through preservation of habitat, establishment and conservation of corridors habitat linkages within the local offset areas and regional offsets across the Hunter Valley.

The loss of the large areas of endangered communities has been offset under the terms of the VPA and was intended to cover the entire Huntlee development.

In the context of the above, CHRF will retained within the conservation reserves and large lot development area as reported in the EAR (2010) thereby maintaining consistency with the EAR (2010). While not the subject of MOD 21:

- It is anticipated that additional retention of CHRF will occur within riparian zones to be retained within future Stage 2 development areas.
- To the west of the approved large lot development area, a mapped patch of CHRF occurs covering an area of 0.66ha (Refer to inset below). This patch represents an additional retention of CHRF beyond that reported in the EAR (2010).

The MOD 21 proposal will not clear areas of CHRF beyond the extent that was taken into account by the Minister in awarding major project approval to the Huntlee project. Clearing is not considered to adversely modify the composition or extent of the community in the Huntlee project area (conservation and offset lands) such that the proposal will have an adverse effect on the community such that its local occurrence is likely to be placed at risk of extinction.

d) In relation to the habitat of a threatened species, population or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the action proposed,

Central Hunter Ironbark - Spotted Gum - Grey Box Forest

As detailed in the Huntlee EAR (2010):

- The outcome described in Table 5-4 of the EAR (2010) for CHISGGBF indicates that conservation of 568.36ha of this community will occur within the Huntlee Development Area, Huntlee Reserve and Persoonia Reserve. The Huntlee development area will remove 341.24ha of this community.

Central Hunter Riparian Forest (CHRF)

As detailed in the Huntlee EAR (2010):

- The outcome described in Table 5-4 of the EAR (2010) for CHRF indicates that that 62.30ha of this community occurs in Huntlee development areas of which 37.48ha will be retained in Huntlee Development Area and Huntlee Reserve (being the Huntlee offset lands). The 37.48ha is comprised of –
 - o 37.45ha is situated in Huntlee Reserve
 - o 0.03ha occurs in the MOD 14 large lot site on the central southern boundary (refer to red region shown on inset above)

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposal will contribute to an increase in fragmentation or isolation by virtue of the removal of patches of vegetation. However, the proposal does not contribute to an increase in fragmentation or isolation beyond what has been anticipated and approved by the Huntlee Concept approval.

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

On the basis of discussion and assessment presented under item c) above, it has been determined that a significant impact such that a local area of this community would become extinct concluded this was unlikely.

The removal of vegetation that will occur in areas associated with MOD 21 will not entirely remove ecological communities from the Huntlee development as areas have been assessed (at the time of approval and consistent with the approved Ecological Assessment Report) as being partially retained in riparian areas and on the conservation lands. As such it is not considered the habitat to be removed will impact the long term survival of the ecological communities in the locality.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat for any threatened species occurs on site, therefore the proposal is unlikely to impact upon such habitat.

f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

For the purposes of biodiversity and consideration of recovery and threat abatement plans, the proposal does not change or modify existing approval arrangements issued under the initial Huntlee concept approval instrument. The major project approval does contribute to landscape scale biodiversity outcomes via dedication of some 5000ha of offsets that contribute to security for individual threatened entities with recovery and threat abatement plans.

A strategy for the management of CHISGGBF and CHRF (River Flat Eucalypt Forest EEC) is currently being developed under the NSW Save Our Species program. A set of broad interim management actions have been prepared for ecological communities.

Given the proposal will remove habitat associated with this community, it is likely to broadly contravene some of the interim objectives.

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

A Key Threatening Process (KTP) is defined in the TSC Act as a process that “threatens, or could threaten, the survival or evolutionary development of species, populations or ecological communities”. They are listed under Schedule 3 of the TSC Act and may adversely affect threatened species, populations or ecological communities or could cause species, populations or ecological communities that are not threatened to become threatened.

KTP’s that have the potential to operate on site relevant to the removal of CHRF have been outlined below.

1. Anthropogenic Climate Change
2. Invasion, establishment and spread of *Lantana camara* (Lantana)
3. Invasion of native plant communities by exotic perennial grasses
4. Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)
5. Infection of native plants by *Phytophthora cinnamomi*
6. Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae
7. Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.
8. Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
9. Clearing of native Vegetation

Anthropogenic Climate Change

Modification of the environment by humans is considered to contribute to Climate Change and as a result has been listed as a Key Threatening Process. Land use change and industrial processes which are occurring as a result of the Project are actions that can contribute to greenhouse gas emissions.

The Huntlee approval involves the removal of vegetation from the development site. This is unlikely to make a significant contribution to local climate such that alterations resulting in impacts on locally occurring threatened species, populations or ecological communities would occur.

