

GOLD COAST AIRPORT

Airport Impact Operational Study



Boyd's Bay Garden World Rezoning

Prepared by



CONSULTING

May 2011

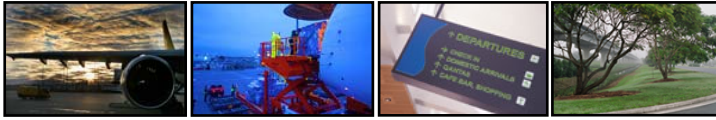


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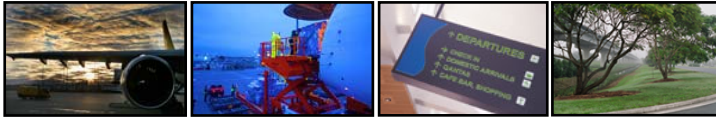


Acknowledgements & Usage Note

Review and Amendments Schedule – PLANIT CONSULTING PTY LTD

| | | Date |
|----------|----|----------|
| Author | BE | May 2011 |
| Reviewer | | |

| Amendments |
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1.0 Introduction

1.1 General Introduction

The Airports Act 1996 established a system for regulating specified Commonwealth-owned airports once they are leased to an airport-operator company. Part 12 of the Act provides for the protection of airspace around these leased airports to ensure safety and efficiency of airport operations.

The Act provides for the designation of prescribed airspace based on the airport Obstacle Limitation Surfaces (OLS) and surfaces specified in Procedures for Air Navigation Services – Aircraft Operations (Doc 8168, PANS-OPS) published by the International Civil Aviation Organisation (ICAO). This prescribed airspace is to be protected by regulations that allow the Department of Infrastructure, Transport, Regional Development and Local Government to control the erection and alteration of buildings or other structures, and any other activity that would intrude into the prescribed airspace.

The regulations come into effect when the airport-operator company provides and makes publicly available a “chart of prescribed airspace” (the prescribed airspace plan) for the airport. The regulations also allow the Secretary to declare additional prescribed airspace having regard to any changes in the OLS and PANS-OPS surfaces proposed in the approved Master Plan, any advice from the Civil Aviation Safety Authority (CASA), and any other matters the Secretary considers relevant.

These provisions apply to Gold Coast Airport as this airport is a leased federal airport. Prescribed airspace plans for Gold Coast Airport are published in the Gold Coast Airport Master Plan 2006.

This report relates to a proposal to rezone the subject lands from 1(a) Rural (Tweed LEP 2000) to 3(c) Commerce & Trade Zone.

Planit Consulting in conjunction with Gold Coast Airport Pty has identified the OLS and PANS-OPS surfaces in accordance with current Australian interpretation of ICAO Annex 14 – Aerodromes, and PANSOPS.

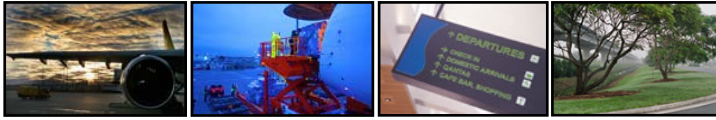
These are consistent with, but provide greater detail, than the equivalent drawings published by GCAL in the Gold Coast Airport Master Plan.

The purpose of this report is to provide Tweed Shire Council with sufficient information to approve the rezoning by demonstrating that it will not obstruct or present a hazard to aircraft operations and will have no impact on the safety, efficiency or regularity of existing or future operations at Gold Coast Airport.

1.2 Objective

The key objective of the study is to:

- To ensure that the future development of the Gold Coast Airport is not compromised by the rezoning of the land or its subsequent development.



1.3 Development Approval & Interaction with Local Planning Authorities

It is noted that the Gold Coast Airport Master Plan 2006 is an endorsed Master Plan in accord with the Airports Act 1996. A copy of this can be viewed at www.goldcoastairport.com.au. The subject site does not fall within the lands covered by the Master Plan however is still impacted by restrictions relating to height, lighting, acoustic and illumination.

