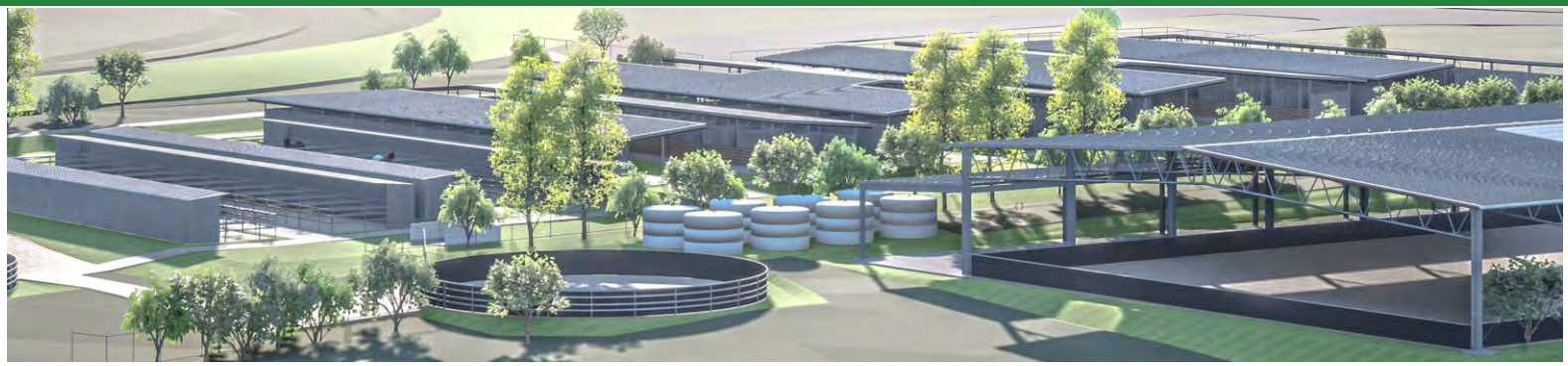
Review of Environmental Factors

Casino Showground Redevelopment

Quality solutions. Sustainable future.



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UPR	Description	Issued By	Date Issued
4257-1003	Version 1	JTS	24/06/2022
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Table of Contents

Illustrations

Tables

Plates

Appendices

Executive Summary

Proponent and Determining Authority	Richmond Valley Council (RVC)
Background	Casino Showground and Racecourse (the Site), is a regional racecourse and showground in the Northern Rivers of New South Wales (NSW), located within the Local Government Area (LGA) of Richmond Valley Council (RVC). The site is a designated Crown land reserve and under amendment to the Crown Land Management System in 2018. The site is now managed by Council under the *Local Government (LG) Act 1993*. Whilst remaining as a Crown land reserve, the land is essentially managed by Council as if it were Council land. The land is "Classified" as "Community Land" and is to be used for "General Community Use" under the *LG Act.* The Site is subject to the *Casino Showground and Racecourse Plan of Management 2019* and there is an associated Master Plan (May 2018). The Master Plan, which Council adopted in September 2018 after extensive consultation with key stakeholder groups, features a new indoor equestrian arena, redevelopment of the horse racing training stables, and other key renewal projects listed below. One of the exciting outcomes of the Master Plan is to position Casino as the equestrian capital of the Northern Rivers, bringing visitors from across the region and interstate, and in turn providing a sustained economic boost to the Richmond Valley. Ultimately, the Plan of Management is designed to provide the management context to enable the delivery of the site Master Plan. Together, the Plan of Management and the Master Plan outlines future development outcomes including: ■ A substantial new under-cover equestrian style arena, including associated building and infrastructure to enable local through to high level events to be accommodated - both within the context of equestrian sports, but also with other event activities suitable to the site; ■ Improvements to the racecourse and associated Club infrastructure to increase racing, including during adverse weather conditions resulting in "wash-outs" at other locations in the region, thereby enabling the site to host emergency meetings; ■ Redevelopment of the on-site stables and associated facilities, with a view to increasing the presence of on-site thoroughbred training, which will utilise the upgraded tracks and establish the site as a seven day per week facility; and ■ Enable other improvements and associated infrastructure to facilitate the safe and effective use of the site commensurate with the increase in use and size / frequency of events. In November 2020, RVC received $8.2 million from the joint Federal Government and NSW Government Bushfire Local Economy Recovery Fund to complete the Master Plan for the redevelopment of the Casino Showground and Racecourse. As a result of the Plan of Management, Master Plan and associated funding, RVC is seeking to undertake various works to upgrade the Casino Showground and Racecourse in accordance with the Master Plan intent and directions. The specifics of the Proposal are outlined below.
Location	The Casino Showground and Racecourse is identified as Crown Reserve 97756 and comprises Lot 72 and 73 DP755627 and Lot 3 on DP823672, located at 10095 Summerland Way, Casino NSW 2470. The locality is shown in **Illustration 2.1** and the plans are at **Appendix A**. The site lies approximately 2.1 km to the south-east of the Casino town centre. The site is situated in the RVC LGA.

Site Features	The site of the Casino Showground and Racecourse covers more than 62 ha and includes various built form and infrastructure. The site is used by a number of different organisations for a range of typically localised activities and events, including: ■ Casino Racing Club; ■ Casino Pony Club; ■ Richmond Valley Riding Club; ■ Casino Community Men's Shed; ■ Casino Poultry Club; ■ Casino Rodeo and Campdraft Association; ■ Northern Rivers Horse Cutting Club; and ■ Casino Show Society. The site lies approximately 2.1 km to the south-east of the Casino town centre. The surrounding landscape is predominantly rural, with cattle grazing and cropping present in the broader landscape.
Proposed Activity	The Proposal is for redevelopment and upgrade of the Casino Showground and Racecourse, including: ■ Demolition ■ Tree removal ■ Construction of new horse facilities consisting of racing stables and day stalls, covered equestrian arena with associated spectating, outdoor area, warm up yard, several horse training areas. ■ Civil and stormwater works ■ Landscaping works ■ Services/electrical works ■ Associated infrastructure and works, including carparking and driveways. Design plans are provided at **Appendix A**.
Approval Pathway	The site is zoned RE1 Public Recreation pursuant to the Richmond Valley Local Environmental Plan (RVLEP) 2012. The Proposal is permitted without consent pursuant to with Division 12 (Parks and other public reserves) of State Environmental Planning Policy (Transport and Infrastructure) 2021 as follows (and relevant): ***2.73 Development permitted without consent*** *(2) Development for any purpose may be carried out without consent—* *(c) on Crown managed land, by or on behalf of—* *(i) the Secretary, or* *(ii) a Crown land manager of the land (or an administrator of the manager), or* *(iii) the Ministerial Corporation, or* *(iv) the Minister administering the Crown Land Management Act 2016,* *if the development is for the purposes of implementing a plan of management adopted for the land under the Act referred to above in relation to the land or in accordance with the Local Government Act 1993 in relation to Crown managed land managed by a council.* The land is a Crown Reserve managed by Richmond Valley Council. The development is permitted without consent under Division 12, Section 2.73 as it is for the purposes of implementing the Casino Showground and Racecourse Plan of Management. Although the Proposal in these circumstances does not require development consent under Part 4 of the EP&A Act, the Proposal becomes an "Activity" under Part 5 of the EP&A Act and Section 5.5 of the EP&A Act requires determining authorities, when assessing activities under Part 5, to examine and take into account to the fullest extent

	possible all matters affecting or likely to affect the environment by reason of that activity. These components of the Activity therefore require preparation of an environmental assessment (REF) for approval by the determining authority (Council is both the proponent and determining authority for the purposes of Part 5 of the EP&A Act). The purpose of the REF is to describe the Activity, to document the likely impacts of the Activity on the environment, and to detail safeguards/ mitigation measures to be implemented. The description of the Activity and associated environmental impacts have been undertaken in the context of Section 171 of the Environmental Planning and Assessment (EP&A) Regulation 2021, having regard for the *Guidelines for Division 5.1 Assessments* (DPE 2022), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, the REF helps to fulfil the requirements of Section 5.5 of the EP&A Act, which requires RVC to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.
Environment Assessment and Conclusion	A comprehensive environmental assessment of the proposed Activity has been undertaken. Some minor impacts would occur as a result of the Activity; however, no significant or long-term adverse impacts are expected. To help ensure that the extent of impacts is limited and that unavoidable impacts are managed and minimised, mitigation measures and safeguards have been recommended and would be implement and monitored. The Activity is considered justified taking into account the potential and residual environmental impacts, including the associated mitigation measures and safeguards. The Activity is in accordance with ecologically sustainable development (ESD) principles and consistent with the objectives of the EP&A Act. As the potential environmental impacts of the Activity are not likely to be significant, therefore it is not necessary for an Environmental Impact Statement to be prepared under Division 5.1, Subdivision 3 of the EP&A Act or approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement (or BDAR if the Proponent elected) is not required. The Activity is also not expected to affect Commonwealth land or have a significant impact on any matters of national environmental significance. Accordingly, the proposed Activity does not require referral to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW).

1. Introduction

1.1 Background and Activity Identification

The Casino Showground and Racecourse is an important regional facility and has a long social history. The site is Crown land that has been reserved for the purposes of Showground, Racecourse and Public Recreation.

Council developed a comprehensive Master Plan for the site in 2018. This Master Plan involved extensive consultation with key stakeholder groups and envisages the site as having the opportunity to grow its existing uses and to expand its reach, to become a regional centre for a range of equestrian, horse racing and other inter-related activities.

The site is managed by Council under the *Local Government (LG) Act 1993*. Whilst remaining as a Crown land reserve, the land is essentially managed by Council as if it were Council land. The land is "Classified" as "Community Land" and is to be used for "General Community Use" under the *LG Act.* The Site is subject to the *Casino Showground and Racecourse Plan of Management 2019* (the PoM) and associated Master Plan (May 2018).

The Master Plan features a new indoor equestrian arena, redevelopment of the horse racing training stables, and other key renewal projects.

One of the exciting outcomes of the Master Plan is to position Casino as the equestrian capital of the Northern Rivers, bringing visitors from across the region and interstate, and in turn providing a sustained economic boost to the Richmond Valley.

Ultimately, the Plan of Management is designed to provide the management context to enable the delivery of the site Master Plan. Together, the Plan of Management and the Master Plan outlines future development outcomes as including:

- A substantial new under-cover equestrian style arena, including associated building and infrastructure to enable local through to high level events to be accommodated - both within the context of equestrian sports, but also other community events and activities suitable to the site;
- Improvements to the racecourse and associated Club infrastructure to increase racing, including during adverse weather conditions resulting in "wash-outs" at other locations in the region, thereby enabling the site to host emergency race meetings
- Redevelopment of the on-site stables and associated facilities, with a view to increasing the presence of on-site thoroughbred training, which will utilise the upgraded tracks and establish the site as a seven day per week facility; and
- Enable other improvements and associated infrastructure to facilitate the safe and effective use of the site commensurate with the increase in use and size / frequency of events.

In November 2020, RVC received $8.2 million from the joint Federal Government and NSW Government Bushfire Local Economy Recovery Fund to complete the Master Plan for the redevelopment of the Casino Showground and Racecourse.

As a result of the Plan of Management, Master Plan and associated funding, RVC is seeking to undertake various works to upgrade the Casino Showground and Racecourse. The upgrade project addresses the following (summarised) Master Plan directions:

- Increased day to day use and income generation through increased on-site stabling and training of race horses, with the aim of becoming a significant regional level training hub for the industry;
- Increased scope for larger scale events across a number of equestrian disciplines and other related activities, with a particular focus on larger scale / quality undercover events; and

- Continuation of effective local use of the site by a range of local community and sporting organisations, as well as facilitating an increase in local participation and the range of sporting and community-based pursuits undertaken within the complex.

The improvements will support the Casino Showground and Racecourse in becoming a standout community and equestrian facility in the region and generate long-term socio-economic benefits.

1.2 Purpose of this Report

This REF has been prepared by GeoLINK at the request of AGS Commercial Pty Ltd and on behalf of RVC to describe the proposed Activity, to assess and document the likely impacts of the Activity on the environment, and to detail safeguard/ mitigation measures to be implemented to reduce its impact.

For the purposes of the Activity, RVC is the proponent and the determining authority under Division 5.1 of the EP&A Act. The works would be undertaken on behalf of Council.

The description of the Activity and associated environmental impacts have been undertaken in the context of Section 171 of the Environmental Planning and Assessment (EP&A) Regulation 2021, having regard for the *Guidelines for Division 5.1 Assessments* (DPE 2022), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of Section 5.5 of the EP&A Act, which requires RVC to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposed Activity is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared under Division 5.1, Subdivision 3 of the EP&A Act or approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the *Biodiversity Conservation Act 2016* (BC Act) and/or the *Fisheries Management Act 1994* (FM Act), in relation to Section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement, or if the Proponent so elects - a Biodiversity Development Assessment Report (BDAR).
- The potential for the Activity to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision by the Commonwealth Minister on whether assessment and approval is required under the EPBC Act.

2. Description of the Proposal

2.1 Site Location and Context

The Casino Showground and Racecourse is formally referred to as Crown Reserve 97756. The Site comprises Lot 72 and 73 DP755627 and Lot 3 DP823672, located at 10095 Summerland Way, Casino NSW 2470. The locality is shown in **Illustration 2.1**. The site lies approximately 2.1 km to the south-east of the Casino town centre.

The site of the Casino Showground covers about 62 ha and includes the showground, racecourse and associated infrastructure. The eastern portion of the site is less developed and contains a patch of open forest, grassland and scattered/ clustered trees. Except for part of the far northern boundary, which adjoins a residential zone, the site is surrounded by largely cleared open land in all directions with the Casino airport about 800 m to the north and the Summerland Way on the immediate western boundary. A small portion of the northern boundary of the site adjoins the outskirts of the Casino residential area. The location of the Proposal in relation to the site and associated lots is shown in the Site Locality map at **Illustration 2.2**.

2.2 Site Analysis

2.2.1 Topography

The site lies within a level to gently undulating landscape and has elevations ranging from approximately 42 m to 44 m Australian Height Datum (AHD).

2.2.2 Soils

Based on NSW Government eSpade data the dominant soils are moderately deep (100–150 cm), moderately well-drained Red and Yellow Earths (Uf6) on crests. Moderately deep (100–150 cm), poorly drained Red Podzolic Soils (Dr5.21), Yellow Podzolic Soils (Dy4.11, Dy3.51), Soloths (Db1.11, Db2.11, Dy3.21) with occasional Lateritic Podzolic Soils (Dy3.84, Dy5.84) on slopes. Limitations of these soils include that they are highly erodible, hardsetting, dispersible, slowly permeable, seasonally waterlogged soils of low fertility and localised salinity.

2.2.3 Vegetation

The Site has been heavily disturbed and is substantially developed with a racecourse, including associated infrastructure. The broader area of the site is made up partly of existing hard surface and partly cleared managed lands, along with areas of scattered trees and vegetated patches. The area within the immediate vicinity of the racecourse complex is largely cleared, with some interspersed, heavily modified vegetation resulting from past development and activity at the site. Some small vegetation patches/strands are situated to the north and east of the racecourse.

A number of trees (as discussed later in this report) will require removal for the Proposal.

2.2.4 Existing Land Uses

The use of the site is currently a showground and racecourse facility and the land is zoned RE1 Public Recreation pursuant to the Richmond Valley LEP 2012. The central and western portion of the site

contains the race track, built form, associated infrastructure and open grass areas. To the east is a tract of open woodland and a dam.

Access to the site is currently via Summerland Way, which intersects with Ellangowan Road on the south-western boundary of the site. An informal gravel car park is within the facility close to the western boundary. An amenities block and offices are also within the complex.

The precinct currently hosts numerous community user groups, including agricultural clubs, equestrian groups, cattle and poultry groups. It is also home for the Casino Racing Club. Casino Racing Club currently has up to 20 horses regularly training at the facility each week and hosts four race meetings each year. The track occasionally hosts additional race meetings and is also home to the Casino Community Men's Shed.

0 620 Meters

Locality Plan - Illustration 2.1

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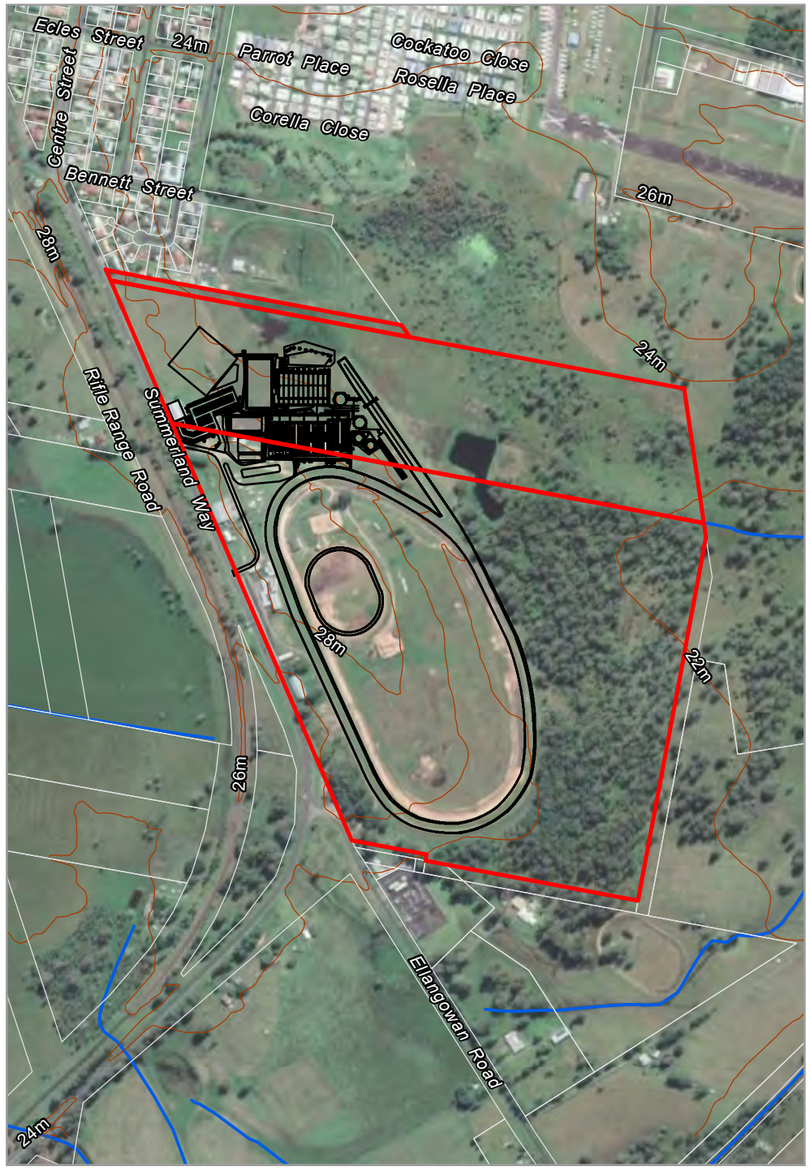
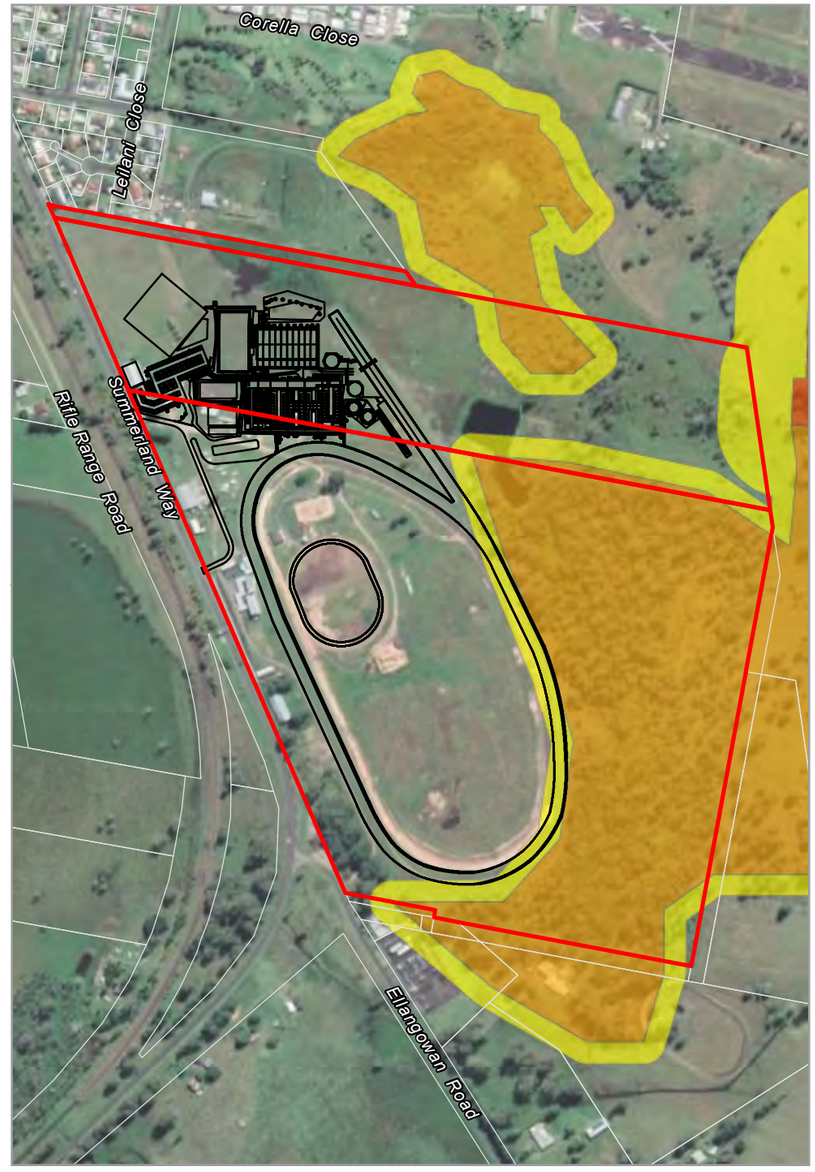
Casino Showground Upgrade Review of Environmental Factors
4257-1004

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: AH
Source of base data: OpenStreet Map
Date: 14/06/2022





LEP Zoning
- Site boundary
- Cadastre
- C2 Environmental Conservation
- R1 General Residential
- RE1 Public Recreation
- RU1 Primary Production
- Upgrade design

Constraints
- Site boundary
- Cadastre
- Contours at 2m intervals
- Watercourse
- Upgrade design

Bushfire Prone Land
- Site boundary
- Cadastre
- Vegetation Buffer
- Vegetation Category 1
- Vegetation Category 2
- Upgrade design

0 200 Metres

Site Analysis - Illustration 2.2

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: AH
Source of base data: Google Maps
Date: 14/06/2022

2.3 The Proposed Activity

Upgrade of the Casino Showground and Racecourse involves alterations and additions to the existing recreation facility and is required to modernise enhance the facility and ultimately achieve implementation of the Master Plan.

The intent of the PoM and Master Plan, and objectives of this Proposal, are to:

- Construct a substantial new under-cover equestrian style arena, including associated building and infrastructure to enable local through to high level events to be accommodated;
- Deliver improvements to the racecourse and associated club infrastructure to enable an increase in racing, including during adverse weather conditions;
- Redevelop the on-site stables and associated facilities, with a view to increasing the presence of on-site thoroughbred training, which will utilise the upgraded tracks and establish the site as a seven day per week facility; and
- Enable other improvements and associated infrastructure to facilitate the safe and effective use of the site commensurate with the increase in use and size/frequency of community events.

In the undertaking the proposed works, Council will seek to effectively establish the facility as a key community asset where a combination of sporting and recreational pursuits will sit alongside community-based activities.

The site is located on the southern outskirts of Casino. It is ideally situated to enable large-scale events to be held, whilst having the support of a regional town, thereby creating important socio-economic benefits.

The specific works proposed and subject to the scope of this REF are outlined below.

2.3.1 Demolition and Removal

The Proposal involves demolition and removal of existing elements, including:

- Existing outbuildings and sheds;
- Existing fencing/gates; and
- Existing stables.

The design plans, including demolition plans, are provided in **Appendix A**.

2.3.2 Construction Works

The Proposal involves construction of:

- Main covered arena with associated spectating
- Outdoor arena
- Stables and day yards
- Warm up yards, several horse training areas, including round yards, horse walkers and Equestrian Pool
- Civil, hydraulic (sewer and trade waste), and stormwater works
- Services and electrical installation/upgrades
- Landscaping
- Carparking, access/driveways and pedestrian infrastructure.

Areas are also designated for Day Stalls, Storage Sheds and Admin Office, however these are subject to separate design and delivery scope.

The following materials and finishes apply to the proposed design:

- Covered arena roof as Trimdek Surfmist
- Stable walls as corrugated Zincalume
- Stable roof – corrugated zincalume or Trimdek Surfmist
- Day yard roof and walls as corrugated Zincalume
- The stables would introduce some timber details and panels such as hardwood fascia, rough saw hardwood screens or panels to soften the landscape.

A full set of design plans are provided in **Appendix A**.

Building Code of Australia (BCA) advice from a building surveyor/certifier is provided at **Appendix K**.

2.3.3 Tree Removal

The Activity would require the removal of 14 native and two exotic trees occurring within a highly disturbed site as shown on the proposed plans at **Appendix A**.

The trees occur within and are confined to the immediate highly disturbed and developed area of the Casino Showground, generally being within and adjacent to the existing Casino Showground yards/ infrastructure. Biodiversity is assessed in **Section 5.1**.

2.3.4 Effluent/Sewer and Stormwater Management

It is proposed to implement several stormwater management measures to meet the quantity and quality requirements for the proposed development. These elements include:

- Various swales for stormwater treatment and conveyance throughout the site.
- Rainwater tanks for stormwater collection, treatment and reuse collecting water from the proposed stables and undercover area.
- Usage of the existing dam structure downstream of the development for stormwater treatment and attenuation.

The floor of stable areas and other areas that will be washed down to clean away liquid or solid waste will not drain to the stormwater network. Sewer/trade waste connections will be installed and these areas shall be drained to the sewer network and treated accordingly as trade waste, ensuring effluent and waste from horses is captured and disposed of effectively.

A Stormwater Management Plan is provided at **Appendix H** and a Hydraulic Services Plans are at **Appendix I**.

2.4 Construction Methodology

Construction methodology is expected as followings:

- Demolition of existing stables and racehorse training facilities
- Excavate, cut and fill of existing site area to create building pads and stormwater drainage pathways
- Construction of footings and concrete slabs for covered arena and stable complex
- Erection of steel structures for covered arena and stable complex
- Roofing, cladding, linings, fencing, equestrian fit-off
- External paths, landscaping, carparking.

Construction is expected to start late July/August, with completion around November 2023.

2.4.1 Working Hours

Construction activities would be undertaken in accordance with standard construction work hours:

- Monday to Friday: 7:00 am to 6:00 pm
- Saturday 8:00 am to 1:00 pm
- No work on Sundays or public holidays.

2.5 Ancillary Facilities

A Site Establishment Plan has been prepared (as part of the design plans at **Appendix A**) and provides an overview of how the site would be managed during construction, including separation of the construction site from other parts of the Site which will remain operational and accessible.

Ancillary facilities such as a builder's compound area, stockpiles, and temporary construction parking would be established within existing disturbed areas of the site. The impact assessment and recommended mitigation measures in this REF are also applicable to these ancillary facilities.

3. Statutory Planning Framework

3.1 Planning Approval Pathway

The Activity is an upgrade to the existing showground and racecourse facility located on a Crown reserve managed by RVC.

Section 4.1 of the EP&A Act states that if an environmental planning instrument (EPI) provides that development may be carried out without the need for development consent, a person may carry the development out, in accordance with the EPI, on land to which the provision applies. However, the environmental assessment of the development is required under Part 5 of the EP&A Act and that development becomes defined as an 'Activity' for the purposes of Part 5 of the EP&A Act.

State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) applies to the State and its purpose is to facilitate the effective delivery of infrastructure across NSW. The policy overrides other EPIs, including Local Environmental Plans (LEPs), and provides specific planning provisions and development controls relating to nominated types of infrastructure development, including that associated with parks and other public reserves.

Division 12 of the TISEPP outlines the planning requirements for works done to parks and reserves. The Proposal is permitted without consent pursuant to Section 2.73 of the TISEPP (as relevant):

2.73 Development permitted without consent

(2) Development for any purpose may be carried out without consent—

(c) on Crown managed land, by or on behalf of—

(i) the Secretary, or

(ii) a Crown land manager of the land (or an administrator of the manager), or

(iii) the Ministerial Corporation, or

(iv) the Minister administering the Crown Land Management Act 2016,

if the development is for the purposes of implementing a plan of management adopted for the land under the Act referred to above in relation to the land or in accordance with the Local Government Act 1993 in relation to Crown managed land managed by a council.

The land is a Crown reserve that is managed RVC (the Council) under the *Local Government Act 1993*. The development, including demolition, tree removal and associated works, is permitted without consent under Division 12, Section 2.73 as it is for the purposes of implementing the Casino Showground and Racecourse PoM on Crown managed land (refer to **Section 3.5** for discussion on consistency with the PoM).

The Proposal is defined as an Activity and can be assessed/determined under Part 5 of the EP&A Act.

3.2 Environmental Planning and Assessment Act 1979

The Activity does not require development consent, however it requires environmental assessment and approval pursuant to Part 5 and Section 5.5 of the EP&A Act whereby determining authorities, when assessing activities under Part 5, must examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. To ensure the Activity

adequately addresses the requirements of Section 5.5, an assessment of the Activity's consistency with relevant EPIs including State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) has been completed.

3.3 State Environmental Planning Policies

3.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The TISEPP aims to facilitate the effective delivery of infrastructure across the State. Division 12 of the TISEPP relates to parks and other public reserves.

The Activity site forms part of Casino Showground and Racecourse which is Crown managed land managed by Council.

Development consent is not required for the proposed Activity by virtue of Section 2.73 of the TISEPP as outlined in **Section 3.1**.

Division 1 of the TISEPP contains provisions for public authorities to consult with the local council and other public authorities prior to the commencement of certain types of development, unless there is an exception. Consultation as required by the TISEPP is discussed in **Section 4** of this REF.

3.3.2 State Environmental Planning Policy (Biodiversity & Conservation) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 came into force on 1 March 2022 and incorporated the repealed provisions of SEPP (Koala Habitat Protection) 2020, SEPP (Koala Habitat Protection) 2021, and the Vegetation in non-rural areas SEPP, amongst others.

Chapter 2 of SEPP (Biodiversity and Conservation) 2021 (vegetation in non-rural areas) applies (as applicable) to clearing vegetation in non-rural areas of the State, including environmental zones, not associated with a Development Application. Section 2.7(1) outlines clearing that does not require authority under this Policy, including:

> *(1) A permit or approval to clear vegetation is not required under this Chapter if it is clearing of a kind that is authorised under the Local Land Services Act 2013, section 60O or Part 5B.*

On this basis and Clause 60O of the *Local Land Services Act 2013* (LLS Act), and given the proposed Activity is a Part 5 Activity, any vegetation clearing is authorised by way of compliance with Part 5 of the EP&A Act and authority under Chapter 2 of SEPP (Biodiversity and Conservation) 2021 is not required.

Chapter 4 of SEPP (Biodiversity and Conservation) 2021 (previously Koala SEPP 2021) aims to encourage the conservation and management of natural vegetation areas that provide habitat for Koalas, to ensure permanent free-living populations would be maintained over their present range.

The chapter applies to the land use zone RE1 Public Recreation and Richmond Valley Council is a specified Council in Schedule 2. However, the development control provisions of the SEPP for koala habitat are associated with development consent, and Section 2.73 of TISEPP precludes the Proposal from requiring consent, therefore this chapter of the SEPP does not technically apply to the Proposal. It is RVC responsibility however, to consider environmental issues relating to their work to the fullest extent possible, including impacts on Koalas.

The upgrade of the showground involves an existing facility which is within a cleared and maintained recreational reserve and only minor clearing of scattered trees is required. Biodiversity matters have been assessed ion **Section 5.1** and the proposed Activity is not expected to impact on Koalas or important Koala habitat.

3.3.3 State Environmental Planning Policy (Resilience and Hazards) 2021

On 1 March 2022 the provisions of State Environmental Planning Policy No. 55 – Remediation of Land were repealed and incorporated into SEPP (Resilience and Hazards) 2021.

Chapter 4 of the Resilience and Hazards SEPP deals with Remediation of Land.

A search of the NSW Environmental Protection Authority (EPA) contaminated land database was undertaken for the RVC area. No records were found in proximity to the site (Refer to **Appendix F**).

The site is not declared to be 'significantly contaminated land' under part 3 of the Contaminated Land Management Act 1997 and is not subject to a 'management order' within the meaning of the *Contaminated Land Management Act 1997.* The land is not the subject of an approved voluntary management Proposal or an 'ongoing maintenance order'.

There is no proposed change of use and the site is unlikely to be contaminated from past activities, being previously disturbed for its use associated with the showground and equestrian activities. There is no known contamination to note, and the Proposal is unlikely to disturb contaminated land.

Overall, the site is considered suitable for the proposed development.

3.4 Local Environmental Plans

The Activity is located within the Richmond Valley LGA. Planning controls within this LGA are set out in the RVLEP 2012. The site is zoned RE1 Public Recreation (refer **Illustration 2.2**).

The objectives of RE1 Zone are:

- *To enable land to be used for public open space or recreational purposes.*
- *To provide a range of recreational settings and activities and compatible land uses.*
- *To protect and enhance the natural environment for recreational purposes*

The Activity will upgrade equestrian infrastructure within the Casino Showgrounds by providing expanded modern facilities and improved access. The proposed Activity is consistent with the zone objectives and is precluded from requiring consent as it is permitted without consent pursuant to Sections 2.73 of the TISEPP 2021.

