

New Grafton Correctional Centre
Built form and visual amenity

06 June, 2017

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REVISION HISTORY

Date	Revision	
9 April, 2017	Draft	
5 May, 2017	Draft -1	Incorporated BBC Planners Introduction ADDED Images
15 May, 2017	Draft-2	Updated BBC Planners introduction Further updates
18 May, 2017	Draft-3	Amendments to address Visual Amenity
23 May 2017	Draft 4	Updates to images. Residents names deleted
24 May 2017	Draft 5	Executive Summary, Conclusion added. Introductory content amended.
26 May 2017	Final 1	Issued for DA approval
29 May 2017	Final 2	Amended following INSW review
30 May 2017	Final 3	Images amended. Issued for DA approval
06 June 2017	Final 4	Appendices added

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EXECUTIVE SUMMARY

In 2016, the NSW Government called for Expressions of Interest from the private sector to design, build, operate and maintain the NGCC. NorthernPathways were announced as the preferred consortium for the project and will design, construct, operate and maintain the new facility on behalf of the NSW Government for the next 20 years.

Infrastructure NSW (INSW) is the Proponent for the Environmental Impact Statement (EIS) and lodgement of an application for environmental and planning approval. INSW is working with NorthernPathways on the community consultation and public exhibition of this environmental impact statement.

This report addresses the requirements within the SEARs to describe the Built Form & Urban Design (requirement 3) and Visual Amenity (requirement 4).

The sites usage has been mainly agricultural. To the west is the Grafton airport. The surrounding area is a mixture of rural landscape, low lying river plains and native vegetation.

The site is bounded on the east by Avenue Road. On the south the new Pacific Highway is under construction and will bypass the site. Avenue Road is the main access road servicing the site.

The site has a number of established trees, existing drainage depressions and natural ridgelines.

The proposed NGCC is designed to sit within the landscape. Effective use of the natural falls across the site has allowed the buildings to following the existing topography.

Buffer planting around the boundaries is proposed to screen the facility from neighbouring properties and soften the views into the site.

1 INTRODUCTION AND OVERVIEW

1.1 BACKGROUND

In 2016, the NSW Government called for Expressions of Interest from the private sector to design, build, operate and maintain the NGCC. Following a competitive tender process, NorthernPathways were announced as the preferred bidder. The project is being delivered a Public Private Partnership (PPP) which means NorthernPathways will design, construct, operate and maintain the new facility on behalf of the NSW Government for the next 20 years.

Infrastructure NSW (INSW) is the Proponent for the environmental impact statement and lodgement of an application for environmental and planning approval. INSW is working with NorthernPathways on the community consultation and public exhibition of this environmental impact statement.

NGCC will be the major multifunctional, regional correctional facility servicing the northern part of NSW and will be the primary correctional facility for all corrections operations from the Queensland border in the north to Kempsey in the south, and Tamworth in the southwest.

The vision for the project is to operate in accordance with innovative best practice, both in providing safety and security and providing dynamic, pro-social management of inmates.

1.2 STAGE ONE CONSENT

On 14 March 2017 consent was granted to the concept proposal for the staged development of New Grafton Correctional Centre (NGCC) comprising:

- 1,700 maximum and minimum security beds, consisting of:
 - o 1,000 maximum security beds for male inmates;
 - o 300 maximum security beds for female inmates; and
 - o 400 minimum security beds for male inmates.
- core correctional facility buildings including: maximum and minimum accommodation units; special accommodation units; health facilities; education and programs areas; administration; workshops; staff amenities; and visitor facilities;
- a recreational oval within the perimeter of the facility;
- a six metre high fence or wall around the perimeter of the facility, with light and security camera poles up to 10 metres in height;
- store buildings, small ancillary facilities, a central energy plant, black-water treatment facilities and a drug dog detection unit and yard located outside the perimeter wall / fence;
- fire access roads on the inside and the outside of the perimeter wall/ fence of the facility;
- water, power, wastewater and communication utilities within the site;
- a maximum building height of 12 metres (approximately three storeys);
- total GFA of approximately 100,000 sqm;

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- vegetative buffer of 50 metres along the northern boundary, 15 metres along the eastern boundary and 30 metres along the southern boundary; and
- asset protection zone of 100 metres from every boundary or vegetation buffer;
- one vehicular entry/exit point from Avenue Road;
- 500 car parking spaces;
- 1.5 metre high boundary fence; and
- landscaping of ground cover and /or shrubbery.

All development under the concept proposal consent (Stage 1 consent) is to be the subject of a subsequent development application with the exception of the Stage 1 works.

The approved Stage 1 works include:

- vegetation clearance and biodiversity management activities;
- bulk excavation and site stabilisation works;
- demolition of the existing house and sheds;
- construction of access roads including fire access roads to the extent required to conduct Stage 1 works
- construction of auxiliary facilities such as construction compound, construction staff parking facilities and stockpiles sites;
- temporary provision of water, power and communication services within the site to the extent required to conduct Stage 1 works; and
- landscaping.

These Stage 1 works will be undertaken to facilitate the subsequent development as envisaged in the concept proposals.

At the same time, Infrastructure New South Wales (INSW) is arranging for the delivery of services to the site including a mains water supply, electricity, telecommunications and access.

The subsequent development application (Stage 2 DA) will be generally consistent with the concept proposal as outlined on the previous page.

NGCC will be constructed and maintained by John Holland and Serco will operate the correctional centre.

1.3 APPROVALS FRAMEWORK

NGCC is a State significant development with planning approval being obtained in two stages:

- Stage 1 – for the concept proposal and Stage 1 works; and
- Stage 2 – for the design and construction of the facility.

The Stage 1 consent was obtained by the Infrastructure NSW (INSW) on behalf of Corrective Services NSW (CSNSW), a division of the Department of Justice, with approval perceived 14 March 2017.

INSW, on behalf of Corrective Services NSW (CSNSW), a division of the Department of Justice is the applicant for this Stage 2 development application.

The development to which the Stage 2 development application relates is also State significant development. Clause 8(1)(b) in Part 2 of State Environmental Planning Policy (State and Regional development) 2011 (“the SRD SEPP”), development is declared to be State significant development if the development is specified in Schedule 1 or 2 of the SRD SEPP. Schedule 1 includes paragraph 16:

16 Correctional centres

Development for the purpose of correctional centres that has a capital investment value of more than \$30 million.

The proposed NGCC has a capital investment value of over \$30 million and is State Significant Development.

The Minister for Planning is the consent authority for State Significant Development.

1.4 THE SITE AND IT'S CONTEXT

Regional context

The site is located 23 kilometres by road to the south east of Grafton, 5 kilometres north east of Grafton Airport and 7 kilometres east of the Pacific Highway at 313 Avenue Road Lavadia on the Mid North Coast of New South Wales.

The Pacific Highway provides connections north towards Queensland and south towards the Hunter and Sydney. The Gwydir Highway provides a connection between the North Coast and the New England and Summerland Way extends north connecting Grafton, Casino and Kyogle to the Mt Lindesay Highway.

Grafton is a focal point for regional road, river and other transport networks and a focus for higher order services to the Clarence Valley sub-region. It is the sub-region's major employment centre and a centre for government administration.

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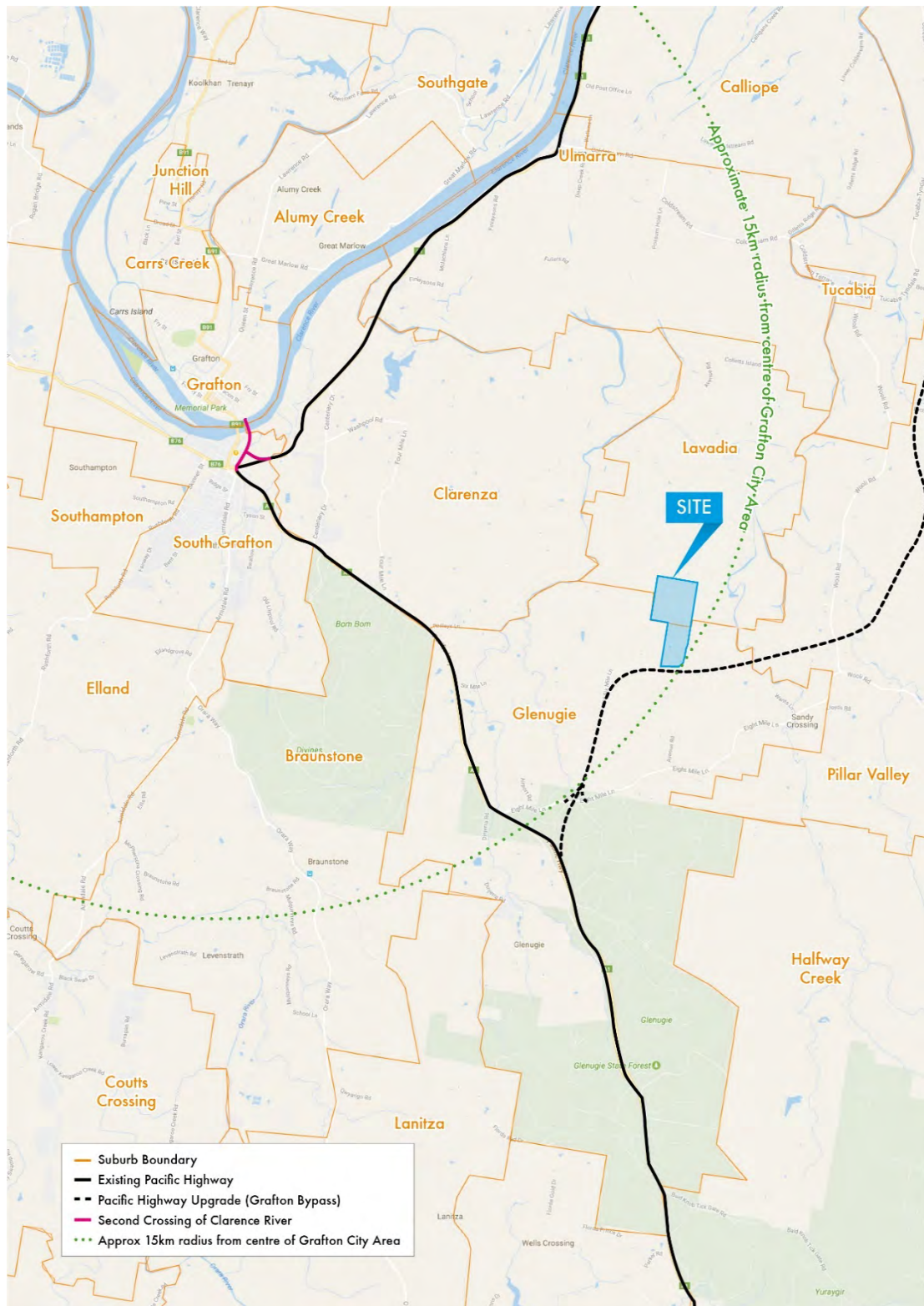


Figure 1 - Location

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The site

The site comprises Lot 26 DP751376 and Lot 1 DP 1190399 each roughly rectangular with a total area of 195 hectares. It is known as 313 Avenue Road Lavadia although the site straddles the boundary between the localities of Lavadia and Glenugie.