It is envisaged as part of the rezoning that a site specific Development Control Plan (DCP) will be developed that will guide future development. This DCP will also include detail design considerations that will ensure that development proceeds on the site in harmony with airport operations. As such when development concepts are being designed regard will need to be given to design considerations contained within the DCP. Moreover, Tweed Council will be required to assess development applications having regard to the provisions of the DCP.

1.4 Obstacle limitation Surfaces

The general purpose of the Obstacle Limitation Surface (OLS) is to define the volume of airspace that should be free from obstacles in order to minimise the danger to aircraft during approach. These surfaces are of a permanent nature and comprise the reference datum that defines an obstacle. Anything above the vertical limits of the OLS is regarded as an obstacle.

The subject land is within the Gold Coast Airports operational airspace and is affected by the Obstacle Limitation Surface. The critical point is situated on the sites western boundary with the height limitation under the OLS being 13.75 meters AHD. It is noted also that the Procedures for Air Navigation Services – Aircraft Operations (PANS _OPS) is 14.46 metres at the north western edge of the site and gradually increases as the site is traversed in an easterly direction . The PANS OPS surface is not permitted to be penetrated.

The height limit in relation to OLS is depicted in the diagram below. The OLS has also been graphically depicted on the proposed concept plan which is included as Attachment 2.

It is noted that as part of the rezoning proposal it is proposed to adopt a height limit N2 or 13.6 metres across the whole of the site.



Figure 1- Extract of OLS Height limit - 13.75 metres at North Western corner of site. Please refer to Attachment for complete copy.

It is important to fully detail proposed height definitions under Tweed LEP as in some circumstances structures are permitted above the nominated 13.6metre height limit.

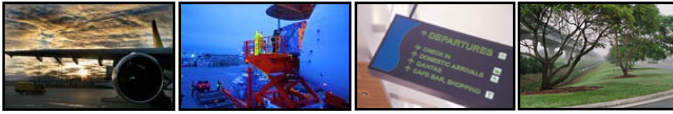
Building Height Definition under Tweed LEP 2010 is defined as:

building height (or height of building) means the vertical distance between ground level (existing) at any point to the highest point of the building, including plant and lift overruns, but excluding communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like.

Accordingly, whilst the general 13.6 metre proposed height limit will, in most instances, ensure compliance with the OLS height limits it is necessary to provide further certainty for ancillary structures that may go above the LEP height limit of 13.6metres and potentially intrude into OLS restricted area. This is particularly relevant in the northwestern section of the site. It is noted that the OLS height limits gradually increase as you traverse the site in an easterly direction.

In addition, the OLS height limits are expressed in AHD terms whilst this is not the case under Councils LEP. As the site is to be filled in some areas up to approximately 2 metres it will require careful design attention when dealing with structures in the northwestern corner.

It is also relevant to comment that it is unlikely that the north western corner of the site will be intensively developed as another constraint being proximity to the adjacent Sewage Treatment Plant places limitation on land uses in this area and it's likely that this area will only be utilized for outdoor storage or carparking.



2.0 Preferred Uses

2.1 Anticipated Uses

The rezoning will give rise to a number of possible land uses. These are listed below: In this respect, early consultation with airport representatives indicates no significant issues with respect to the appropriateness of land uses permitted under the proposed rezoning.

Zone B5 Business Development

1 Objectives of zone

- To enable a mix of business and warehouse uses, and specialised retail uses that require a large floor area, in locations that are close to, and that support the viability of, centres.
- To provide for retailing activities that are not suited to, or desirable in, the other business zones or that serve the needs of the other businesses in the zone.
- To allow for other compatible development.