Although the proposal does not require consent and is therefore not technically subject to the provisions of the RVLEP, the following clauses and associated objectives of the RVLEP have been considered.

Table 3.1 RVLEP Considerations

Local Planning Instrument Development Standards/Considerations	
Clause 4.3 Height of Buildings	The maximum building height control applicable to the site is 8.5 m. The proposed built form ranges from single to double storey scale. The highest building is the proposed arena with a maximum height of 8.4m above ground level. The proposed maximum height is acceptable in this context and algins with the RVLEP.
Clause 6.1 Acid Sulfate Soils (ASS)	The site does not present a risk of ASS.
Clause 6.2 Essential Services	Essential services will be provisioned and connected as required for the redevelopment.
Clause 6.3 Earthworks	The required earthworks would not result in any adverse impacts. Standard construction management practices, including erosion and

Local Planning Instrument Development Standards/Considerations	
	sedimentation control measures in accordance with the “Blue Book”, will be applied to ensure this.
Clause 6.5 Flood Planning	The subject site is partial flood prone, however the redevelopment area is very low risk and is partly flood free and partly on the flood fringe. As addressed in **Section 5.7.3**, the proposal is considered to be acceptable.
Clause 6.8 Riparian Land and Watercourse and Clause 6.10 Wetlands	As outlined in **Section 5.1** and **5.7.4**, no adverse impact to nearby sensitive or wetland environments is expected. Appropriate safeguards and measures would be in place to avoid and minimise risk or potential impacts.
Clause 6.11 Airspace operations	The Casino airport runway is about 400m north of the subject Site’s northern boundary. The runway runs parallel (east-west) to the redevelopment site/Reserve’s northern boundary and given the proposed building heights the redevelopment is not expected to affect the Obstacle Limitations Surface for the airport. RVC would confirm this is consistent with their *Obstacle Limitation Surface Map* or the *Procedures for Air Navigation Services Operations Surface Map* for the Casino Airport.

3.5 Casino Showground and Racecourse Plan of Management 2019 and Master Plan 2018

The Site is subject to the *Casino Showground and Racecourse Plan of Management 2019* (the PoM) and associated Master Plan (May 2018).

The purpose of this PoM is to outline the rationale and direction for future use and development of the Casino Showground and Racecourse. Ultimately, the PoM is designed to provide the management context to enable the delivery of the site Master Plan. Together, the Plan of Management and the Master Plan outlines future development outcomes as including:

- A substantial new under-cover equestrian style arena, including associated building and infrastructure to enable local through to high level events to be accommodated - both within the context of equestrian sports, but also other agricultural and community event activities suitable to the site;
- Improvements to the racecourse and associated Club infrastructure to increase racing, including during adverse weather conditions resulting in "wash-outs" at other locations in the region, thereby enabling the site to host emergency meetings
- Redevelopment of the on-site stables and associated facilities, with a view to increasing the presence of on-site thoroughbred training, which will utilise the upgraded tracks and establish the site as a seven day per week facility; and
- Enable other improvements and associated infrastructure to facilitate the safe and effective use of the site commensurate with the increase in use and size / frequency of events.

The PoM and Master Plan provide high level concept layout plans for the development and improvement of facilities at the site. As part of the design process lead by AGS Commercial and RVC, in consultation with key stakeholders, various options were explored for the final desired layout of the proposed redevelopment. Key feedback from this process indicated that the main issue with the concept layout referred to in the PoM was proximity of horses to Summerland Way, an arterial road as well as onsite traffic management and proximity to adjoining neighbours. on this basis the layout was adjusted to respond to feedback and ensure optional siting and animal welfare considerations. While the layout of the current Proposal somewhat differs from that shown in the PoM (comparisons are provided in **Plate 3.1** and **Plate 3.2**), it meets the overarching key objectives and direction of the PoM:

Plate 3.1 Concept Redevelopment Layout Envisaged in PoM and Master Plan

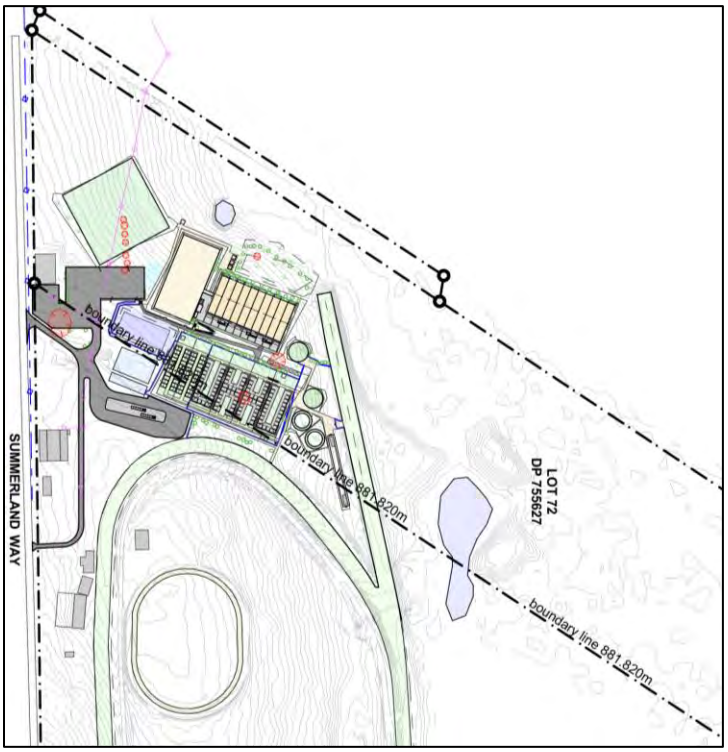


Plate 3.2 Current Proposed Redevelopment Layout

Overall, the proposed Activity is generally consistent with the PoM and Master Plan, with suitable and acceptable refinements made to the layout, noting that the PoM states that *all these facilities would generally be focused in the north-western portion of the site.* This is consistent and would uphold the management approach and intent of the PoM.

3.6 NSW Legislation

Table 3.2 below lists other NSW legislation relevant to the assessment of the Activity and comments on their implications for the Activity.

Table 3.2 NSW Legislation

Legislation	*Section(s)*	*Comment*
Environmental Planning and Assessment Act 1979 (as amended)	Section 1.7	Section 1.7 of the EP&A Act relates to the application of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act) and Part 7A of the *Fisheries Management Act 1994* (FM Act). Biodiversity has been assessed in **Section 5.1**. The Activity is unlikely to have a significant impact on biodiversity or threatened species or communities.
	Section 5.5	The determining authority in its consideration of an activity shall examine and take into account, to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity. This REF fulfils this duty.
Environmental Planning and Assessment Regulation 2021	Section 171	Section 171 factors have been considered in **Section 7.1**. It is not expected that the Activity would result in a significant impact.
Fisheries Management Act 1994	Section 200	Local government authorities require a permit when carrying out dredging and reclamation work on water land. The proposed Activity does not involve any dredging or reclamation work on water land.
	Sections 219-220	The proposed activity does not involve creating a barrier to fish movement. Therefore, RVC does not need a permit under the *Fisheries Management Act*.
	Section 205	The proposed activity is not within a marine environment and no marine vegetation would be affected.
Protection of the Environment Operations Act 1997		No Protection of the Environment Policies (PEPs) are relevant to the Activity. No licenses would be required pursuant to the *Protection of the Environment Operations Act 1997*. RVC and/ or contractors working on behalf of RVC are required to notify EPA when a 'pollution incident' occurs that is likely to impact upon the environment.
	Section 115	It is an offence to negligently dispose of waste in a manner that harms the environment. Waste would be managed in accordance with the *Waste Avoidance and Resource Recovery Act 2001.* The Activity would aim to reduce the environmental impact of dumping waste and include mechanisms to recover resources and reduce the production of waste where possible.
	Section 120	It is an offence to pollute any waters of the State. This REF includes safeguard and mitigation measures to ensure that the Activity does not result in pollution of waters.
National Parks and Wildlife Act 1974	Sections 87(1), 90	The proposed development site is highly disturbed and developed. The provisions of the Act are unlikely to be triggered by the Activity. Works would cease if an artefact or place of significance is disturbed or encountered during the Activity. NSW Heritage and the relevant Casino Local Aboriginal Land Council would be notified immediately.

Legislation	Section(s)	Comment
		Aboriginal Cultural Heritage has been assessed in **Section 5.3** and no adverse impacts are expected.
Biodiversity Conservation Act 2016	Schedules 1, 2 and 3	Threatened species and communities have been assessed in accordance with the BC Act. No significant impact is expected. Refer to **Section 5.1**.
Biosecurity Act 2015		In NSW, the administration of noxious weed control is the responsibility of the Minister for Primary Industries under the *Biosecurity Act 2015*. The Act is implemented and enforced by the Local Control Authority for the area, usually local government, or NSW Agencies. Biosecurity risk weeds would be managed in accordance with the Act.
Heritage Act 1977		Searches of the State Heritage Register, State Heritage Inventory and LEP heritage listings were undertaken. The searches did not locate any heritage items within or proximate to the site. No adverse impacts to heritage are expected. Refer to **Section 5.2**
Roads Act 1993	Section 138	Section 138 of the *Roads Act 1993* requires approval from the relevant road's authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road. No works are proposed in the road reserve. Therefore, the Activity does not require approval from the relevant road's authority under the *Roads Act 1993*.
Crown Land Management Act 2016 and Local Government Act 1993.	-	These Acts provide the core framework to enable the future management and improvement of the Casino Showground and Racecourse site. Section 3.23(6) of the *Crown Land Management Act 2016* requires council managers to adopt a Plan of Management for any Crown reserve for which it is the appointed Crown land manager, and that is classified as "Community" land under the *Local Government Act 1993*. The site forms part of Crown Reserve 97756. Richmond Valley Council has been appointed as the land manager and a PoM has been prepared and adopted under the *Local Government Act 1993*.

3.7 Commonwealth Legislation (Environment Protection and Biodiversity Conservation Act 1999)

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any action that has, or is likely to have, a significant impact on matters of national environmental significance or other aspects of the environment, such as on commonwealth land, may progress only with approval of the Commonwealth Minister for the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under Part 9 of the EPBC Act. There are no matters of national environmental significance or Commonwealth land that would be significantly affected by the proposed Activity and therefore no Commonwealth referral or approval is necessary for the proposed works (also refer to **Section 7.2**).

3.8 Native Title Native Title Act 1993

A search of the Native Title Register found that has been a determination of Native Title in the area. Specifically, this relates to Tribunal File no. NCD2013/002; Federal Court file no. NSD6107/1998. The determination outcome was that native title exists in parts of the determination area. Mapping associated with the determination suggests that the Casino Showground and Racecourse is not within the areas determined to support native title.

Council has provided advice regarding Native Title and the proposed redevelopment (refer to **Appendix E**). Based on this advice, the land is not under a current Native Title Claim, the land is not 'excluded land' as defined in section 8.1 of the Crown Land Management Act 2016, therefore native title rights and interests may exist over the land. It has been assessed that the REF approval and delivery of works at the Casino Showground are considered as Past Acts, and any potential Future Acts are validated under Subdivision 24J of the Future Acts Regime, in accordance with the Native Title Act 1993 (refer to **Appendix E** for more detail).

3.9 Confirmation of Statutory Position

An assessment of the relevant statutory provisions and planning instruments has concluded that the proposed Activity can be carried out as development without consent under the State Environmental Planning Policy (Transport and Infrastructure) 2021 and can be assessed and determined under Part 5 of the EP&A Act.

4. Consultation

4.1 Community Consultation

The PoM and Master Plan outlines that extensive community/stakeholder consultation was undertaken to inform the development.

All affected and/or adjoining landowners would be contacted prior to commencement of works regarding the scope and duration of works if they are likely to be potentially impacted. However, given the location of the site, the only direct impact is expected to be on the users of Casino Showground and Racecourse. Council should liaise with the relevant user groups as the project progresses.

The Activity is not expected to require works on private property. Any works on private land would require the proponent or the contractor to obtain a 'permit to enter' from the relevant landowner in relation to activities on private land.

Relevant warning signage would be displayed to inform public/vehicles/pedestrians of the works and any changed conditions or access, as required.

4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 - Consultation

Part 2.2, Division 1 of the TISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development.

Pursuant to Section 2.17 (1)(c) (exceptions) of the TISEPP, Sections 2.10– 2.12 and 2.14 do not apply with respect to the development to the extent that (as relevant), they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out. Given the Proposal is being carried out by or on behalf of RVC, and Council is the determining authority, these Sections do not apply.

Section 2.13 contains provisions requiring consultation with State Emergency Service (SES) for development with impacts on flood liable land. However, pursuant to 2.13 (2) (relevant provisions) of the TISEPP, Division 12 is not listed as a 'relevant provision', therefore consultation with SES is not required.

No consultation with other public authorities is triggered under Section 2.15 of the TISEPP.

Section 2.16 (Consideration of Planning for Bush Fire Protection) of the TISEPP is not appliable to the Proposal.

4.3 Aboriginal Community

The proposed Activity is to take place within an area which has been highly disturbed and modified. No significant risk or impact to Aboriginal heritage is expected. Consultation with the Aboriginal community is not required under point 5 (p.3) of the document *Due Diligence Code of practice for the protection of Aboriginal Objects 2010* (refer to **Section 5.3** for further details).

5. Environmental Assessment

5.1 Biodiversity

5.1.1 Existing Environment

BioNet Atlas Search

A search of the BioNet Atlas (22/03/2022) was completed to identify records of threatened species recorded within a 10 km x 10 km search area centred on the site (refer to **Appendix B**). Results indicate nine threatened flora species and 28 threatened fauna species have been recorded within the search area and potential habitat occurs for 12 threatened ecological communities. Relevant species/communities are included in the potential occurrence assessments in **Appendix C**.

EPBC Protected Matters Report

The Protected Matters Search Tool (PMST) identified 35 threatened species and three threatened ecological communities which may have habitat within a 10 km radius of the site (refer to **Appendix B**). Relevant species are included in the potential occurrence assessments in **Appendix C**.

Sixteen migratory species listed under the EPBC Act were identified within the search area by the PMST. The site does not comprise important habitat for these species as defined in the *Matters of National Environmental Significance, Significant impact guidelines 1.1, EPBC Act 1999* (Australian Government – Department of the Environment, 2013). EPBC Act listed migratory species are thus not considered a constraint for the Activity.

Areas of Outstanding Biodiversity Value

A search of the BC Act indicates that no Areas of Outstanding Biodiversity Value occur at or in proximity to the Activity area.

Wildlife Corridors

The site does not impact any mapped regional wildlife corridor of Key Habitat.

Key Fish Habitat/ Fisheries NSW Spatial Data

The Fisheries Spatial Data Portal indicates that the site is not mapped as Key Fish Habitat or as containing habitat for any threatened freshwater fish species.

Vegetation

Vegetation on the site is highly modified comprising regularly mowed areas occurring as part of the existing showground facility with infrequent paddock trees including native species; Forest Red Gum (*Eucalyptus tereticornis*), Rough-barked (*Angophora floribunda*), Silky Oak (*Grevillea robusta*) and a row of planted Broad-leaved Paperbark (*Melaleuca quinquenervia*). Additionally, a number of exotic paddock trees occur including Cadaghi (*Corymbia torelliana*), Camphor Laurel (*Cinnamomum camphora*) and Pepper Tree (*Schinus molle*).

Immediately to the north of the proposed upgrade a constructed farm dam occurs which is vegetated with sedgeland/ wetland plants including *Eleocharis* spp. This area is representative of a highly degraded area of Plant Community Type *780 Coastal floodplain segelands, rushlands, and forblands of the North Coast*. To the east and southeast of this area a wet pasture complex occurs which is also indicative of a moderately degraded form of PCT 780.

An area of high-quality floodplain forest occurs to the east of the racecourse which is representative of PCT *837 Forest Red Gum – Swamp Box of the Clarence Valley lowlands of the NSW North Coast Bioregion*. This area would not be impacted by the Proposal.

Plate 5.1 Example paddock tree occurring on the site

Plate 5.2 Planted row of Broad-leaved paperbark on the site

Plate 5.3 Constructed farm dam to the north of the site.

Plate 5.4 Wet pasture/ wetland to the east of the site

Threatened Flora

No threatened flora species were recorded within the Activity footprint. One threatened flora species, *Rotala tripartita* was detected outside the Activity footprint to the east of the existing racetrack associated with a wet depression with an existing farm dam. This species would not be impacted by the Proposal.

Threatened Ecological Communities

Wetland vegetation associated with PCT 780 is indicative of the BC Act listed TEC, *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*. This vegetation is not indicative of any EPBC listed TEC.

The area of PCT 837 to the east of the racecourse is indicative of the BC Act TEC, Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion. This TEC would not be impacted by the Proposal.

Section 5A assessments were completed for the Freshwater Wetland TEC (refer to **Appendix D**) which determined that the Proposal would be unlikely to have a significant impact on the local occurrence of this community.

Priority Weeds

Environmental/ agricultural weeds occur commonly on the site. No priority weed species listed in the *Biosecurity Act 2015* occur within the Activity footprint.

Threatened Fauna

No threatened fauna was observed during the site assessment. Based on potential occurrence assessments in **Appendix C** the following threatened fauna species were considered to have some potential to occur at the site occasionally:

- Eastern Coastal Free-tailed Bat
- Little Bent-winged Bat
- Greater Broad-nosed Bat
- Koala
- Grey-headed Flying-fox

Section 5A assessments were completed for the above species (refer to **Appendix D**) which determined that the Proposal would be unlikely to have a significant impact on the local population of any of the subject species.

5.1.2 Potential Impacts

The Proposal would involve removal of the following trees as shown on **Illustration 5.1**:

- 1 x Forest Red Gum – 80 cm diameter at breast height (DBH)
- 1 x Forest Red Gum – 30 cm DBH
- 1 x Silky Oak – 20 cm
- 10 x Broad-leaved Paperbark 10 cm DBH
- 1 x *Pepper Tree – 20 cm DBH
- 1 x *Camphor Laurel
- 1 x Rough-barked Apple – 50 cm

** Exotic trees to the locality*

None of the above trees contained hollows or nests. It is noted that Forest Red Gum is a primary Koala feed tree. The removal of the above vegetation would have negligible impacts on the availability of fauna habitat locally given the relatively large areas of Forest Red Gum Forest occurring nearby, which provide larger and better quality habitat than that occurring on site.

A stormwater management plan has been prepared for the Proposal by Ardill Payne and Partners (**Appendix H**). The plan concludes that:

- The downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP.
- The proposed stormwater system will meet the quality targets outlined in Table I-9.1 Stormwater Quality Targets, of the RVDCP Part I 9 – Water Sensitive Urban Design.
- Liquid and solid waste collection and treatment was not considered by this report as these areas shall instead be drained to the sewer network and shall be treated separately.

As part of the plan a swale is proposed linking the small dam to the north of the site with a larger dam to the west of the Proposal. This would require minor earthworks within areas of PCT 780 (Freshwater Wetland TEC) occurring on the site. Allowing for a 6 m works corridor for construction of the swale, approximately 0.16 ha of wetland vegetation (PCT 780/ TEC) is estimated to be impacted. Post-construction the swale is likely to recolonise with locally occurring wetland/ grass species.

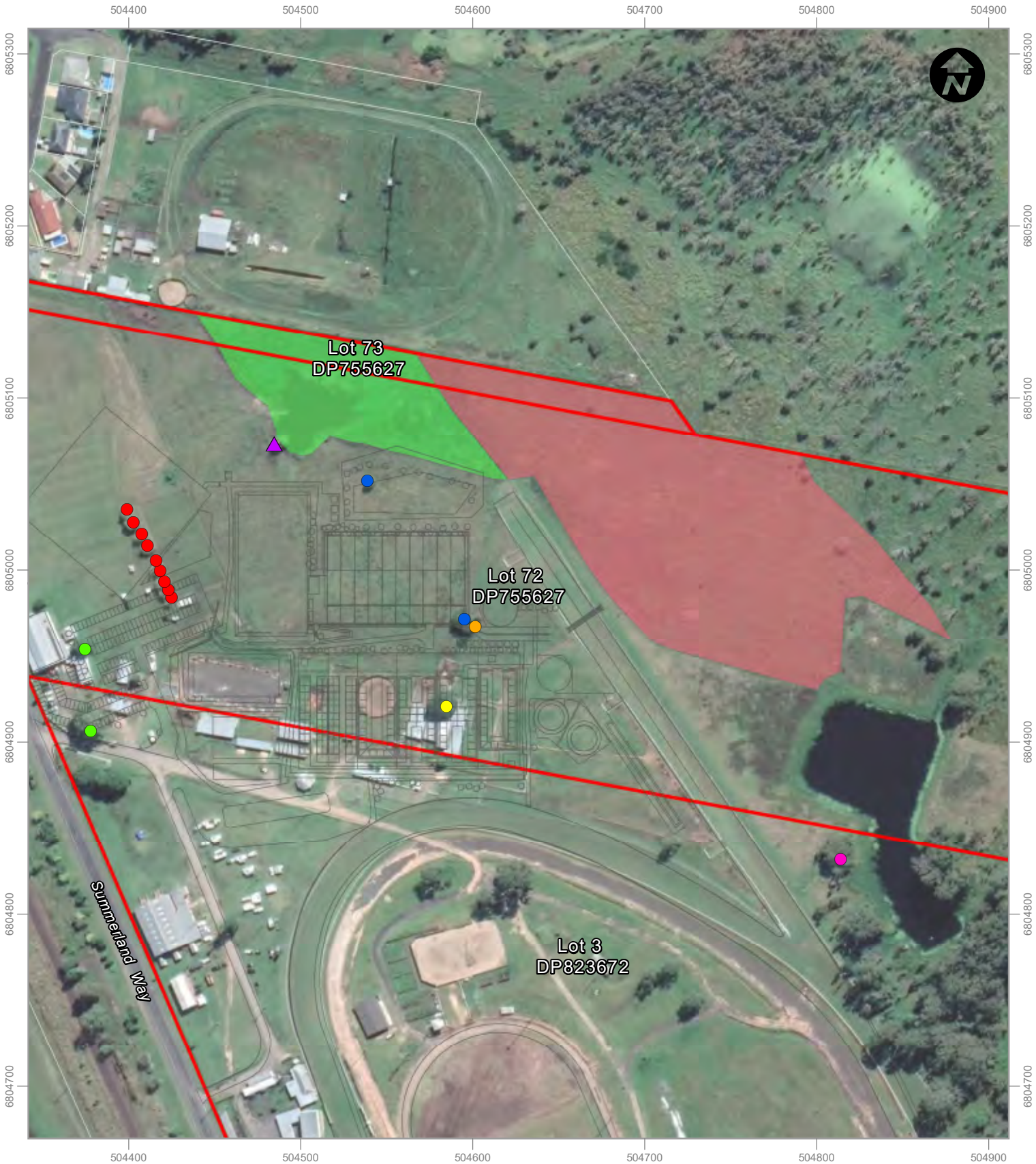
5.1.3 Conclusion

The Activity would have minor impacts including the removal of 14 native and two exotic trees occurring within a highly disturbed site. Allowing for a 6 m works corridor for construction of the swale, approximately 0.16 ha of PCT 780 (Freshwater Wetland TEC) is estimated to be impacted by construction of the swale. Post-construction the swale is likely to recolonise with locally occurring wetland/ grass species.

The Activity is unlikely to have a significant impact on any threatened species or communities listed under the BC Act, EPBC Act or FM Act.

5.1.4 Safeguards and Mitigation Measures

1. Construction of the swale within wetland areas would minimise impact to wetland vegetation by:
    - Restricting works within a 6 m corridor along the footprint of the swale.
    - Removing spoil from construction of the swale outside of the wetland area.
2. If unexpected, threatened fauna or flora species are discovered, stop works immediately and notify the relevant Project Manager.
3. Ensure all plant, equipment and personnel are free of soil and potential weed propagules prior to being brought to the site.
4. Erosion and sediment control measures must be implemented (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction guidelines [the Blue Book]) and maintained to prevent sediment moving off site and sediment laden water entering any water course during the construction process.
5. Given the potential for occurrence of Koalas at or near the site a pre-clearing survey of trees to be removed is to be undertaken immediately prior to clearing being undertaken. If Koalas are present (including within 50 m of trees to be removed), clearing would be suspended until the Koala vacates the site of its own volition.
6. Environmental safeguards would be communicated to all construction personnel as part of an Environmental Site Induction and repeated where appropriate at Toolbox Sessions prior to commencement of relevant work components.



LEGEND

- Site boundary
- Cadastre
- PCT 780 (highly degraded) - TEC
- PCT 780 (moderately degraded) - TEC
- Upgrade design

Trees to Remove

- Broad-leaved Paperbark
- Camphor Laurel
- Forest Red Gum
- Pepper Tree
- *Rotala tripartita* - **Threatened species**
- Rough-barked Apple

Tree to be Retained

- Broad-leaved Paperbark

0 60 Meters

Biodiversity Mapping - Illustration 5.1

GeoLINK environment | engineering | planning | design

Casino Showground Upgrade Review of Environmental Factors
4257-1007

Information shown is for illustrative purposes only
Drawn by: AB Checked by: DGH Reviewed by: JTS
Source of base data: Google Earth
Date: 17/06/2022

5.2 European Heritage

5.2.1 Non-Aboriginal Heritage

Searches of the Australian Heritage database, Heritage NSW State Heritage Inventory database (see Appendix C) and Schedule 5 of RVLEP 2012 were undertaken. The searches did not locate any heritage items within or proximate to the site.

The site is already heavily disturbed and developed. The Proposal does not present any risk to Non-Aboriginal heritage and will not impact any known heritage sites.

5.2.2 Safeguards and Mitigation Measures

7. If any suspected archaeological items are uncovered during works associated with the Proposal, all works will cease in the vicinity of the material/ find. Contact with Council and Heritage NSW will be made immediately. Works would not recommence until all clear is given.

5.3 Aboriginal Heritage

5.3.1 Aboriginal Heritage

An Aboriginal Heritage Information Management System (AHIMS) basic search was undertaken. The search did not identify the subject Site as possessing items/ places of registered Aboriginal significance (see **Appendix E**).

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* provides an assessment process to determine if the proposed activity may harm Aboriginal objects and to determine whether an Aboriginal Heritage Impact Permit (AHIP) is required.

Table 5.1 Generic Due Diligence Process

Generic Due Diligence Process	Proposed Activity
Will the activity disturb the ground surface or any culturally modified trees?	The ground surface will be disturbed for the works. However, the proposed works occur within existing disturbed and developed land. Hence the site is already highly modified and disturbed. No culturally modified trees will be disturbed.
Are there any: 1. Relevant confirmed site records or other associated landscape features information on AHIMS? and/or 2. Any other sources of information of which a person is already aware? and/or 3. Landscape features that are likely to indicate presence of Aboriginal objects?	1. A search of the AHIMS database revealed that there are no registered sites within or immediately adjacent to the proposed works. 2. There are no sources of information of which the author is aware. Given the development and disturbance history of the infrastructure alignment, there is nothing to suggest that Aboriginal objects are likely to exist within the works footprint. 3. The site has both been modified by land clearing, development and ongoing maintenance. The works are not located near a watercourse or within a sand dune system, ridge top, ridge line or headland. The alignment is not within 200 m of a cliff face or within 20 m of a cave, rock shelter or cave mouth. The land upon which the Activity is proposed is unlikely to retain any potential undiscovered archaeological sites or heritage items.

Given the above, it is reasonable to conclude that there are no known Aboriginal site/objects within the works footprint, and it is unlikely that objects/sites would occur. The generic due diligence process indicates the proposed activity is not anticipated to impact upon Aboriginal heritage and can proceed without further assessment or applying for an Aboriginal Heritage Impact Permit (AHIP).

Although low in risk, the following safeguard measures will be implemented in order to prevent adverse impacts to any undiscovered items of Aboriginal heritage:

5.3.2 Safeguards and Mitigation Measures

8. If Aboriginal cultural material is identified on site, a Stop Work Procedure will be followed, which includes:

    - Works will cease immediately
    - A temporary exclusion zone established
    - Council's project manager and the Local Aboriginal Land Council contacted immediately
    - Heritage NSW contacted immediately.

9. Aboriginal human remains – should skeletal material be exposed during ground disturbance, work will cease immediately, and contact made with NSW Police, National Parks and Wildlife and the Local Aboriginal Land Council as per Heritage NSW requirements.
10. Notifying Heritage NSW – it is a legislative requirement that cultural heritage materials uncovered as a result of the Proposal are registered as Aboriginal sites on the AHIMS database within the required timeframe.

5.4 Built Form, Off-site and Visual Amenity

Given the site context, separation from residential land, and arrangement of the proposed redevelopment works, the Proposal would not result in adverse off-site amenity impacts (e.g. there would be no adverse or unreasonable overshadowing, visual bulk, reduction in solar access) to sensitive land uses. Appropriate materials and finishes have been selected to complement the rural landscape, nature of the use and is not expected to cause unreasonable glare or reflectivity.

The Site is already developed with various built form and infrastructure and is relatively large in scale. Overall, the Proposal responds to a comprehensive and endorsed PoM and Master Plan.

Consideration of the visual impact of the Proposal takes into account the visual modification to the existing environment caused by the Proposal and the visual sensitivity of the surrounding environment or nearby potential visually sensitive receivers. Visual modification refers to the effects the Proposal has on the existing environment. It compares the appearance of the development, the existing environment's ability to absorb the development's appearance and the distance at which the development is viewed. These visual impacts compare visual qualities to the existing environment before development to provide a comparison. Visual modification is furthermore influenced by vegetation as well as topography. Colours and finishes also influence the level of visual modification.

Visual sensitivity assesses the level of perception of change and is influenced by the distance at which visual modifications are made and the mode by which they are viewed (e.g. vehicles driving past the site versus residents located in proximity to the site that have a permanent view of the site/ development).

The proposed redevelopment is sited within the large Reserve dedicated for the Casino Showground and Racecourse. It reflects the PoM and Master Plan. It is acknowledged that the Proposal involves construction of a large roofed and open structures that results in a notable change to built form present

on site. However, the site is expansive, and the proposed redevelopment design and layout adequately integrates into the site's context and general landscape setting.

The design response is appropriate and considers the land use purpose of the Reserve and general character of the Site and area. Whilst the redevelopment would introduce additional and expansive built form, this is suitable for the site's scale, visual character, and purpose. Furthermore, most buildings are of a single storey scale, with the arena being similar to a two-storey scale. This scale is compatible with the site and land use context.

Visual aspects of the site include surrounding rural landscapes, with a residential zone adjoining the far northwest corner of the Reserve, located about 120 m north of the development footprint at its closest point. There are also some nearby rural dwellings. The site lies approximately 2.1 km to the south-east of the Casino town centre, or a short distance south of the urban fringe. The Casino Airport is situated about 500 m to the northeast of the proposed development area. The nearest rural dwelling is located on the western side of Rifle Range Road, to the west of the railway line and the Summerland Way, approximately 120 m from the Site. Overall, the quality of the area's visual environment in which the site is located is considered medium given the combination of surrounding vegetation and rural lands, along with nearby modified sites and existing development/infrastructure.

The subject site is accessed from Summerland Way, which connects to Elllangowan Road. The facility is only visible during final approach along Summerland Way. Users of the surrounding road network and rail line are not expected to experience adverse visual impact. Also due to the flat topography and landscape context, in most cases it is unlikely that the redevelopment would be obvious from distant viewpoints.

Some vegetation screening, including an open forest, currently screens views from the southwest corner of the site. The Proposal will also require the removal of trees that are currently within the construction footprint. These trees are scattered individuals and do not represent significant visual amenity nor provide a continuous well-defined natural screen. The removal of these trees will only result in a minor impact on the visual amenity of the site and would not be of detriment to any nearby visually sensitive receivers.

Materials and finishes have been selected to reflect the rural and Australiana character. Materials selected would ensure no unreasonable glare or reflectivity is created that could adversely affect the comfort or safety of road traffic, aircraft, or pedestrians. The palette of materials and finishes are considered to be complementary and appropriate for the purpose and context.

The proposed redevelopment and largest structures are well setback from the Reserve's boundaries. The nearest residential uses are well separated and therefore would not be subject to visual bulk and dominance. Whilst the visual change would be obvious for nearby residents, these receivers would not experience a significant change to their immediate visual environment or the level of visual quality enjoyed. Any perception of the development would be notable but not considered adverse due to the lack of sensitivity and most local residents would be aware of the existing showground facility and its intended upgrade.

Given the location of the Proposal in the context of existing views and distance from potential sensitive receivers to the Proposal, visual sensitivity to the Proposal in this context is considered low. Soft landscaping will also aid in aesthetics and enhancement of visual amenity. Visual impacts associated with the Proposal would be limited to a minor level within the surrounding landscape due to the distance of sensitive visual receivers from the Proposal and suitability of the design response for the Site's context. Overall, whilst the redevelopment would be substantial and obvious when viewed in its immediate context, the visual impact of the Proposal on the broader landscape and surrounding potential sensitive visual receivers is considered low and acceptable.

Building Code of Australia (BCA) advice from a building surveyor/certifier has been provided and the proposed redevelopment is expected to satisfy relevant requirements (refer to **Appendix K**).

5.4.1 Safeguards and Mitigation Measures

11. Appropriate materials and finishes would be selected to ensure it is satisfactorily sympathetic to the surrounding landscape.
12. The building materials/colours used on the buildings are to be selected/designed so as not to result in glare/reflectivity that causes discomfort or threatens the safety of road users, pedestrians or airspace.
13. Appropriate soft landscaping in accordance with the landscape plan would be implemented and maintained.
14. The implementation of the other mitigation measures and safeguards outlined throughout this report would help to prevent/ minimise any visual impacts.