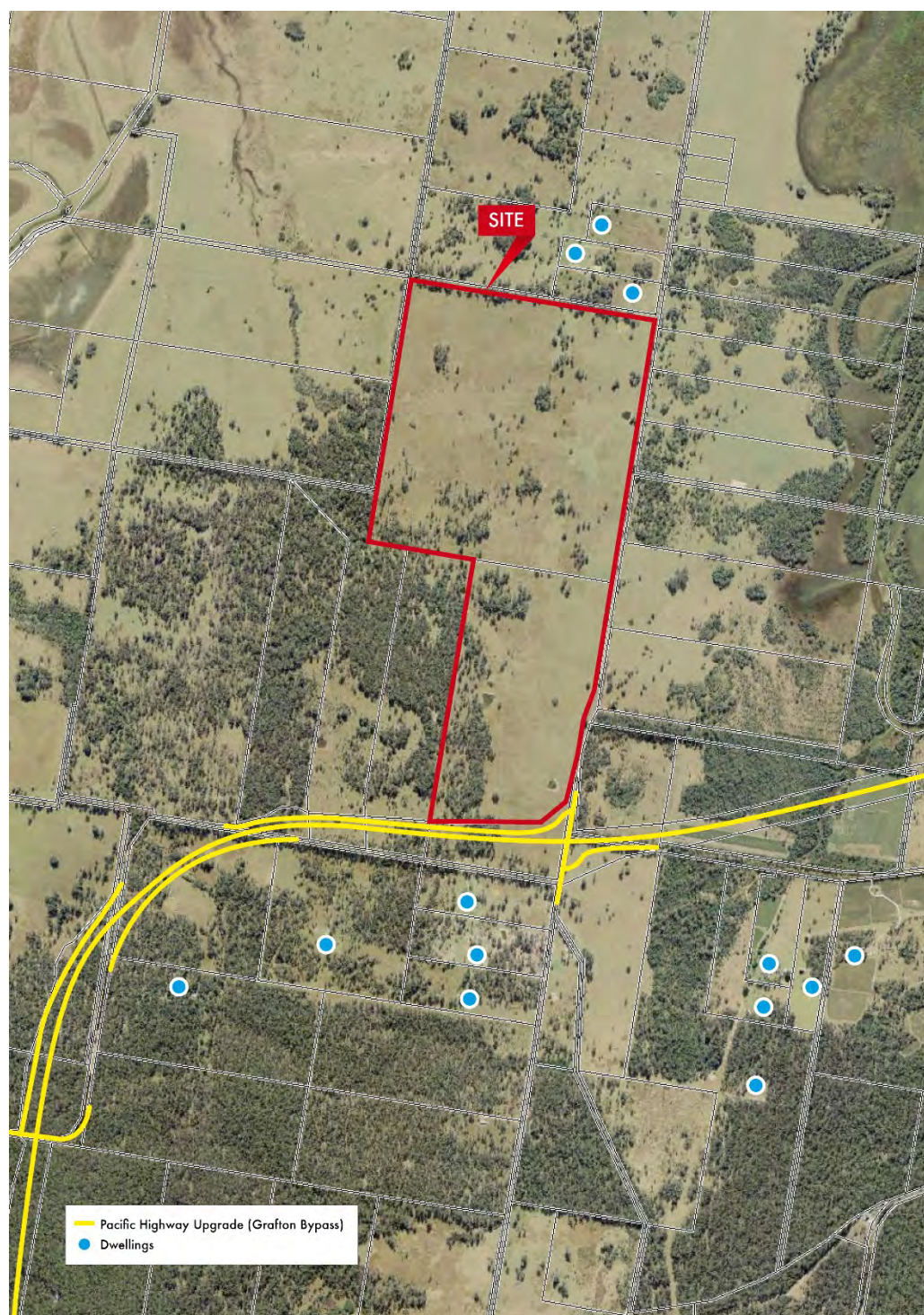


Figure 2 - Site

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It has a frontage to Avenue Road of approximately 2.2 Kms, a northern boundary to an unformed Crown road of 1.1 Kms, a western boundary to adjoining private property and unformed Crown roads of 2.3 Kms and a southern boundary of 627 metres to the Pacific Highway under construction including the relocated Old Six Mile Lane.

1.5 THE PROPOSAL

The proposed development comprises the construction of a new correctional centre designed to accommodate 1,700 male and female inmates comprising 14 different cohorts including but not limited to:

Classification	Number	Gender
Maximum Security Classification Inmates	1,000	Male
Maximum Security Classification Inmates	300	Female
Minimum Security Classification Inmates	400	Male
Total	1,700	

Other associated facilities include but are not limited to:

- Recreational oval, special accommodation units, administration, industries and educational facilities, workshops, staff amenities, visitor facilities, prisoner reception and health facilities (including beds and some diagnostic facilities), access, parking and utilities;
- An overall Gross Floor Area (GFA) of approximately 90,700 square metres;
- Secure perimeter fences to the two correctional precincts comprising concrete and anti-climb mesh fences with a Sterile Zone;
- Additional beds for remand/reception management and management of unforeseen contingencies such as a requirement to separate inmates;
- Associated support and ancillary buildings for the delivery of services (other than functions);
- Provision of integrated power, fire, general infrastructure and security & communications backbone;
- Provision of furniture, fittings & equipment (FF&E) to deliver the services and other functions.

Two distinct correctional precincts for the management of maximum and minimum security inmate cohorts are proposed with movement of staff, inmates and visitors managed through individual gatehouses.

These are located either side of central facilities such as parking areas, visitor arrivals areas and staff amenities.

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The facility has been designed to be legible for all users, engendering a feeling of personal safety. In providing the physical spaces requisite for the execution of day-to-day operations and achievement of high-level goals, the design results in efficiencies and minimised impact on the environment through the location of buildings and design of movement systems.

The design provides a campus-style layout for the three correctional centres – male maximum, female maximum and male minimum and positions each centre on either side of the existing ridgeline running on a north–south axis through the Site. This ridgeline offers views to Glenugie Peak in the distance to the south, captured by the proposed cultural centre located between the male maximum and female maximum centres. Views to this significant feature are symbolic and meaningful to locals, and particularly for the Indigenous community.

Each centre is designed with a ‘spine’ or ‘street’ of support facilities, and a number of neighbourhoods of residential accommodation. These spines are set out along a gentle curve, generated from the existing topography and natural landforms.

The male maximum and female maximum centres are enclosed by one maximum-security perimeter and designed with physical, visual and acoustic separation between male and female inmates. This is achieved through the natural ridgeline layering the support facilities spines for each centre on either side of a green space. A secure line between each of the centres prevents inmates from accessing the other.

Each centre is accessed from the support facilities spine through a series of managed secure officer posts in lieu of a central movement control post, facilitating ease of movement into the campus facilities (e.g. recreation, industries, programs and education). The facilities are set out along a curved communication spine determined by functional requirements, acting as the ‘wayfinding’ across the facility. This pathway network provides a functional solution aligned with operational needs and accommodates natural ‘desire’ lines of pedestrians. Movement areas are observed by staff points, and movement within the centres’ shared spaces is controlled using buildings and landscape elements to define circulation routes.

The landscape design follows the campus style design approach being integrated into the existing local environmental context. Areas of existing vegetation are retained, wherever possible, and extensive screen planting of endemic trees, shrubs and grasses to the boundaries, the drainage lines, and the hill to the north. The entrance road planting of informal groves of local trees, retains the local rural character.

Secure perimeter fences would be provided to the two correctional precincts comprising 6.0m high concrete and anti-climb mesh fences with a secure sterile zone. Detection monitoring and CCTV coverage of perimeter security zones will be provided with security lighting.

A single point of entry and control would be provided from Avenue Road. Internal access roads and parking carparking for approximately 700 car spaces comprising:

- 350 staff car parking spaces and 10 motorcycles spaces
- 350 visitor car parking spaces and 10 motorcycles with a standover space with an overflow area accommodating a further 150 cars

A bus stop close to the visitor reception area would be provided with provision for bus

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NorthernPathways propose to design, build and operate a Membrane Bioreactor (MBR) Waste Water Treatment Plant to accommodate inmates, staff and visitors and all peak load periods. The proposed MBR system is the combination of an activated sludge biological treatment plant with Ultra filtration membrane process utilising a suspended growth bioreactor producing Class A+ potable water. This water would be reticulated as recycle water through the facility, with excess directed to travelling surface irrigators. The plant would be fully automated and be remotely monitored for additional offsite technical support.

The facility would be constructed in one stage with occupancy managed by gradual ramp up to capacity over a period of 6 months. The facility will commence construction pursuant to the Stage 1 consent issued in March 2017 and, subject to works under a Stage 2 DA, is due for completion in early 2020 ready for occupation from July 2020.

The construction and delivery of the project will be undertaken in coordination with other major projects in the region, namely the Pacific Highway upgrade currently under construction by the Roads and Maritime Services and the additional bridge crossing of the Clarence River in Grafton.

Detailed consideration has been given to construction planning and management.

It is estimated that some 580 jobs would be provided at the facility with approximately 350 of these being custodial officers. During construction, some 1,100 jobs would be provided.

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1.6 PURPOSE OF THIS REPORT

This report has been prepared to accompany the Stage 2 Development Application for the New Grafton Correctional Centre (NGCC) at Avenue Road, Lavadia.

The report responds to the following requirements:

SEARs	Reference within this Report
3 Built Form and Urban Design: - Address the height, bulk and scale, and setbacks of the proposal in relation to the locality and the surrounding development, topography, having particular regard to the surrounding locality to the north. - Address design quality, with specific consideration of the overall site layout, setbacks, building form, materials, colours and perimeter landscaping.	Section 4 & 5
4 Visual Impacts: - Provide a visual impact assessment and visual analysis of the proposal from key viewpoints for both day and night time conditions. - The assessment must identify, assess and document views from visually sensitive areas including residential properties, the public domain and from the new Pacific Highway corridor that could potentially be impacted by the proposal.	Section 6
Condition of Consent for Concept Proposal	Reference within this Report
PART A - Condition A10 Future buildings and structures on the site must not exceed 12 metres from finished ground level, unless it can be demonstrated that visual impacts can be appropriately mitigated.	Section 6 Visual Impact Assessment – Commentary.
PART B - Condition B2 The location, height & design of future buildings and structures must be generally consistent with the development principles and development parameters identified in the EIS.	Section 1.4, 1.5, 2, 4.1 & 4.2

2 DESIGN CONCEPT

The NGCC is located approximately 12.5 kilometres southeast of Grafton within the Clarence Valley Local Government Area at 313 Avenue Road, Lavadia. The Site is zoned RU2 - Rural Landscape under the Clarence Valley Local Environmental Plan 2011.