2 Permitted without consent

Environmental facilities; Environmental protection works; Roads

3 Permitted with consent

Child care centres; Light Industries; Medical Centres; Passenger transport facilities; Self Storage Facilities; Take-Away Food and Drink Premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Amusement centres; Brothels; Caravan Parks; Cemeteries; Charter and tourism boating facilities; Community facilities; Correctional centres; Crematorium; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm Buildings; Food and drink premises; Forestry; Freight transport facilities; Function centres; Health services facilities; Highway service centres; Home-based child care; Home businesses; Home industries; Home occupations; Home occupation (sex services); Industries; Information and education facilities; Marinas; Markets; Moorings; Movable Dwellings; Port facilities; Recreation facilities (major); Recreation facilities (outdoor); Residential accommodation; Restricted premises; Roadside stalls; Rural industries; Rural supplies; Sex services premises; Storage premises; Tourist and visitor accommodation; Water recreation structures; Wholesale supplies.

Note: While the site is not within prescribed public safety zones it is considered prudent given the proximity to the airport that activities that involve storage of hazardous or flammable material not be encouraged.



3.0 Anticipated Design Requirements

All new development will be required to be consistent with proposed zoning provisions and also criteria to be contained within a yet to be prepared site specific Development Control Plan. It is anticipated that the DCP will contain the following minimum considerations with respect to design and compatibility with airport operations.

3.1 Building Design Rationale

A key design rationale is to apply the objectives of building form and functionality, balanced with consideration of visual aesthetics, in order to achieve high standard commercial quality buildings, which reflect the urban context of the site and its surrounds.

It is essential design be premised on achieving compatibility with adjacent airport operations. The key issues in relation to airport operations relate to height, lighting, reflectivity, and acoustic considerations.

The buildings should be designed in a strong contemporary style using high tech cladding and glazing materials, and incorporating the requirements of environmental sustainability.

3.2 Building Materials & Colours

In general terms, all buildings should be designed and sited so as to achieve the following:-

- Compliance with Australian Standard 2021 – Aircraft Noise Intrusion – Building Siting & Construction as determined by the location of the site relative to the ANEF contours. See acoustic report prepared by CRG Consulting.

3.3 Building Height

Building heights are determined by compatibility with the OLS (obstacle limitation surface) criteria for the Airport and in consultation with GCAPL.

The critical point is situated on the sites western boundary with the height limitation under the OLS being 13.75 meters AHD. It is noted also that the Procedures for Air Navigation Services – Aircraft Operations (PANS OPS) is 14.46 metres. This surface is not permitted to be penetrated.

Please refer to OLS height map included as Attachment 1.

3.4 Lighting Considerations

It is generally accepted that ground lights may cause distraction to pilots by reason positioning, position, pattern or intensity of light emission.

Special lighting restrictions apply so as to ensure the safe operation of aircraft.

The subject lands proximity to the Gold Coast Airport will result in limitations in respect to illumination levels. The western section of the land is contained within the more restrictive Zone A in the Airports Lighting Zone Map. In that regard, it is noted that the allowable intensity of lighting at 3 degrees above the horizontal is 0 candella, that is, zero illumination. The remainder of the site is situated within