5.5 Bushfire

5.5.1 Existing environment

According to Council mapping, the eastern portion of the site is identified as Bushfire Prone Land, along with land to the north, south and east. Most the adjoining land on the northern and southern boundaries of the site has been heavily cleared. The footprint of the proposed redevelopment is not mapped as Bushfire Prone Land or associated hazard vegetation.

5.5.2 Potential Impacts

Given the site context and nature/purpose of the proposed development, the expected risk from bushfire is considered relatively minor. The proposed development is not a Special Fire Protection Purpose and does not require a bushfire safety authority under Section 100B of the *Rural Fires Act 1997*. The Proposal would not increase bushfire risk.

5.5.3 Safeguards and Mitigation Measures

15. No bushfire mitigation is required.

5.6 Soils, Erosion and Sedimentation

5.6.1 Acid Sulfate Soil

In accordance with Richmond Valley LEP 2012, the site and the Proposal is not mapped as being within or near an area identified as containing Acid Sulfate Soils. Therefore, an Acid Sulfate Soils Management Plan is not required for this Proposal and no impacts would result.

5.6.2 Land Contamination

A search of the NSW Environmental Protection Authority contaminated land database found one record of contaminated land in the Richmond Valley Council area (see **Appendix F**). This record is not located on or near to the subject development site.

A search of the Department of Primary Industry Dip Sites confirmed no known dips occur on or near the site (see **Appendix F**).

The Proposal is for redevelopment of the site and would affect an already disturbed and developed Reserve that has been historically used for horse and recreational related activities. There is no

proposed change in land use, nor anything to suggest that contamination is present. Standard construction measures and safeguards would be implemented to ensure that any unexpected potential exposure of contaminated material would be dealt with effectively and in accordance with EPA and/or Council policy and guidelines.

5.6.3 Soil and Erosion Control

The proposed works area affects a site that is already disturbed and developed. However, there is the potential for works to impact soils and water resources during the construction phase. During construction, the key risks would be from erosion and sedimentation as a result of the works and ground disturbance. The local topography is relatively flat and there are watercourses and drainage lines in the nearby surrounding environment, including wetlands further north of the site. Whilst these water resources exist locally, no watercourses or water bodies traverse the proposed works site and none are found immediately adjacent to the works area.

Therefore, the level of risk for erosion and sedimentation impacts is low and standard construction management measures for the control of erosion and sedimentation would appropriately avoid and/or mitigate any potential impacts. An erosion and sediment control plan would be prepared for the development and implemented on site before the works commence. Subject to implementation of the safeguards below, no adverse impacts would result.

5.6.4 Safeguards and Management Measures

16. Any exposure or disturbance of potentially/ suspected contaminated soil or material would be managed in accordance with relevant EPA and Council policy and guidelines. Any required disposal of such waste would be at a licensed facility.
17. Prepare a detailed and site-specific Sediment and Erosion Control Plan in accordance with the Landcom/ Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book) and implement on site before works commence.
18. Install a temporary construction entry/ exit sediment trap at the site accesses to minimise mud and sediment from the site being tracked onto public road, particularly during wet weather or when the site is muddy.
19. Implement and maintain appropriate control measures such as catch drains and sediment fences to prevent ponding of stormwater or discharge of stormwater from the site to adjacent properties.
20. Works would only commence once all erosion and sediment controls have been established. The controls would be maintained in place until the works are complete and all exposed erodible materials are stabilised.
21. Regularly check and maintain erosion, sedimentation and stormwater control measures.
22. Surplus material and excess spoil must be stockpiled, tested, classified (in accordance with Schedule 1 of the Protection of Environment Operations Act 1997 (POEO Act)) and disposed of in accordance with the waste classification requirements.

5.7 Water Quality, Flooding, and Stormwater

5.7.1 Water Quality

The proposed Activity could present risks to nearby waterways and any downstream wetland environments if not managed effectively. Construction activities that could present a risk to sensitive environments in the broader landscape (such as wetlands) include:

- Erosion and sediment disturbance that could disperse from the works site and impact local drainage lines and nearby waterways.
- Turbidity and sedimentation of local aquatic habitats and waterways.

- Pollution of local water quality (both ground and surface water) from pollutants from machinery and construction materials and spills.
- A variety of dispersible liquid materials would be used which pose a potential pollutant threat to local water quality. These liquids include, but are not limited to, diesel, unleaded petrol, machinery oils and lubricants. The nature of these liquids and their ability to disperse away from the work site means that they could have a negative impact on ground or surface water on or adjacent to the site, especially during rain.
- Periods of high rainfall or flood could exacerbate potential water quality impacts if works are in progress during such an event.

Whilst the works could pose these risks, such risks can be suitably avoided, minimised and managed by implementing appropriate safeguards and mitigation measures. With appropriate mitigation measures in place during construction, the Activity is considered unlikely to present significant risk to nearby water environments in the surrounding area. The Activity would not adversely affect the biophysical, hydrological or ecological integrity of the nearby wetlands in the surrounding area, nor would it significantly impact or alter the quantity and quality of surface and ground water flows to and from such environments (refer to stormwater assessment in **Section 5.7.45.7.3**).

Post construction the Activity would not negatively impact water quality, nor riparian or wetland environments.

5.7.2 Safeguards and Management Measures

The following measures will be implemented in order to prevent adverse impacts relating to water quality:

23. Where possible, avoid works during forecast high rainfall events and plan works to occur during periods of no or low flow.
24. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment.
25. Any required fuels and other liquids will be stored in self-safe chemical storage containers.
26. All refuelling of plant and equipment will be in appropriately designated areas away from drainage lines or watercourses (at least 40 m) and managed in order to prevent any potential spills leaving the refuelling area (e.g. use of bunded areas).
27. Cleaning or washing is not to occur near waterways or drainage lines.
28. All equipment will be maintained in good working order and operated according to manufacturer's specification.
29. No waste and/or wastewater will be discharged directly or indirectly in drains or waterways.
30. Visual monitoring of local water quality (i.e. turbidity, hydrocarbon spills/slicks) within construction site and adjacent area is to be undertaken on a regular basis to identify any potential spills or deficient erosion and sediment controls during construction.
31. The Council and EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555).

5.7.3 Flooding

The Richmond River Flood Mapping Study (2010) and associated Casino Floodplain Hazard Categories (2001) indicates the site is partially subject to flooding. However, the proposed redevelopment area is generally mapped as a low hazard area or rarely floods. A higher risk of flooding is present in the east and southern extents of the site. The proposed redevelopment is not for habitable purposes and does not represent a community facility used for flood evacuation purposes. The proposed development is acceptable in this regard. Given the redevelopment footprint appears to be situated within the "rare low

hazard – extreme flood fringe" it is not expected to significantly displace flood water or adversely affect flood levels.

5.7.4 Stormwater Management

A Stormwater Management Plan has been prepared for the proposed redevelopment (refer to **Appendix H**). The plans objectives are:

- *Demonstrate that the downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP..*

  Demonstrate the proposed stormwater system will meet the quality targets outlined in Table 1-9.1 Stormwater Quality Targets, of the RVDCP Part 1 9 - Water Sensitive Urban Design .

Stormwater from the site currently discharges towards the north-eastern corner and a large paddock that drains into an existing constructed dam.

Several stormwater management measures will be employed to meet the quantity and quality requirements for the Proposal. These measures include:

- Various swales for stormwater treatment and drainage on the site
- Rainwater tanks for stormwater treatment that will reuse water collected from the roof of the proposed stables and undercover area
- Usage of the existing dam structure downstream of the development for stormwater treatment.

Stormwater runoff from the on-ground hardstand areas and minor roof areas will be directed into grass swales via overland flow paths. The grass swales will be used to treat both the runoff and direct it towards the existing dam structure. This dam will then detain and treat flows before out-letting to the vegetated land to the southwest. The roof areas shall be directed to rainwater tanks for reuse, with overflows directed to the above-mentioned swales and ultimately the dam.

The Stormwater Management Plan demonstrates that the downstream dam has sufficient capacity to detain and attenuate anticipated stormwater flows in a 1% Annual Exceedance Probability (AEP) storm event.

The Stormwater Management Plan demonstrates that the quality targets outlined in Table I-9.1 Stormwater Quality Targets of the RVDCP (Part 1-9 – Water Sensitive Urban Design) will be achieved and exceeded through a treatment train approach involving the grass swales, rainwater tanks and the existing dam. It is expected that WSUD principles for stormwater treatment outlined in the Richmond Valley DCP would be satisfied and the development would result in notably improved stormwater outcomes for the site and receiving environment.

As discussed in **Section 5.11.1**, the floor of stable areas and other horse related areas that will be washed down to clean away liquid or solid waste will not drain to the stormwater network. Such areas will be connected to and captured by the sewer network, ensuring stormwater discharge and nutrient loads is acceptable and not contaminated.

5.7.5 Safeguards and Management Measures

32. The treatment train approach outlined in the Stormwater Management Plan prepared by Ardill Payne and Partners, based on the WSUD Principles of the Richmond Valley DCP, would be implemented.
33. The rainwater tanks would be periodically maintained/cleaned.
34. Any overland flow areas or grassed swales would be maintained as necessary.

5.8 Noise and Vibration

5.8.1 Construction Noise

Noise from the Proposal would be typical of that associated with industrial scale construction work and would result from the use of plant and machinery, work vehicles, earthworks, and infrastructure installation associated with the redevelopment.

Under the EPA's Interim Construction Noise Guidelines:

- The noise management level for works during the recommended standard hours is background + 10 dB(A). Above this noise level, the proponent needs to implement all feasible and reasonable work practices, as defined in the Guideline, to minimise noise impacts
- For works outside the recommended standard hours, the noise management level is background + 5 dB(A)
- The highly noise-affected level of LAeq 75 dB(A) represents the point above which there may be strong community reaction to noise and indicates a need to consider other feasible and reasonable ways to reduce noise, such as restricting the times of very noisy works to provide respite to affected residences.

The nearest sensitive receivers (dwellings) are located about 120m away from the main works area. Given the scale, location and methodology of the proposed works, it is unlikely that the Activity would result in a highly noise-affected level of LAeq 75 dB(A) at any local sensitive receiver locations. However, certain noisy works/plant could exceed this level depending on the activity, proximity, and equipment used. Works would be of a short-term duration, however the scale of the development is sizable and will take some time to complete. All works would be undertaken during standard construction hours. Appropriate noise and vibration management measures would be documented in a Construction Environmental Management Plan (CEMP) and implemented to minimise the impact and ensure receivers are informed of the works.

5.8.2 Construction Vibration

Vibration impacts resulting from the Proposal would are not expected to be significant given the separation distance between the works and sensitive receivers. The CEMP would include suitable measures and safeguards to manage vibration should it occur.

5.8.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to avoid and minimise any potential adverse impacts relating to noise and vibration:

35. Construction activities will be undertaken in accordance with EPA recommended standard construction hours:

    - Monday to Friday 7:00 am to 6:00 pm
    - Saturday 8:00 am to 1:00 pm
    - No work on Sundays or public holidays.

36. A Construction Noise and Vibration Management Plan shall be prepared by the Contractor as part of the CEMP and implemented for all works accordingly. The management plan will include controls relevant to management and minimise of noise and vibration specific to the proposed works.
37. Any noise complaints will be recorded and include suitable identification/description of the noise source (e.g. continual/impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.

38. The most appropriately sized tool for the respective job would be used, keeping in mind that the smaller the tool, the less potential noise generated.
39. All vehicles and equipment will be turned off and not left idling when not required for work uses.
40. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.
41. Carry out consultation with the affected sensitive receivers / occupants prior to construction including, but not limited to: advanced notification of planned activities and expected disruption/ effects, construction noise complaints handling procedures.

5.9 Air Quality

5.9.1 Existing Environment

The Activity is located in a rural context on the outskirts of urban area. Potential airborne particles within the locality are largely restricted to vehicle emissions and potential minor dust generated by vehicle movements and agricultural activity in the broader landscape. Generally, air quality in the local area is good.

5.9.2 Potential Impacts

During the construction of the proposed building work and associated infrastructure, there is the potential for the generation of airborne dust emissions from ground disturbance, windblown construction materials and from construction machinery use onsite

The only atmospheric pollutants created during the proposed works will consist of exhaust emissions from trucks and machinery which would contribute to carbon monoxide, carbon dioxide, hydrocarbons and nitrogen oxides into the atmosphere and these will not increase, rather remain the same. However, such emissions would occur only intermittently and are unlikely to significantly affect air quality. Overall, given the temporary duration of the works and nature of the Activity, the level of potential impact is not considered significant and can be managed or minimised through implementation of common safeguards and management measures.

Given the nature of the Proposal, it would not affect air quality post construction.

5.9.3 Safeguards and Management Measures

The following mitigation measures will be implemented to prevent adverse impacts relating to air quality:

42. Vegetation or other materials will not to be burnt on site.
43. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation.
44. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.
45. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle.
46. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.
47. Dust suppression techniques would be utilised to minimise the potential for dust generation/ dispersal during works, as required.
48. Disturbed soils would be progressively stabilised.

5.10 Socio-economic

The Casino Showground and Racecourse is an important recreational, social and economic asset for Casino and the region. The redevelopment and upgrade of the facilities would significantly enhance the quality and offering of equestrian based and recreational infrastructure. Completion of the development would modernise the facility and cater for higher level events and a broad range of uses and attraction. The Proposal would produce socio-economic benefits for the LGA, the region and the State by:

- supporting employment
- supporting the community through capital investment in the region in social and recreational infrastructure
- improving facility maintenance, WH&S and animal welfare conditions
- improving the longevity and competitiveness of the Casino Showground and Racecourse by providing much needed upgrades and redevelopment of an otherwise aging facility.

The Proposal will deliver benefits to the locality and region in terms of local expenditure, employment and improved social and sustainability outcomes. The Proposal overall, through the upgrade of such recreational and equestrian facilities would modernise an important, but aged, regional facility that would help it transition into a high-quality facility and be a regional drawcard. The improvements will support the Casino Showground and Racecourse in becoming a standout community and equestrian facility in the region that would generate long-term socio-economic benefits.

The proposed Activity is unlikely to cause any negative long-term socio-economic impacts. There may be minor disruption, possible use and traffic disruption within the Site, and noise associated with the works, however all these (and other) potential impacts can be minimised and managed through adoption of the recommended safeguards and measures. There would be no significant disruption to businesses, residents, traffic or access.

Overall, the development would result in positive socio-economic outcomes.

5.10.1 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse socio-economic impacts:

49. Contractors/workers will be mindful of the needs of the local community.
50. Any potentially impacted parties or landholders will be consulted prior to construction with a goal of minimising or eliminating any adverse impacts.
51. Any changes to public or private roads (including private driveways) as a result of the works will be reinstated to an acceptable standard upon completion of the works.

5.11 Waste

Waste generated from the construction and operation of the Proposal may include, but is not limited to:

- packaging material
- general site rubbish
- used containers, bags and packaging
- oils and grease from machinery
- metal cut offs and scrap metal
- soil spoils
- general building materials waste.

The Activity would be undertaken to ensure minimal impacts are generated from waste material produced on site by ensuring that waste is firstly minimised and that any waste generated is collected and disposed of, or recycled, in accordance with RVC waste disposal protocols and EPA guidelines. Waste volumes are not expected to be significant and where generated it would be transported off-site and recycled where possible or disposed of appropriately at a licensed facility. No materials would be used in a manner that poses a risk to public safety.

RVC would develop and implement suitable operational waste management protocols.

5.11.1 Animal Effluent and Trade Waste

The floor of stable areas and other horse related areas that will be washed down to clean away liquid or solid waste will not drain to the stormwater network. Sewer/trade waste connections will be installed, and these areas shall be drained to the sewer network and treated accordingly as trade waste, ensuring effluent and waste from horses is captured and disposed of effectively and stormwater discharge is not contaminated (refer to the Hydraulic Services Plan at **Appendix I**).

5.11.2 Safeguards and management measures

52. During construction, the worksite will be maintained, kept free of rubbish and cleaned up at the end of each working day.
53. Ensure the responsible environmental management of wastes that cannot be avoided and would promote opportunities for the re-use of waste products where appropriate.
54. Waste that cannot be recycled will be stored in skip bins (or similar) onsite. The skip bins will be collected on a regular basis and transported off-site for disposal to a licensed landfill or recycling facility.
55. Where required, excavated soil will be appropriately disposed of in accordance with the NSW EPA requirements.
56. All stables and horse wash down areas would be connected to sewer/trade waste in accordance with the Hydraulic Services Plan prepared by Moreton Hydraulic Services.

5.12 Traffic and Parking

Access to the existing facility is from Summerland Road. Internal access roads are gravel and there is no formal on-site parking currently provided.

5.12.1 Construction Phase

Traffic movements associated with the construction phase of the proposed Activity would use Summerland Road. This road is a main road and currently supports heavy vehicle movements; therefore, any trucks or vehicles required to supply the construction phase are not expected to impact traffic conditions on Summerland Way.

Traffic would be generated by the construction phase through:

- construction employees entering and leaving the site;
- truck deliveries to the site for construction purposes;
- equipment and plant being delivered to the site for construction purposes; and
- periodic deliveries to the site of construction materials.

The existing volume and frequency of traffic on Summerland Way and to and from the site would render any additional traffic movements associated with the temporary construction period as low. The impact of additional traffic movements associated with the proposed construction activities would

represent a modest and temporary increase compared to existing traffic movements. Post construction, traffic movements would be consistent with existing levels. Given the location of the facility, current accessibility and the temporary nature of the construction period, no adverse construction traffic impacts would result.

5.12.2 Operational Traffic and Parking

Whilst no change of use is proposed, the proposed Activity is for redevelopment of the facility and provision of infrastructure that would facilitate additional usage and events. There would be no alteration to the location of access to the site in terms of deliveries and public/ staff attendance.

The internal road network will be upgraded by way of improved sealed roads that have been suitably designed to access the facilities provided, and cater for car and large truck manoeuvrability. Formal on-site parking will also be provided in suitable locations. The carparking will be sealed and line marked. Parking would be constructed in accordance with relevant Council design standards.

Typical regular/general use of the facility is not expected to generate significant traffic. Major events would likely generate periodic higher traffic volumes and parking demand, however the Showgrounds and Racecourse already caters for periodic larger events and therefore this is not a significant change. The proposed redevelopment and associated formalised infrastructure is expected to improve the site and suitably support regular and occasional higher traffic and parking demands. Given the nature of the facility, the site context, connection with a main road, and the subsequent improvements to internal access/roads, no adverse operational traffic impacts are expected.

There are no minimum parking numbers specified in the Richmond Valley Development Control Plan for outdoor recreation facilities, such proposals are to be considered on merit. The formalised carpark is a substantial improvement compared to existing conditions and is considered to strike the right balance between adequate provision for general regular use and larger events. It is acceptable that informal overflow parking be used for larger occasional events at such facilities. Overall, the parking provision will be a benefit in terms of providing accessible, orderly, and quality public parking at the upgraded facility, whilst also reducing dust and sediment tracking from regular movements and the current informal arrangement.

Overall, there are no expected traffic, access, or parking impediments to the proposal.

5.12.3 Safeguards and Management Measures

57. Where possible, current traffic movements would be maintained during the works.
58. Regard to public safety would be maintained at all times.
59. In the unlikely event of a requirement to close a road or alter access during works, sufficient and appropriate notification will be provided to affected users and a Traffic Control Plan implemented.
60. Parking and access roads would be constructed in accordance with relevant Council design standards.

5.13 Climate Change

5.13.1 Existing Environment

Anthropogenic climate change associated with global warming is the result of human activities creating greenhouse gas emissions which in turn affects the environment. Anthropogenic climate change and the need to reduce emissions is a key issue of global, national and local importance.

5.13.2 Potential Impacts

The Activity would contribute to carbon emissions and anthropogenic climate change to a minor extent via the production of greenhouse gas emissions by construction equipment and traffic as well as the consumption of materials requiring carbon emissions and the removal of vegetation that may otherwise act as a carbon sink. Given the scale of the works however, the influence on emissions and climate change would be negligible. However, it is appropriate to implement measures that can reduce or minimise cumulative emissions and related effects.

5.13.3 Safeguards and Management Measures

Mitigation measures to prevent address impacts in relation to climate change include:

61. Vehicles and equipment will be switched off when not required for direct construction activities.
62. Waste will be minimised and is otherwise to be recycled or disposed of appropriately.
63. Vegetation removal would be minimised as far as practical.

5.14 Cumulative Impacts

Under Section 171 of the EP&A Regulation 2021, any cumulative environmental effect with other existing or likely future activities must be taken into account when assessing the impact of an activity for the purposes of Part 5 of the EP&A Act.

The Activity is expected to add to a number of cumulative impacts including resource consumption, vegetation clearing and generation of greenhouse gas emissions (e.g. through operation of vehicles and equipment, use of resources). However, the relevant mitigation measures stated throughout **Section 5** and the methodology for completion of the Activity aim to minimise the extent to which it contributes to cumulative adverse environmental impacts. There are no other known significant developments or works that would coincide with the proposed Activity and have the potential to result in adverse cumulative amenity and environmental impacts. No significant cumulative impacts are expected.

5.15 Ecologically Sustainable Development

The objectives of the EP&A Act require that the principles of Ecologically Sustainable Development (ESD) are considered and evaluated in the environmental assessment process and in the determination of a development application. Whilst a development application is not required for this project, consideration of these principles is useful.

5.15.1 Precautionary Principle

The EP&A Regulations 2021 defines the precautionary principle as the following:

> *If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

To satisfy the precautionary principle, this REF has conducted a thorough analysis of potential environmental, economic and social concerns. This assessment has identified and examined potential impacts and developed appropriate mitigation measures and safeguards to help avoid and/or minimise impacts and safeguard the environment. Considering this assessment's findings, the Activity is unlikely to impose significant and/or long-term adverse impacts on the environment, economy, or community. The mitigation measures and safeguards outlined in this REF would be implemented to ensure sound environmental outcomes in all aspects of the Activity.

5.15.2 Inter-generational Equity

The EP&A Regulations 2021 defines the inter-generational equity as the following:

> *That the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*

The Proposal would not significantly affect the viability of threatened species, or any endangered ecological communities (EECs) or other environmental resources including water, soil and air. Therefore, local environmental values would not be substantially adversely affected by the Proposal and would be maintained for future generations. The development would have positive socio-economic effects and benefit future generations.

5.15.3 Conservation of Biological Diversity and Ecological Integrity

The EP&A Regulations 2021 defines the conservation of biological diversity and ecological integrity as the following:

> *That conservation of biological diversity and ecological integrity should be a fundamental consideration.*

The impacts to ecological integrity and conservation of biological diversity at the site have been assessed as part of this REF. No threatened species, endangered populations or TECs are likely to be significantly affected by the Activity. No populations of native species are likely to be made locally rare or unviable as a result of the Activity. Consequently, the ecological integrity and biological diversity would be maintained locally.

5.15.4 Improved Valuation, Pricing and Incentive Mechanisms

The EP&A Regulations 2021 defines improved valuation, pricing and incentive mechanisms as the following:

> *That environmental factors should be included in the valuation of assets and services.*

It is difficult, however, to assign a monetary value to the environment of a locality or to environmental resources not considered for commercial use. The proponent has taken an approach to manage the potential environmental impacts of the Activity by identifying appropriate measures and safeguards to avoid or mitigate adverse environmental effects. This would ensure that the integrity of the environment is not degraded, is managed and where possible enhanced.

6. Environmental Management

The following table provides a summary of the mitigation measures and safeguards detailed in this report that would be implemented for the Activity. The identified measures would be incorporated by the Contractor into a detailed CEMP prior to commencement of works, which also outlines how risks would be minimised and the construction processes would be undertaken and managed. The objective of the CEMP is to outline parameters for site management practices during construction. All construction staff and site personnel would be inducted and made aware of their obligations working on the project, their environmental responsibilities, and the safeguard measures to avoid and minimise potential impacts. Induction and toolbox talks would commence early in the program and continue as new personnel/contractors are engaged.

Table 6.1 Summary of Mitigation Measures and Safeguards

Environmental Attribute	Mitigation Measures/ Safeguards
Biodiversity	1. Construction of the swale within wetland areas would minimise impact to wetland vegetation by: - Restricting works within a 6 m corridor along the footprint of the swale. - Removing spoil from construction of the swale outside of the wetland area. 2. If unexpected, threatened fauna or flora species are discovered, stop works immediately and notify the relevant Project Manager. 3. Ensure all plant, equipment and personnel are free of soil and potential weed propagules prior to being brought to the site. 4. Erosion and sediment control measures must be implemented (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction guidelines [the Blue Book]) and maintained to prevent sediment moving off site and sediment laden water entering any water course during the construction process. 5. Given the potential for occurrence of Koalas at or near the site a pre-clearing survey of trees to be removed is to be undertaken immediately prior to clearing being undertaken. If Koalas are present (including within 50 m of trees to be removed), clearing would be suspended until the Koala vacates the site of its own volition. 6. Environmental safeguards would be communicated to all construction personnel as part of an Environmental Site Induction and repeated where appropriate at Toolbox Sessions prior to commencement of relevant work components.
European Heritage	7. f any suspected archaeological items are uncovered during works associated with the Proposal, all works will cease in the vicinity of the material/ find. Contact with Council and Heritage NSW will be made immediately. Works would not recommence until all clear is given.
Aboriginal Heritage	8. If Aboriginal cultural material is identified on site, a Stop Work Procedure will be followed, which includes: - Works will cease immediately - A temporary exclusion zone established - Council's project manager and the Local Aboriginal Land Council contacted immediately - Heritage NSW contacted immediately. 9. Aboriginal human remains – should skeletal material be exposed during ground disturbance, work will cease immediately, and contact made with NSW Police, National Parks and Wildlife and the Local Aboriginal Land Council as per Heritage NSW requirements.

Environmental Attribute	Mitigation Measures/ Safeguards
	10. Notifying Heritage NSW – it is a legislative requirement that cultural heritage materials uncovered as a result of the Proposal are registered as Aboriginal sites on the AHIMS database within the required timeframe.
Built Form, Off-site and Visual Amenity	11. Appropriate materials and finishes would be selected to ensure it is satisfactorily sympathetic to the surrounding landscape. 12. The building materials/colours used on the buildings are to be selected/designed so as not to result in glare/reflectivity that causes discomfort or threatens the safety of road users, pedestrians or airspace. 13. Appropriate soft landscaping in accordance with the landscape plan would be implemented and maintained. 14. The implementation of the other mitigation measures and safeguards outlined throughout this report would help to prevent/ minimise any visual impacts.
Bushfire	15. No bushfire mitigation is required.
Soils, Erosion and Sedimentation	16. Any exposure or disturbance of potentially/ suspected contaminated soil or material would be managed in accordance with relevant EPA and Council policy and guidelines. Any required disposal of such waste would be at a licensed facility. 17. Prepare a detailed and site-specific Sediment and Erosion Control Plan in accordance with the Landcom/ Department of Housing *Managing Urban Stormwater, Soils and Construction Guidelines* (the Blue Book) and implement on site before works commence. 18. Install a temporary construction entry/ exit sediment trap at the site accesses to minimise mud and sediment from the site being tracked onto public road, particularly during wet weather or when the site is muddy. 19. Implement and maintain appropriate control measures such as catch drains and sediment fences to prevent ponding of stormwater or discharge of stormwater from the site to adjacent properties. 20. Works would only commence once all erosion and sediment controls have been established. The controls would be maintained in place until the works are complete and all exposed erodible materials are stabilised. 21. Regularly check and maintain erosion, sedimentation and stormwater control measures. 22. Surplus material and excess spoil must be stockpiled, tested, classified (in accordance with Schedule 1 of the Protection of Environment Operations Act 1997 (POEO Act)) and disposed of in accordance with the waste classification requirements.
Water Quality	23. Where possible, avoid works during forecast high rainfall events and plan works to occur during periods of no or low flow. 24. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment. 25. Any required fuels and other liquids will be stored in self-safe chemical storage containers. 26. All refuelling of plant and equipment will be in appropriately designated areas away from drainage lines or watercourses (at least 40 m) and managed in order to prevent any potential spills leaving the refuelling area (e.g. use of bunded areas). 27. Cleaning or washing is not to occur near waterways or drainage lines. 28. All equipment will be maintained in good working order and operated according to manufacturer's specification. 29. No waste and/or wastewater will be discharged directly or indirectly in drains or waterways. 30. Visual monitoring of local water quality (i.e. turbidity, hydrocarbon spills/slicks) within construction site and adjacent area is to be undertaken on a regular basis to identify any potential spills or deficient erosion and sediment controls during construction. 31. The Council and EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in

Environmental Attribute	Mitigation Measures/ Safeguards
	accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555).
Flooding and Stormwater Management	32. The treatment train approach outlined in the Stormwater Management Plan prepared by Ardill Payne and Partners, based on the WSUD Principles of the Richmond Valley DCP, would be implemented. 33. The rainwater tanks would be periodically maintained/cleaned. 34. Any overland flow areas or grassed swales would be maintained as necessary.
Noise and Vibration	35. Construction activities will be undertaken in accordance with EPA recommended standard construction hours: - Monday to Friday 7:00 am to 6:00 pm - Saturday 8:00 am to 1:00 pm - No work on Sundays or public holidays. 36. A Construction Noise and Vibration Management Plan shall be prepared by the Contractor as part of the CEMP and implemented for all works accordingly. The management plan will include controls relevant to management and minimise of noise and vibration specific to the proposed works. 37. Any noise complaints will be recorded and include suitable identification/description of the noise source (e.g. continual/impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required. 38. The most appropriately sized tool for the respective job would be used, keeping in mind that the smaller the tool, the less potential noise generated. 39. All vehicles and equipment will be turned off and not left idling when not required for work uses. 40. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards. 41. Carry out consultation with the affected sensitive receivers / occupants prior to construction including, but not limited to: advance notification of planned activities and expected disruption/ effects, construction noise complaints handling procedures.
Air Quality	42. Vegetation or other materials will not to be burnt on site. 43. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation. 44. Construction works will not be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. 45. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle. 46. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation. 47. Dust suppression techniques would be utilised to minimise the potential for dust generation/ dispersal during works, as required. 48. Disturbed soils would be progressively stabilised.
Socio Economic	49. Contractors/workers will be mindful of the needs of the local community. 50. Any potentially impacted parties or landholders will be consulted prior to construction with a goal of minimising or eliminating any adverse impacts. 51. Any changes to public or private roads (including private driveways) as a result of the works will be reinstated to an acceptable standard upon completion of the works.
Waste	52. During construction, the worksite will be maintained, kept free of rubbish and cleaned up at the end of each working day. 53. Ensure the responsible environmental management of wastes that cannot be avoided and would promote opportunities for the re-use of waste products where appropriate.

Environmental Attribute	Mitigation Measures/ Safeguards
	54. Waste that cannot be recycled will be stored in skip bins (or similar) onsite. The skip bins will be collected on a regular basis and transported off-site for disposal to a licensed landfill or recycling facility. 55. Where required, excavated soil will be appropriately disposed of in accordance with the NSW EPA requirements. 56. All stables and horse wash down areas would be connected to sewer/trade waste in accordance with the Hydraulic Services Plan prepared by Moreton Hydraulic Services.
Traffic and Parking	57. Where possible, current traffic movements would be maintained during the works. 58. Regard to public safety would be maintained at all times. 59. In the unlikely event of a requirement to close a road or alter access during works, sufficient and appropriate notification will be provided to affected users and a Traffic Control Plan implemented. 60. Parking and access roads would be constructed in accordance with relevant Council design standards.
Climate Change	61. Vehicles and equipment will be switched off when not required for direct construction activities. 62. Waste will be minimised and is otherwise to be recycled or disposed of appropriately. 63. Vegetation removal would be minimised as far as practical.

7. Summary of Consideration of Environmental Factors

7.1 Section 171 Checklist

As part of its obligation under Section 5.5 of the EP&A Act, the determining authority is required to take into account, to the fullest extent possible, all matters likely to affect the environment. The determining authority is required by Section 171 of the Environmental Planning and Assessment Regulation 2021 to give consideration to a number of factors that are listed below. **Table 7.1** provides a summary of the key issues relevant to each factor and the key mitigation measures proposed.