The Project Site will be bound in the south by the new Pacific Highway and re-routed Old Six Mile Lane. Avenue Road will pass over the Pacific Highway and connect with Wants Lane.

The Grafton bypass portion of the upgraded Pacific Highway project (by Roads and Maritime Services) will, in addition to the reconfigured Old Six Mile Lane, form the southern boundary of the Project Site once completed in approximately 2019. As part of that project, Avenue Road will pass over the Pacific Highway and the intersection of Avenue Road and Old Six Mile Road will be upgraded to improve local access, without direct connection to the highway.

The Clarence River runs for 380 kilometres through the Clarence Valley from the Great Dividing Range to the Pacific Ocean near Yamba and Iluka. A number of tributaries run through the valley north of the Project Site including Swan Creek, Deep Creek, Coldstream River and Chaffin Creek. A chain of swamps flow into the Clarence River near Lavadia past the Project Site. Watercourses track through the site, between the undulating levels (Refer Figure 6). The watercourses are met by dams downstream which are currently used for farming on the site.

Clarence Valley Regional Airport, also known as Grafton Regional Airport, is located approximately three kilometres from the Site. It has 24-hour operations with no curfew. The main runway is equipped with full lighting services to international standards. Regional Express Airways (Rex) operates regular services to and from Sydney. It is also utilised by the Royal Flying Doctors Service and Rural Bushfire Service.

A number of State Forests and other parks are located within the valley around the Project Site including Bom Bom State Forest, Newfoundland State Forest, Divines State Forest, Glenugie State Forest, Yuraygir Crown Reserve and Pine Brush State Forest.

2.1 LANDSCAPE CHARACTER AND VISUAL CATCHMENT

The site has been actively used for agriculture and is surrounded by rural hinterland and low-lying river plains. Avenue Road is the primary access road running along the eastern boundary with a bitumen surface and is a single carriageway. Established native trees and grasses line the road between the bitumen and the timber fence. The site is largely cleared for cattle grazing, though a number of mature stands of native trees have been retained.

There is a prominent ridge to the north of the Site and in the south-west. Across its length the site undulates from a high point of +35.00 metres Australian Height Datum (AHD) at the southernmost boundary to a low point of +15.00 metres AHD along Avenue Road. The land falls away in the north-west to +10.00 metres AHD with a permanent watercourse leading to the Clarence River. Refer to Figure 23, 24 & 25 - Existing Topography.

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Figure 3 – View from Avenue Road to Northern Ridgeline



Figure 4 – Site features. Remnant natural bush



Figure 5 – Vegetation on Avenue Road

Three neighbouring properties exist to the north of the Project Site, and one further dwelling to the south across Old Six Mile Lane.

Neighbouring allotments to the west of the Project Site are densely wooded, with only lots in the north-west cleared for agriculture. Allotments to the east are partially cleared, with signs of agricultural use.

Of the three properties to the north of the site, Residence 2 sits at a lower elevation approximately 50 metres from the northern boundary (Refer Figure 6), and the other, Residence 1, at a higher elevation approximately 250 metres off the Project Site boundary (Refer Figure 6). The remaining residence is a further 140m away from the boundary than Residence 1. From its higher elevation, Residence 1 has an opportunity to view to the south across the Project Site and district. Views across the Project Site from the Residence 2 residence would be limited as a result of the lower elevation.

The house to the south of the site (Residence 3 on Figure 6) is located approximately 350 metres off the boundary and sits at the high point offering district views to the north across the Project Site. Watercourses track through the site, between the undulating levels (Refer Figure 6). The watercourses are met by dams downstream which are currently used for farming on the site. (Refer Figure 6)

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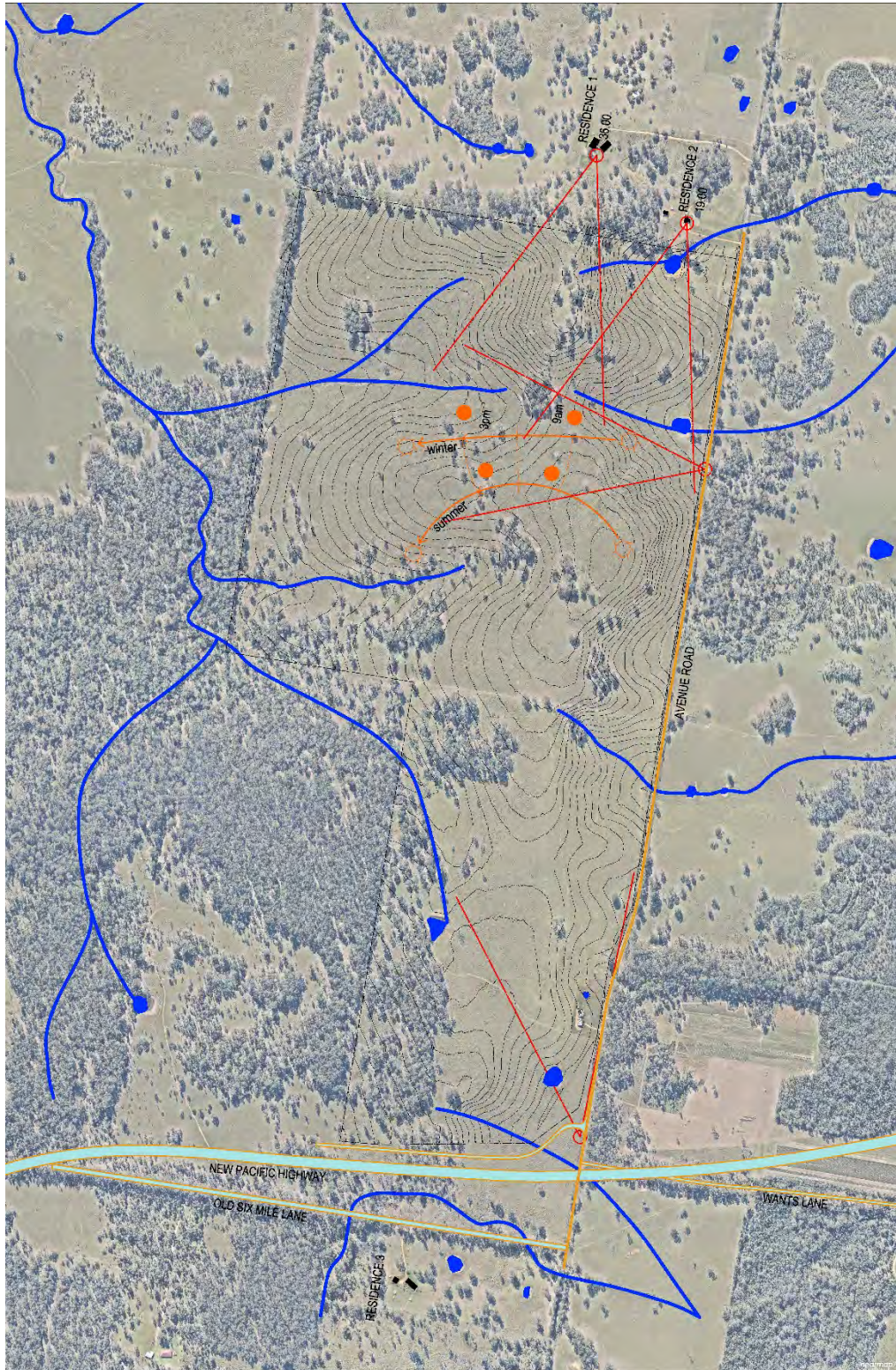


Figure 6 – Existing Site conditions

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3 DESIGN CONCEPT

The design was developed as a response to the local site conditions. It has been developed with consideration to how it fits within the broader landscape and with respect for the traditional owners.

Site investigations

The site has gently undulating terrain with a ridge line running approximately north to south. The site has been substantially cleared for use as grazing land. Ephemeral watercourses that drain to the east and west. There are copses of mature trees and large remnants of natural bush in the south west corner.

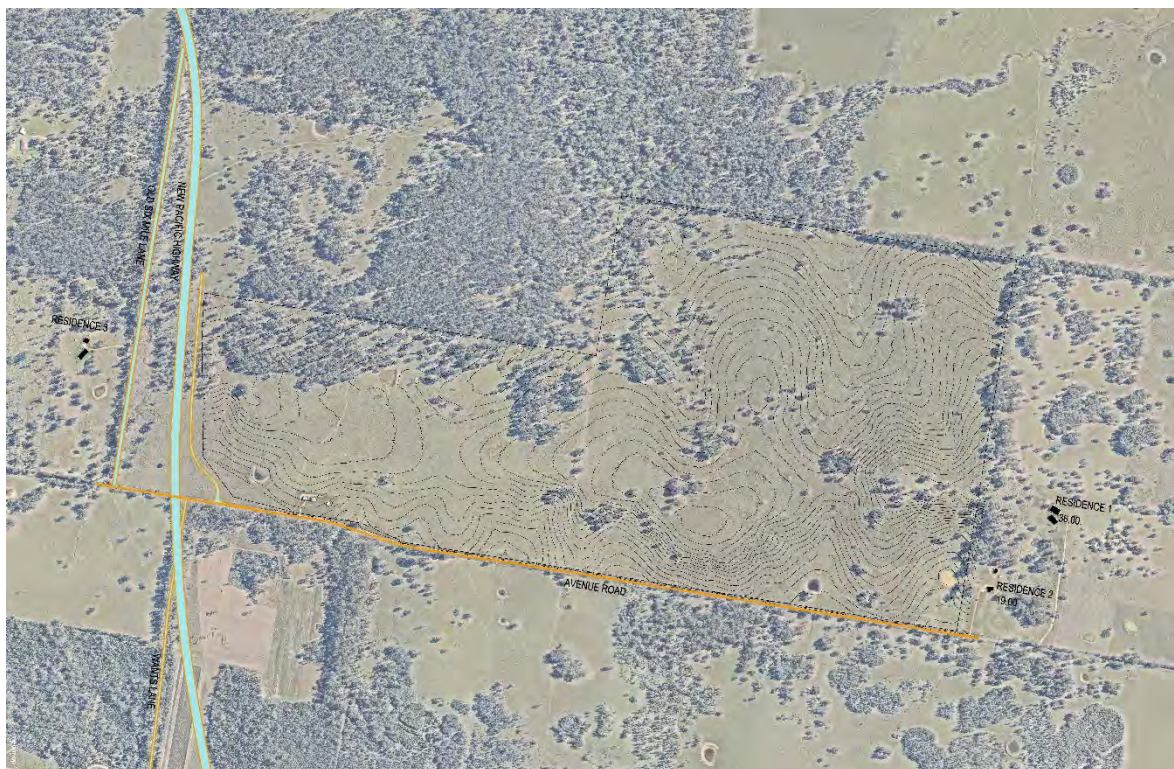


Figure 7 – Site aerial photo with contours

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Initial site investigations identified existing drainage patterns, the preferred entry point from Avenue Road and the location of neighbouring residences.