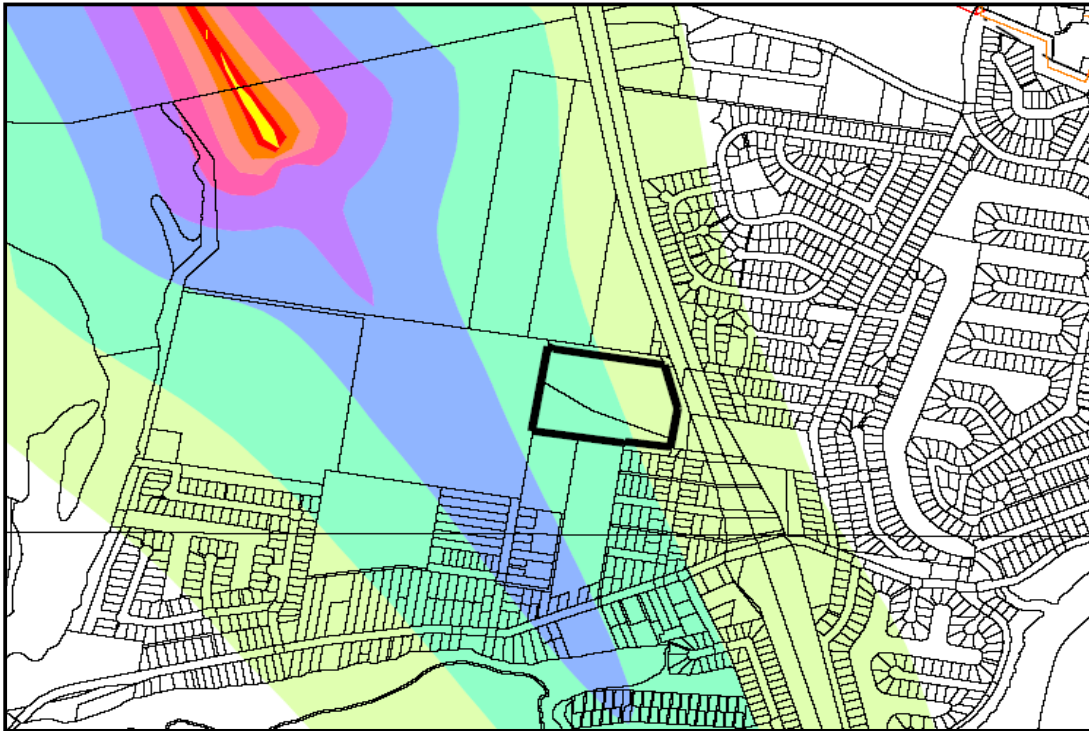


Lighting Zone B which sets the maximum illumination level at 3 degrees to the horizontal is 50 candella.

3.5 Acoustic Considerations

The property is affected by the 20-25 and 25-30 ANEF contour designations as per Figure 2 below.

Figure 2 - 20-25 and 25-30 ANEF contour designations



These contour designations permit a wide range of uses pursuant to the Australian Standard 2021 – Development in Vicinity of Aircraft Noise. A table outlining permissible uses is outlined below in Table 1 below.

Table 1: ANEF Permissible Uses – Australian Standard 2021

| | Less than 20 ANEF | 20 to 25 ANEF | Greater than 25 ANEF |
|--------------------------------------|-------------------|---------------|----------------------|
| House, home unit, flat, caravan park | | | |
| Hotel, motel, hostel | | | |
| School, university | | | |
| Hospital, nursing home | | | |
| Public building | | | |
| Commercial building | | | |



| | | | |
|------------------|-------------------|----------------|----------------------|
| Light industrial | Less than 30 ANEF | 30 to 40 ANEF | Greater than 40 ANEF |
| Other industrial | All ANEF zones | All ANEF zones | All ANEF zones |

A separate acoustic report has been prepared by CRG consulting and the following types of treatment are likely for proposed buildings.

Warehousing

No treatments required, as the predicted impact level is 84 dB(A), with the criteria being 85 dB(A).

Private Offices

Based upon the assumed building design, the private offices may require the following treatments:

- External walls: Rw 46 – either masonry, or external metal cladding on 150mm studs with two layers 16mm plasterboard internally with R2.0 fibreglass batts in wall void, or 9mm fibrous cement sheet externally with one layer 16mm plasterboard internally and R2.0 fibreglass batts in wall void;
- Windows: Rw 42 – double glazing system of one layer 11.76mm laminated glass, 100mm airgap, 6mm toughened glass. Note that operable windows can achieve this rating, through twin sliding windows or doors (e.g. one set of sliding doors, 100mm air gap, another set of sliding doors);
- Roof/ceiling: Rw 46 – long run roofing iron on 150mm studs with two layers 16mm plasterboard internally and R2.0 fibreglass batts in ceiling void.