Table 7.1 Section 171 Checklist (NSW Legislation)

	Factor	Impact
a	**The Environmental Impact on a Community**	
	The community would not be affected through declines in the local environment as a result of the Activity. Mitigation measures have been designed to reduce environmental impacts on the community to negligible levels.	Negligible and minor temporary
b	**The Transformation of a Locality**	
	Transformation of the locality is not expected. The proposed works redevelopment of a recreational and equestrian facility. Tree removal and new above ground buildings and infrastructure would be the main visual change; however, visual impacts of the Activity are not expected to be significant and would integrated into the site and be minor in the overall landscape context.	Minor, safeguards in place to avoid/ minimise risk. No significant impact expected.
c	**The Environmental Impact on the Ecosystems of the Locality**	
	The ecosystems of the locality would not be affected through declines in local environmental values (e.g., biodiversity, physical environment) as a result of the Activity. No trees will be cleared as part of this development.	Negligible
d	**Reduction of the Aesthetic, Recreational, Scientific or Other Environmental Quality or Value of a Locality**	
	It is not likely that the aesthetic, recreational, scientific or other environmental qualities or value of the locality would be impacted by the Activity. No reduction in the quality of environmental values associated with noise, water, soil and air quality or significant decreases in biodiversity are likely to occur due to the Activity and the mitigation measures provided in **Section 5** of this REF. The Activity is considered a positive integration to the existing site and surrounding locality. All works are within previously disturbed areas, no significant changes of the locality are expected to occur.	Minor, safeguards in place to avoid/ minimise risk

	Factor	Impact
e	**The Effects on a Locality, Place or Building Having Aesthetic, Anthropological, Archaeological, Architectural, Cultural, Historical, Scientific or Social Significance or Other Special Value for Present or Future Generations**	
	The site is developed and highly modified. The Activity would not impact existing land uses. There would be no significant impacts to heritage, visual amenity or social significance of concern. The implementation of safeguards and mitigation measures would effectively manage any variation to the site and result in a positive impact overall.	Negligible. It is considered a positive long-term impact overall.
f	**The Impact on the Habitat of Protected Fauna (Within the Meaning of the *Biodiversity Conservation Act 2016***)	
	With effective implementation of the safeguards provided in this REF, the Activity is not considered likely to have a significant negative impact on the habitat of any other protected fauna.	Negligible
g	**The Endangering of any Species of Animal, Plant or Other Form of Life Whether Living on Land, in Water or in the Air**	
	With effective implementation of the safeguards provided in this REF, the Activity is not considered likely to significantly endanger any species of animal, plant, or other form of life.	Nil
h	**Long-Term Effects on the Environment**	
	No negative long-term impacts would occur in the locality given the implementation of the proposed safeguards and measures in this REF.	Nil
i	**Degradation of the Quality of the Environment**	
	Degradation of the quality of the environment is not expected. Given the safeguards in this REF, any impacts are considered unlikely.	Nil
j	**Risk to the Safety of the Environment**	
	The Activity is unlikely to pose any significant risk to the safety of the environmental attributes outlined in **Section 5**. Any possible impacts would be minimised with the implementation of the safeguards in **Section 5** of this REF.	Negligible, safeguards in place to avoid/ minimise risk.
k	**Reduction in the Range of Beneficial Uses of the Environment**	
	The Activity would not result in any reduction in the range of beneficial uses of the environment. The Proposal would improve the use of the Crown Reserve.	Nil negative Positive soc-economic/recreational
l	**Pollution of the Environment**	
	Waste materials, fuel spills and particulate matter have the potential to cause pollution to the environment. However, given the proposed safeguards detailed in this REF and all waste being disposed within an appropriate/ approved	Minor risk, safeguards available to avoid and reduce risk.

	Factor	Impact
	waste disposal facility, pollution to the environment would not occur.	
m	**Environmental Problems Associated with the Disposal of Waste**	
	Any wastes would be disposed of in a manner which would not damage or disturb any native flora or fauna or the physical environment. The disposal of such waste would be within a waste management facility in accordance with EPA approved methods of waste disposal. Safeguards detailed in this REF would protect the environment from problems associated with waste disposal.	Nil
n	**Increased Demands on Resources (Natural or Otherwise) that are likely to Become in Short Supply**	
	The Activity does not create any demand for resources that are in short supply nor is it likely to result in an increased demand on any natural resources that are likely to become in short supply.	Nil
o	**The Cumulative Environmental Effect with Other Existing or Likely Future Activities**	
	The Activity would have minor cumulative impacts (e.g., resource consumption; greenhouse gas emissions; vegetation loss) but is unlikely to significantly contribute to any cumulative impacts.	Negligible negative
p	**The impact on coastal processes and coastal hazards, including those under projected climate change conditions**	
	The Activity could contribute to cumulative impacts to a negligible extent (e.g., greenhouse gas emissions, consumption of resources) contributing to climate change and associated impacts, however there would be no direct impact on coastal process or hazards.	Possible negligible indirect negative impact. Measures implemented to reduce effects.
q	**Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1**	
	Not applicable	Nil
r	**Other relevant environmental factors**	
	Nil	Nil

7.2 EPBC Act 1999 (Commonwealth Legislation)

The EPBC Act protects/regulates matters of national environmental significance (MNES), including:

- World Heritage
- National heritage places
- Wetlands of international importance
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas

- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'. A database search was completed on 26/05/2022 encompassing a 10 km radius search area from the centre of the proposed Activity (refer to **Appendix B**). Search results following the site assessment are considered in **Table 7.2.**

Table 7.2 EPBC Act Considerations

Matter	*Impact*
Any impact on a World Heritage property?	
No World Heritage properties occur at or proximal to the site.	Nil
Any impact on a National Heritage place?	
No World Heritage properties occur at or proximal to the site.	Nil
Any impact on a wetland of international importance?	
No wetlands of international importance (Ramsar Sites) occur at or near the site.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for three threatened ecological communities, 35 threatened species and 16 migratory species were listed as possible occurrences within the 10km search area. No Commonwealth listed threatened flora, fauna or ecological communities are likely to be significantly affected by the Activity (refer to biodiversity assessment at **Section 5.1**) and safeguards have been provided to minimise any potential impacts. No marine habitat would be impacted.	Nil to Negligible
Any impact on a Nationally Important Wetland?	
No nationally important wetlands occur at or near the site. Nationally Important Wetlands are not likely to be affected by the Activity.	Nil
Any impact on Migratory species?	
Based on the minor nature of the works, no listed migratory species are likely to be significantly affected by the Activity (refer to **Section 5.1**).	Nil to Negligible
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur at or near the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Great Barrier Reef Marine Park is distant from the site.	Nil
Does the Proposal involve a nuclear action (including uranium mining)?	
The Activity does not involve a nuclear action.	Nil
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The Activity does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	
The Activity is not expected to impact upon such land.	Nil

The assessment of the impact of the proposed Activity on MNES and the environment of Commonwealth land has found that there is unlikely to be significant impact on relevant MNES. Accordingly, the Activity does not require referral to the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

8. Conclusion and Certification

The proposed Activity is for redevelopment and upgrade of the Casino Showground and Racecourse, including:

- Demolition
- Tree removal
- Construction of new horse facilities consisting of racing stables and day stalls, covered equestrian arena with associated spectating, outdoor area, warm up yard, and several horse training areas
- Civil and stormwater works
- Landscaping works
- Services/electrical works
- Associated infrastructure and works, including carparking and driveways.

The Casino Showground and Racecourse, community, economy, and region, will greatly benefit from the proposed upgrades. Such a project will modernise the facility and help realise its potential as major drawcard and equestrian venue in north-eastern New South Wales. The redevelopment would enhance and bolster its offering and status, delivering valuable socio-economic benefits to the community and region.

The Activity is permitted without development consent pursuant to the TISEPP and PoM, and is subject to environmental assessment in the form of a REF under Part 5 of the EP&A Act. This REF has examined and taken into account all relevant matters affecting or likely to affect the environment by reason of the proposed Activity. The Activity would result in some impacts; however, on balance these are not likely to be significant and can be effectively managed/ameliorated through the implementation of the safeguards and mitigation measures recommended in this REF.

The Activity described will not affect areas of outstanding biodiversity value or Wilderness Areas. The Activity is unlikely to significantly affect threatened species or ecological communities or their habitats, within the meaning of the *Biodiversity Conservation Act 2016* or *Fisheries Management Act 1994* and therefore a Species Impact Statement (or Biodiversity Development Assessment Report (BDAR) if the Proponent elected) is not required. The Activity is also unlikely to affect Commonwealth land or have a significant impact on any matters of national environmental significance in relation to the EPBC Act.

I certify to the best of my knowledge that:

- This REF provides a true and fair review of the Activity in relation to its potential effects on the environment, and
- The assessment satisfies the requirements of Sections 5.5 to 5.7 of the EP&A Act, Section 171 of the EP&A Regulation 2021, and other relevant legislation and guidelines, and
- The assessment has been adequately completed, and
- Subject to the inclusion of the safeguards/measures included in this REF, it is reasonable to conclude that the project will not likely have a significant impact on the environment during both the construction and operation phases, and
- Given the impacts of the Activity are not likely to be significant, an Environmental Impact Statement (EIS) is not required under Section 5.7 of the EP&A Act, and
- A Species Impact Statement or BDAR is not required, and
- The Activity does not warrant/require referral to the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act, and
- The Activity is not State Significant Infrastructure and does not require approval under Division 5.2 of the EP&A Act.

REF Prepared by	
Signature:	
Name:	Andrew Humphreys and Jacob Sickinger
Position:	Senior Environmental Planners
REF Reviewed by	
Signature:	
Name:	Jacob Sickinger
Position:	Senior Environmental Planner

9. Determining Authority Sign Off

Determining Officer (Public Authority) who Approves this REF

I certify to the best of my knowledge and on behalf of Richmond Valley Council that:

☐ Based on the completed REF and my knowledge of the project, the assessment has been adequately completed, the project has predictable impacts which would not be significant, the conclusion as to the likely environmental impact of the project is reasonable, and the project can proceed subject to the relevant measures and conditions in this REF, any approval, license or permit.

☐ The project requires additional environmental assessment.

Reasons:

Enter Reasons.

☐ The project should not proceed in its current form.

Reasons:

NOTE: A site visit may be required depending on the level of confidence and risk to the environment.

Reviewed by:			
Signature		**Date:**	
Name			
Position			
Determining Authority Name			
Determined By:			

References

DPIE (2022) *Guidelines for Division 5.1 Assessments*. State of New South Wales through Department of Planning and Environment. February 2022.

Locale Consulting, (2018). *Casino Showground and Racecourse Master Plan – Design Report*.

Milford, H.B., (1999). *Soil Landscapes of the Lismore/Ballina Region 1:100 000 Sheet Report,* Department of Conservation and Land Management, Sydney.

Parliamentary Counsels Office, (2018) Government of New South Wales Legislation home page, [Online]. Available: NSW Government Legislation Home Page. [Accessed March 2018]

Remplan (2018). Richmond Valley Community Profile, [Online]. Available: http://www.communityprofile.com.au/richmondvalley/work/industries#!bar-chart;i=0;c0=A-OEAAA [Accessed March, 2018]

Richmond Valley Council (2019). *Casino Showground and Racecourse Plan of Management*.

Copyright and Usage

Appendix A

Proposed Plans

LEGEND

- MAJOR CONTOUR 1.0m
- MINOR CONTOUR 0.2m
- BANK BOTTOM
- BANK CHANGE GRADE
- BANK TOP
- BUILD ROOF
- BUILD WALL
- CONCRETE
- DRAIN
- DECK
- EDGE OF BITUMEN
- FENCE
- HEAD WALL
- POWER LINE
- RETAINING WALL
- SEWER
- STORM WATER
- TRACK

- ELECTRICAL POLE
- ELECTRICAL POLE STAY WIRE/POST
- LIGHT POLE

TR (X,Y,Z) DENOTES A TREE.
(X = DIAMETER(mm) Y = SPREAD (RAD) Z = HEIGHT)
SIZES ARE INDICATIVE ONLY.

- NATURAL SURFACE LEVEL
- NATURAL SURFACE LEVEL LIDAR DERIVED

SURVEY CODES
TR TREE

IMPORTANT

Natural surface points in the layer "SFCE - LIDAR NATURAL SURFACE" have been derived from a C3 LAS data set containing point data in LAS 1.2 format sourced from a LiDAR (Light Detection and Ranging) from an ALS50ii (Airborne Laser Scanner) sensor.
The processed data has been manually edited to achieve ICSM classification level 3 whereby the ground class contains minimal non-ground points such as vegetation, water, bridges, temporary features, jetties etc.
This data has an accuracy of 0.3m (95% Confidence Interval) vertical and 0.8m (95% Confidence Interval) horizontal with a minimum point density of 1.02 laser pulse per square metre.
Please consider this accuracy during any decision making.

MGA CORS

SEE SHEET 6 FOR DETAILS

SEE SHEET 4 FOR DETAILS

SEE SHEET 2 FOR DETAILS

DAM

DAM

GRASS

RACETRACK

RACETRACK

DIRT

DIRT

RACETRACK

SAND ARENA

LOT 3
DP823672

BENCHMARK
DUMPY PEG
RL 28.88

BENCHMARK
DUMPY PEG
RL 27.07

GRASS

RACETRACK

MAIN ENTRANCE

SUMMERLAND WAY

BYRON BAY SURVEYING

BYRON BAY SURVEYING PTY LTD
REGISTERED LAND SURVEYING
Suffolk Park NSW 2481 Tel: 0407 345 099
Alstonville NSW 2477 Tel: 0431 348 590
Info@ByronBaySurveying.com.au
www.ByronBaySurveying.com.au

REV	DATE	DESCRIPTION
01	14/05/2021	ORIGINAL ISSUE

PROJECT	CAS015
SURVEYOR	DH
SURVEY DATE	29/04/2021
FIELD BOOK ID	TSC3#1
PLAN BY	DH
APPROVED BY	LF

MGA	HZ DATUM
CORS	ORIGIN
AHD	VT DATUM
PM 24660	ORIGIN
RL 24.775	LEVEL
31/03/2021	SCIMS

0 10 20 50m
1:150 - A1

IMPORTANT NOTICE:
THIS PLAN MAY HAVE BEEN CHANGED DURING PRINTING OR REFORMATTING. THE SCALE SHOULD THEREFORE BE VERIFIED PRIOR TO USE. ANY DIMENSIONS SHOWN ON THIS PLAN OVERRULE SCALING.

PLAN OF DETAIL SURVEY
CASINO RACECOURSE

LOT 3 IN DP823672
10095 SUMMERLAND WAY CASINO NSW

CLIENT: R. V. COUNCIL
DWG No: CAS015_2 DS.DWG
SH: 1 OF 7

DISCLAIMER

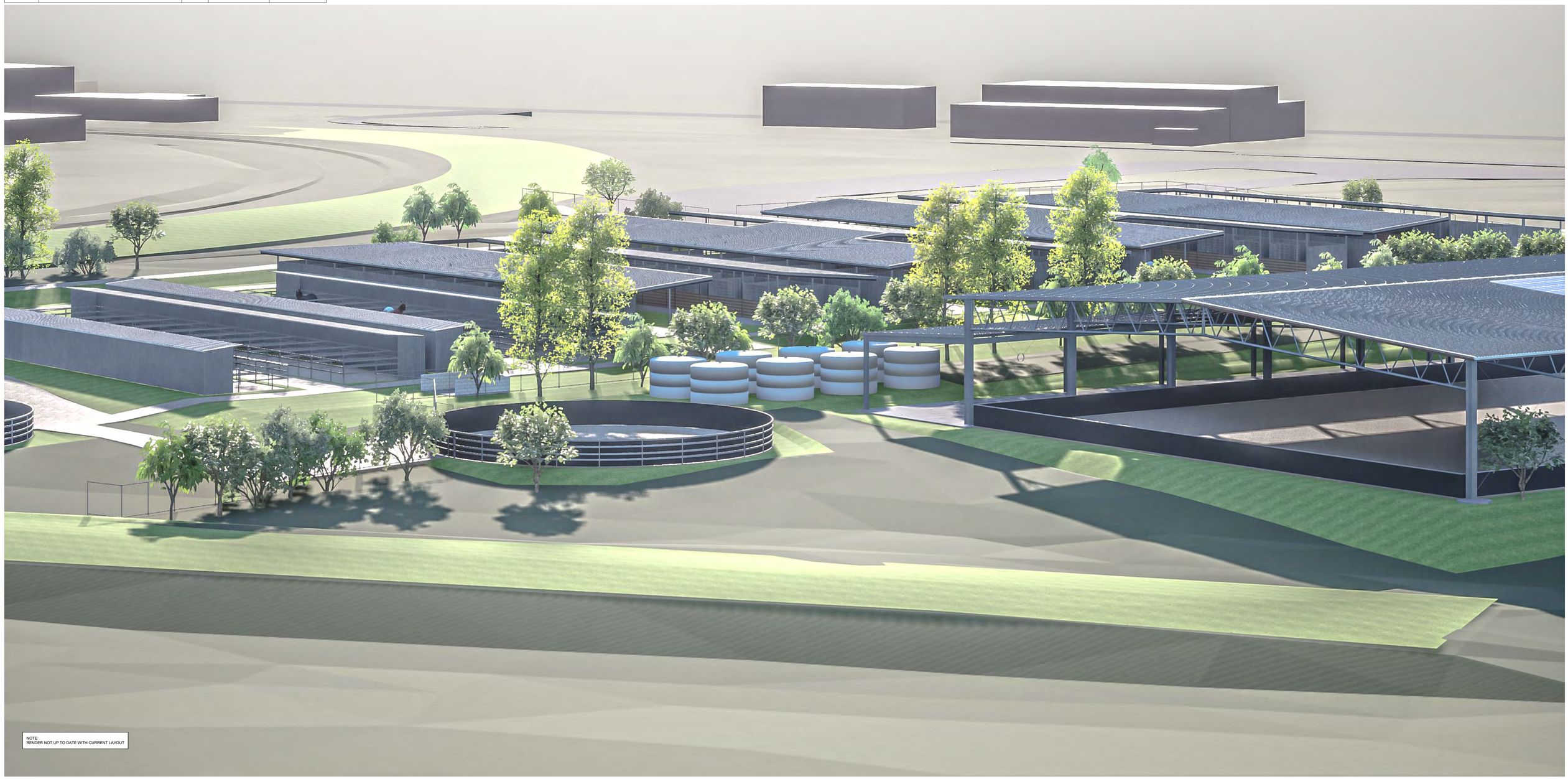
BOUNDARIES HAVE NOT BEEN INVESTIGATED (OR MARKED) IN ACCORDANCE WITH THE PROVISIONS OF THE SURVEYING & SPATIAL INFORMATION ACT, 2017. ANY EASEMENTS WHETHER REGISTERED OR IMPLIED HAVE NOT BEEN INVESTIGATED.
THE POSITIONAL ACCURACY OF ANY CRITICAL FEATURE REQUIRES CONFIRMATION PRIOR TO ITS USE IN DESIGN OR CONSTRUCTION.
UNDERGROUND SERVICES HAVE NOT BEEN INVESTIGATED. CONSULT WITH "DIAL BEFORE YOU DIG" PRIOR TO ANY EXCAVATION WORKS.

23 June 2022

CONCEPT DEVELOPMENT

AGS COMMERCIAL

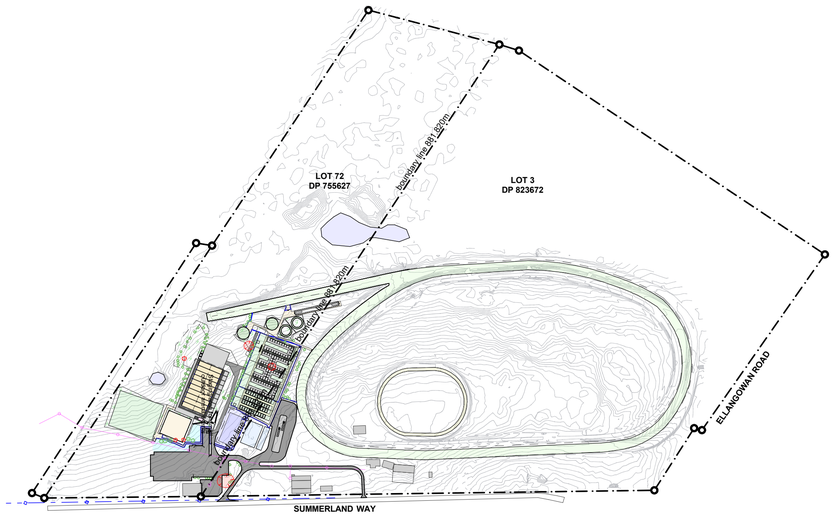
SHEET No.	DRAWING TITLE	ISSUE	DATE	SHEET SIZE (mm)
A00	COVER SHEET	SK3.1	14/06/22 11:40	841 / 594
A01	SITE MASTER PLAN	SK3.1	14/06/22 11:40	841 / 594
A02	STABLES	SK3.1	14/06/22 11:40	841 / 594
A03	INDOOR AND OUTDOOR ARENA	SK3.1	14/06/22 11:40	841 / 594
A04	MASTER PLAN PERSPECTIVE	SK3.1	14/06/22 11:40	841 / 594
A05	CIVIL OVERLAY	SK3.1	14/06/22 11:40	841 / 594
A06	EQUESTRIAN POOL	SK3.1	14/06/22 11:40	841 / 594
A07	ANCILLARY COMPONENTS	SK3.1	14/06/22 11:40	841 / 594
A08	DEMOLITION PLAN	SK3.1	14/06/22 11:40	841 / 594
A09	VEHICULAR ACCESS PLAN	SK3.1	14/06/22 11:40	841 / 594
A10	CUT FILL BREAKDOWN	SK3.1	14/06/22 11:40	420 / 297
A11	SUNLIGHT / GLARE ANALYSIS OPTION A	SK3.1	14/06/22 11:40	420 / 297
A12	SUNLIGHT / GLARE ANALYSIS OPTION B	SK3.1	14/06/22 11:40	420 / 297
A13	SUNLIGHT / GLARE ANALYSIS OPTION C	SK3.1	14/06/22 11:40	420 / 297
A14	SUNLIGHT / GLARE ANALYSIS OPTION D	SK3.1	14/06/22 11:40	420 / 297
A15	BOUNDARY PLAN	SK3.1	14/06/22 11:40	420 / 297
A16	LANDSCAPING PLAN	SK3.2	23/06/22 9:07	841 / 594



NOTE:
RENDER NOT UP TO DATE WITH CURRENT LAYOUT

CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470

Scale 1:5000
50 0 50 100 150 200 250 300 350 400 450 500m



BOUNDARY PLAN

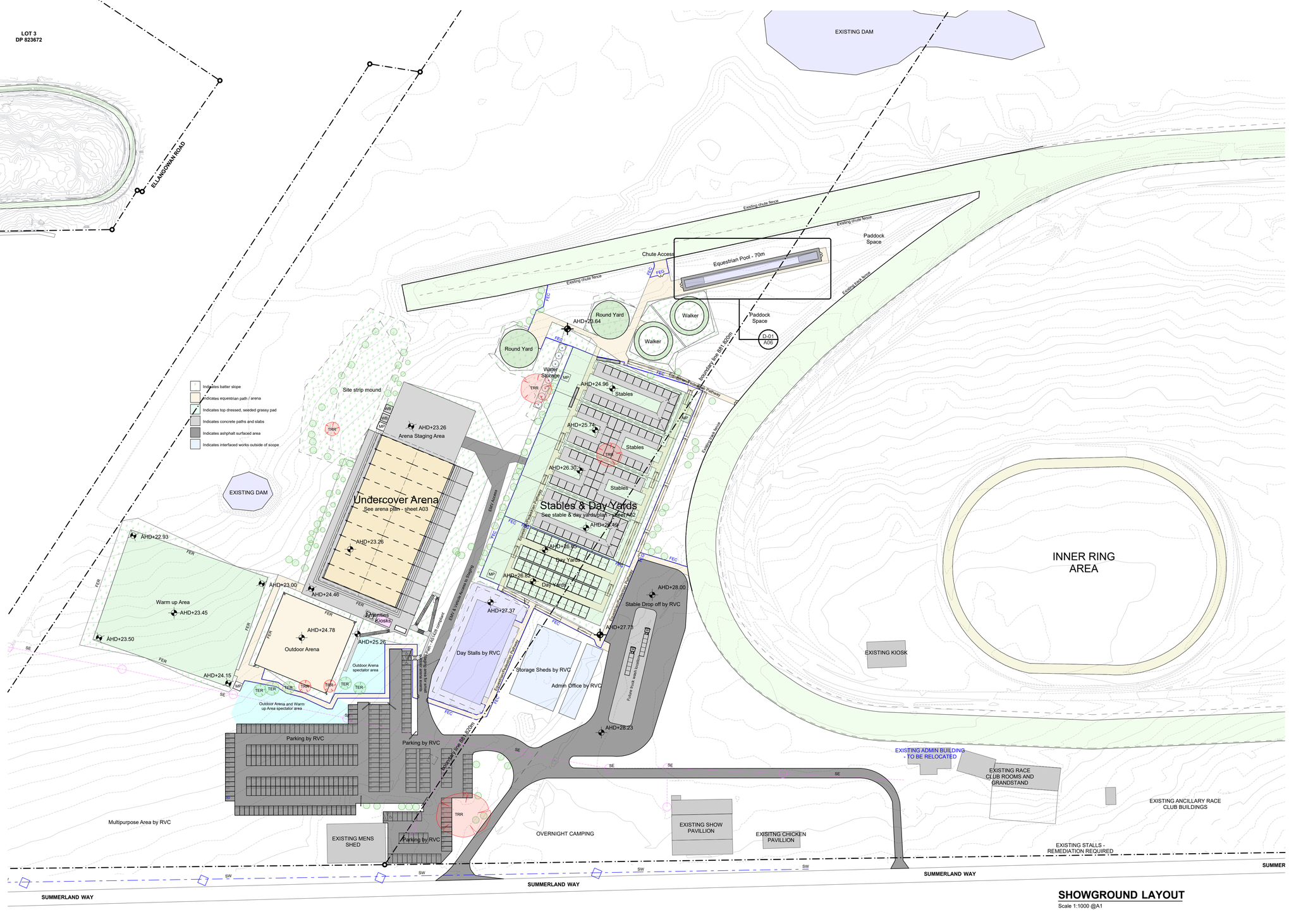
Scale 1:5000 @A1

Notes

LEGEND	
FEC	FENCE - CHAIN WIRE 1800MM HEIGHT
FEG	FENCE GATE - CHAIN WIRE 1800MM HEIGHT
FER	FENCE - GALVANISED TRI RAIL 1500MM HEIGHT
MP	MANURE STORAGE PAD
SE	SEWER
SW	STORMWATER
TRR	TREE - TO BE REMOVED
WB	WASH BAY

Works to be undertaken as per contract documentation.
Pad heights are estimate only and to be verified prior to commencement of works.
Portable kiosk & grandstand transportation access options to be determined - indicative approach of access taken via western end of arena with containers sideloaded.
Portable grandstand transportation access via eastern end of arena.
Parking and vehicular access indicative only, works to be performed by Richmond Valley Council.
Day Stalls by Richmond Valley Council.
Storage Sheds by Richmond Valley Council.
Administration Office by Richmond Valley Council.

Scale 1:1000
10 0 10 20 30 40 50 60 70 80 90 100m



SHOWGROUND LAYOUT

Scale 1:1000 @A1

AGS Commerical Pty Ltd
172 Casino Street South Lismore
PO Box 680 Lismore NSW 2480
phone 02 6622 37 45
fax 02 6621 94 55
www.agscommerical.net.au

No.	Description	Date
TE1	TENDER ISSUE	14/09/21
TE2	TENDER ISSUE	08/11/21
SK1	CONCEPT DEVELOPMENT	28/03/22
SK2	CONCEPT DEVELOPMENT	06/04/22
SK2.1	CONCEPT DEVELOPMENT - BOUNDARIES ADDED	10/05/22
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22
SK3.1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22
SK4	REF SITE PLAN	01/08/22
A	CONSTRUCTION ISSUE	Work in Progress

NOT FOR CONSTUCTION

Notes:
Written dimensions shall be used in preference to scaled dimensions.
All dimensions and ground lines to be verified onsite and locate all underground services relative to the proposed works prior to construction.
Discrepancies shall be referred to the Building Designer before construction.
Concept, design & drawings copyright of AGS Commercial.

TENDER SUBMISSION
RICHMOND VALLEY COUNCIL
CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

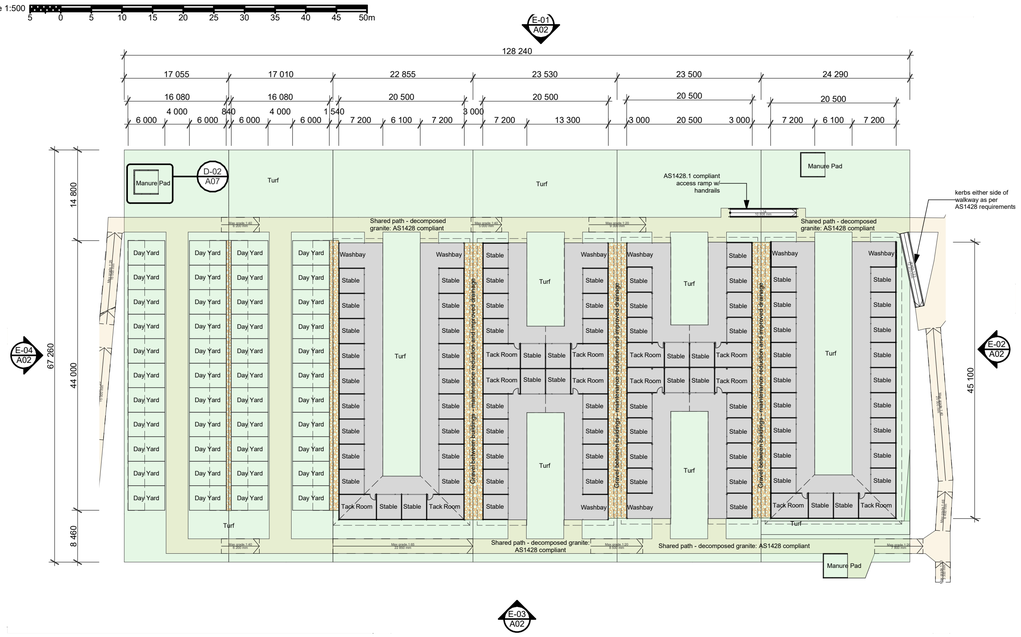
SITE MASTER PLAN

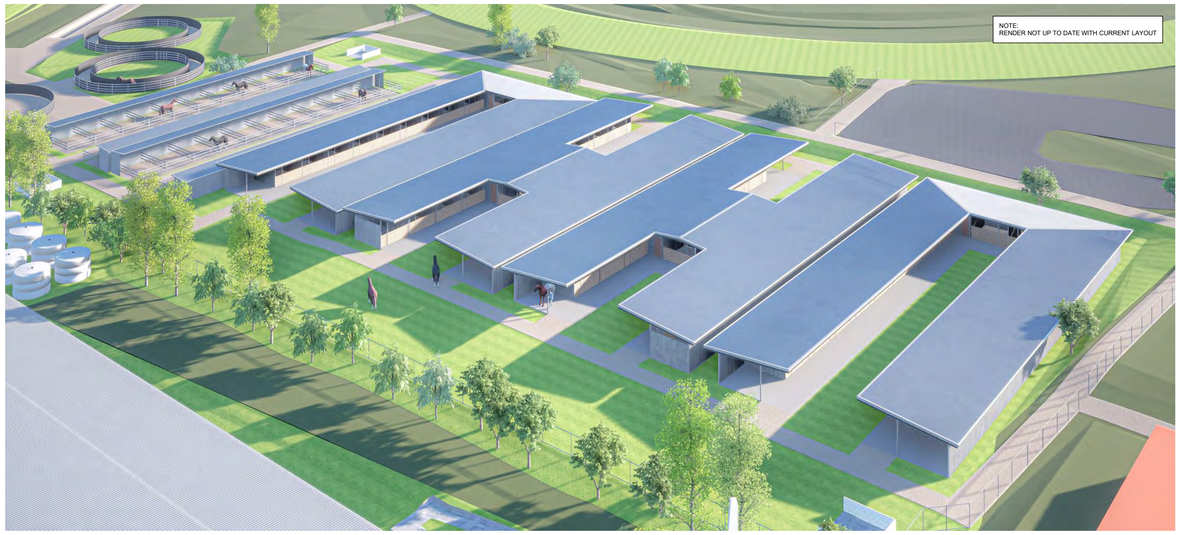
Project number	C099
Date	07/09/22
Drawn by	MP
Checked by	NE, SB, MP
Scale	1:1000, 1:5000

A01

07 September 2022

Scale 1:500 5 0 5 10 15 20 25 30 35 40 45 50m





STABLES & DAY YARDS

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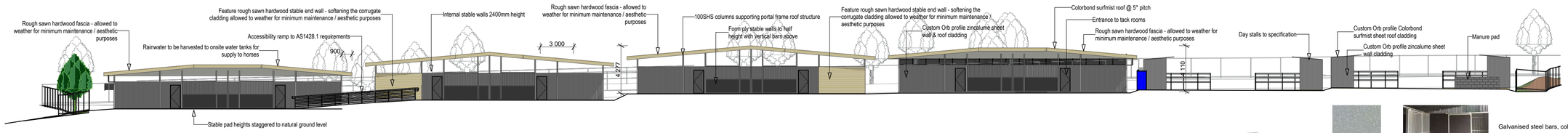
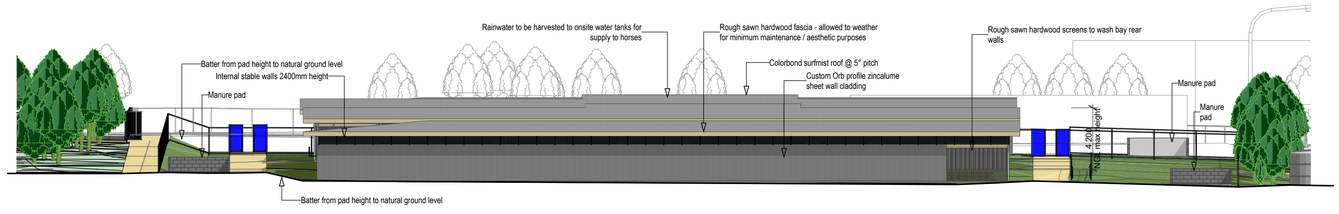