Invasion, establishment and spread of *Lantana camara* (Lantana)

This species has been observed on the development site within the Huntlee project area with infestations present in areas of high disturbance, particularly along rail works, near previous mine activity, and in creek lines. The residential development will not increase the operation of this KTP on site beyond current levels, and proposed associated works in conserved vegetation corridors may reduce prevalence on site. On this basis it is considered that the proposal will not lead to an increase in the activity or prevalence of this KTP.

Invasion of native plant communities by exotic perennial grasses

This KTP is considered to be operating on site based on the presence of exotic and perennial species intermixed with native species in the groundcover of vegetation across the woodlands pastures of the Huntlee project area. The Huntlee approval involves the removal of vegetation from the development site. The removal of the vegetation in which this KTP is present, may reduce its effects. Conversely the increase in edges to native vegetation may also provide further opportunity for this KTP to establish.

Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)

The site development will result in the alteration of previously pervious surfaces within the catchment of ephemeral watercourses on site. Under the guidance of the stormwater management plan prepared based on industry standards to inform the proposal, the development will alter the natural flow regime on site and therefore may contribute to this KTP.

Infection of native plants by *Phytophthora cinnamomi*

The soil born pathogen *Phytophthora cinnamomi* spreads in plant roots and has been known to infect a number of native plants. There was no evidence observed of *P. cinnamomi* impact on site during the survey period. Given the proposal will increase vehicle/machinery movements on site during construction and operations, it is possible that contamination of the site with the pathogen may occur. Due to this risk of contamination it is considered likely that the proposal may contribute to this KTP. A Plant hygiene protocol should be implemented to ensure spread of the pathogen by machinery to be used on site is cleaned down prior to arrival on site in accordance with industry best practice.

Introduction and establishment of Exotic Rust Fungi of the order *Pucciniales* pathogenic on plants of the family *Myrtaceae*

The exotic rust pathogen of the order *Pucciniales* spores can be dispersed by wind, water-splash, on plant material including seed, on people and their clothing and equipment and has been known to infect plants of the family *Myrtaceae*. There was no evidence observed of Exotic rust fungus impact on site during the survey period. Given the proposal will increase vehicle/machinery movements on site during construction and operations, it is possible that contamination of the site with the pathogen may occur. Due to this risk of contamination it is considered likely that the proposal may contribute to this KTP. A Plant hygiene protocol should be implemented to ensure spread of the pathogen by machinery to be used on site is cleaned down prior to arrival on site in accordance with industry best practice.

Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.

This species observed scattered throughout vegetation within the Huntlee project area. The residential development will not increase the operation of this KTP on site beyond current levels. On this basis it is considered that the proposal will not lead to an increase in the activity or prevalence of this KTP.

Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants

The creation of residential areas as a result of the proposal will increase the potential for suburban garden plants to escape into surrounding remnant habitat, therefore contributing to this KTP.

Clearing of native vegetation

The KTP final determination lists nine factors that have the potential to impact species distribution or result in extinction. These factors are:

- 1) destruction of habitat resulting in loss of local populations of individual species;
- 2) fragmentation;
- 3) expansion of dryland salinity;
- 4) riparian zone degradation;
- 5) increased greenhouse gas emissions;
- 6) increased habitat for invasive species;
- 7) loss of leaf litter layer;
- 8) loss or disruption of ecological function; and
- 9) changes to soil biota.

The approval allows for the removal of vegetation. This loss of vegetation will represent habitat loss for potential threatened species in the area. The proposal includes significant local conservation offsets, that will provide long term protection for threatened species and their habitat in the locality.

The proposal will affect existing habitat connectivity within the site, however has been assessed and approved in the broader Huntlee context. Connectivity is maintained within the areas approved to become urbanised via riparian connections that shall facilitate continued movement in the locality.

The proposal will have an impact on increasing greenhouse gas emissions and a loss of leaf litter layer due to the reduction of vegetation.

The proposal does border riparian areas along with riparian areas crossing the development site. All watercourses propose riparian buffers of a width relative to the stream order. Therefore, it is considered that representative stands of riparian vegetation shall be maintained thereby reducing impact. No evidence of dry land salinity has been observed on site.

The proposal will have a moderate impact on ecological function and soil biota. The sites ecological function and soil biota has been impacted prior to the proposal due to the previous land uses in the area.

On this basis, it is considered the KTP will be increased in the locality, however has been assessed as not leading to a decline such that an extinction will occur as a direct impact related the clearing of the land. Finally, it is acknowledged that the action will not increase or exacerbate this KTP beyond the extent allowed for under the existing major project approval. These outcomes also consider the significant local and regional conservation offsets.