All offices will require sealed ventilation (e.g. ducted air conditioning, to ensure adequate fresh air supply), and soft furnishings (e.g. carpet) to control reverberation times.

Open Plan Offices

Based upon the assumed building design, open plan offices may require the following treatments:

- External walls: Rw 49 – either masonry, or external metal cladding on 150mm studs with two layers 16mm plasterboard internally with R2.0 fibreglass batts in wall void, or 9mm fibrous cement sheet externally with one layer 16mm plasterboard internally and R2.0 fibreglass batts in wall void;
- Windows: Rw 30 – 10.38mm laminated glass in acoustic grade operable frames, or 6.38mm limited fixed glass;
- Roof/ceiling: Rw 37 – long run roofing iron on 150mm studs with one layer 13mm plasterboard internally and R2.0 fibreglass batts in ceiling void

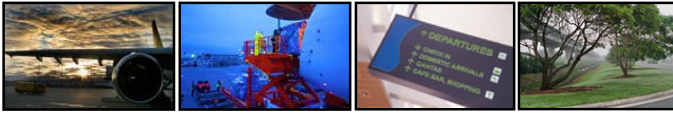
All offices will require sealed ventilation (e.g. ducted air conditioning, to ensure adequate fresh air supply), and soft furnishings (e.g. carpet) to control reverberation times.

Shops (Takeaway Food or Cafés)

Based upon the assumed building design, shops may require the following treatments:

- External walls: Rw 26 – standard construction;
- Windows: Rw 23 – standard construction;
- Roof/ceiling: Rw 28 – standard construction

All shops will require sealed ventilation (e.g. ducted air conditioning, to ensure adequate fresh air supply).



3.6 Signage

All applications made to Tweed Shire should indicate proposed signage requirements and external display areas for the building and overall site.

Any illuminated signs will need to comply with the illumination levels imposed by the Gold Coast Airport.

The height of all signage will also need to comply with the OLS and PANS _OPS restrictions.

3.7 Emissions

When considering the permitted land uses, it is not anticipated that emissions will be an issue. It is noted that the relevant Act and Regulations preclude activities that may result in air turbulence capable of affecting normal flight activities, emit dust, gas etc that could detrimentally impact on aircraft.

3.8 Construction Environmental Management Plan (CEMP)

It is considered that all proponents of actual development projects should be required to complete a Construction Management Plan (CMP) and submit this to the GCAPL prior to the commencement of construction.

It is important to note that the proximity to the flight path will result in a major limitation on crane works and other construction rigs and will involve liaison with Gold Coast Airport management. Airport approval will be required for any crane to penetrate the OLS or Obstacle Limitation Surface area. It is anticipated that any work involving temporary penetration of the OLS will be required to be undertaken during night time hours. In addition, cranes and other equipment may have to be a certain distinctive colour and may need to include flashing lights if deemed appropriate.



4.0 Summary

Conclusion

The proposed rezoning of the land will have no impact on the safety, efficiency or regularity of present or future aircraft operations at Gold Coast Airport.

It is proposed that the rezoning will see a general height limitation of N2 or 13.6 metres over the entire site.

It is important to recognise that the airports height restrictions are expressed in AHD. In that regard, the critical point on the site with respect to OLS is 13.75 metres AHD and this gradually increases as the site is traversed from east to west.

In addition, the critical point in respect to PANS OPS is 14.46 AHD. No structure is permitted to penetrate the PANS OPS surface.