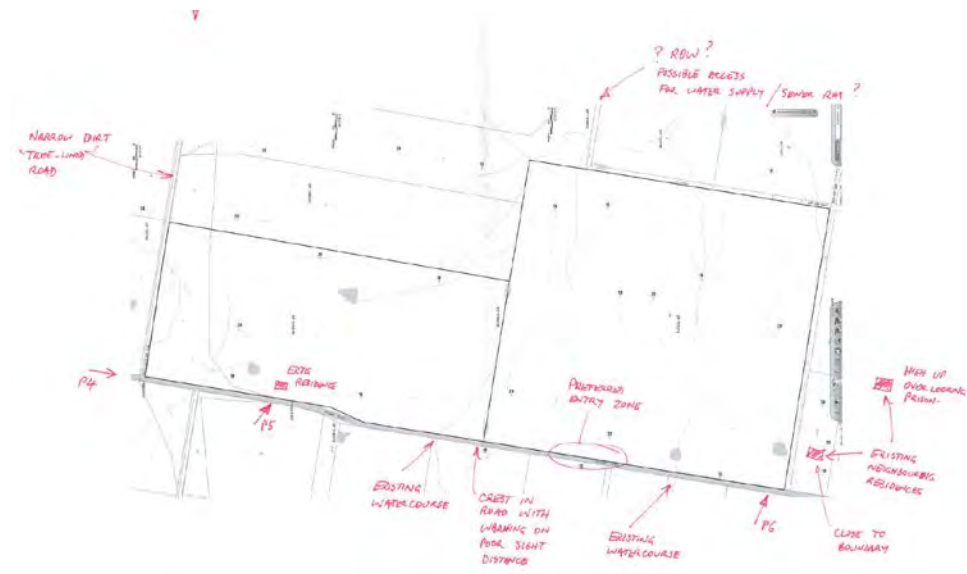


Figure 8 – Site plan with annotations following initial visit

These initial site investigations and site information lead to a proposed strategy for on-site stormwater management incorporating the ephemeral watercourses in existing gullies. Detention basins like billabongs would be located within the boundaries in landscaped buffer zones. These areas would be developed as semi-permanent wetland environments.



Figure 9 – Site plan with initial stormwater management concepts

Artwork inspiration



Figure 10 – Painting by Anthony Flanders

This painting by Anthony Flanders was the design inspiration for the new Grafton Correctional Centre. The painting was acquired by the Architect in the late 1990's, purchased through the Long Bay Correctional Centre Boom Gate Gallery. The artist is a Dungguttie man from the Northern Rivers region and was an inmate at Long Bay at that time. The painting depicts the different tribes separated by the watercourses.

The painting and the culture it represents informed the design response from the beginning to realisation. The indigenous philosophy of respecting the earth that sustains you is embodied in the design.

Contemporary quote from Anthony Flanders:

Colours I use relate to the earth. We belong to the earth, we do not own the land



Figure 11 – Conceptual sketch

The sketch shown above demonstrates how the concepts contained within the artwork have informed the approach to master planning. A design objective was to minimise the impact on the local environment, by utilising the natural features and landforms of the site.

The ridge forms a natural barrier separating the male and female centres, and locates the male minimum centre. Outside the secure perimeters, the natural gullies and watercourses separate the Centres from the carparks and the service areas. The landforms give direction to the sense of arrival and inform landscape concepts

Inside the secure perimeter, the metaphor that is the healing watercourse can separate men and women, functional precincts, the neighbourhoods, the active recreational areas from the passive recreational areas and runs through the cultural space.

4 DESIGN QUALITY

Address design quality, with specific consideration of the overall site layout, setbacks, building form, materials, colours and perimeter landscaping.

4.1 DESIGN PROPOSAL

In order to minimise the visual scale and bulk of this large scale development, both within the existing topographical conditions and the rural landscape, the facility has been separated into two zones:- the Maximum Security Centre, surrounded by a secure perimeter wall to the north, and the centrally located Minimum Security Correctional Facility, surrounded by a fence.

These two facilities are physically and visually separated by the entrance and carpark zone, which sits between both, with significant plantings of large scale trees, mature cabbage tree palms, and shade planting within the carpark.

The Maximum Security Centre is located towards the northern part of the site, with the Female and Male components of the Centre sitting either side of the main north south ridge line, with the built forms dropping down the slope either side of the ridge some 4-5 metres in level, reflecting the natural fall of the land, and reducing any visual dominance that might occur with large scale buildings occurring ring on one level.

The central zone or cultural space, which separates the two maximum security facilities, sits on the existing ridge, and is planted with locally ubiquitous large scale deciduous flowering Jacaranda, as well as a paperbark 'forest'.

The Minimum Security Centre is centrally located within the site, also falling in level some 4 metres from north to south, reflecting the fall in levels of the existing topography. This facility has significant internal plantings large scale trees within, and groves of medium scale local evergreen trees to its edges.

The physical separation of the facilities, and their change in level to reflect the natural topography, coupled with material selection that reflects the 'rural vernacular', a colour palette of soft muted greys, blues and greens, and significant buffer plantings and other intermediate plantings both within the Secure perimeters and outside the APZ, results in a large scale development with minimal visual impact on the three local residences, when viewed travelling along by car from the Pacific Highway in the south, or when travelling along Avenue Road.

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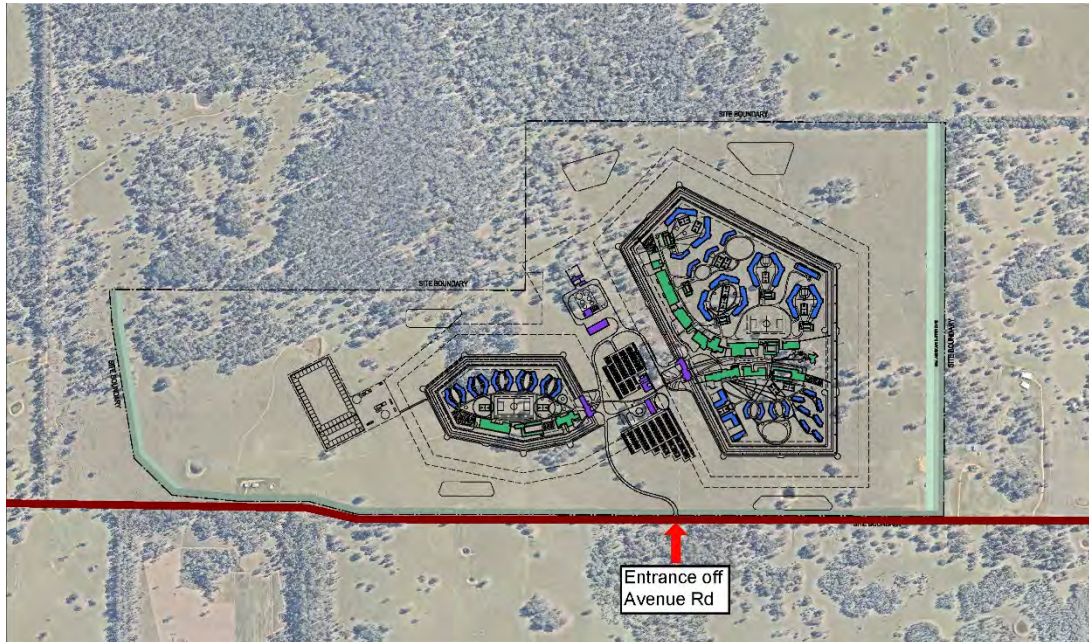


Figure 12 – Aerial view of the site, with NGCC design overlaid



Figure 13 – Image of three centres within the two secure perimeters

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4.2 BUILT FORM

The Architectural expression for NGCC is derived from the rural vernacular, employing simple building forms and robust functional materials to provide shelter and to support the operational needs of the correctional complex. Buildings are of human scale and have a welcoming appearance.

The design of each building within NGCC adheres to an overarching campus design language, articulated through form, scale, proportion and materiality. Building forms are simple and uncluttered, minimising the number of roof planes. Individual buildings are one or two storeys in height. The external materials palette is principally precast concrete and profiled metal wall cladding and roofing. This consistent design language provides unity and order across the complex.

The scale of buildings within the NGCC complex is minimised by limiting the height to two storeys and articulating the building form. There is consistency of building scale, volume and mass across the site, various functional areas being co-located where appropriate to support this approach. For example:

- The accommodation / residential buildings are grouped in each Centre to form neighbourhoods. Consolidation and repetition of the building forms contributes to visual balance and order.
- Support buildings in the spine or street of each of the three centres are laid out to form a visually continuous element. The building forms are of similar scale, articulated to create the appearance of a farm building ensemble.



Figure 14 – Male Minimum Security Centre

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4.3 VISUAL BALANCE AND AMENITY

Visual balance is achieved through the scale and proportion of buildings relative to open spaces within the overall development.

The design of external spaces, their purpose, location and size, has been integrated with the site planning. Buildings are set out with regard for the size and aspect of open spaces, ensuring a sense of openness across the site and creating view corridors beyond the secure perimeter. The various ensembles of buildings and their disposition across the site balance appropriate separation to create functional external spaces and consolidation of the overall development zone

The colour palette is low key, using the rural vernacular. The external perimeter barriers are concrete and galvanised steel. Buildings are a mix on natural concrete, zincalume cladding with signature colours selected from a muted colour palette. This subdued approach respects the broader rural landscape in which the facility sits and will create a calm environment within the centres.

Metal Cladding Colour Palette		
 DEEP OCEAN®	 IRONSTONE®	 MANGROVE®
 PALE EUCALYPT®	 WALLABY®	 Zinc™

Perimeter Fence Finishes			
			Natural concrete finishes
			Galvanised fence

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Figure 15 – Maximum Security Centre - Female



Figure 16 – Maximum Security Centre - Male

5 THE PROPOSAL AND THE LOCALITY

Address the height, bulk and scale, and setbacks of the proposal in relation to the locality and the surrounding development, topography, having particular regard to the surrounding locality to the north.