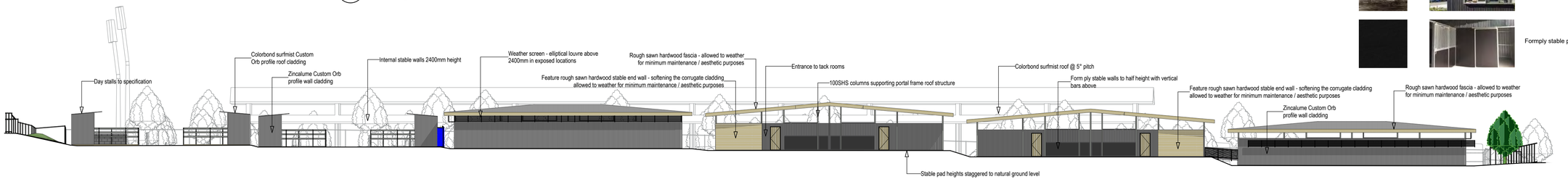
E-01 STABLES NORTH ELEVATION

A02 Scale 1:200 @A1



E-02 STABLES EAST ELEVATION

A02 Scale 1:200 @A1



E-03 STABLES SOUTH ELEVATION

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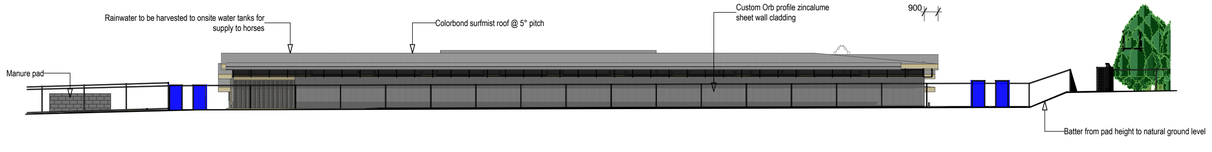
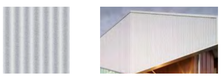


E-04 STABLES WEST ELEVATION

A02 Scale 1:200 @A1

Galvanised steel bars, columns, components

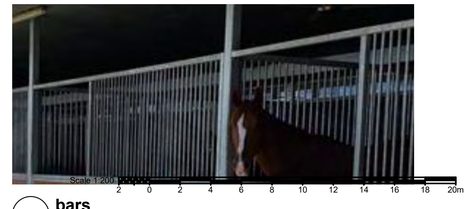
Colorbond surfmist roof sheeting



Zincalume wall sheeting

Rough sawn weathered hardwood cladding, screens, fascia

Formply stable panels



bars

#LayID Scale 1:1 @A1

AGS Commercial Pty Ltd
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www.agscommercial.net.au

No.	Description	Date	No.	Description	Date
TE2	TENDER ISSUE	08/11/21			
SK1	CONCEPT DEVELOPMENT	28/03/22			
SK2.1	CONCEPT DEVELOPMENT - BOUNDARIES ADDED	10/05/22			
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22			
SK3.1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22			

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TENDER SUBMISSION

RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

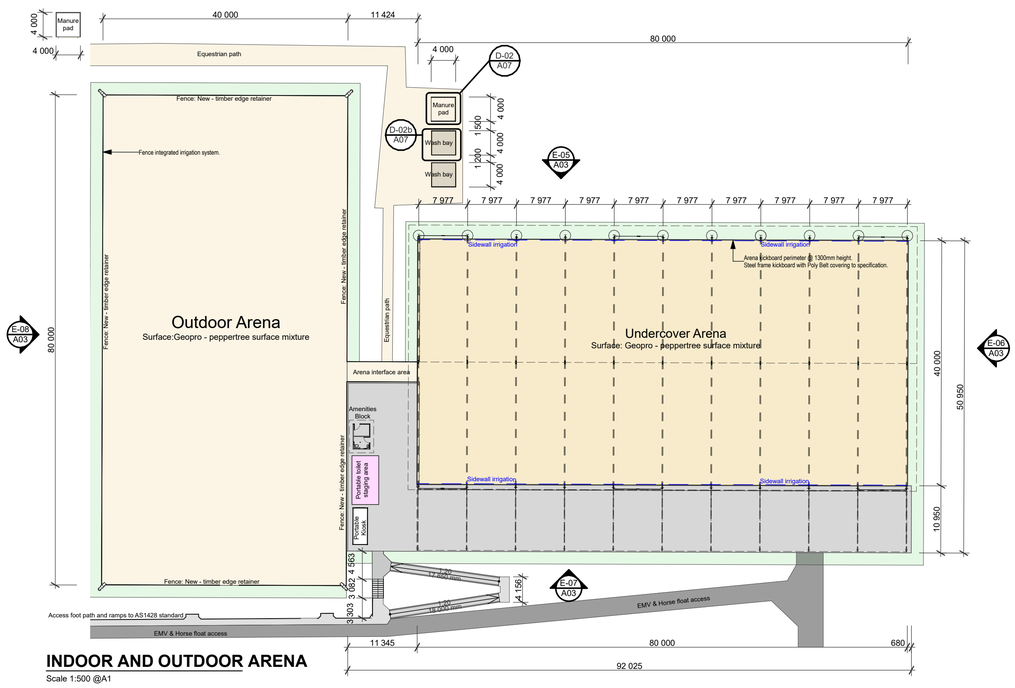
10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

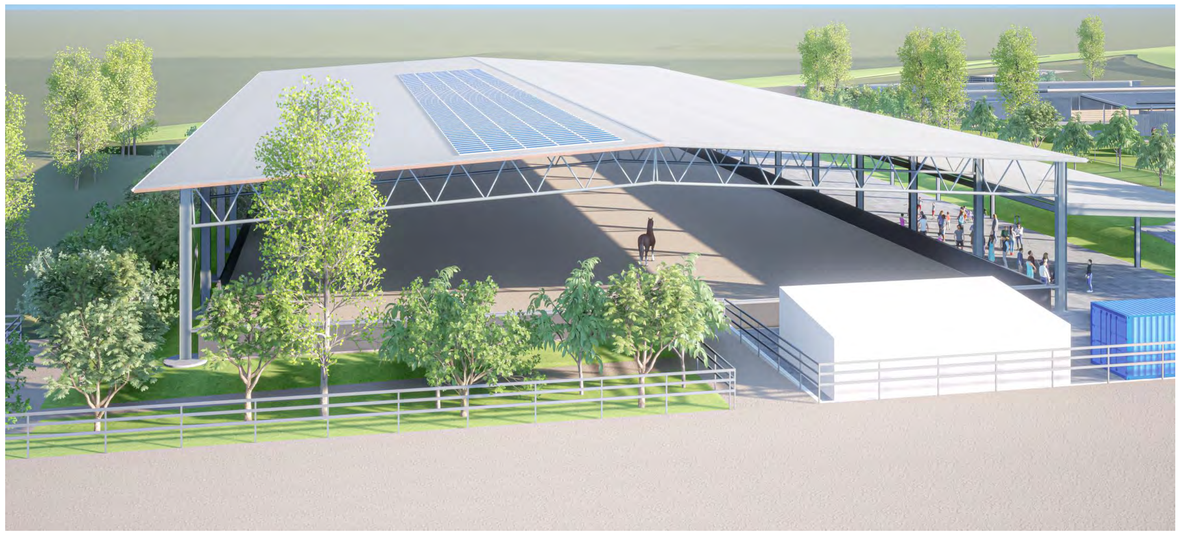
STABLES

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A02 Scale 1:1 : 1:200, 1:500,

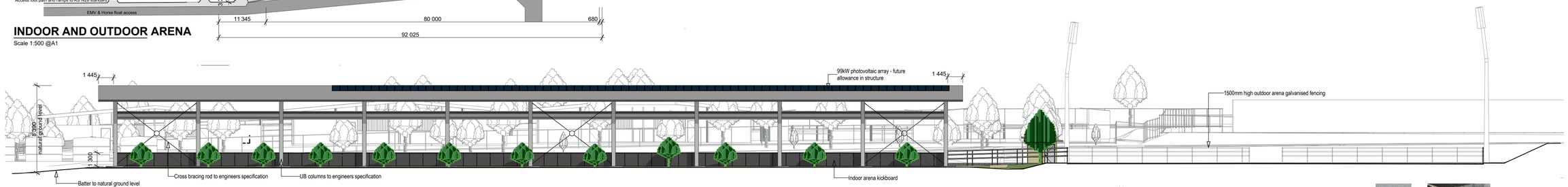
23 June 2022





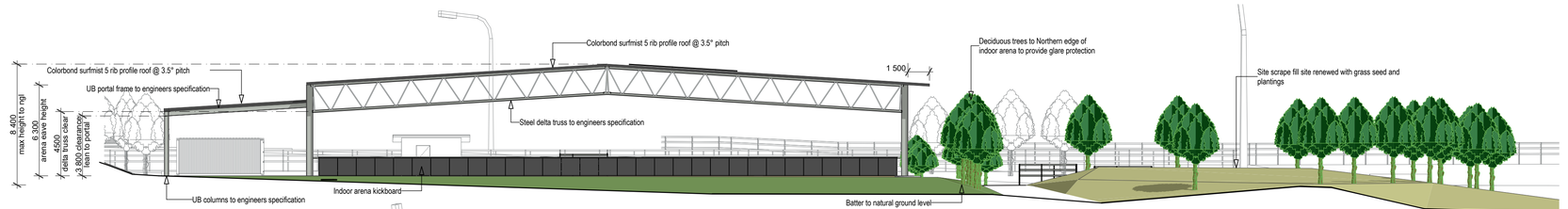
INDOOR AND OUTDOOR ARENA

Scale 1:500 @A1



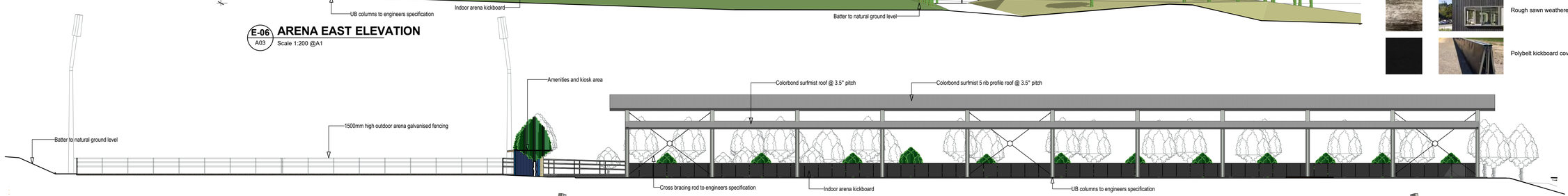
E-05 A03 ARENA NORTH ELEVATION

Scale 1:200 @A1



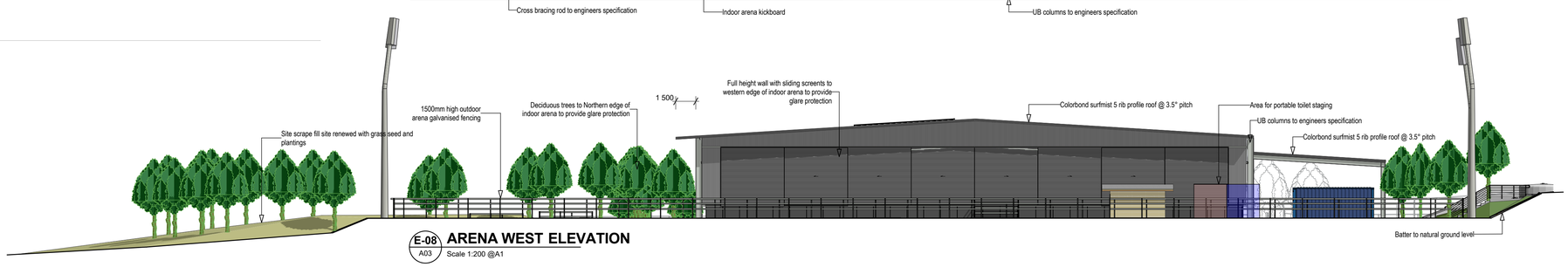
E-06 A03 ARENA EAST ELEVATION

Scale 1:200 @A1



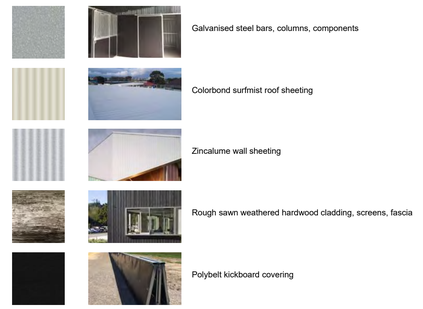
E-07 A03 ARENA SOUTH ELEVATION

Scale 1:200 @A1



E-08 A03 ARENA WEST ELEVATION

Scale 1:200 @A1



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TENDER SUBMISSION
RICHMOND VALLEY COUNCIL
CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

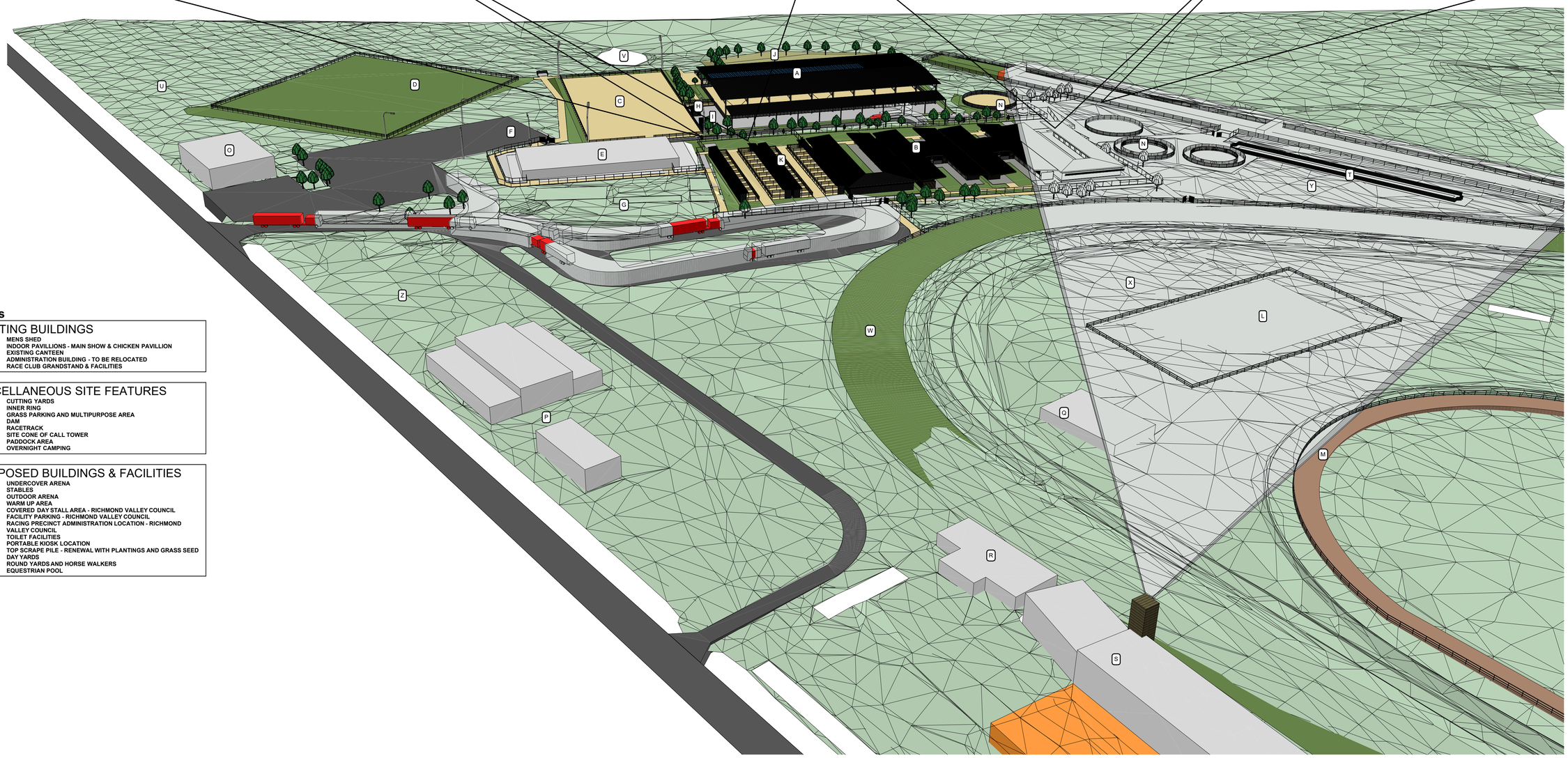
INDOOR AND OUTDOOR ARENA

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A03

Scale: 1:500, 1:200

23 June 2022



Notes

EXISTING BUILDINGS

O	MENS SHED
P	INDOOR PAVILLIONS - MAIN SHOW & CHICKEN PAVILLION
Q	EXISTING CANTEEN
R	ADMINISTRATION BUILDING - TO BE RELOCATED
S	RACE CLUB GRANDSTAND & FACILITIES

MISCELLANEOUS SITE FEATURES

L	CUTTING YARDS
M	INNER RING
U	GRASS PARKING AND MULTIPURPOSE AREA
V	DAM
W	RACETRACK
X	SITE CONE OF CALL TOWER
Y	PADDOCK AREA
Z	OVERNIGHT CAMPING

PROPOSED BUILDINGS & FACILITIES

A	UNDERCOVER ARENA
B	STABLES
C	OUTDOOR ARENA
D	WARM UP AREA
E	COVERED DAY STALL AREA - RICHMOND VALLEY COUNCIL
F	FACILITY PARKING - RICHMOND VALLEY COUNCIL
G	RACING PRECINCT ADMINISTRATION LOCATION - RICHMOND VALLEY COUNCIL
H	TOILET FACILITIES
I	PORTABLE KIOSK LOCATION
J	TOP SCRAPE PILE - RENEWAL WITH PLANTINGS AND GRASS SEED
K	DAY YARDS
N	ROUND YARDS AND HORSE WALKERS
T	EQUESTRIAN POOL

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RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

MASTER MAN PERSPECTIVE

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A04

Scale: 1:64.39

23 June 2022

Scale 1:1000 10 0 10 20 30 40 50 60 70 80 90 100m

Minimum Elevation	Maximum Elevation	Color Scheme
-2.200m	-2.000m	
-2.000m	-1.800m	
-1.800m	-1.600m	
-1.600m	-1.400m	
-1.400m	-1.200m	
-1.200m	-1.000m	
-1.000m	-0.800m	
-0.800m	-0.600m	
-0.600m	-0.400m	
-0.400m	-0.200m	
-0.200m	0.000m	
0.000m	0.200m	
0.200m	0.400m	
0.400m	0.600m	
0.600m	0.800m	
0.800m	1.000m	
1.000m	1.200m	
1.200m	1.400m	
1.400m	1.600m	
1.600m	1.800m	
1.800m	2.000m	
2.000m	2.200m	

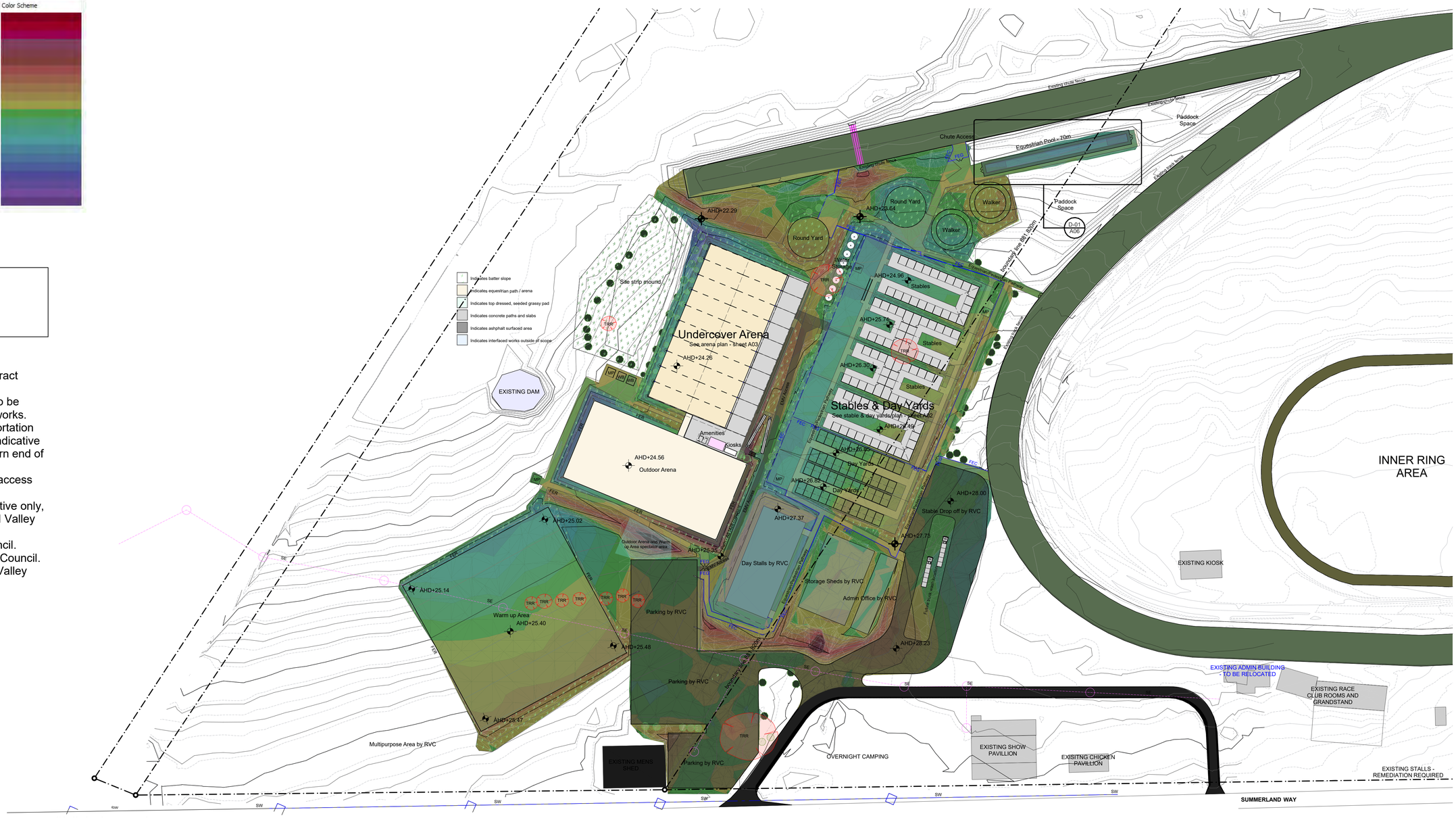
Elevation Table

Notes

LEGEND

FEC	FENCE - CHAIN WIRE 1800MM HEIGHT
FEG	FENCE GATE - CHAIN WIRE 1800MM HEIGHT
FER	FENCE - GALVANISED TRI RAIL 1500MM HEIGHT
FL	FLOOD LIGHTING
MP	MANURE STORAGE PAD
SE	SEWER
SW	STORMWATER
WB	WASH BAY

Works to be undertaken as per contract documentation.
Pad heights are estimate only and to be verified prior to commencement of works.
Portable kiosk & grandstand transportation access options to be determined - indicative approach of access taken via western end of arena with containers sideloaded.
Portable grandstand transportation access via eastern end of arena.
Parking and vehicular access indicative only, works to be performed by Richmond Valley Council.
Day Stalls by Richmond Valley Council.
Storage Sheds by Richmond Valley Council.
Administration Office by Richmond Valley Council.



Civil design overlay

Scale 1:1000 @A1

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No.	Description	Date
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22
SK3.1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22

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TENDER SUBMISSION

RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

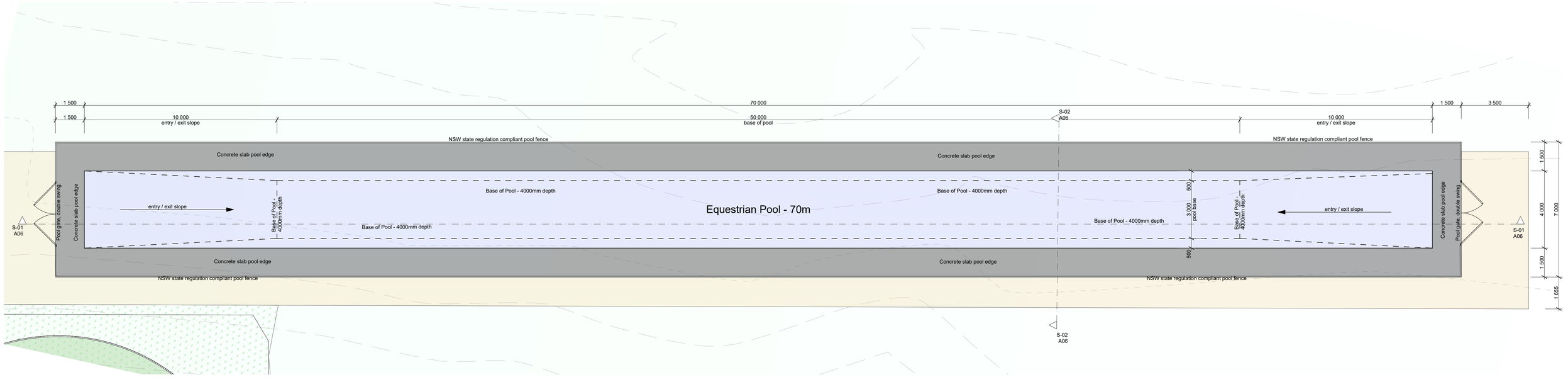
CIVIL OVERLAY

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A05

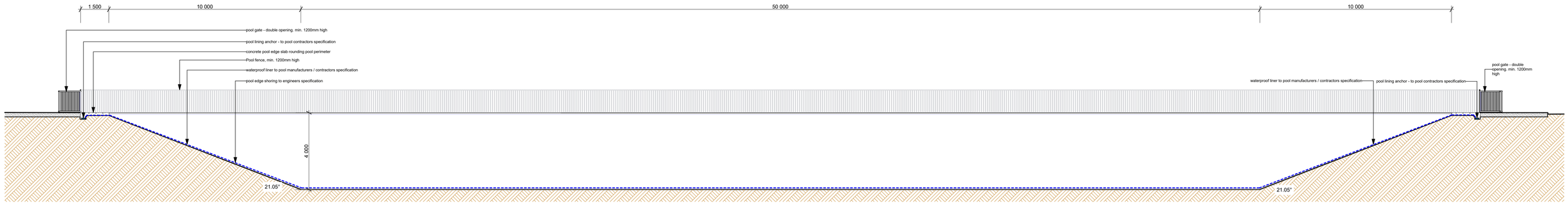
Scale: 1:1000

23 June 2022



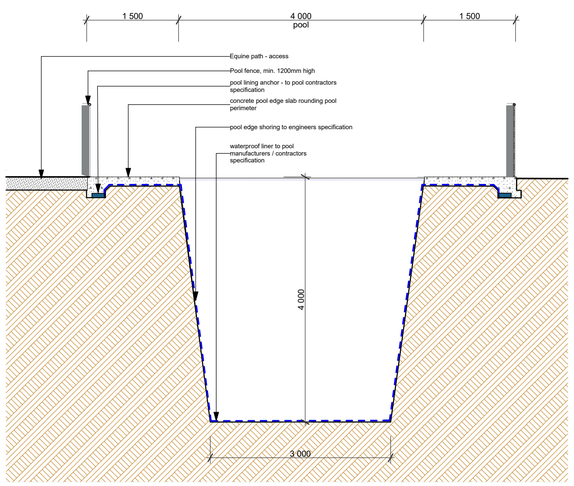
D-01 EQUESTRIAN POOL

A01, A05, A1 Scale 1:100 @A1



S-01 POOL SECTION A

Scale 1:100 @A1



S-02 POOL SECTION B

Scale 1:50 @A1

Note:
Sectional detail schematic only - Equestrian pool components to suppliers specification and detail design.
Earthworks and subsequent shoring if required to civil engineers design in line with geotechnical investigation report to ensure stability,

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CASINO SHOWGROUND UPGRADE

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72/-/DP755627

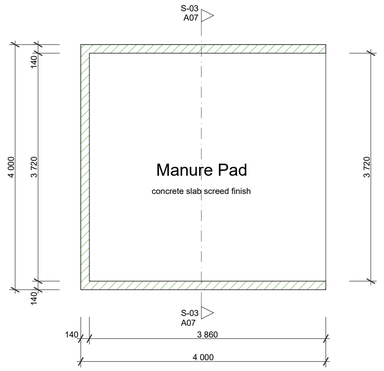
EQUESTRIAN POOL

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A06

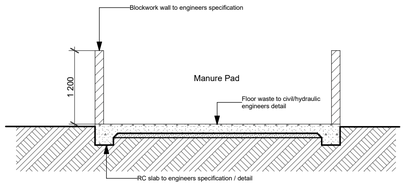
Scale: 1:100, 1:50

23 June 2022



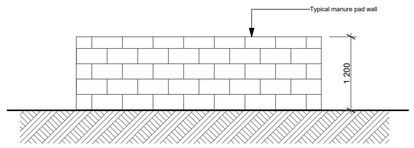
D-02 Manure Pad

A02, A07 Scale 1:50 @A1



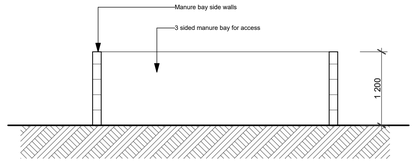
S-03 Manure Pad Section

Scale 1:50



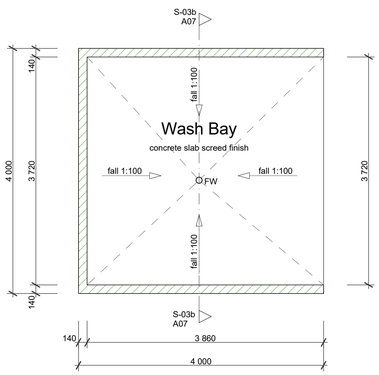
Typical Manure Pad Elevation 01

Scale 1:50



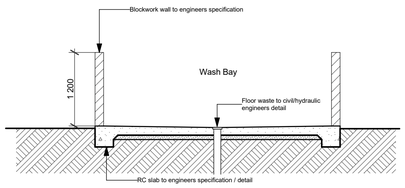
Typical Manure Pad Elevation 02

Scale 1:50



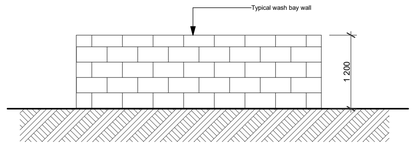
D-02B Wash Bay

A02, A07 Scale 1:50 @A1



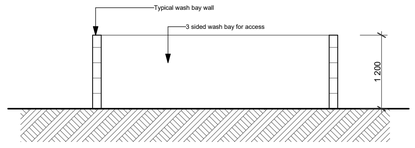
S-03b Wash Bay Section

Scale 1:50



Typical Wash Bay 01

Scale 1:50



Typical Wash Bay 02

Scale 1:50

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No.	Description	Date	No.	Description	Date
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TENDER SUBMISSION

RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

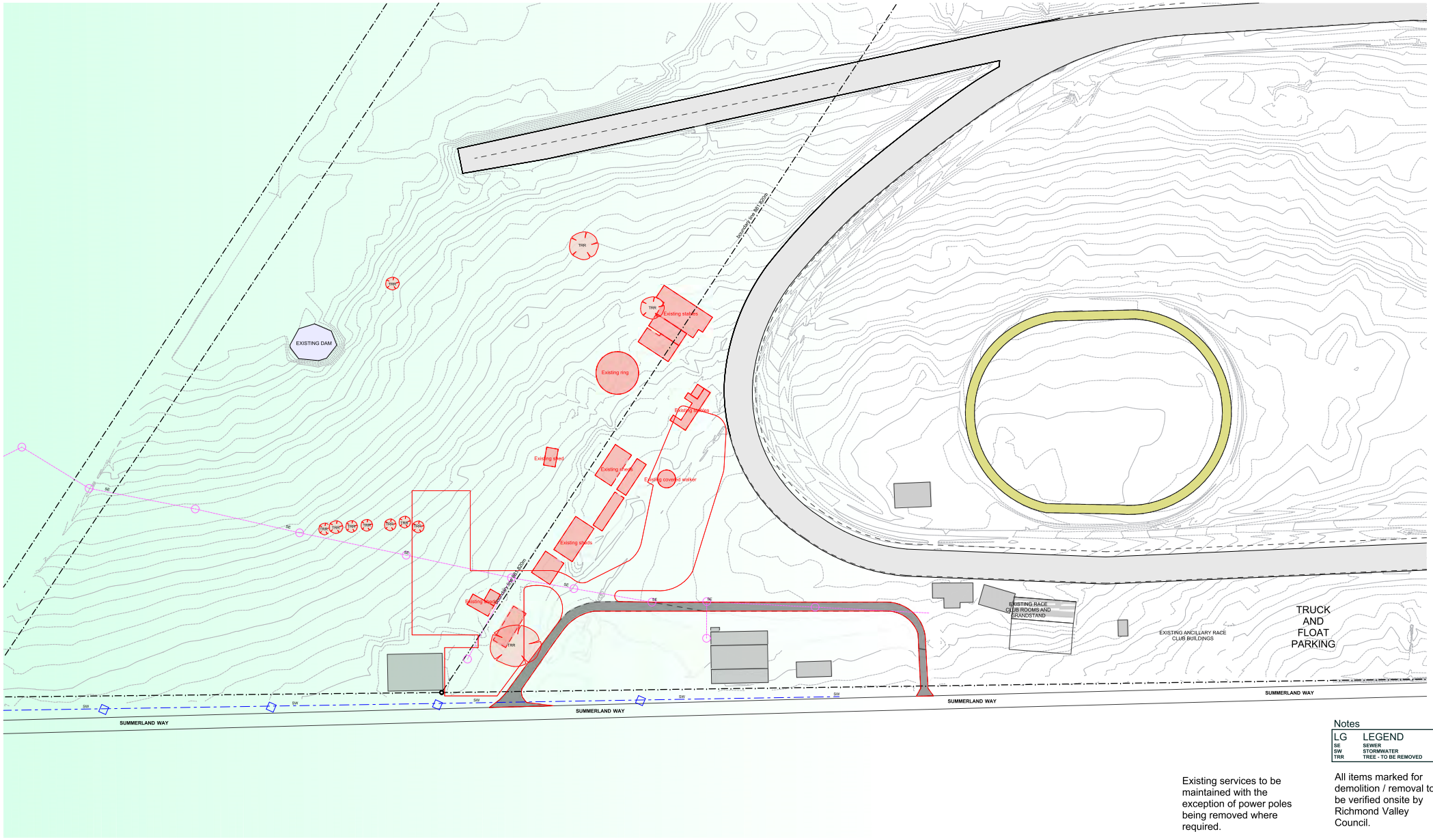
ANCILLARY COMPONENTS

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

A07

Scale: 1:50

23 June 2022



DEMOLITION PLAN

Scale 1:1000 @A1

Notes

LG	LEGEND
SE	SEWER
SW	STORMWATER
TRR	TREE - TO BE REMOVED

Existing services to be maintained with the exception of power poles being removed where required.