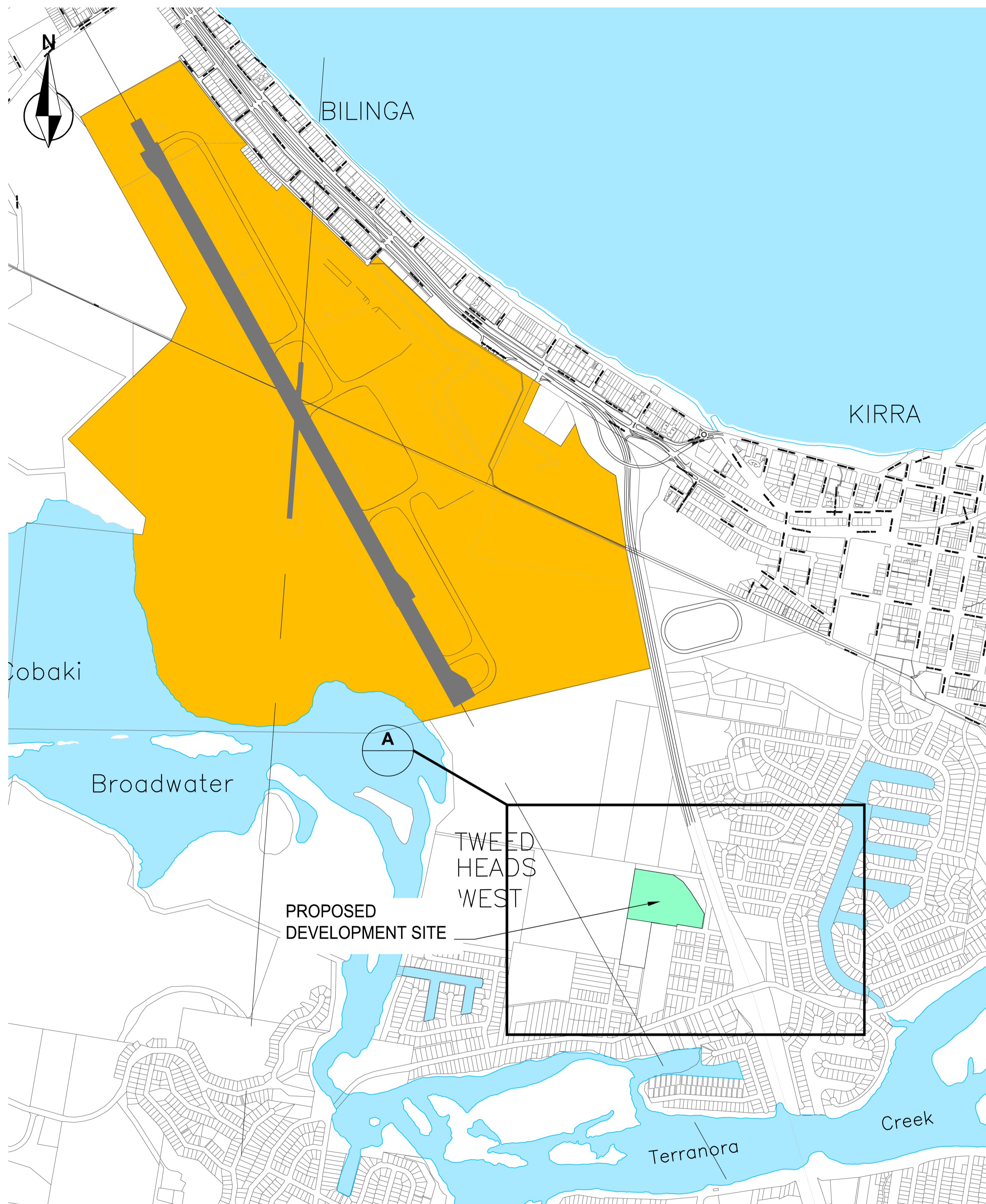
The OLS has been superimposed on the concept proposal plan. It is anticipated that this surface limitation coupled with the PANS OPS restrictions will be included within the Development Control Plan that will be prepared in association with the rezoning. This DCP should also be submitted to Gold Coast Airport for approval prior to formal adoption.

There are no regulatory issues to prevent the rezoning proposal proceeding.