Height, bulk and scale

Buildings

Buildings within the NGCC are a mix of single and two storey volumes, with a maximum height of 10m above finished ground level.

There is consistency of building scale, volume and mass across the site, with various functional areas being co-located where appropriate to support this approach. For example:

- The accommodation / residential buildings are grouped in each Centre to form neighbourhoods. Consolidation and repetition of the building forms contributes to visual balance and order.
- Support buildings in the spine or street of each of the three centres are laid out to form a visually continuous element. The building forms are of similar scale, articulated to create the appearance of a farm building ensemble.



Figure 17 – Site plan showing site section locations

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Figure 18 – Site Sections 01 & 02

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Figure 19 – Site Sections 03 & 04

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Secure perimeter

Each Centre is fully enclosed by a secure perimeter fence.

The secure perimeter comprises two fences, 5m high, both topped by a 900mm diameter anti-climb drum, creating a 6mH visual barrier.

The Maximum Security Centre external fence is precast concrete, and the internal fence is mesh. Both the external and internal fences of the Minimum Security Centre are mesh.

The secure perimeter fences will be the principal built element of the NGCC visible from the site boundaries and beyond, screening the buildings within from the public domain and neighbouring properties.

The landscape buffer zones which bound the northern, eastern and southern parts of the site are provided to enhance the visual screening along these boundaries.

The location of the Maximum Security Centre in the northern portion of the site, places it in close proximity to the northern neighbours. A 50m wide landscape buffer zone will substantially reduce the opportunities for vision of the perimeter walls from these sites. This planting will enhance the existing natural landscape ensuring the visual impact of the NGCC is minimised.

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Setbacks

The NGCC comprises a Maximum Security and a Minimum Security Correctional Centre, each enclosed by a separate secure perimeter.

Consideration of alternative siting for the two Centres occurred early in the RFP period. The State brief required two centres, and the siting was driven by the respective area required for each Centre. The larger Maximum Security Centre was located in the larger northern part of the site, and the smaller Minimum Security Centre located in the narrower southern part of the site.

This enables provision of a suitable buffer zone around each centre, and optimises retention of existing vegetation.

The two centres are located as close as security and operational requirements permit in order to consolidate the development zone.

Screen planting will be provided at the site boundaries, in accordance with the Stage 1 DA. Refer to the **Landscape Report** prepared by Lorna Harrison Landscape Architect for further detail.

A 70m cleared zone surrounds each Centre for security purposes. In addition, an Asset Protection Zone (APZ) 100m wide, measured from the secure perimeter, extends beyond this cleared zone to provide protection for the facility from bushfire hazards.

Both centres are located with generous buffer zones to the site boundary to maximise separation from the adjoining properties. These setbacks not only minimise the visual impact of the facility on the adjoining properties but offers significant benefits in regard to both noise and light improving the amenity for the northern neighbours.

Figure 20 illustrates the distance between buildings on the neighbouring property and the Maximum Security Centre. The setback from the northern boundary to the outer secure perimeter fence is 310metres, and the distance from the northern boundary to the residences is in the order of 250m or more. This setback will be enhanced by screen planting and retention of existing vegetation where possible.

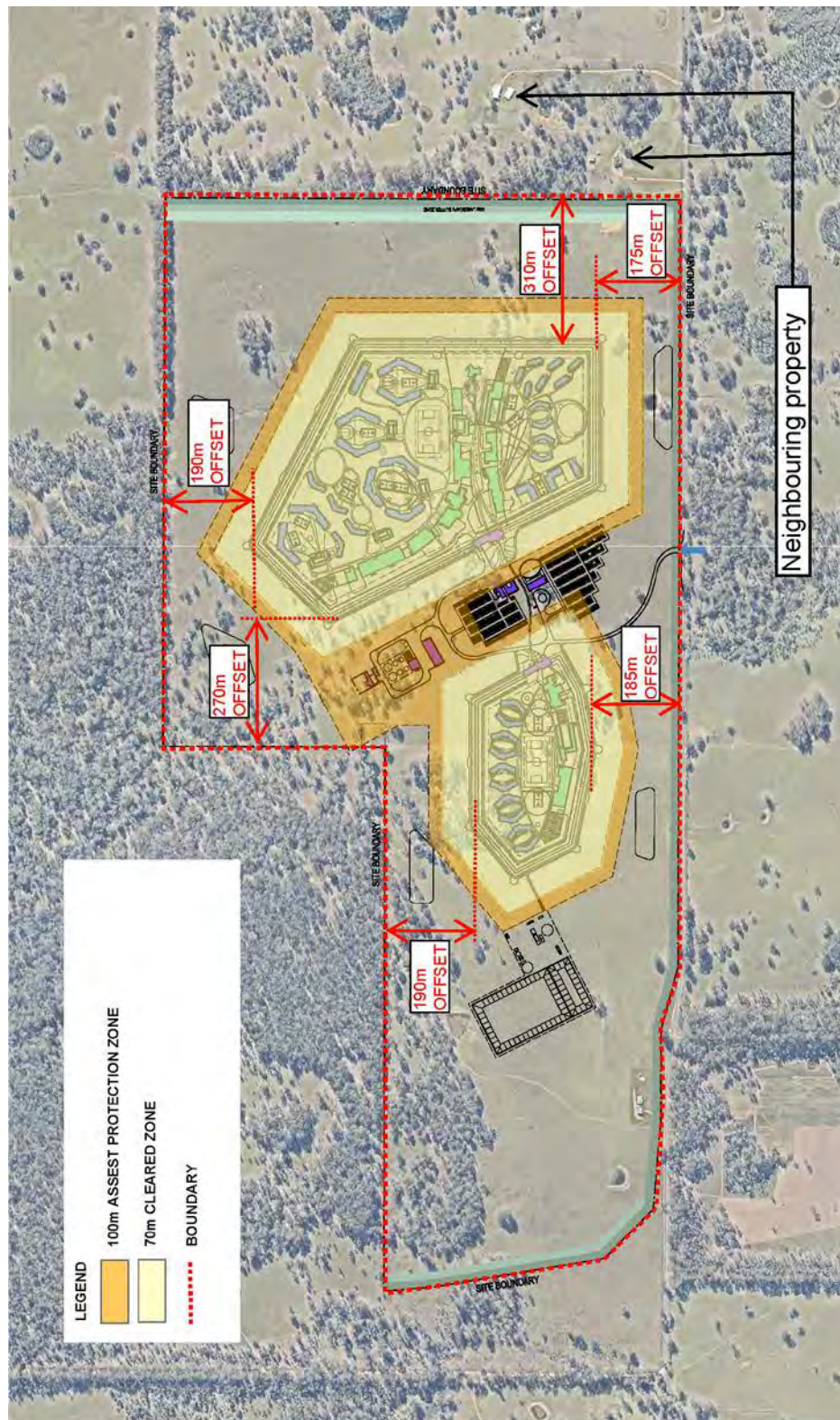


Figure 20 – Site setbacks

New Grafton Correctional Centre

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Topography (site and building levels)

There is a prominent ridge to the north of the Project Site and in the south-west. Across its length the Project Site undulates from a high point of +35.00 metres Australian Height Datum (AHD) at the northernmost boundary to a low point of +15.00 metres AHD along Avenue Road. The land falls away in the north-west to +10.00 metres AHD with a permanent watercourse leading to the Clarence River. Refer to Figure 21, 22 & 23 - Existing Topography.

The NGCC site masterplan and civil engineering and landscape design strategy is integrated with the existing site topography to minimise physical and visual impact on the landscape. The design concept aligns spines of support facilities along the existing ridgelines, and residential neighbourhoods step down from the ridge in alignment with the existing contours.

Within the Maximum Security perimeter, the Male Maximum and Female Centres are located either side of the primary ridgeline, and the natural topography forms a physical and visual separation between the two centres.

Outside the secure perimeters, the earthworks design transitions to seamlessly merge with the existing drainage lines.

The design principle of respecting the land and showing deference to the local environment has directly affected the building form, ensuring that the NGCC design achieves visual balance within the broader landscape

The buildings and site levels have been designed to adhere closely to the existing natural contours. The following images represent the proposed building floor levels as they relate to the existing site RL's. They illustrate this principle and demonstrate the design intent to integrate with the existing environment.

New Grafton Correctional Centre
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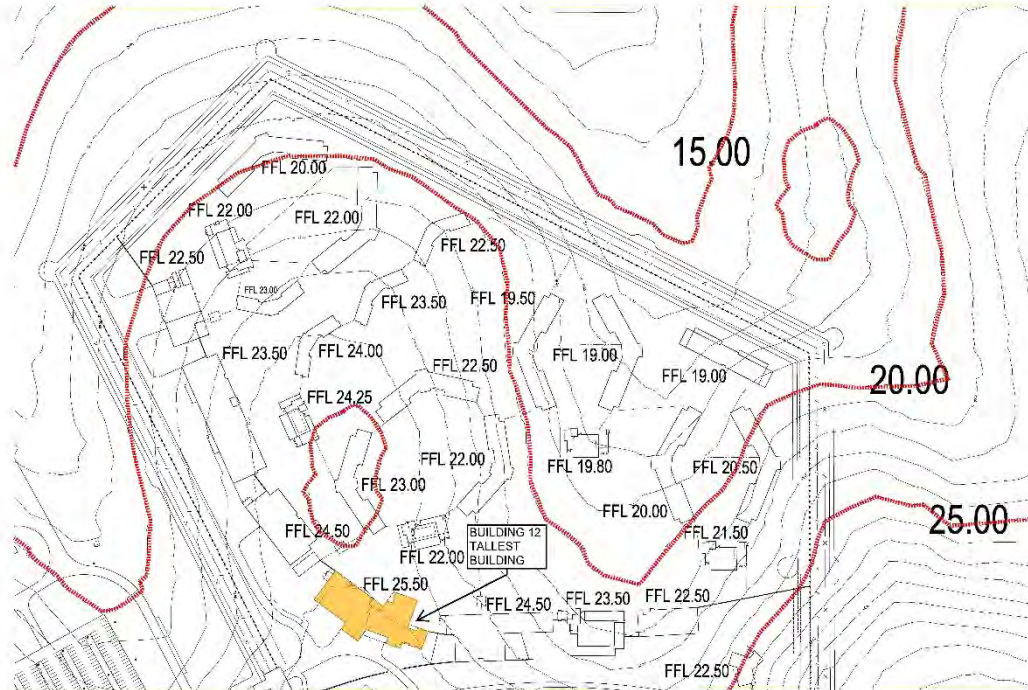