All items marked for demolition / removal to be verified onsite by Richmond Valley Council.

All items in demolition scope shown in RED.
Sewer shown in PINK for location reference.

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RICHMOND VALLEY COUNCIL
CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

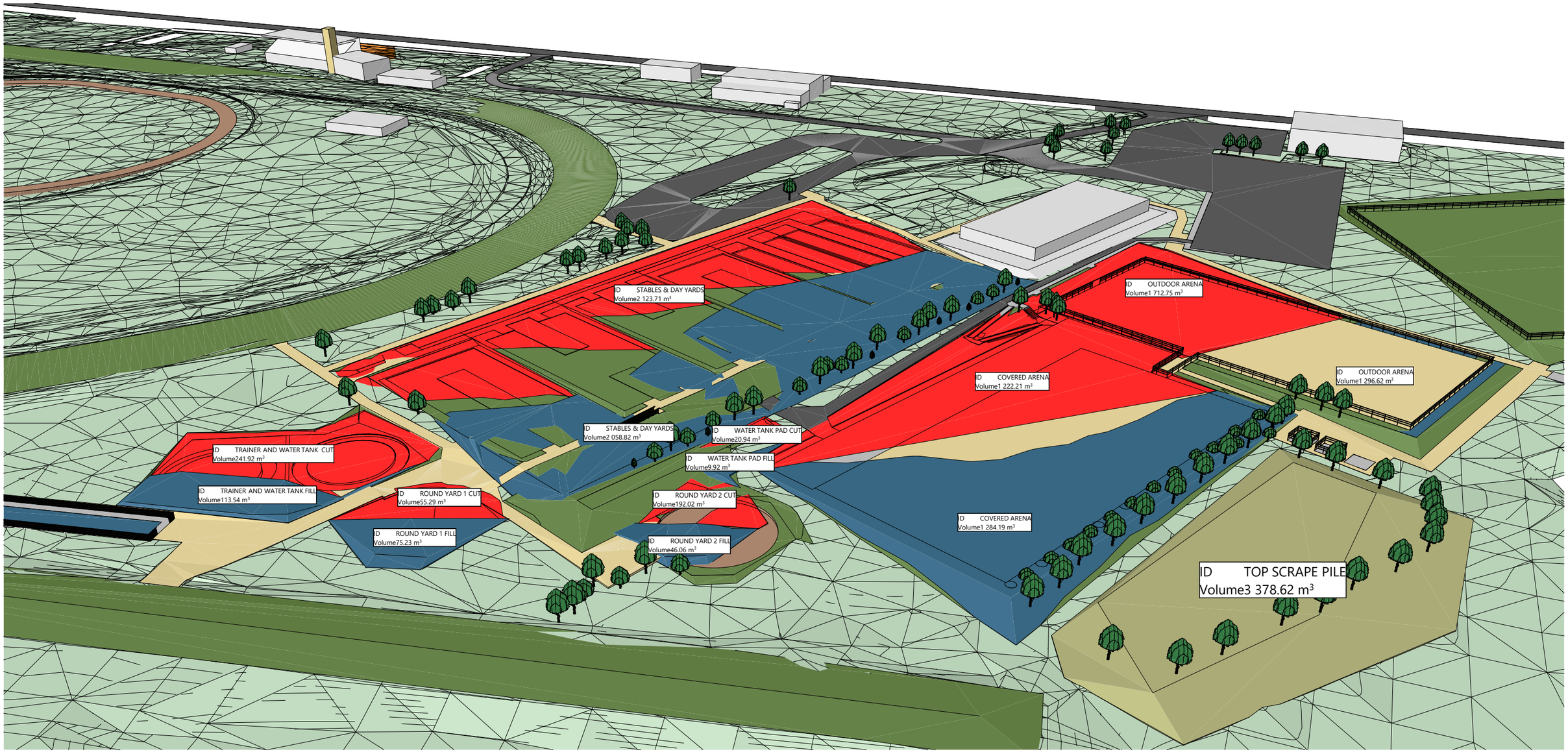
DEMOLITION PLAN

Project number	C099	**A08**	
Date	14/06/22		
Drawn by	MP		
Checked by	NE, SB, MP	Scale: 1:1000	

14 June 2022

SITE FILL SCHEDULE		
LOCATION	**AREA (m2)**	**VOLUME (m3)**
COVERED ARENA	2 869.51	1 284.19
OUTDOOR ARENA	1 997.44	1 296.62
ROUND YARD 1 FILL	262.91	75.23
ROUND YARD 2 FILL	195.37	46.06
STABLES & DAY YARDS	4 898.31	2 058.82
TRAINER AND WATER TANK FILL	390.46	113.54
WATER TANK PAD FILL	70.21	9.92
	10 684.21 m²	**4 884.38 m³**

SITE CUT SCHEDULE		
LOCATION	**AREA (m2)**	**VOLUME (m3)**
COVERED ARENA	2 602.45	1 222.21
OUTDOOR ARENA	2 157.77	1 712.75
ROUND YARD 1 CUT	228.60	55.29
ROUND YARD 2 CUT	319.13	192.02
STABLES & DAY YARDS	4 107.83	2 123.71
TRAINER AND WATER TANK CUT	815.06	241.92
WATER TANK PAD CUT	107.46	20.94
	10 338.30 m²	**5 568.84 m³**



CUT FILL DIAGRAM

NTS

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RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

CUT FILL BREAKDOWN

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB

A10

Scale: 1:125.82

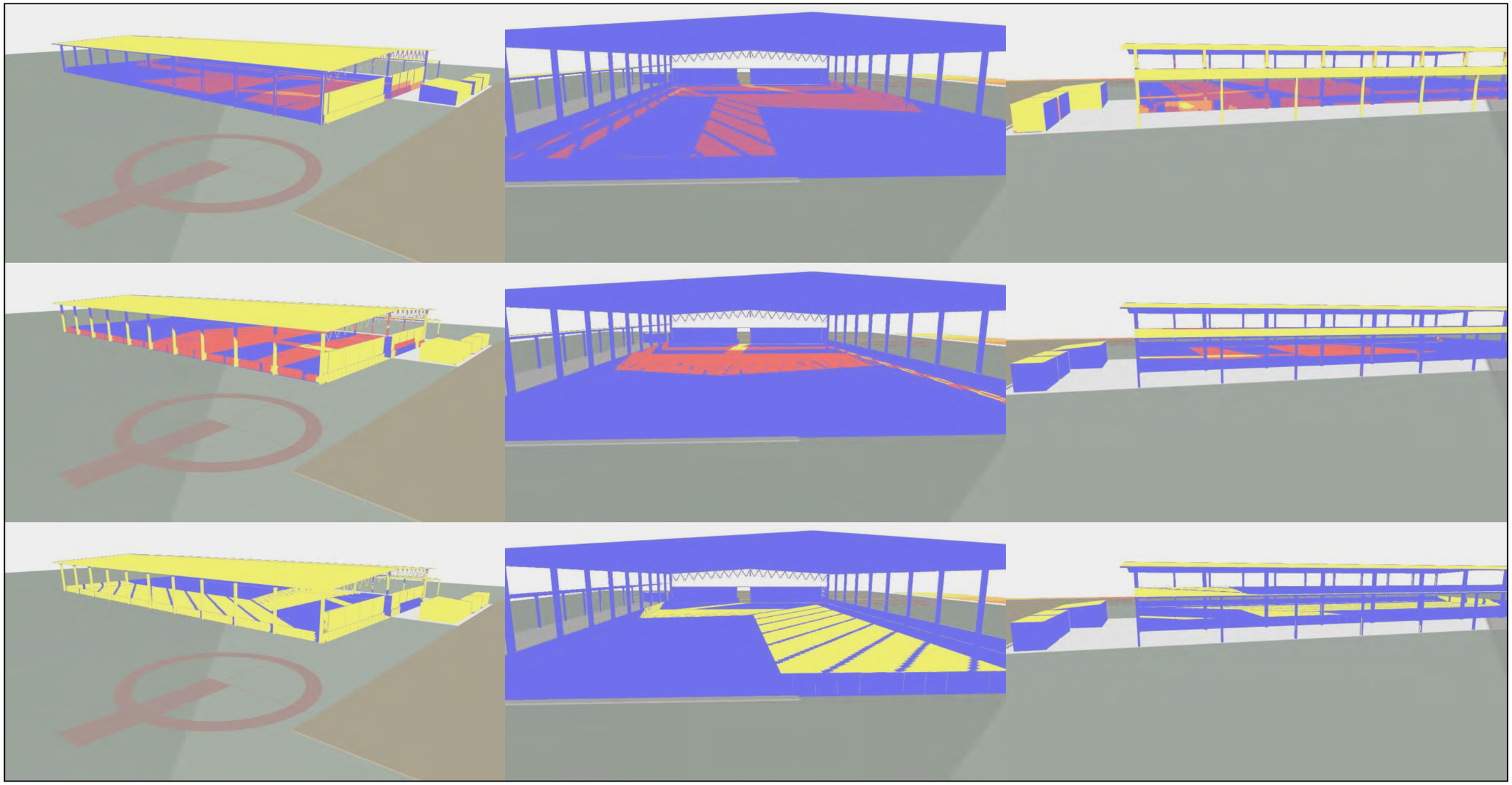
23 June 2022

OPTION A
3m sliding screen above kickboard. Total height ~4.5m.
Allows optimum airflow during the summer months with variable airflow available with retracting sceens. Moderate reduction of glare provided in the late afternoon hours.
Note that a signifcant amount of direct sunlight still penetrates the arena during summer and winter via the northern and southern portions of the western quadrant, however reduced periods can be seen under the arena canopy, with the arena floor directly adjacent arena to the screens seeing a reduction in glare duration.

December 21

September 21

June 21



S = 2hours
W = 1 hour
Eq = 1.5

NO DIRECT SUN

SUNLIGHT
DURATION

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RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

SUNLIGHT / GLARE ANALYSIS OPTION A

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB

A11

Scale:

23 June 2022

OPTION B

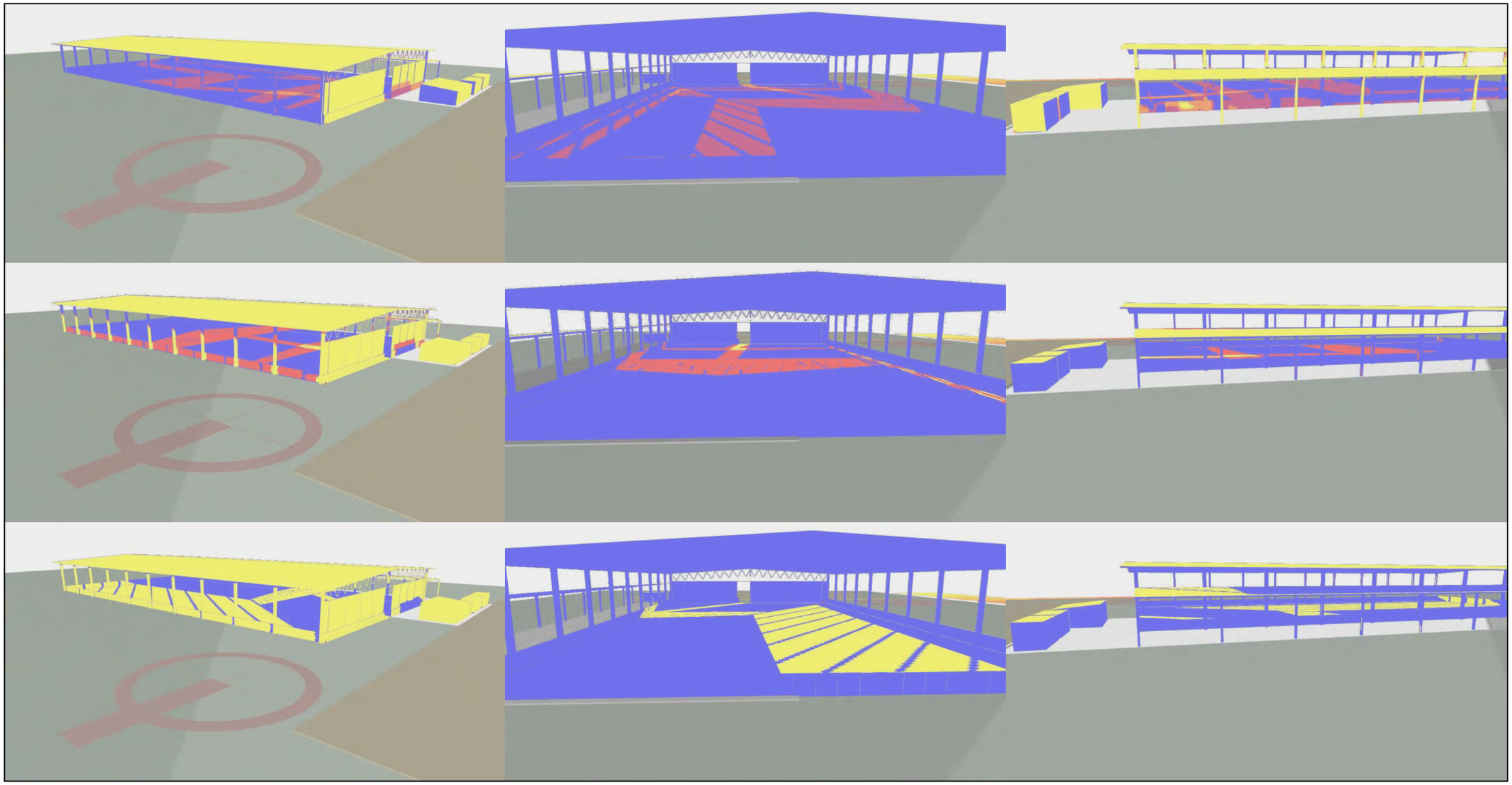
4.5m sliding screen above kickboard. Total height ~6m.

Allows adequate airflow during the summer months with variable airflow available with retracting sceens. Improved reduction of glare provided over the 3m option in the late afternoon hours. Note that a signifcant amount of direct sunlight still penetrates the arena during summer and winter via the northern and southern portions of the western quadrant, however reduced periods can be seen under the arena canopy, with the arena floor directly adjacent arena to the screens seeing a reduction in glare duration.

December 21

September 21

June 21



S = 2hours
W = 1 hour
Eq = 1.5

NO DIRECT SUN

SUNLIGHT DURATION

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172 Casino Street South Lismore
PO Box 680 Lismore NSW 2480
phone 02 6622 37 45
fax 02 6621 94 55
www.agscommerical.net.au

No.	Description	Date
TE2	TENDER ISSUE	08/11/21
SK1	CONCEPT DEVELOPMENT	28/03/22
SK2 .1	CONCEPT DEVELOPMENT - BOUNDARIES ADDED	10/05/22
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22
SK3 .1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22

Notes:
Written dimensions shall be used in preference to scaled dimensions.
All dimensions and ground lines to be verified onsite and locate all underground services relative to the proposed works prior to construction.
Discrepancies shall be referred to the Building Designer before construction.

TENDER SUBMISSION

RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

SUNLIGHT / GLARE ANALYSIS OPTION B

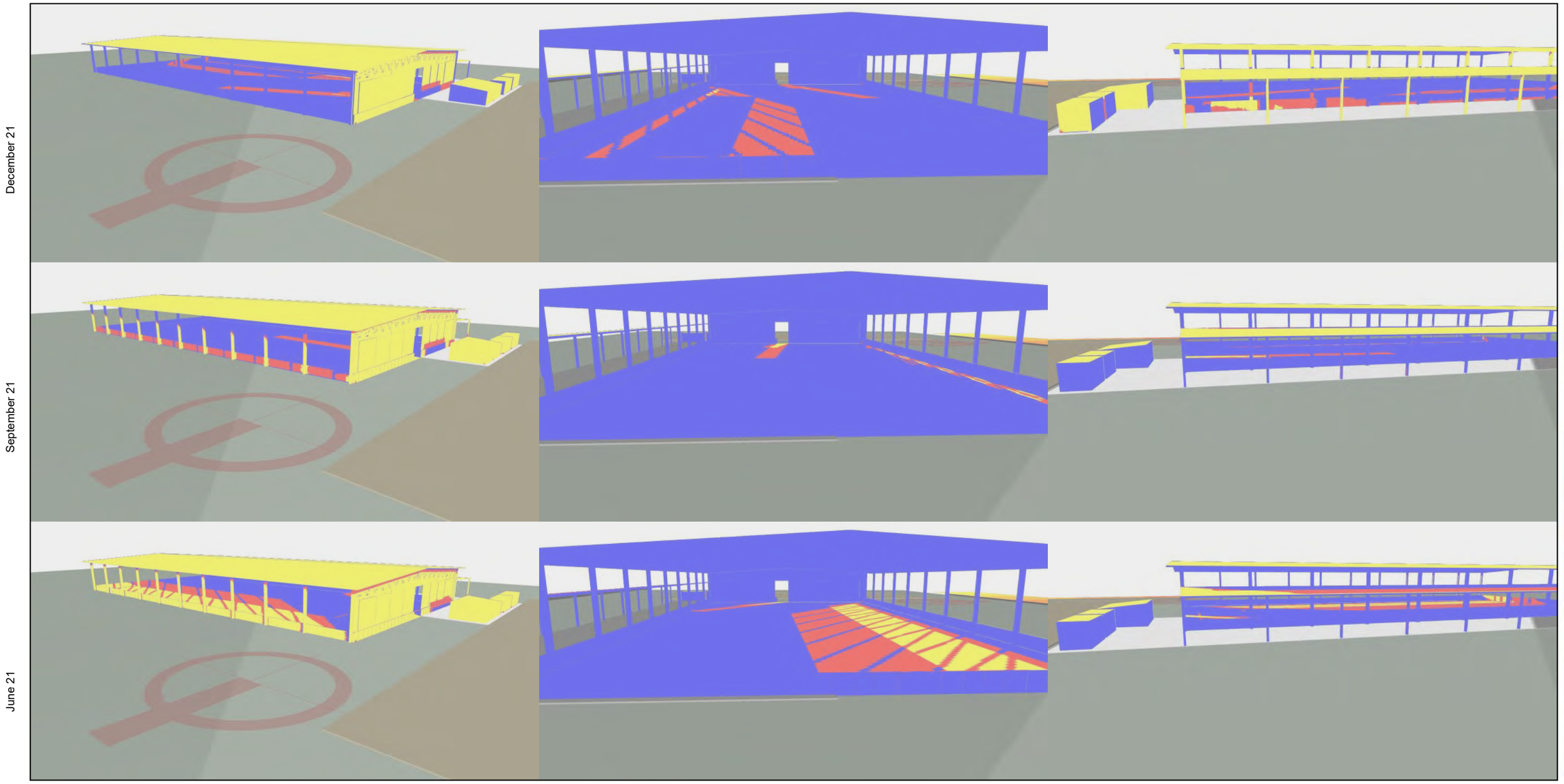
Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB

A12

Scale:

23 June 2022

OPTION C
Full height western wall.
Reduction of airflow due to blocking properties of the Western wall impacting summer easterly breeze flow through, resulting in increased summertime temperatures within the arena. Best option for glare reduction, however still limited due to note below.
Note that a signifcant amount of direct sunlight still penetrates the arena during summer and winter via the northern and southern portions of the western quadrant, however reduced periods can be seen under the arena canopy, with the arena floor directly adjacent arena to the screens seeing a reduction in glare duration.



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No.	Description	Date
TE2	TENDER ISSUE	08/11/21
SK1	CONCEPT DEVELOPMENT	28/03/22
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SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22
SK3 .1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22

Notes:
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TENDER SUBMISSION
RICHMOND VALLEY COUNCIL
CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470
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SUNLIGHT / GLARE ANALYSIS OPTION C

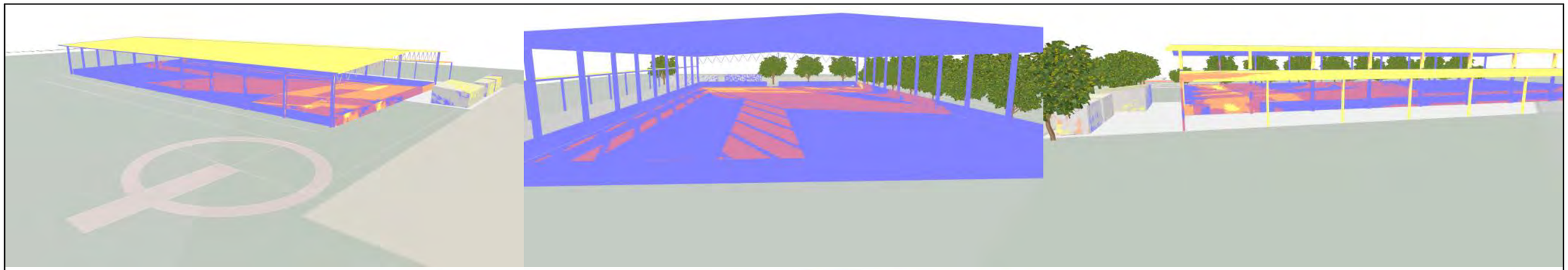
Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB

A13
Scale:

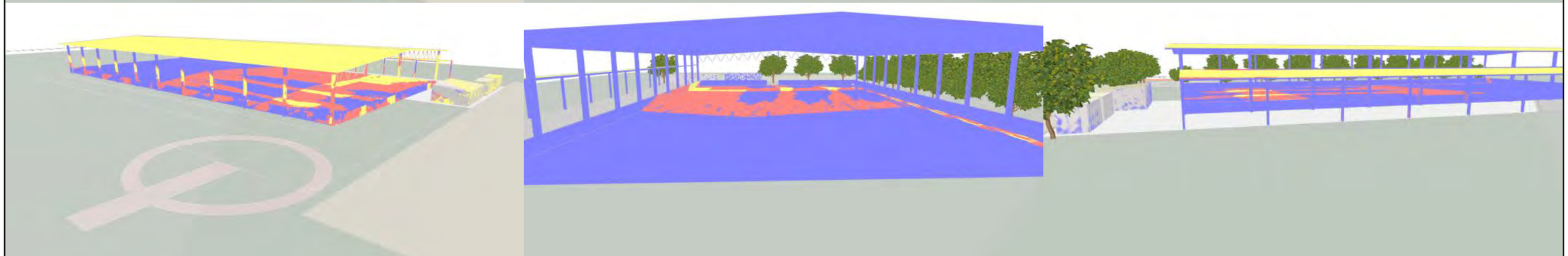
23 June 2022

OPTION D
Suitable native plantings - deciduous and evergreen.
No reduction of airflow . Glare reduction dependent on careful selection of planting species and location.
Note that a signifcant amount of direct sunlight still penetrates the arena during summer and winter via the northern and southern portions of the western quadrant, however reduced periods can be seen, especially in the winter months, with the arena floor adjacent arena to the foliage seeing a reduction in glare duration.

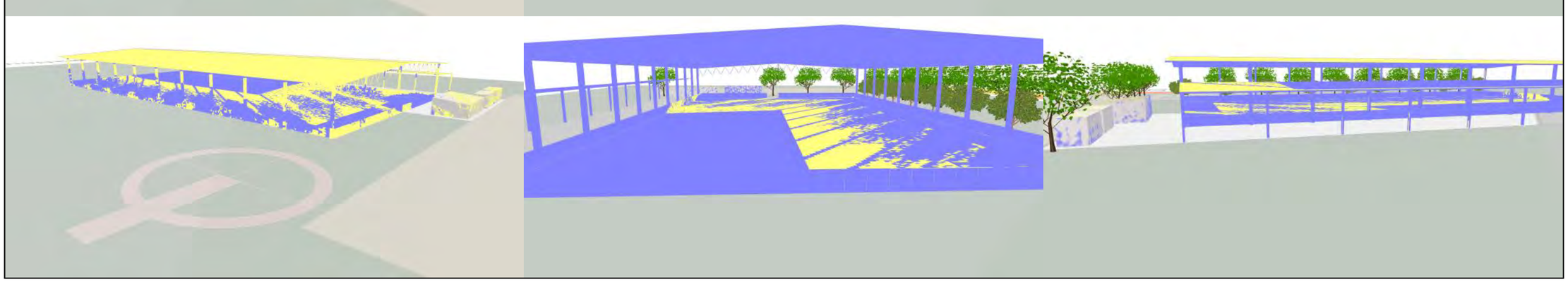
December 21



September 21



June 21



S = 2hours
W = 1 hour
Eq = 1.5

NO DIRECT SUN

SUNLIGHT
DURATION

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No.	Description	Date
TE2	TENDER ISSUE	08/11/21
SK1	CONCEPT DEVELOPMENT	28/03/22
SK2 .1	CONCEPT DEVELOPMENT - BOUNDARIES ADDED	10/05/22
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22
SK3 .1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22

Notes:
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TENDER SUBMISSION
RICHMOND VALLEY COUNCIL
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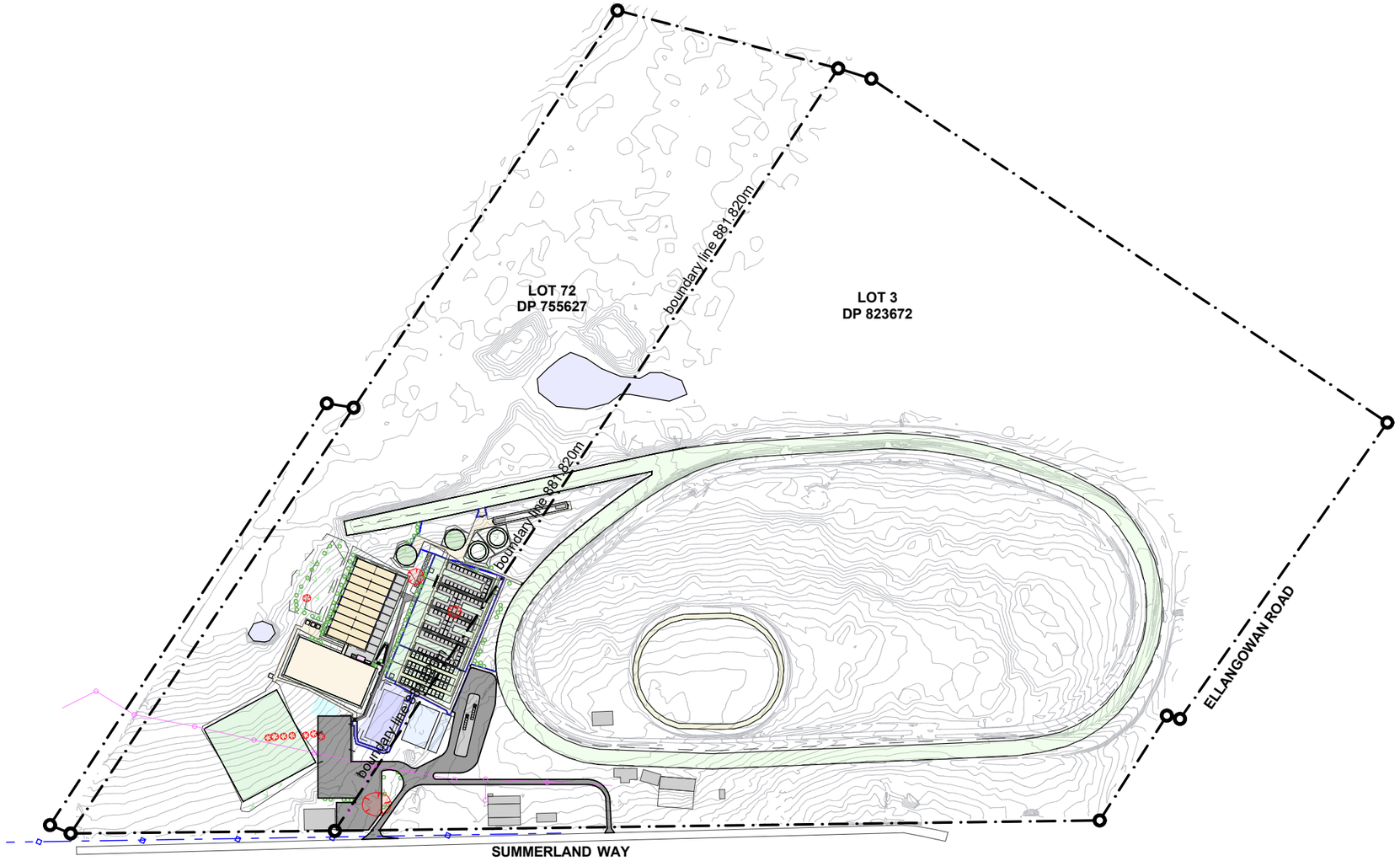
SUNLIGHT / GLARE ANALYSIS OPTION D

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB
Scale:	

A14

23 June 2022



BOUNDARY PLAN

Scale 1:5000 @A3

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No.	Description	Date
SK2 .1	CONCEPT DEVELOPMENT - BOUNDARIES ADDED	10/05/22
SK3	CONCEPT DEVELOPMENT - UPDATED CIVIL LAYOUT	06/06/22

No.	Description	Date
SK3 .1	CONCEPT DEVELOPMENT PREPARED FOR REF	14/06/22

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TENDER SUBMISSION

RICHMOND VALLEY COUNCIL

CASINO SHOWGROUND UPGRADE

10095 SUMMERLAND WAY CASINO NSW 2470
72/-/DP755627

BOUNDARY PLAN

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	CW, SB
Scale:	1:5000

A15

23 June 2022

Table I-5.3 Groundcovers (Scramblers, climbers – rockeries)

Botanical Name	Common Name
ActinotusS helianthi	Sydney Flannel Flower
Alocasia brisbanensis	Cunjevoi
Alpinia coerulea	Native Ginger
Austromyrtus dulcis	Midgenberry
Brachyscome multifida	Native Daisy
Carpobrotus glaucescens	Pigface
Correa alba	White Correa
Dendrobium sp.	Orchids
Dianella caerulea	Blue Flax Lily
Dianella revoluta	Black Anther Flax Lily
Eriostemon myoporoides	Wax Flower
Helichrysum rupicola	Paper daisy
Hibbertia scandens	Twining Guinea Flower
Lobelia trigonocaulis	Forest Lobelia
Lomandra hystrix	Small Mat Rush
Lomandra longifolia	Longleaf Mat Rush
Viola hederacea	Native Violet
Acacia prostrate species	Wattles
Anigozanthos species	Kangaroo Paw
Banksia species	Banksia
Blandfordia sp	Christmas Bells
Boronia floribunda	Pale Pink Boronia
Boronia serrulata	Native Rose
Callistemon prostrate species	Bottle-brush
Carex species	Native sedge
Crinum peduculatum	Swamp Lily
Curcuma australasica	Cape York Lily
Dampiera diversifolia	Dampiera
Eremophila prostrate species	Emu Bush
Goodenia varia	Goodenia
Grevillea species	Grevillea
Melaleuca pulchella	Claw Honey Myrtle Flower
Myoporum parvifolium	Creeping Boobialla
Oplismenus aemulus	Basket Grass
Orthosiphon aristatus	Cats Whiskers
Patersonia sericea	Native Iris
Persoonia species	Geebung
Pimelea glauca	Rice Flower
Pollia crispata	Pollia
Pratia pedunculata	Pratia
Pseuderanthemum variabile	Pastel Flower
Rulingia hermanniifolia	Rulingia
Scaevola humilis	Fan Flower
Tripladenia cunninghamii	Kreysigia
Xerochrysum bracteata	Paper Daisy, Everlasting

Table I-5.5 Small trees – trees suitable for the average size urban block

Botanical Name	Common Name
Acacia elata	Cedar Wattle
Acmena smithii	Lilly Pilly
Acronychia imperforata	Coastal Apple
Alectryon conaceus	Beach Alectryon
Allocasuarina littoralis	Black She Oak
Archirhodomyrtus beckleri	Rose Myrtle
Austromyrtus bidwillii	Python Tree
Backhousia citriodora	Lemon Scented Ironwood
Banksia serrata	Old Man Banksia
Brachychiton acerifolius	(Illawarra) Flame Tree
Brachychiton discolor	Lace Bark Tree
Callicoma serratifolia	Callicoma
Callistemon salignus	Weeping Bottle brush
Cassine australis	Red Olive Plum
Cryptocarya laevigata	Glossy Laurel
Cupaniopsis anacardioides	Coastal Tuckeroo
Elaeocarpus reticulatus	Blueberry Ash
Euodia elleryana	Pink Euodia
Euodia micrococca	White Euodia
Ficus frasen	Sandpaper Fig
Glochidion sumatranum	Umbrella Cheese Tree
Hakea salicifolia	Willow Hakea
Harpullia pendula	Tulipwood
Hymenosporum flavum	Native Frangipani
Lophostemon confertus	Brush Box
Macaranga tanarius	Macaranga
Melaleuca leucadendra	
Melaleuca quinquenervia	Broad-leaved Paperbark
Pandanus tectorius	Pandanus, Screw Pine
Persoonia species	Geebung
Phebalium squameum	Satinwood, Silver Leaf
Pittosporum rhombifolium	Hollywood/Coastal Daphne
Polyscias elegans	Celerywood
Randia benthamiana	Native Gardenia
Rhadamnia rubescens	Scrub Turpentine
Sarcopteryx stipata	Steelwood
Stenocarpus sinuatus	Fire-wheel tree
Sterculia quadrifida	Peanut Tree
Synoum glandulosum	Scentless Rosewood
Syzygium australe	Brush Cherry
Syzygium alesum	Blue Lilly Pilly
Syzygium paniculatum	Magenta Lilly Pilly
Tristaniopsis laurina	Water Gum
Trochocarpa laurina	Tree Heath
Waterhousea floribunda	Weeping Lilly Pilly
Agonis flexuosa	Willow Peppermint
Alloxylon flammeum	Queensland Tree Waratah
Banksia species	Banksias
Buckinghamia celsissima	Ivory Curl Flower Tree
Ceratopetalum gummiferum	NSW Christmas Bush
Dodonea species	Hop bushes
Eyadiella muelleri	Little Evodia
Eucalyptus species	Dwarf grafted Eucalyptus
Leptospermum species	Tea Trees
Melastoma affine	Native Lasiandra
Waterhousea unipunctata	Roly Poly Satin Ash
Xenthostemon sp	Golden Penda (Hybrids)