Appendix A

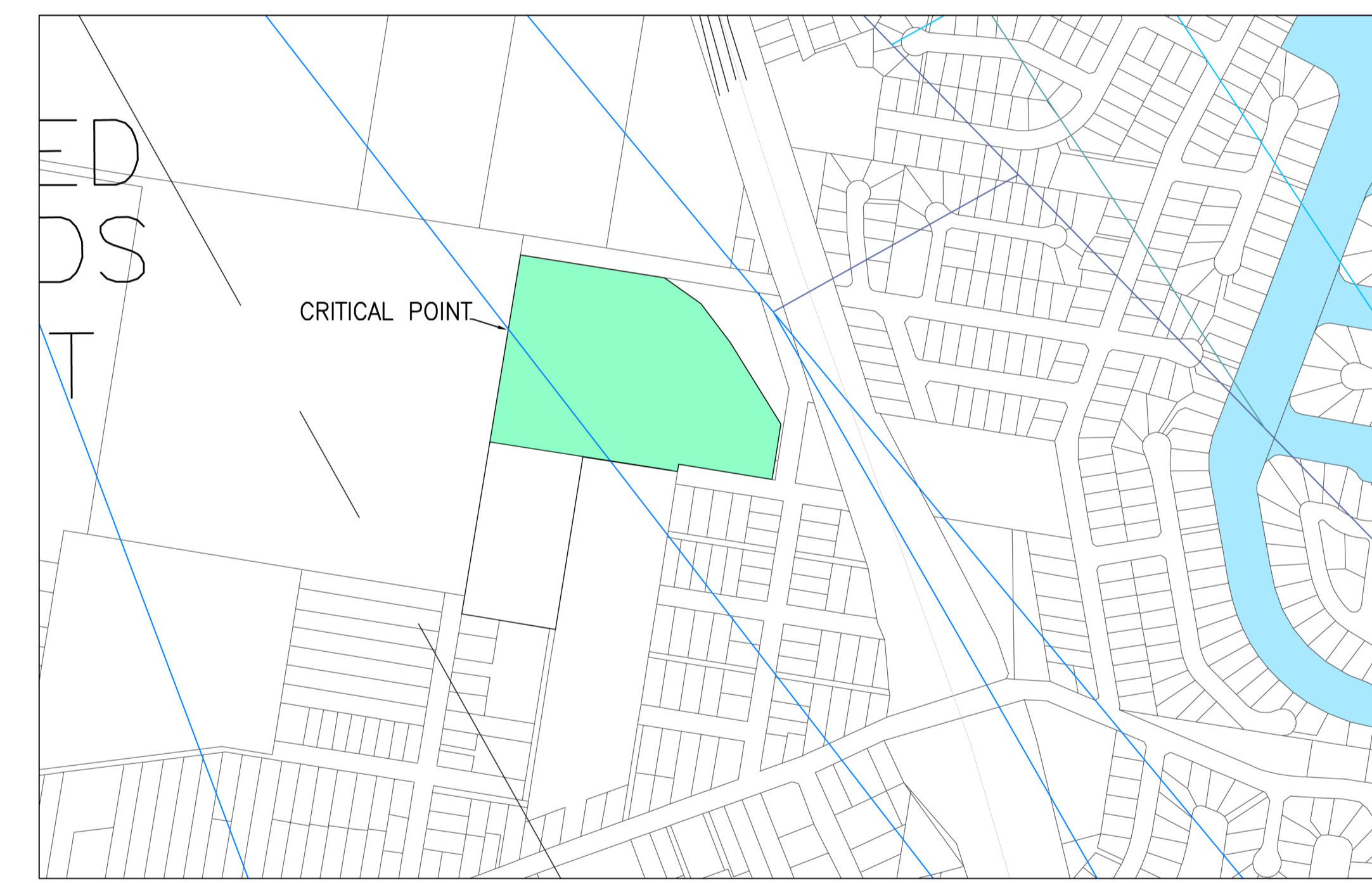
Obstacle Limitation Surface



REGION PLAN
SCALE 1:10,000



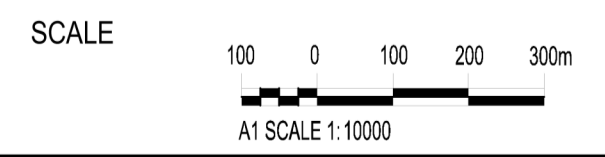
A SUBJECT SITE - OLS
SCALE 1:5000



A SUBJECT SITE - PANS-OPS
SCALE 1:5000

| | | |
|--|------------|---------------------------|
| PROPOSED DEVELOPMENT SITE | | |
| CRITICAL POINT: E 551046.628 N 6882453.242 MGA94Z56 DIST FROM ARP 2514m BEARING 143°37'42" | | |
| SURFACE | HEIGHT | NOTES |
| OLS: | 13.75m AHD | VISUAL HEIGHT LIMITATION |
| PANOPS | 14.46m AHD | MAXIMUM HEIGHT LIMITATION |

DRAFT
NOT FOR CONSTRUCTION



AIRPORT - BUILDING APPROVAL - BOYDS BAY DEVELOPMENT SITE

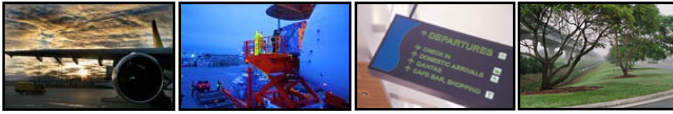
TWEED HEADS WEST
RWY 14/32 OLS & PAN-OPS SURFACES

SOURCE: GOLD COAST AIRPORT
DATE: 04/11
SCALE: AS SHOWN

Level 1 2247 Gold Coast Hwy
Nobby Beach
PO Box 206 Nobby Beach QLD 4218

Telephone: 07 5526 1500
Fax: 07 5526 1502
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Appendix B

Development Concept –indicative only

NOTES

 Approximate location of Critical Point
13.75m Height Limit (GC Airport)

Building Design Rationale

The principal design rationale is to apply the objectives of building form and functionality, balanced with consideration of visual aesthetics, in order to achieve high standard commercial quality buildings, which reflect the urban context of the site and its surrounds. Other primary design criteria will be to ensure compatibility with adjacent airport operations. The key issues in relation to airport operations relate to height, lighting, and reflectivity, acoustic considerations.

The buildings shall be designed in a strong contemporary style using high tech cladding and glazing materials, and incorporating the requirements of environmental sustainability.