Figure 21 – Male Maximum

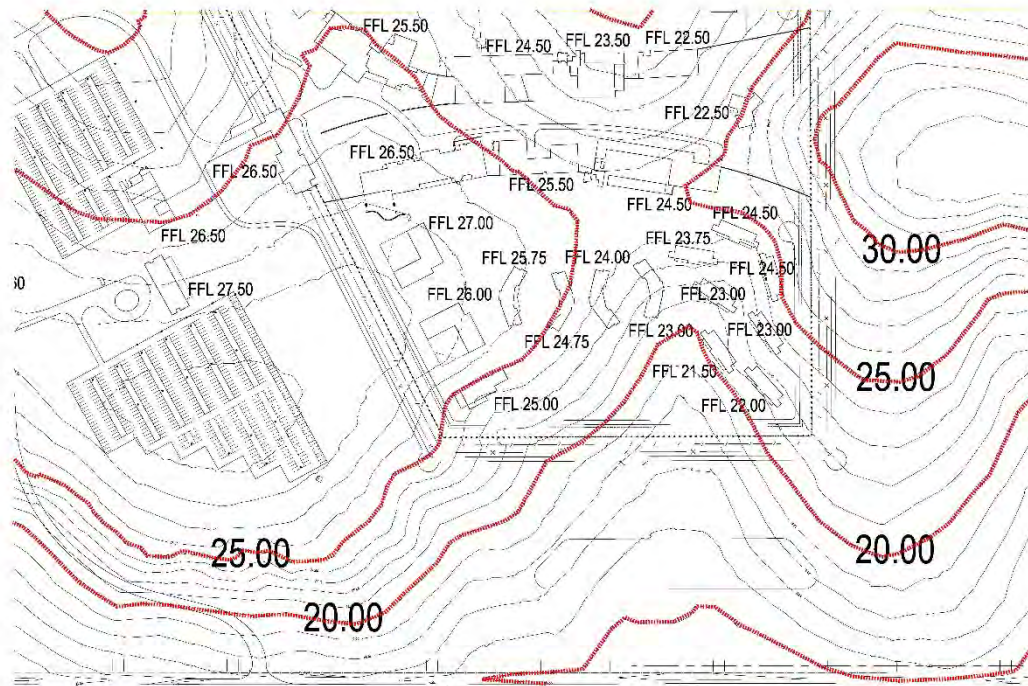


Figure 22 – Female Maximum

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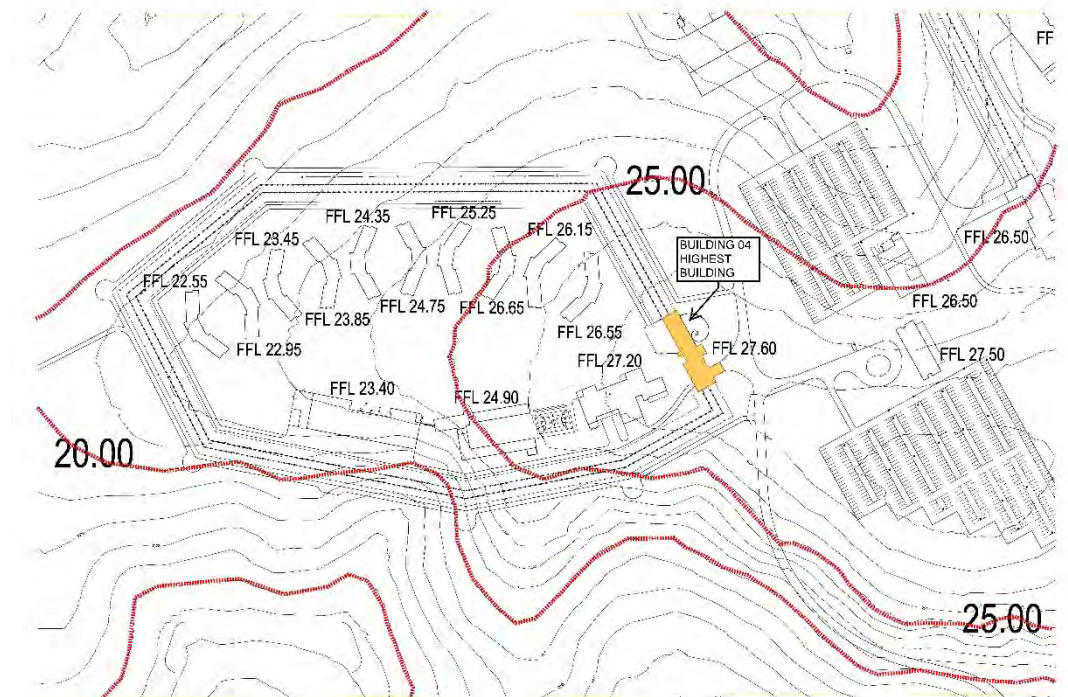


Figure 23 – Male Minimum

6 VISUAL IMPACT ASSESSMENT

Provide a **visual impact assessment and visual analysis** of the proposal from key viewpoints for both day and night time conditions. The assessment must identify, assess and document views from visually sensitive areas including residential properties, the public domain and from the new Pacific Highway corridor that could potentially be impacted by the proposal.

Overview

This section of the report aims to review and define the character and viewpoints to the proposed Correctional Centre and assess the visual impacts of the proposal on the community and landscape of the area.

Landscape character and visual assessment are equally important.

Landscape character assessment helps determine the overall impact of a project on an area's character and sense of place.

Visual impact assessment helps define the day to day visual effects of a project on people's views.

The visual impact assessment identifies the impact of the project on select viewpoints.

On the northern boundary there are three properties with dwellings. Residence 1 sits approximately 175m from the boundary, Residence two 50m. The remaining residence is a further 140m away from the boundary than Residence 1. Being the closest to the site, Residence 1 & 2 will form the basis for this assessment from the northern boundary. The existing Avenue Road runs along the full length of the eastern boundary. This road is the subject of future upgrade and widening. There are no adjacent residences along this boundary.

On the southern boundary, the Pacific Highway is being upgraded as part of the Pacific Complete project. It is understood that at the point it passes our site the Pacific Highway will be in cut. As Avenue Road heads south it will be elevated to pass over the Pacific Highway. The nearest residence to the south is approximately 500m from the site, 1.3km to the development and sits beyond the new Pacific Highway.

The properties along the western boundary consist of heavily vegetated areas and agricultural land. No residences existing along this boundary.

The viewpoints are selected to assess the positions around the site and adjoining properties from which the facility will be visible.

The visual impacts of the project were assessed from 4 viewpoints around the property boundary and from adjoining residences.

Commentary

The secure perimeter fences will be the principal built element of the NGCC visible from the site boundaries and beyond, screening the buildings within.

The Minimum Security Gatehouse (Building 04) will be the highest building on the site with a finished floor level of RL 29.60 and a ridge line of RL36.50. It has an effective height of 8.95m above finished ground level. This building is sited 290m from the site entry point. At Avenue Road the entry RL is RL 17.00 the rise in the land to this first building is 12.6m. This building is 1km

New Grafton Correctional Centre **Built form and visual amenity**

from the nearest residence on the northern boundary and will be shielded from view by the ridgeline and buffer planting.

The tallest building on the site will be the Maximum Reception / Health (Building 12). It will have an effective height of 10m above finished ground level however its ridge height will be lower than Building 04 at RL35.50. This building sits well within the Secure Perimeter.

Landscaping and Tree Planting

The opportunity exists to establish landscape buffer zones to the Project Site boundaries to mitigate views to the development outside the APZ.

The densely vegetated buffer zones contain planting of endemic native trees, shrubs, grasses and groundcovers. These zones will be fenced to ensure maintenance activities of other open space areas of the centre do not impact the planting. With the use of endemic species, the buffer zone planting will appear as a natural extension to the forested areas immediately adjoining the site, including the roadside planting along Avenue Road and the heavily wooded lots to the west and east.

The increased visual separation and screening provided by the landscape buffer will reduce any typical adverse public perception towards correctional facilities, and minimise the overall visual impact of the facility.

The extent of the planting and the species selection is designed to provide an effective softening of the visual impact of the development from the surrounding viewpoints. The screen planting will be further enhanced by the retention of existing vegetation where possible.

The proposed planting to the landscape buffer zones reflects the Dry Sclerophyll Forest communities in the immediate vicinity.

As well as providing visual screening the landscape buffer zones also offer ecological value to the Project Site. The native plantings will enhance biodiversity covering areas that have previously been cleared for agricultural purposes. The native species would offer habitat extension, feeding, roosting and shelter opportunities for local fauna.

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Figure 24 – Landscape concept

Viewpoints

Consideration has been given to views from the key vantage points around the site.

Avenue Road (The Public Domain)

Consideration has been given to a single access point from Avenue Road for all vehicle traffic, where it has been possible to maintain a reasonable distance from the north-east and south-east corners to minimise impacts both to Residence 2 to the north, and the road intersections to the south.

A 15m landscape buffer zone will run the full length of this eastern boundary broken only at the proposed site entrance road. It is at this point that the views to the facility will be most prominent.

Analysis of pre and post development views from the proposed site entry has been identified below to describe the visual impact from this location.

Neighbouring Houses to the North (Residential Properties)

The development is proposed to sit in the northern part of the site. Two residences exist on this boundary. One sits approximately 175m from the site boundary, one 50m.

The further of the two properties, identified as Residence 1 has views to the site which are screened by existing vegetation. The addition of the landscape buffer zone will provide a strengthening of the visual obscuration.



Figure 25 – View south towards site from Residence 1

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The closer of the two properties, identified as the Residence 2 currently has partially obstructed views into the area of the site upon which the development will sit.

Consideration has been given to mitigation of view impacts, particularly to Residence 1, but also to Residence 2, which is located closer to the northern site boundary and Avenue Road. This has been achieved by:

- Ensuring a maximum possible distance between the Project and the northern boundary allowing the existing ridge line within the Project Site to partially screen the development
- Providing landscape screening to the north of the APZ for 50 metres

Analysis of pre and post development views from the Residence 2 has been identified below to describe the visual impact from this location.



Figure 26 – View south towards site from Residence 2

New Pacific Highway Corridor

On the southern boundary Avenue Road will be elevated above its current levels to allow it to pass over the new Pacific Highway Views to the development from this vantage point will be most prominent. From this point, the development will be viewed from a distance of approximately 1km.

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A 30m landscape buffer is proposed to follow the alignment of the southern boundary providing visual screening to vehicles travelling along these new routes.

Analysis of pre and post development views from the south east corner of the site has been identified below to describe the visual impact from this location.