Table I-5.4 Native Shrubs – Plants growing to a maximum height of 2-3 metres

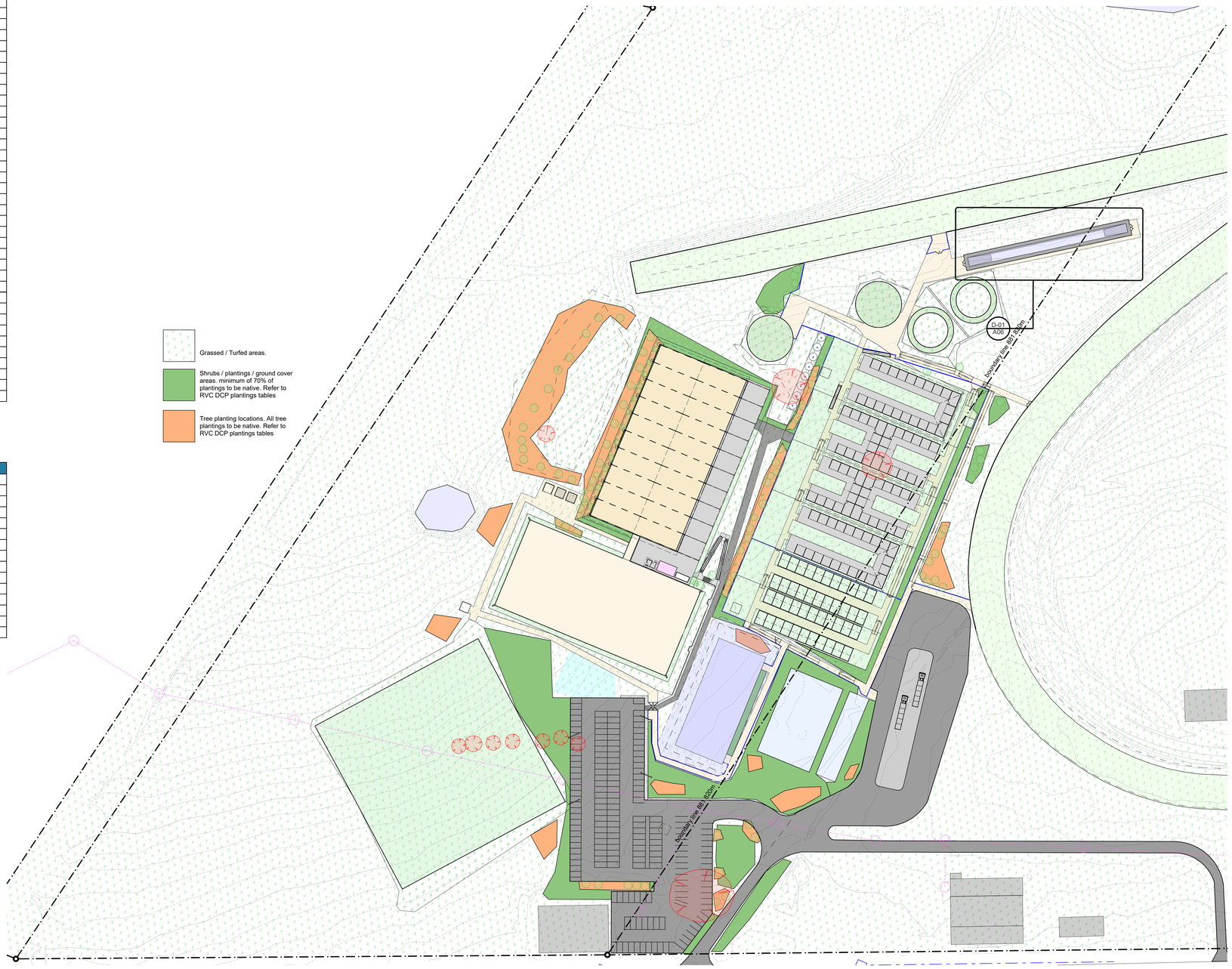
Botanical Name	Common Name
Acacia longifolia	Sydney Golden Wattle
Baeckea linifolia	Swamp Baeckea
Banksia ericifolia	Heath Leafed Banksia
Banksia robur	Swamp Banksia
Bauera rubioides	River Dog Rose
Boronia species	Boronia
Callicarpa pedunculata	Velvet Leaf
Callistemon 'Little John'	Callistemon
Coprosma hirtella	Looking Glass Plant
Darwinia citriodora	Lemon-scented Darwinia
Dillwynia retorta	Egg and Bacon
Dodonaea triquetra	Hopbush
Doryanthes palmeri	Spear Lily
Eremophila species	Emu Bush
Eriostemon australasius	Pink Wax Flower
Eupomatia laurina	Native Bolwarra or Guava
Gompholobium virgatum	Yellow Wedge Pea
Graptophyllum excelsum	Scarlet Fuchsia
Grevillea species	Grevillea
Hakea species	Hakea
Hibiscus heterophyllus	Native Rosella
Hibiscus splendens	Native Hibiscus
Isopogon anemonifolius	Drumstick
Kunzea capitata	Pink Kunzea
Leptospermum petersonii	Lemon-scented Tea Tree
Leptospermum species	Tea Trees
Melastoma affine	Blue Tongue
Oxylobium robustum	Golden Shaggy Pea
Ozothamnus diosmifolius	Rice, Sago or Pill Flower
Pittosporum revolutum	Hairy Pittosporum
Ricinocarpos pinifolius	Wedding Bush
Thryptomene paynei	Thryptomene
Westringea fruticosa	Coastal Rosemary
Baeckea species	Baeckea
Boronia species	Boronia
Callisternon species	Bottlebrushes
Grevillea species	Grevillea
Hakea species	Hakea
Hovea species	Hovea
Isopogon anemonifolius	Drumstick
Kunzea ambiqua	Tick Bush
Leptospermum 'Pink Cascade'	Tea-tree
Leptospermum 'Pacific Beauty'	Tea-tree
Leptospermum species	Tea trees
Leucopogon species	Bearded Heath
Melaleuca species	Paper Bark
Prostanthera species	Mint Bushes
Pultanea species	Bacon and Eggs
Rhododendron lochiae	Australian Rhododendron
Syzygium australe cultivars	Dwarf Lilly Pilly
Syzygium species	Lill Pillies
Xanthorrhoea species	Grass Trees
Zieria species	

Table I-5.6 Palms, Ferns, Cycads and Palm Lillies

Botanical Name	Common Name
Archontophoenix cunning	Bangalow Palm
Adiantum aethiopicium	Common Maidenhair Fern
Adiantum formosum	Giant Maidenhair Fern
Asplenium australasicum	Birds Nest Fern
Blechnum indicum	Swamp Water Fern
Cordyline rubra	Palm Lily - Cordyline
Cordyline stricta	Palm Lily - Cordyline
Cyathea cooperi	Straw Tree Fern
Cyathea australis	Rough Tree Fern
Doodia aspera	Rasp Fern
Lepidozamia peroffskyana	Shining Burrawang (Cycad)
Linospadix monostachya	Walking Stick Palm
Platycerium sp.	Elkhorn/Staghorn
Todea barbara	King Fern
Wodyetia bifurcata	Foxtail Palm

Note:
Ground cover plantings and shrubs to be minimum 70% of native selection.
Trees to be 100% native selection.

Refer to Richmond Valley Council DCP landscaping tables shown on plan for appropriate selection



Landscape plan - high level schematic

Scale 1:1000 @A1

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No.	Description	Date	No.	Description	Date
SK3.2	CONCEPT DEVELOPMENT - LANDSCAPING	23/06/22			

Notes:
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TENDER SUBMISSION
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CASINO SHOWGROUND UPGRADE
10095 SUMMERLAND WAY CASINO NSW 2470
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LANDSCAPING PLAN

Project number	C099
Date	23/06/22
Drawn by	MP
Checked by	NE, SB, MP

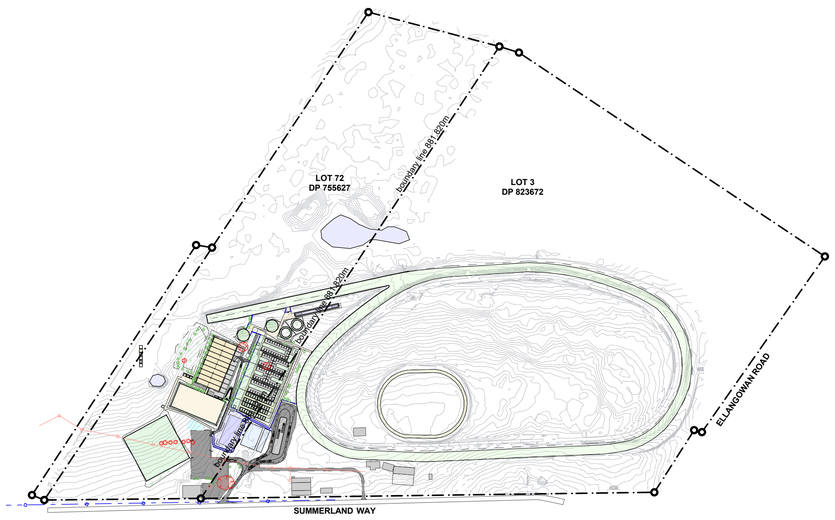
A16

Scale: 1:1000

23 June 2022

Scale 1:5000 50 0 50 100 150 200 250 300 350 400 450 500m

Scale 1:1000 10 0 10 20 30 40 50 60 70 80 90 100m

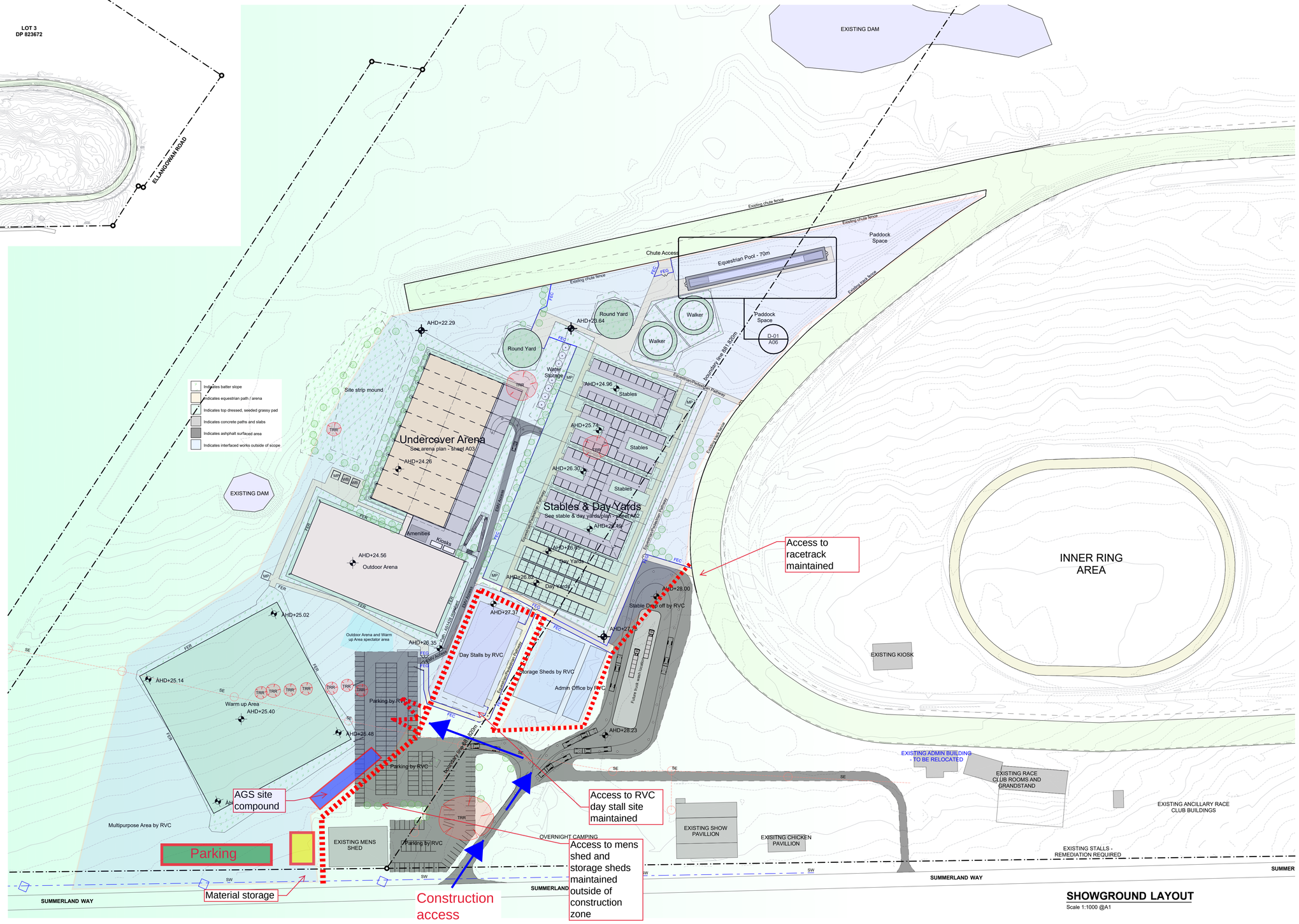


BOUNDARY PLAN

Scale 1:5000 @A1

Construction restricted access area

Construction fence line



SHOWGROUND LAYOUT

Scale 1:1000 @A1

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SITE ESTABLISHMENT PLAN			
Project number	C099	A01	
Date	01/06/2022	1:1000,	
Drawn by	MP		
Checked by	NE, SB, MP	Scale 1:5000	

1 June 2022

Locality Map

Casino Showground Upgrade

Summerland Way Casino

NSW 2480

For: Richmond Valley Council

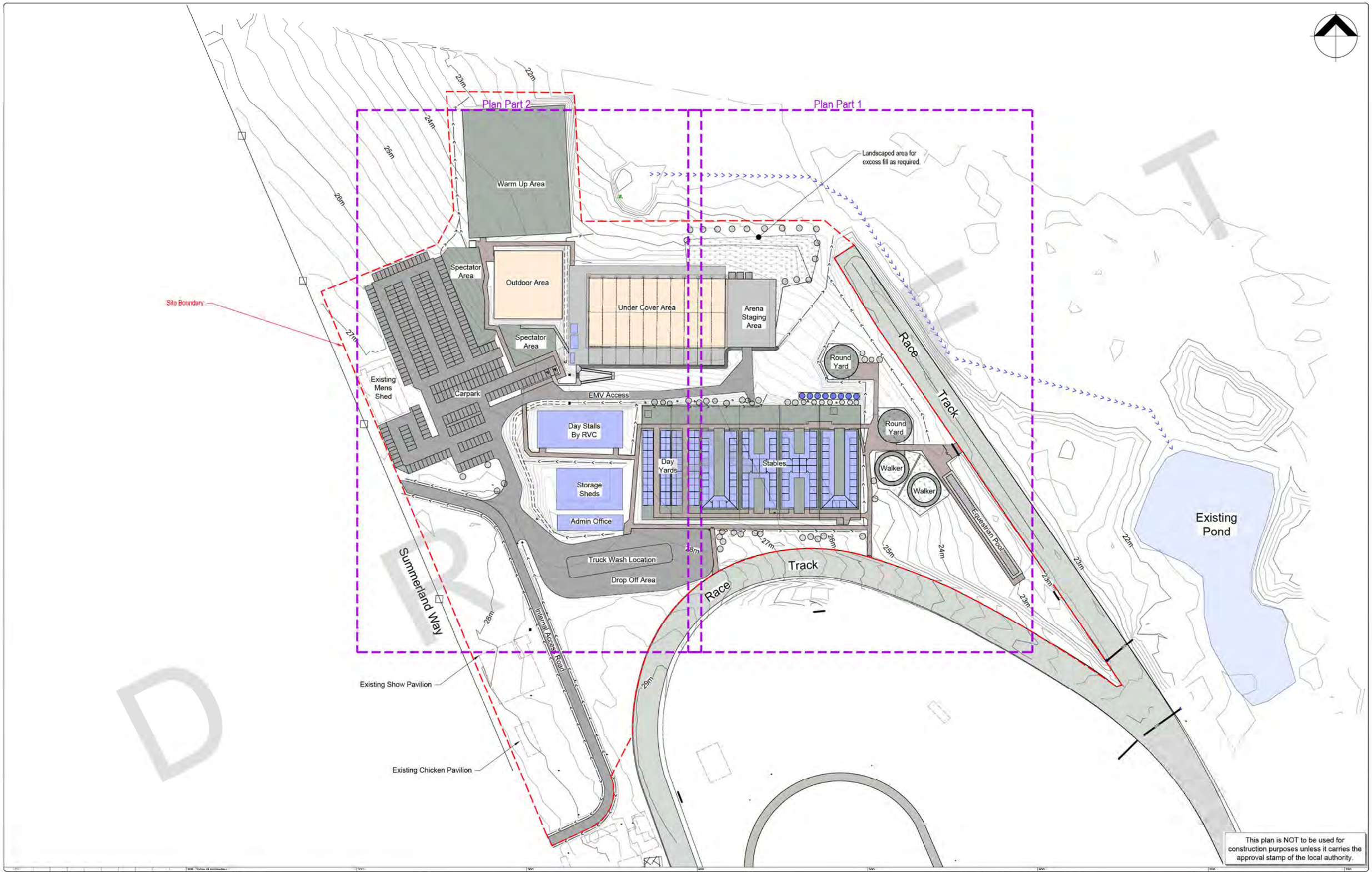
ARDILL PAYNE
& Partners
ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT

BALLINA 45 River Street Ph. 02 6686 3280
GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955

A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au

Drawing Schedule

Drawing	Sheet	Description
11288 -C01	1 of 15	Overall Site Layout Plan
11288 -C02	2 of 15	Bulk Earthworks Layout Plan Part 1 of 2
11288 -C03	3 of 15	Bulk Earthworks Layout Plan Part 2 of 2
11288 -C04	4 of 15	Site Layout Plan Part 1 of 2
11288 -C05	5 of 15	Site Layout Plan Part 2 of 2
11288 -C06	6 of 15	Erosion and Sediment Control Layout Plan
11288 -C07	7 of 15	Erosion and Sediment Control Details
11288 -C08	8 of 15	General Construction Notes and Details
11288 -C09	9 of 15	Internal Access Road Layout Plan and Longitudinal Section
11288 -C10	10 of 15	Internal Access Road Cross Sections
11288 -C11	11 of 15	Carparking Layout Plan
11288 -C12	12 of 15	Stormwater Layout Plan Part 1 of 2
11288 -C13	13 of 15	Stormwater Layout Plan Part 2 of 2
11288 -C14	14 of 15	Stormwater Catchment Layout Plan
11288 -C15	15 of 15	Stormwater Construction Details



Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Overall Site Layout Plan

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:1000 @ A1, 1:2000 @ A3 (0 10 20 30 40 50)
Datum	AHD
Drafting File	11288_C01-D15_IBBA_Construction-Plans-2022-10-04.dwg
Design File	
Dwg No.	C01
Issue	D

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Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Bulk Earthworks Layout Plan Part 1 of 2

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
Datum	AHD
Drafting File	11288_C01-C15_BBA_Construction-Plans-2022-10-04.dwg
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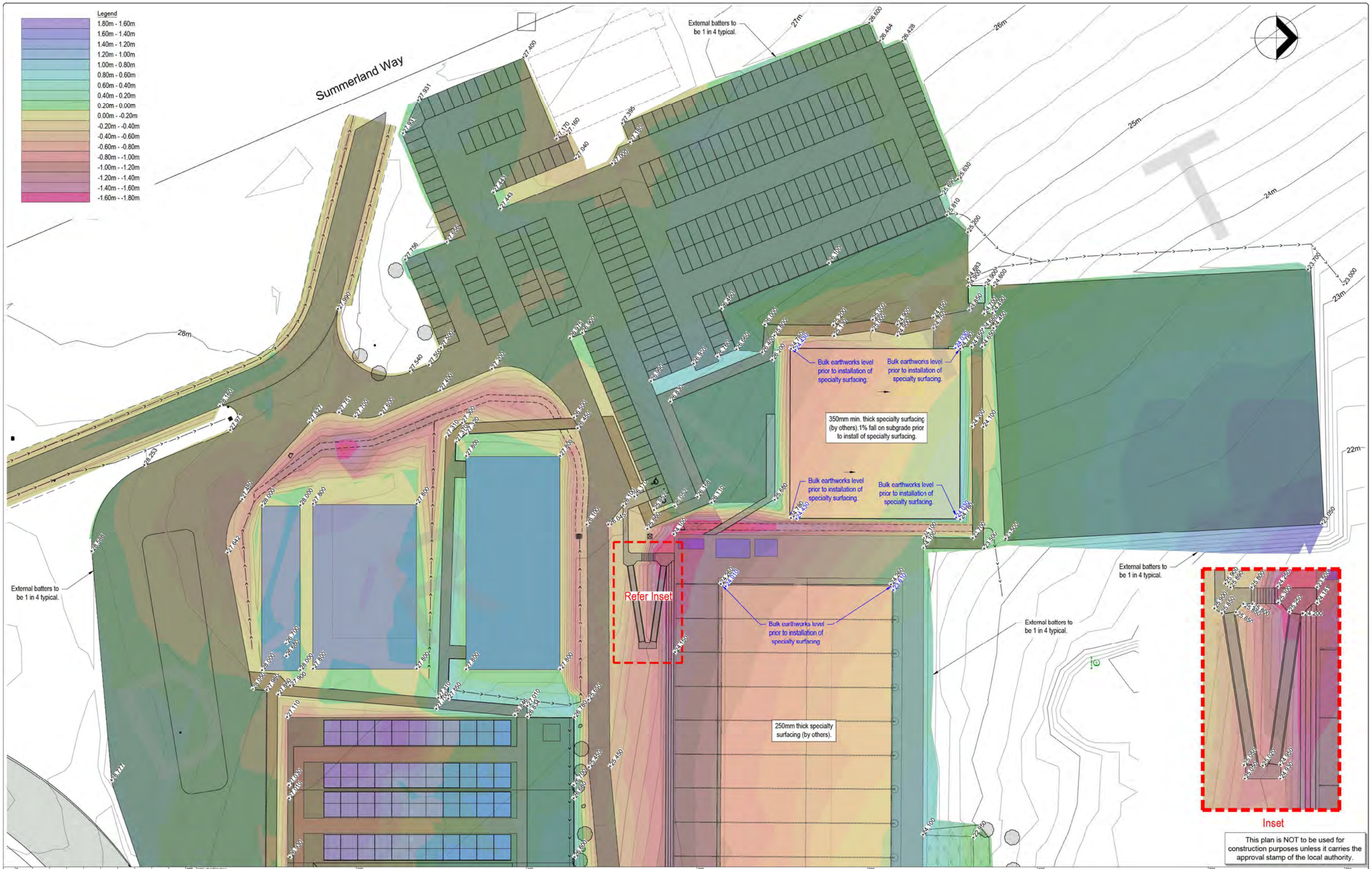
Dwg No.	C02
Issue	D



Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Bulk Earthworks Layout Plan Part 2 of 2

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288

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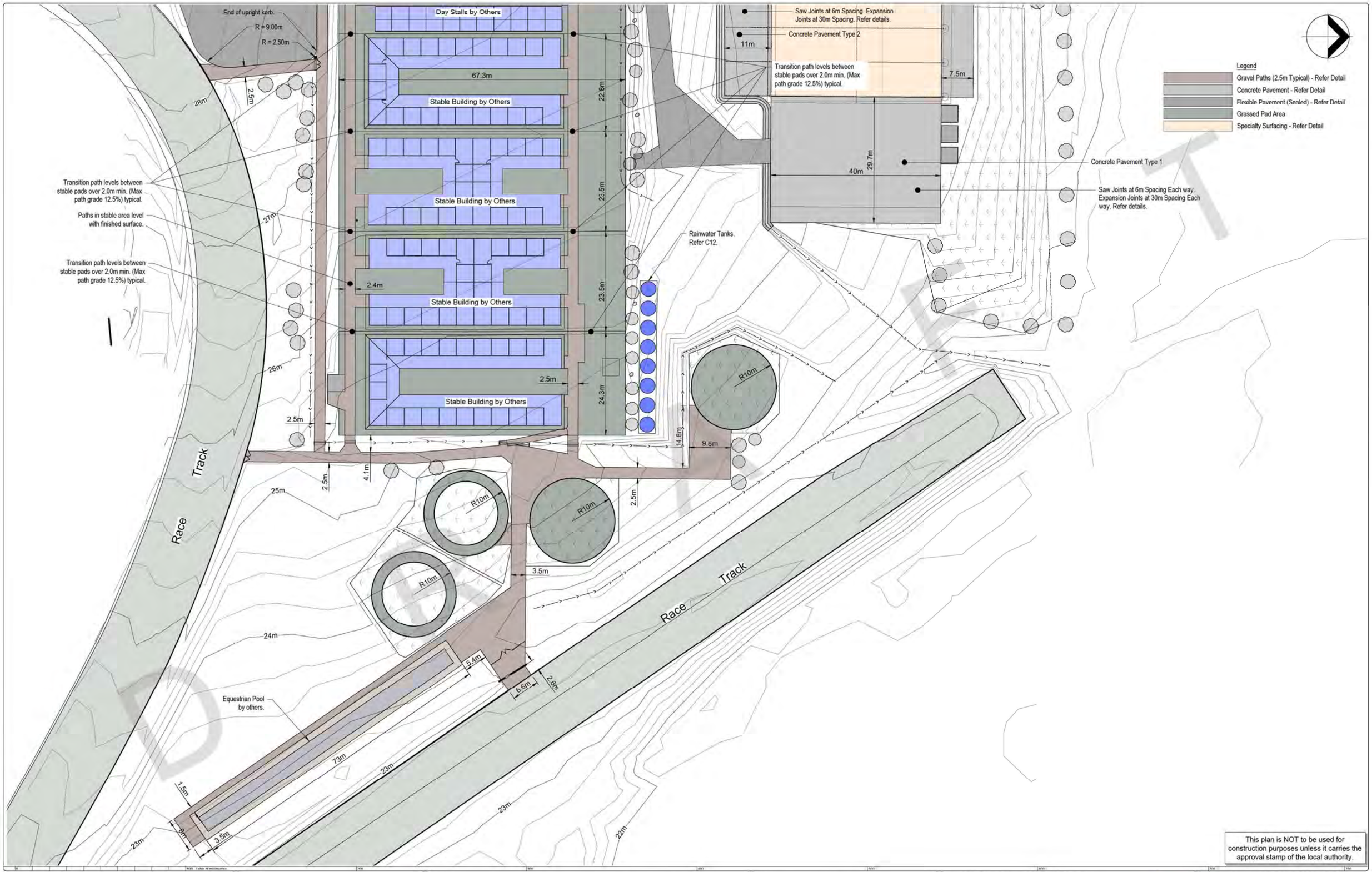
Design File:
Dwg No. C03
Issue D



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Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Site Layout Plan Part 1 of 2

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
Datum	AHD
Drafting File	11288_C01-C15_ISSA_Construction-Plans-2022-10-04.dwg
Design File	
Dwg No.	C04
Issue	D

Legend
- Gravel Paths (2.5m Typical) - Refer Detail
- Concrete Pavement - Refer Detail
- Flexible Pavement (Sealed) - Refer Detail
- Grassed Pad Area
- Specialty Surfacing - Refer Detail

Adjust sewer manhole lid to suit finished carpark level. Install trafficable lid.

Adjust sewer manhole lid to suit finished carpark level. Install trafficable lid.

Adjust sewer manhole lid to suit finished carpark level. Install trafficable lid.

Inetall upright kerb along edge of flexible pavement. Tool joints at 2m spacing's. Extend pavement 150mm behind back of kerb.

Refer Carparking Plan

End of upright kerb.

Existing Surface to remain around existing manhole lid.

Toilet area.

Start of upright kerb.

Adjust sewer manhole lid to suit finished surface level.

R = 3.10m

R = 7.00m

R = 20.00m

R = 15.00m

Start of upright kerb.

Install upright kerb along edge of flexible pavement. Tool joints at 2m spacing's. Extend pavement 150mm behind back of kerb.

R = 9.00m

Concrete Pavement Type 2

Saw Joints at 6m Spacing. Expansion Joints at 30m Spacing. Refer details.

Concrete Pavement Type 2

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Site Layout Plan
Page 2 of 2

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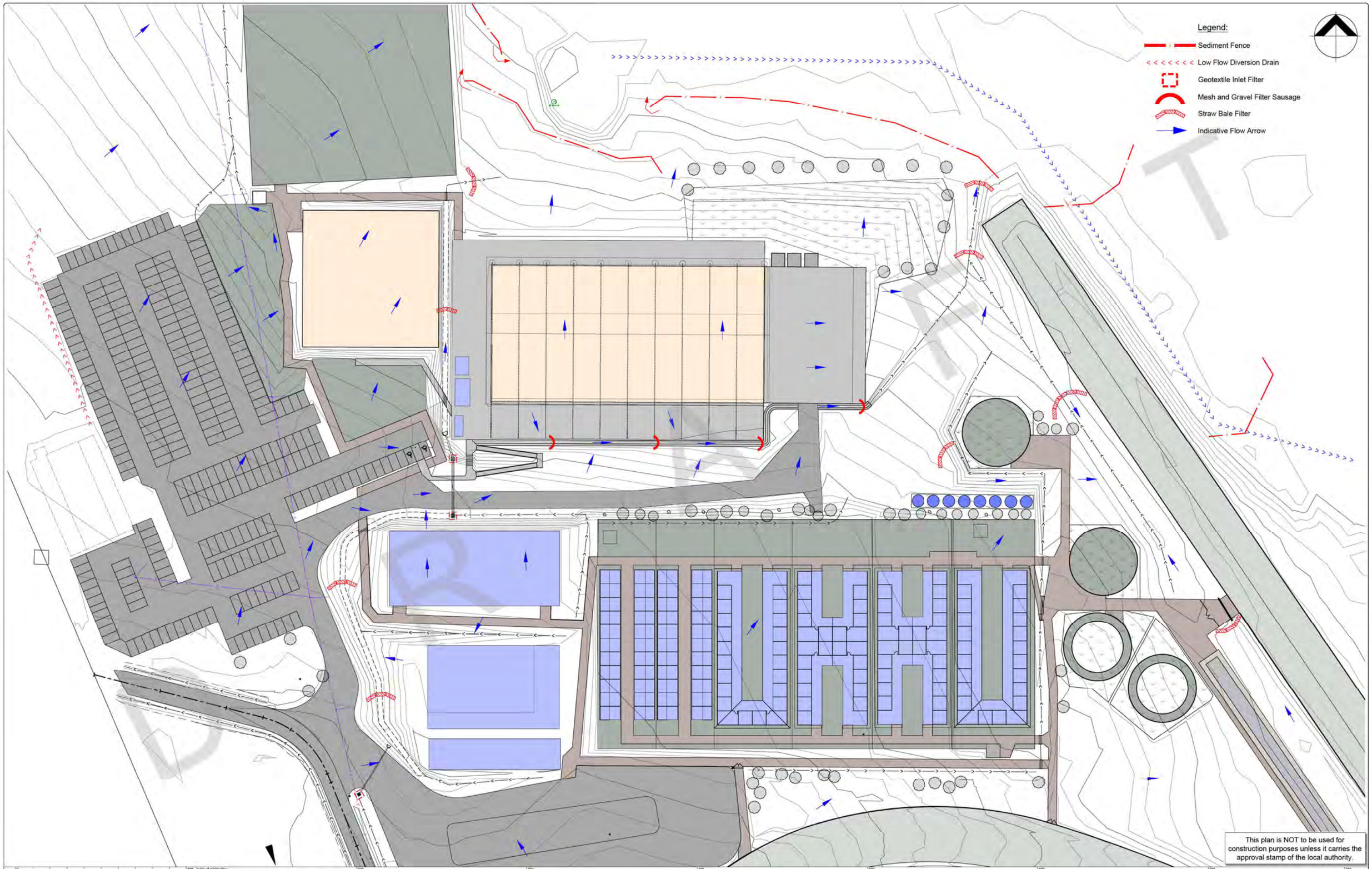
Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
Datum	AHD
Drafting File	11288_C01-C15_IBRA_Construction-Plans-2022-10-04.dwg
Design File	
Dwg No.	C05
Issue	D



Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Erosion and Sediment Control Layout Plan

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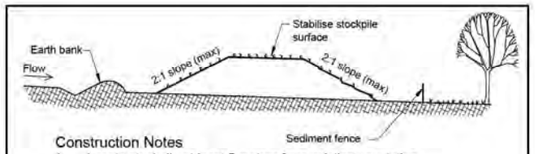
Design	AH	Scale	1:500 @ A1, 1:1000 @ A3
Drawn	AH		0 5 10 15 20 25
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_C01-C15_IRRA_Construction-Plans-2022-10-04.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	C06
		Issue	D

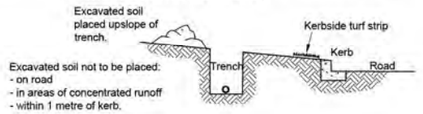


Construction Notes

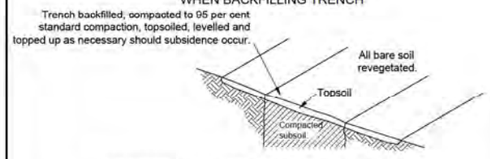
1. Locate stockpile at least 5 metres from existing vegetation, concentrated water flows, roads and hazard areas.
2. Construct on the contour as a low, flat, elongated mound.
3. Where there is sufficient area topsoil stockpiles shall be less than 2 metres in height.
4. Rehabilitate in accordance with the SWMP/ESCP.
5. Construct earth bank on the upslope side to divert run off around the stockpile and a sediment fence. 1 to 2 metres downslope of stockpile.