Building Materials & Colours

In general terms, all buildings should be designed and sited so as to achieve the following:-

☑ Compliance with Australian Standard 2021 – Aircraft Noise Intrusion – Building Siting & Construction as determined by the location of the site relative to the ANEF contours. See acoustic report prepared by CRG Consulting.

Building Height

Building heights are determined by compatibility with the OLS (obstacle limitation surface) criteria for the Airport and in consultation with GCAPL.

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Please refer to OLS height map included as Attachment 1.

Lighting Considerations

It is generally accepted that ground lights may cause distraction to pilots by reason positioning, position, pattern or intensity of light emission.

Special lighting restrictions apply on the airport to ensure the safe operation of aircraft. As such, lighting design will be assessed to ensure this is achieved. It is strongly recommended that early consultation be undertaken with GCAPL representatives in this regard.

The subject lands proximity to the Gold Coast Airport will result in limitations in respect to illumination levels. The western section of the land is contained within the more restrictive Zone A in the Airports Lighting Zone Map. In that regard, it is noted that the allowable intensity of lighting at 3 degrees above the horizontal is 0 candella, that is, zero illumination. The remainder of the site is situated within Lighting Zone B which sets the maximum illumination level at 3 degrees to the horizontal is 50 candella.

Acoustic Considerations

Please refer to CRG acoustic report