Figure 27 – Viewpoints



Figure 28 – View 01 Existing view from proposed entrance

The photo above is taken from the proposed entrance point to the site on Avenue Road. The photo is taken looking west towards the area of the site along which the entry road will run up to the carparks and the Maximum & Minimum Security Gatehouses

Figure 29 below shows the visual impact of the development in its proposed location without the benefit of the buffer planting. Visible above the ridge line is the top of the secure perimeter wall.

Figure 30 illustrates the benefit of the proposed 50m buffer planting. The selection of species with varying height canopies will effectively screens views of the facility from this location.

Results of the Lighting & Light spill studies undertaken by JHA are included in this report. These investigations detail the impacts of the lighting design at night. They illustrate that the lighting design will effectively contain the light spill so that at a distance of 65m the light levels will be reduced to an acceptable levels.

The distance to the facility from this view point on the eastern boundary is 175m at which point the light spill be even further reduced.

The boundary offsets, the lighting design and the presence of the 15m landscape buffer zone on this boundary will effectively mitigate the potential light spill impacts from the facility.

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Figure 29 – View 01 Facility from proposed entrance without 15m buffer planting



Figure 30 – View 01 Facility from proposed entrance with 15m buffer planting



Figure 31 – Existing view from adjoining Residence 2

The photo above is taken from the Residence 2 located on the northern boundary of the site. This residence is located approximately 50m from the boundary and 360m from the development. The photo is taken looking south west up the ridge towards the area of the site at which the Maximum Security Centre will sit.

Figure 32 below shows the visual impact of the development in its proposed location without the benefit of the buffer planting. Visible above the ridge line is the top of the secure perimeter wall and the tops of the roofs of buildings close to this section of the fence.

Figure 33 illustrates the benefit of the proposed 50m buffer planting. The selection of species with varying height canopies will effectively screens views of the facility from this location. The landscaped zone will also assist with mitigating any acoustic and light transfer from the facility to the residences.

Results of the Lighting & Light spill studies undertaken by JHA are included in this report. These investigations detail the impacts of the lighting design at night. They illustrate that the lighting design will effectively contain the light spill so that at a distance of 65m the light levels will be reduced to an acceptable levels.

The distance to the facility from this view point on the northern boundary is 360m at which point the light spill be even further reduced.

The boundary offsets, the lighting design and the presence of the 50m landscape buffer zone on this boundary will effectively mitigate the potential light spill impacts from the facility.

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Figure 32 – View of facility from adjoining Residence 2 without 50m buffer planting



Figure 33 – View of facility from adjoining Residence 2 with 50m buffer planting



Figure 34 – Existing view from adjoining Residence 1

The photo above is taken from Residence 1 located on the northern boundary of the site. This residence is located approximately 175m from the boundary and 485m from the development. The photo is taken looking south towards the area of the site at which the Maximum Security Centre will sit.

Figure 35 below shows the visual impact of the development in its proposed location without the benefit of the buffer planting. Due to the established trees between this residence and the site there are minimal views available of the development.

Figure 36 illustrates the benefit of the proposed 50m buffer planting. The proposed landscape zone will enhance the existing vegetation and further obscure what are already very well screened views. The landscaped zone will also assist with mitigating any acoustic and light transfer from the facility to the residences.

Results of the Lighting & Light spill studies undertaken by JHA are included in this report. These investigations detail the impacts of the lighting design at night. They illustrate that the lighting design will effectively contain the light spill so that at a distance of 65m the light levels will be reduced to an acceptable levels.

The distance to the facility from this view point on the northern boundary is 485m at which point the light spill be even further reduced.

The boundary offsets, the lighting design and the presence of the 50m landscape buffer zone on this boundary will effectively mitigate the potential light spill impacts from the facility.

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Figure 35 – View of facility from adjoining Residence 1 without 50m buffer planting



Figure 36 – View of facility from adjoining Residence 1 with 50m buffer planting



Figure 37 – Existing view from Pacific Highway corridor

The photo above is taken from the south of the site looking north towards the facility. From this location the nearest building will be around 900m away.

Figure 38 below shows the visual impact of the development in its proposed location without the benefit of the buffer planting. The top of the wall is visible in the distance above the ridge line.

Figure 39 illustrates the benefit of the proposed 30m buffer planting. The proposed landscape zone will obscure the views to the facility from this location. The landscaped zone will also assist with mitigating any acoustic and light transfer from the facility.

Results of the Lighting & Light spill studies undertaken by JHA are included in this report. These investigations detail the impacts of the lighting design at night. They illustrate that the lighting design will effectively contain the light spill so that at a distance of 65m the light levels will be reduced to an acceptable levels.

The distance to the facility from this view point on the northern boundary is 900m at which point the light spill be even further reduced.

The boundary offsets, the lighting design and the presence of the 30m landscape buffer zone on this boundary will effectively mitigate the potential light spill impacts from the facility.

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Figure 38 – View from Pacific Highway corridor without 30m buffer planting



Figure 39 – View from Pacific Highway corridor with 30m buffer planting

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Boundary Sections

The site sections below illustrate the offsets provided from the northern & eastern (Avenue Road) boundaries.

The planting provided at the boundaries enhances the natural buffer on the northern boundary. It assists to screen the facility, effectively softening the views from neighbouring properties and Avenue Rd

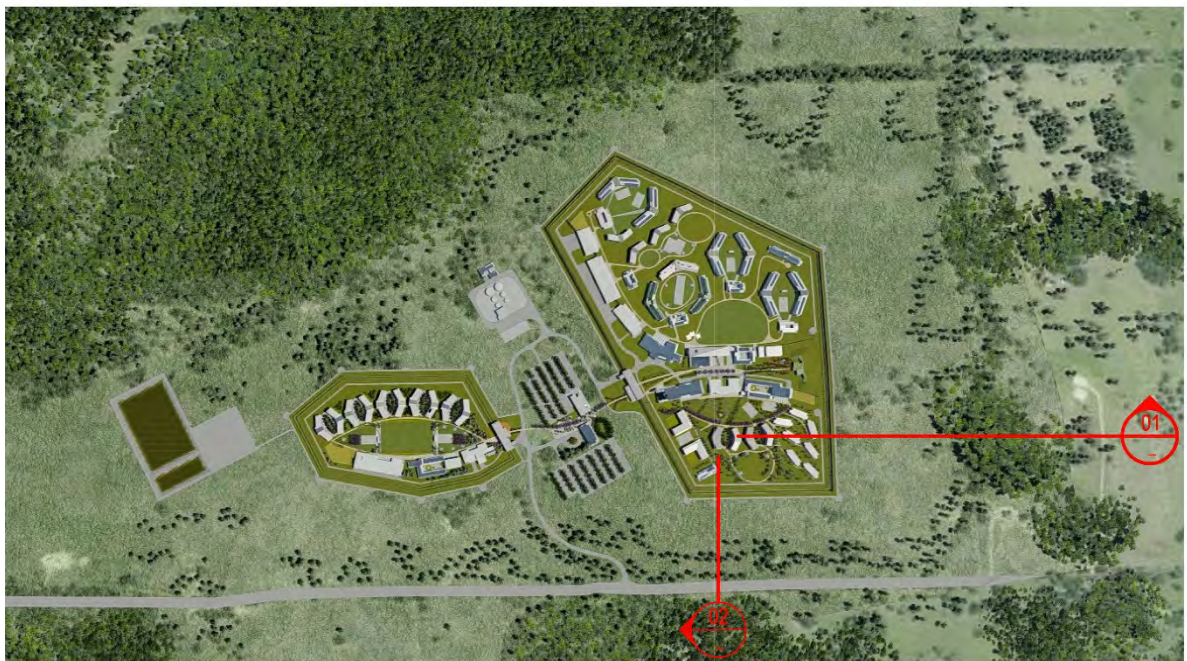


Figure 40 – Site plan showing boundary section locations

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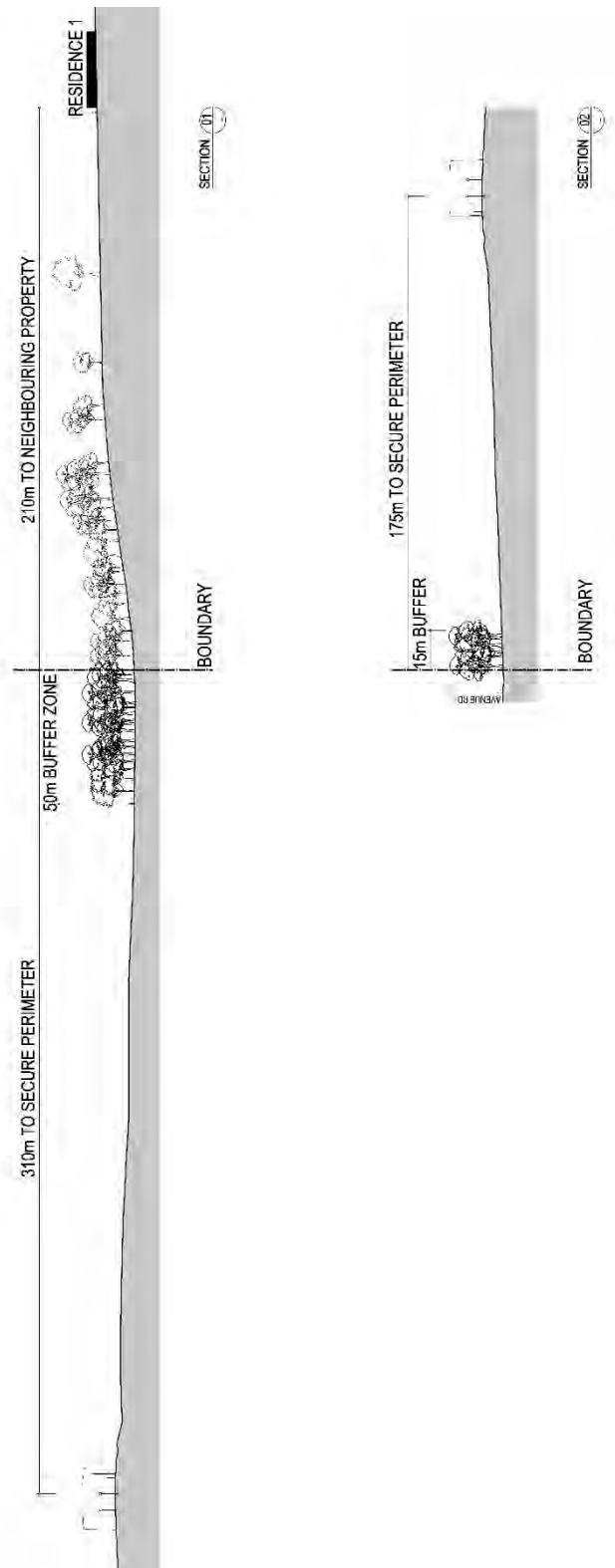


Figure 41 – Boundary Sections

Lighting & Light Spill

The design of the lighting has considered the impact on the surrounding areas and its design seeks to minimise the intrusion of light into the public domain.

The following statement and images have been provided by the JHA Consulting Engineers. It outlines the design approach and illustrates the light spill around the facility.

JHA has undertaken the detailed design and documentation of the external lighting associated with the Grafton Correctional Centre with a view of achieving full compliance with the project Environmental Impact Statement (EIS), the functional / security requirements of Project Co and compliance with the Australian Standard, AS4282, "Control of the Obtrusive Effects of Outdoor Lighting.

Attached are the results from JHA's analysis and design.

In summary JHA can confirm the following outcomes from the design:

- *The nearest neighbouring property is approximately 300 meters from the perimeter fence of the Correctional Centre*
- *The Correctional Centre is screened from direct view of the neighbouring properties by a 50m landscape buffer zone situated approximately 250 meters from the perimeter fence of the Correctional Centre*
- *The perimeter lighting consists of a LED luminaire mounted on a pole such that the top of the luminaire is no greater than 12 meters above ground. All such pole mounted luminaires are directed downwards and with no upward light component beyond the horizontal.*
- *Notwithstanding the screen planting provided by the buffer zone the horizontal illuminance from the perimeter lighting is calculated to be less than 0.1 lux at 65 meters from the perimeter of the Correctional Centre.*
- *Notwithstanding the screen planting provided by the buffer zone the vertical illuminance from the perimeter lighting is calculated to be less than 1 lux at 65 meters from the perimeter of the Correctional Centre.*
- *In JHA's professional opinion there will be no obtrusive spill lighting that will have a detrimental impact on the neighbouring properties.*

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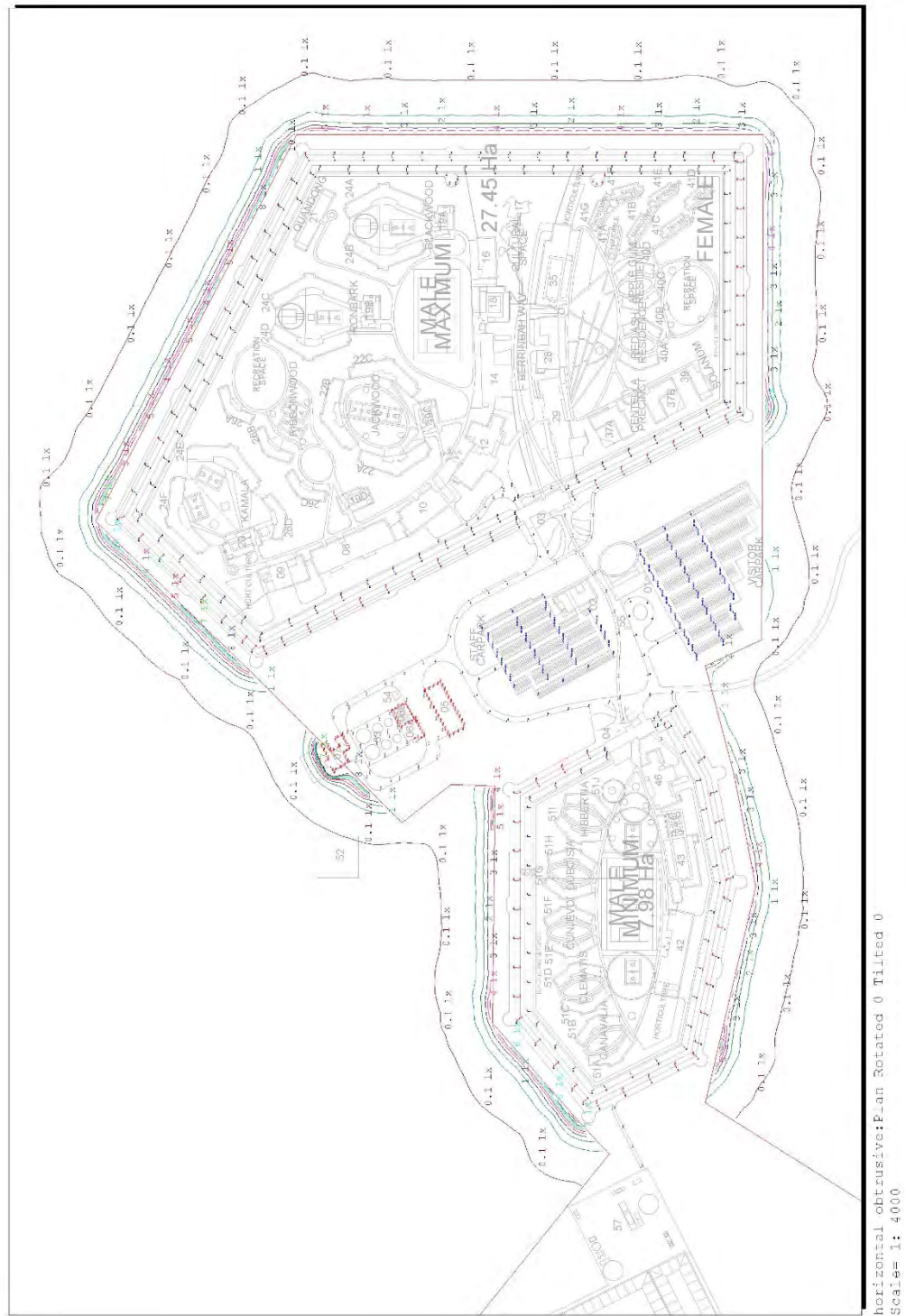


Figure 42 – Horizontal Light Obtrusion Calculation

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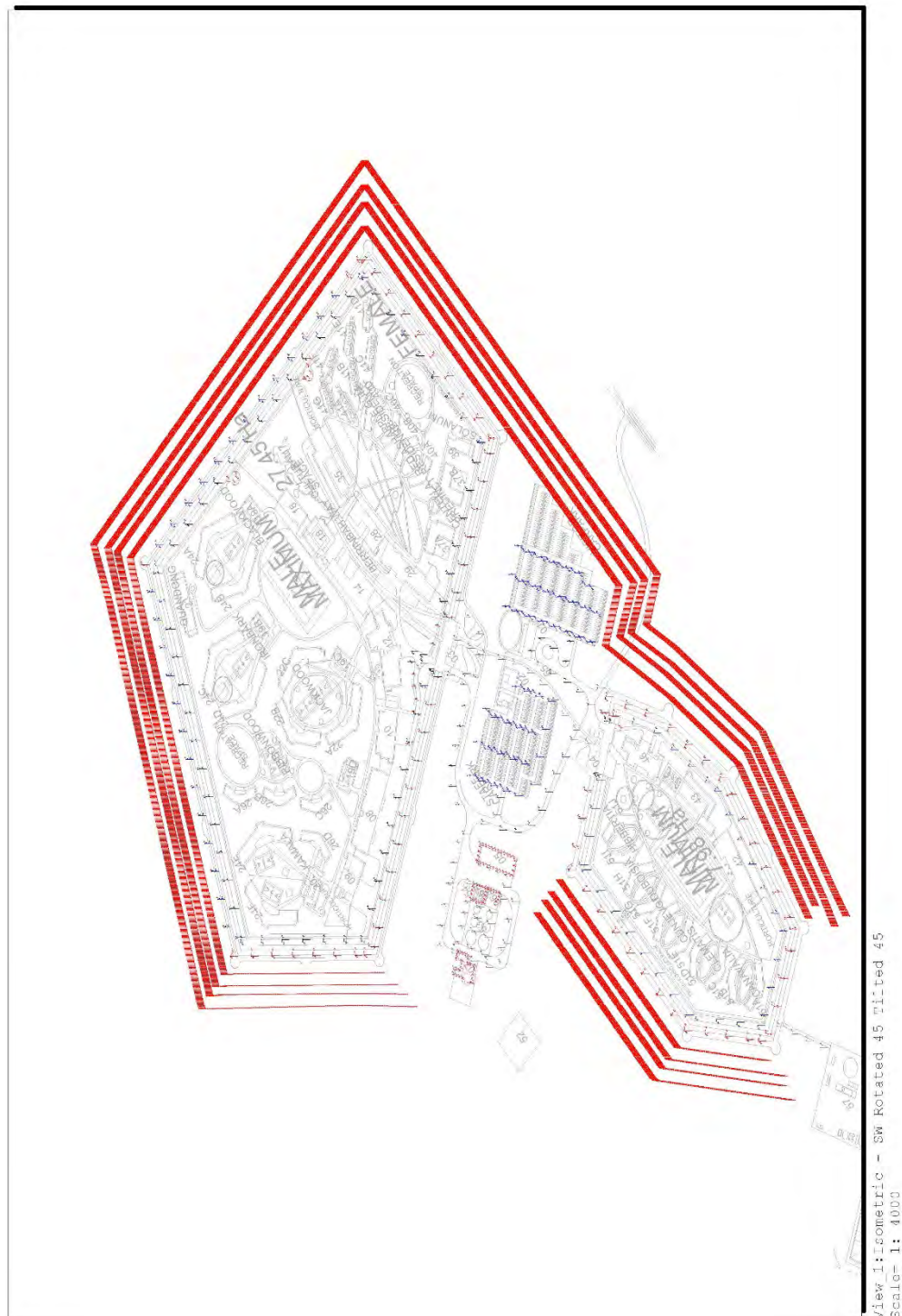


Figure 43– Light Obtrusion at 10m, 30m, 45m & 65m

7 CONCLUSION

This report has been prepared to address the requirements within the SEARs to describe the Built Form & Urban Design (requirement 3) and Visual Amenity (requirement 4) as they relate to the development of the NGCC project to be delivered by NorthernPathways.

The sites usage has been mainly agricultural. To the west is the Grafton airport. The surrounding area is a mixture of rural landscape, low lying river plains and native vegetation.

The development of this site to accommodate the proposed 1700 bed facilities will have an impact on the visual amenity of the surrounding area.

This report outlines the measures taken to alleviate the potential impact of this development through the effective use of landscape and a sensible approach to building and facility scale.

The introduction of landscape buffer planting around the northern, eastern and southern boundaries, the siting of the facilities to maximise offsets to the boundaries and a considered approach to civil design which refers to the natural topography are all adopted in this proposal.

The effect of these initiatives is to minimise the impact of this development on its immediate environment.

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APPENDIX A – NIGHTTIME LIGHTSPILL STUDIES

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APPENDIX B – FINISHES BOARD

New Grafton Correctional Centre
Built form and visual amenity



APPENDIX C – SITE IMAGES