STOCKPILES

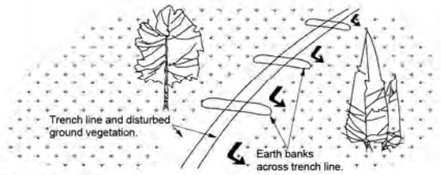
WHEN EXCAVATING TRENCH



WHEN BACKFILLING TRENCH



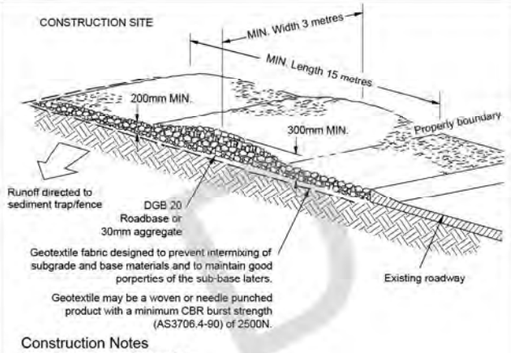
ON STEEP AND/OR LONG SECTIONS OF TRENCH



Construction Notes

1. Do not open any trench unless it is likely to be closed in three days.
2. Place excavated material upslope of trench.
3. Stockpile topsoil separately from subsoil.
4. Divert runoff from the line of the cut with diversions.
5. Rehabilitate in accordance with the specification.

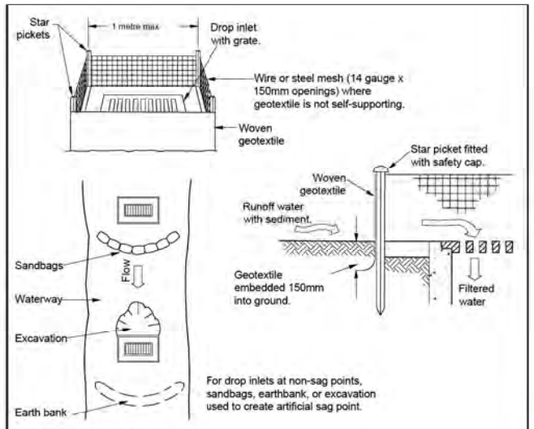
UTILITY CONSTRUCTION



Construction Notes

1. Strip topsoil and level site.
2. Compact subgrade.
3. Cover with needle punched geotextile.
4. Construct 200mm thick pad over geotextile using roadbase or 30mm aggregate. Min. length 15m or to building alignment. Min. width 3m.
5. Construct hump immediately within boundary to divert water to a sediment fence or other sediment trap.

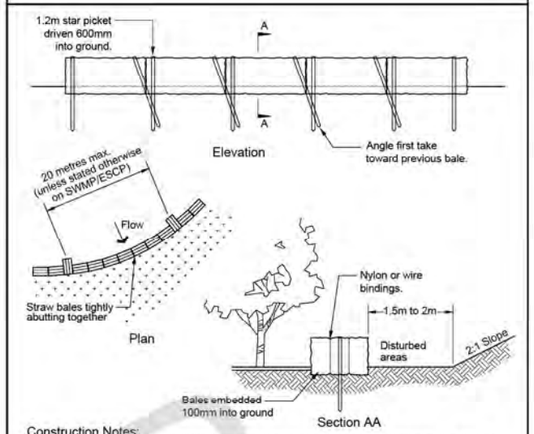
STABILISED SITE ACCESS



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Support geotextile with mesh tied to posts at 1 metre centres.
3. Do not cover inlet with gaotextile.

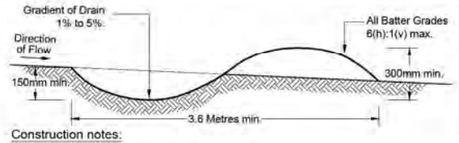
GEOTEXTILE INLET FILTER



Construction Notes:

1. Construct straw bale filter as close as possible to parallel to the contours of the site or at the toe of a slope.
2. Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws to be placed parallel to ground.
3. Maximum height of filter is one bale.
4. On soft materials, embed each bale in he ground 75mm to 100mm and anchor with two 1.2m star pickets. angle the first stake in each bale towards the previously laid bale. Drive stakes 600mm into the ground and flush with the top of the bales.
5. Where a straw bale filter is contructed downslope from a disturbed batter the bales should be located 1.5 to 2 metres downslope from the toe of the batter.

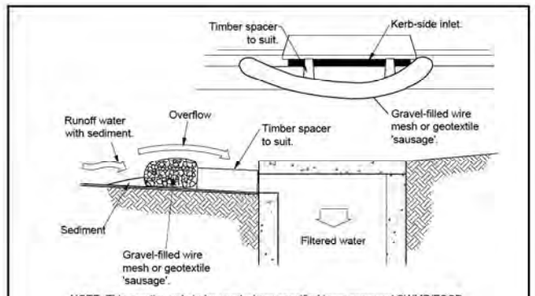
Straw Bale Filter



Construction notes:

1. construct with gradient of 1 per cent to 5 per cent.
2. avoid removing tress and shrubs if possible.
3. drains to be circular, parabolis or trapazoidal cross section, not v-shpaed
4. earth banks to be adequately compacted in order to prevent failure.
5. permanent or temporary stabilisation of the earth bank to be completed within 10 days of construction
6. all outlets from disturbed lands are to feed into sediment basin or similar.
7. discharge runoff collected from undisturbed lands onto either a stabilised or an undisturbed disposal site witin the same subcatchment area from which they water originated.
8. compact bank wit a suitable impiement in situations where they are required to function for more than five days.
9. earth banks to be set free of projections or other irregularities taht will empede normal flow.

Earth Bank (Low Flow)

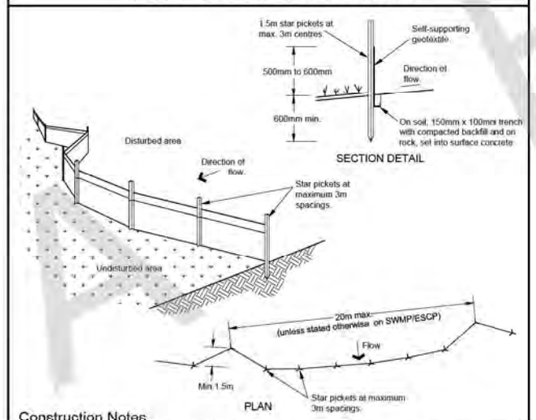


NOTE: This practise only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit.
2. Fill the sleeve with 25mm to 50mm gravel.
3. Form an elliptical cross-section about 150mm high x 400mm wide.
4. Place the filter at the opening of the kerb inlet leaving a 100mm gap at the top to act as an emergency spillway.
5. Maintain the opening with spacer blocks.
6. Form a seal with the kerbing and prevent sediment bypassing the filter.
7. Fit to all kerb inlets at sag point.

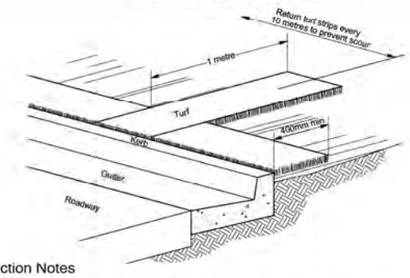
MESH AND GRAVEL INLET FILTER



Construction Notes

1. Construct sediment fence as close as possible to parallel to the contours of the site
2. Drive 1.5 metre long star pickets into ground, 3 metres apart.
3. Dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
4. Backfill trench over base of fabric.
5. Fix self-supporting geotextile to upslope side of of posts with wire ties or as recommended by geotextile manufacturer.
6. Join sections of fabric at support post with a 150mm overlap.

SEDIMENT FENCE



Construction Notes

1. Install min. 400mm wide roll of turf on the footpath adjacent to the kerb and at the same level as the top of the kerb.
2. Lay 1.5 metre long turf strips normal to the kerb every 10 metres.
3. Rehabiltate disturbed soil behind the turf strip in accordance with the Landscape Plan.

KERBSIDE TURF STRIP

Notes - Erosion and Sedimentation Control

1. All erosion and sedimentation controls shall be in accordance with the guidelines and specifications as detailed in Landcom's ' Managing Urban Stormwater: Soils and Construction - Volume 1', 2004.
2. Construction shall be phased so that land disturbance is confined to areas of workable size. This will limit the duration disturbed areas are exposed to erosion. Stabilisation shall be applied to the first disturbed area before the next section is opened up. Any disturbed areas that will not be stabilised within 30 days shall be revegetated and any that fail to establish shall be resown.
3. Topsoil stockpiles are to be located away from any natural drainage watercourse and shall have hay bales and/or sediment control fences placed around them to act as sedimentation controls.
4. Temporary earthen diversion drains shall be constructed to divert waters away from all disturbed areas and towards hay bale check dams located in natural drainage depressions.
5. Temporary sediment detention barriers shall be placed around outlet headwalls and drainage discharge points as detailed and permanent energy dissipaters shall be installed at all outlets to limit velocities and thus the potential for scouring. With all drainage outlets, water shall be released in a non-erodible manner.
6. Temporary sediment traps shall be constructed at drainage inlet points as detailed.
7. Temporary sediment fencing shall be installed along the downslope edge of disturbed areas and fill batters.
8. Sediment and debris shall be removed from detention barriers when they are 60% full. All sediment removed shall be disposed of as directed by the Supervising Engineer.
9. Upon completion of shaping and drainage works, batters and drainage lines shall be topsoiled to a minimum depth of 100mm with stockpiled material and any areas with insufficient grass/topsoil mix shall be seeded and mulched with any failed areas resown or revegetated as directed by the Supervising Engineer. A 400mm wide turf strip shall be installed next to all kerb, or other concrete surfaces, to stabilise the interface between concrete surfaces and topsoiled areas.
10. Temporary erosion and sedimentation controls are to be installed during the construction phase and shall be retained and maintained while disturbed areas remain or are contributing sediment to the stormwater system. No device shall be removed until directed by the Supervising Engineer.
11. Wind erosion on the site shall be managed by limiting traffic on disturbed areas, utilising water trucks, covering stockpiles with anchored geofabric, and providing dust covers on trucks and dumpers. If wind speed exceeds 10m/s, increase watering or cease dust generating activities until dust controls are operating effectively. Other measures may be employed as outlined in the Landcom manual.

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Erosion and Sediment Control Details

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	Not to scale
Datum	AHD
Drafting File	11288_C01-D15_IBBA_Construction-Plans-2022-10-04.dwg
Design File	
Dwg No.	C07
Issue	D

General Notes

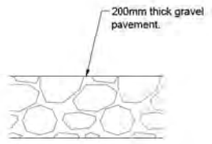
1. All setout shall be by suitably experienced personnel. All works-as-executed plans shall be certified by a Registered Surveyor or Engineer.
2. Dimensions are generally in metres unless noted otherwise.
3. All levels are in metres unless noted otherwise.
4. All levels shown are finished surface unless noted otherwise.
5. Inspection hold points of civil works are required at the following construction stages:
   a. Prior to backfilling of stormwater, sewer and water services (pipe to be trenched, bedded and laid).
   b. Box inspection of subgrade and proof roll.
   c. Inspection of sub base gravels and proof roll prior to installation of kerb.
   d. Inspection of base gravels and proof roll prior to sealing.
   e. Any service crossings of road pavement.
6. Density testing is to be carried out at max.100m spacing or in accordance with Table 8.1 of AS 3798 - Guidelines on Earthworks for Commercial and Residential Development, whichever gives the greater frequency of testing.
   Compaction is to be to the following:
   - General filling to 95% standard compaction;
   - Subgrade to 95% standard compaction;
   - Sub-base gravels to 100% standard compaction;
   - Base course gravels to 100% standard compaction;
7. The gravel pavement shall extend full depth under, and 150 behind all kerbs.
8. RC pipes of 900 dia or less shall be minimum class '2', rubber ring jointed, unless noted otherwise. FRC pipes are not permitted for trunk drainage lines in Ballina Shire. IAD pipes may be PVC, FRC or RC (rubber ring jointed). Use of FRC pipes requires the approval of a delegated officer from Council's engineering section.
9. Minimum cover to stormwater pipes shall be 450mm in landscape areas, and 600mm under road pavements, unless noted otherwise.
10. Stormwater pits and drainage structures shall be to the local authority standards and conform to AS 3500 . Pits over 1.2m deep shall have galvanised step irons at 300 cts vertically and 220 cts horizontally. Grates and frames shall be cast iron class 'D' and bicycle safe in accordance with AS 3996.
11. The Contractor is responsible for maintaining sufficient cover over stormwater and sewer mains during construction, and ensuring that trenches are correctly backfilled and compacted to eliminate damage caused by construction traffic.
12. Drainage easements, where not shown, shall be confirmed by survey after construction.
13. General concrete works shall have the following properties:
    a. Class of concrete shall be normal.
    b. Maximum slump shall be 80mm.
    c. Maximum aggregate size shall be 20mm.
    d. Min 28 days concrete compressive strength shall be 25 MPa including all kerbs u.n.o
    e. Concrete works shall conform to AS 3600.
14. Linemarking and signage shall confirm to AS 1742 Manual of Uniform Traffic Control Devices.
15. Sewer manholes may be either precast concrete in accordance with WSAA Sewer Code or maintenance shafts (in accordance with the manufacturers specification) and in accordance with the Local Authorities standards.
16. Lids on sewer manholes and junction pits shall be installed parallel to the finished surface. Levels shown are at the centre of the lid.
17. Electrical, telecommunication and water reticulation shall be installed to the service provider's specification.
18. It is the responsibility of the Contractor to ensure that adequate erosion and sedimentation control devices are erected and maintained at all times during construction, and to the satisfaction of the Local Authority.
19. All traffic control during construction shall be in accordance with the RMS's Guidelines - Traffic Control at Work Sites and AS 1742.3 - 2009 Manual of Uniform Traffic Control Devices: Traffic Control Devices for Works on Roads.
20. All works shall be carried out in accordance with the Local Authorities Subdivision Code and associated standard drawings (NRLG).
21. It is the Contractor's responsibility to provide to the Surveyor any information necessary to prepare works-as-executed drawings for submission to the Local Authority. It will be necessary to liaise with the Surveyor to coordinate the location of some items prior to backfilling.

Note - Natural Surface

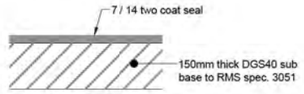
1. Natural surface contours are computer interpolated from Surveyor's electronic field data. Notwithstanding the limits of earthworks shown on the drawings, the actual limits shall be confirmed on site by the Contractor.
2. Prior to commencement of construction, the Contractor is to ascertain the location and level of existing services to his satisfaction. Services shown on plans are taken from Surveyor's field notes only and may not necessarily indicate all services within the works area.
3. Notwithstanding the extent of the works shown on the drawings the Contractor shall undertake all necessary construction required to enable finished works to comply with the intent of the drawings and the requirements of the Local Authorities Subdivision Code.
4. These drawings are diagrammatic only and are intended to indicate design in accordance with the relevant Australian Standards. They do not relieve the Contractor from his responsibility to comply with these requirements, even if drawings are approved by the Authority.
5. It is the Contractor's responsibility to ensure that provision is made for the installation of all services prior to the construction of driveways, carparks and other paved areas.

General Site Preparation & Filling Specification

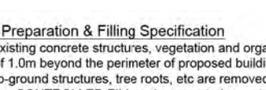
1. Remove existing concrete structures, vegetation and organic soil for a minimum distance of 1.0m beyond the perimeter of proposed buildings and areas to be filled.
2. Where sub-ground structures, tree roots, etc are removed they shall be replaced with non-reactive CONTROLLED FILL and compacted as noted.
3. Before filling is commenced, the stripped surface shall be compacted for a depth of 250mm to a dry density ratio of more than 95% standard where the compaction test is in accordance with AS1289.
4. Fill platforms shall comprise CONTROLLED FILL as defined in AS 2870 (Residential Slabs and Footings), and placed, compacted and tested in accordance with AS 3798 (Earthworks for Commercial and Residential Developments). Certification by an approved Geotechnical Testing Authority shall be on a LEVEL 1 basis in accordance with AS 3798.
5. Filling shall be carried up in horizontal layers not more than 200mm thick (loose measurement), and each layer shall be compacted to satisfy the following requirements:
   COHESIONLESS SOILS:- Density index more than 65% where compaction test is in accordance with AS 1289.
   COHESIVE SOILS:- Dry density ratio of more than 95% standard where compaction test is in accordance with AS 1289.
6. Imported fill shall be approved by the Geotechnical Testing Authority, and shall be free from rubble, rocks, organic matter, lumps of clay, and other unsuitable materials.
7. The contractor shall engage an approved Geotechnical Testing Authority for testing and certification.
8. Filling under all structures to be level 1.



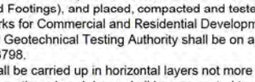
Gravel Path Detail



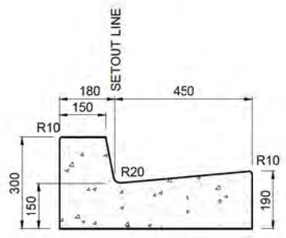
Flexible Pavement Detail



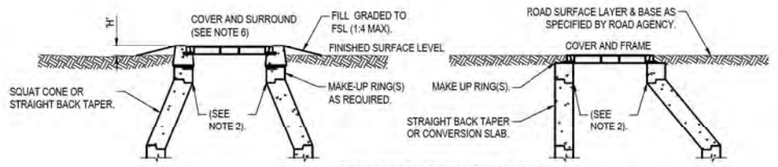
Concrete Type 1 Detail



Concrete Type 2 Detail

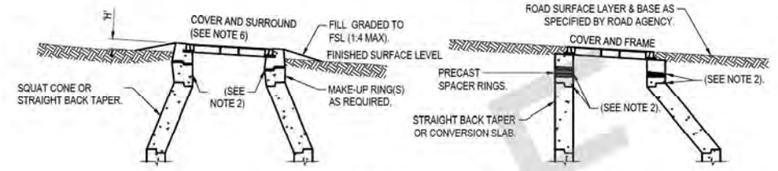


UPRIGHT KERB - B1



PRECAST MAINTENANCE HOLES

CAST IN-SITU MAINTENANCE HOLES



SLOPING GROUND

NON TRAFFICABLE COVERS

TRAFFICABLE COVERS

TYPICAL MAINTENANCE HOLE COVER ARRANGEMENTS

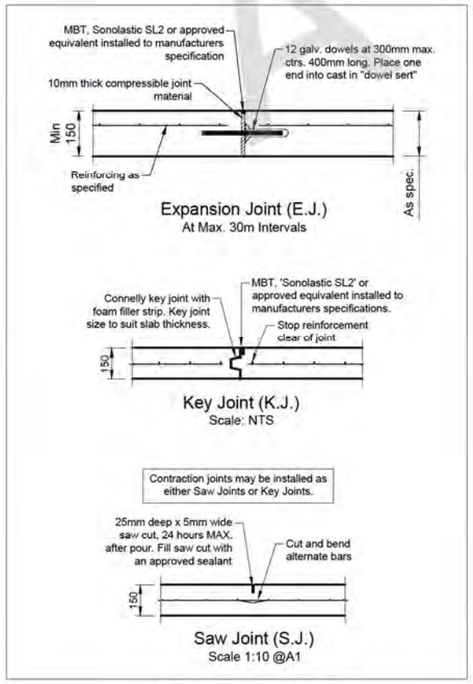
SELECTION OF MH COVERS	
ALL COVERS TO BE WATER TIGHT (SEE NOTE 7)	
LOCATION	CLASS
RESERVES	B - NON-TRAFFICABLE
ROADWAYS	D - TRAFFICABLE
LOCATIONS SUBJECT TO FLOODING ETC.	D - TRAFFICABLE WITH BOLT - DOWN (SEE NOTE 3)

FINISHED LEVELS OF MH COVERS	
LOCATION	H
UNDEVELOPED AREAS	100
NEW SUBDIVISIONS	75
ROADS, LANE WAYS, FOOTPATHS & DRIVEWAYS	FLUSH
EXISTING BUILT UP AREAS	25
OTHER AS SPECIFIED (EG ABOVE FLOOD LEVELS)	

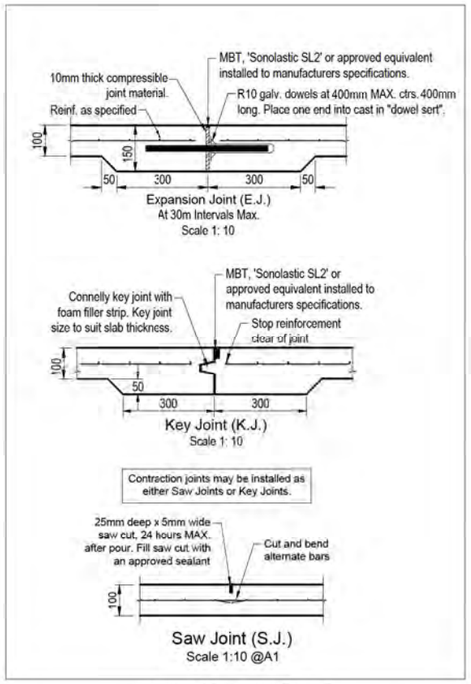
MH COVER NOTES:

1. ALL DIMENSIONS IN MILLIMETRES
2. SEALING METHODS
   (A) MAKE JOINTS BETWEEN SHAFT TOP/MAKE-UP RING AND COVER SUPPORT RING USING:
   - BUTYL MASTIC, OR
   - MORTAR MADE FROM 3 PARTS SAND TO 1 PART CEMENT
   (b) APPLY BUTYL MASTIC IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION
   (c) THICKNESS OF CEMENT MORTAR AT ANY JOINT TO BE NO GREATER THAN 50
   (d) SCABBLE AND CLEAN JOINT SURFACES SO THAT ALL LOOSE OR SOFT MATERIAL IS REMOVED
   (e) JOINT SURFACES TO BE BRUSHED CLEAN, SPONGED WET AND PRIMED WITH A CEMENT / WATER SLURRY PRIOR TO PLACING THE CEMENT MORTAR
3. IN AREAS SUBJECT TO SURCHARGE, USE CAST IN-SITU MH DOWEL JOINT OR BOLT COVER SLABS, DI COVER AND FRAME TO THE SHAFT SECTION IN SUCH A MANNER THAT SEPARATION DURING SURCHARGE IS PREVENTED. SEE SEW-1301.
4. WHERE SPECIFIED JOIN METAL FRAME TO CAST IN-SITU MH RISER AS FOLLOWS:
   (a) MAKE JOINTS BETWEEN SHAFT TOP AND METAL FRAME USING BUTYL - MASTIC AND LOCKING DOWN BOLTS, EQUALLY PLACED AROUND THE CIRCUMFERENCE.
   (b) USE 12 DIAMETER GALVANISED OR STAINLESS STEEL BOLTS EXTENDING 75 MIN INTO CONCRETE
   (c) FOR NON-TRAFFICABLE LOCATIONS USE A MINIMUM OF TWO BOLTS
   (d) FOR TRAFFICABLE LOCATIONS USE A MINIMUM OF FOUR BOLTS
5. MAXIMUM PERMISSIBLE SLOPE OF COVERS
   CLASS "B" 1 IN 4
   CLASS "D" 1 IN 10
6. COVERS AS AUTHORISED BY WATER AGENCY
7. WHERE SPECIFIED USE GAS TIGHT COVERS

THESE DETAILS ARE DERIVED FROM THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002



Joints Pavement Type 1



Joints Pavement Type 2

DIAL BEFORE YOU DIG www.1100.com.au

Services located in the area.
Services shown on plans are indicative only unless noted otherwise. Contractor to obtain current Dial Before You Dig and confirm location and level of any services prior to commencement of works. The contractor is responsible for maintaining safe work clearances to services and notifying the engineer of any discrepancies.

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: General Construction Notes and Details

ARDILL PAYNE & Partners
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ENVIRONMENTAL PROJECT MANAGEMENT
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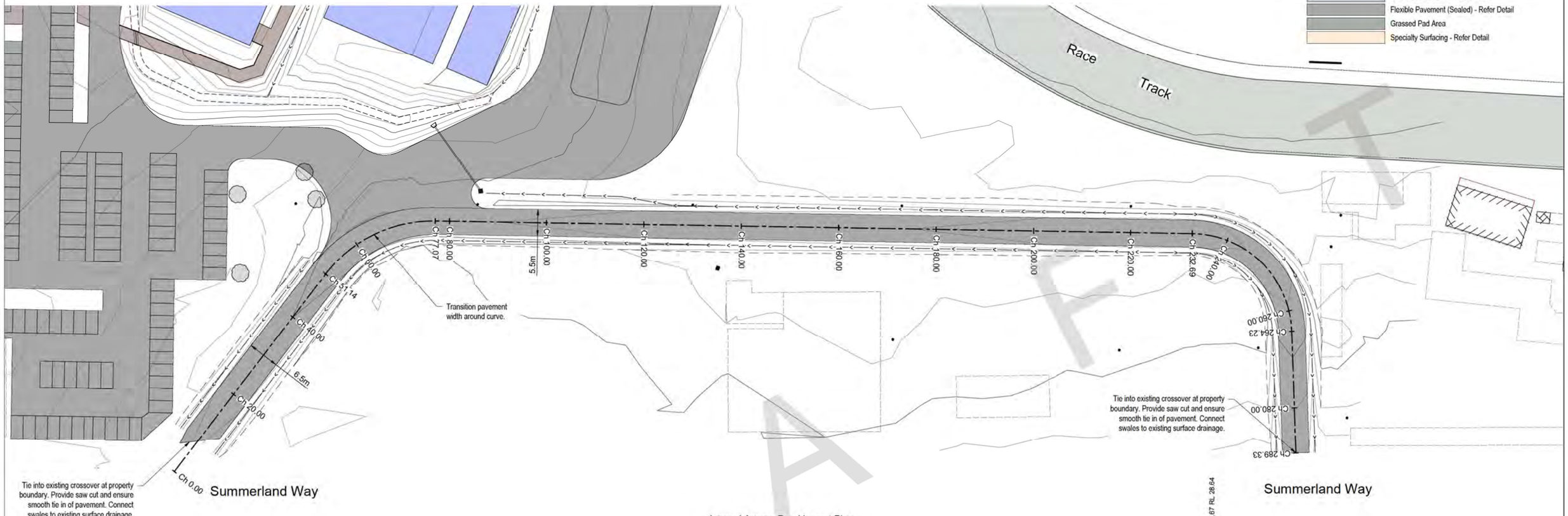
Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	Various - refer plan
Datum	AHD
Drafting File	11288_C01-D15_IDBA_Construction-Plans-2022-10-04.dwg
Design File	
Dwg No.	C08
Issue	D



Internal Access Road Layout Plan
Scales 1:400 @A1

Internal Access Road Longitudinal Section
Scales: Horizontal 1:400 Vertical 1:100 @A1

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Internal Access Road Layout Plan and Longitudinal Section

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
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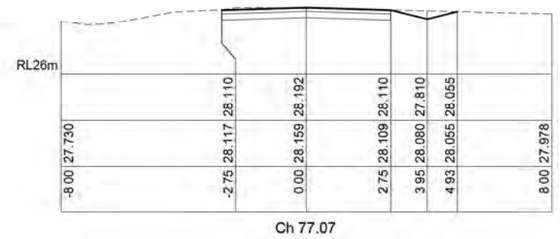
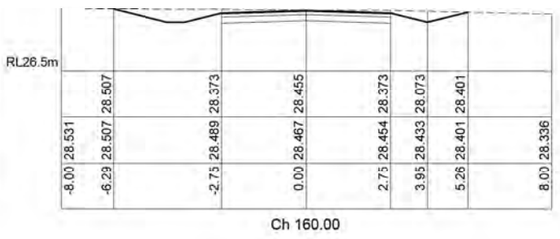
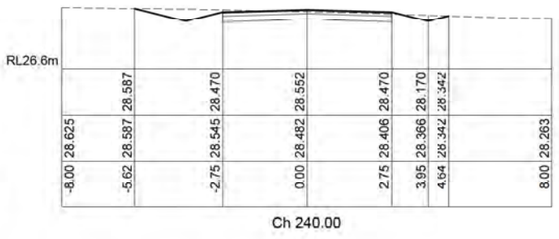


Ch 77.07



Ch 160.00



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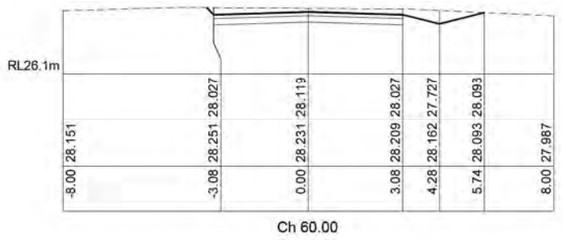

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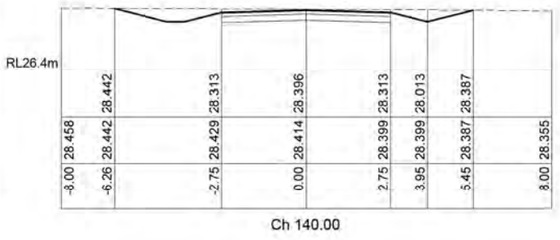

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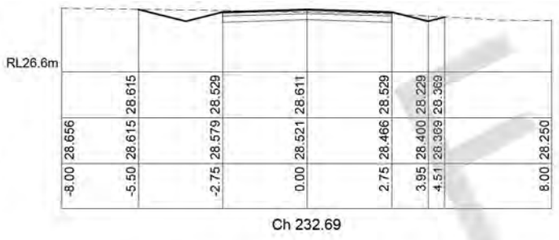

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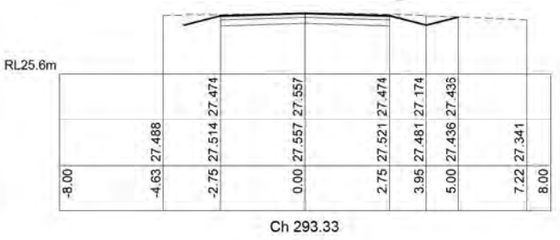

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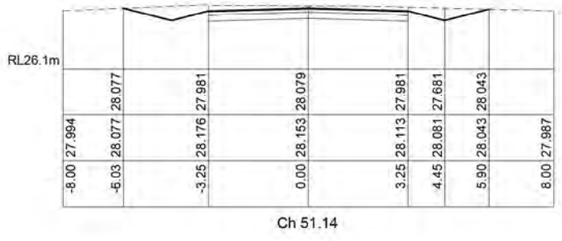
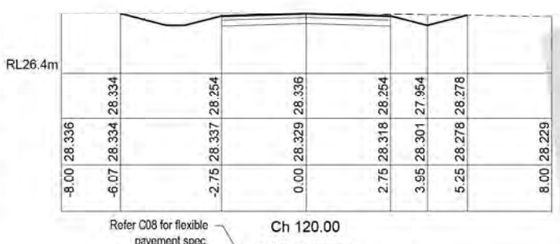


Ch 51.14



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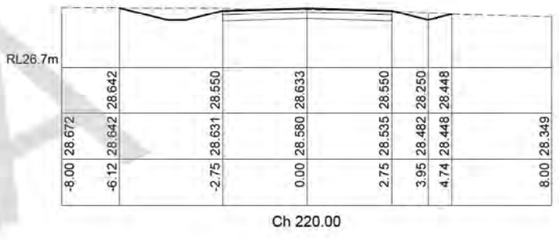

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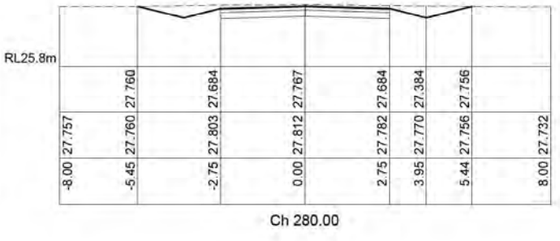

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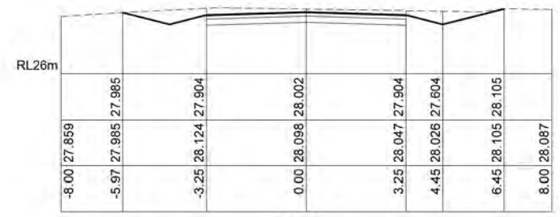

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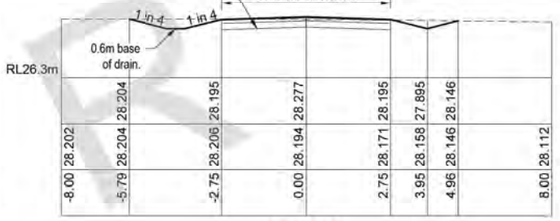

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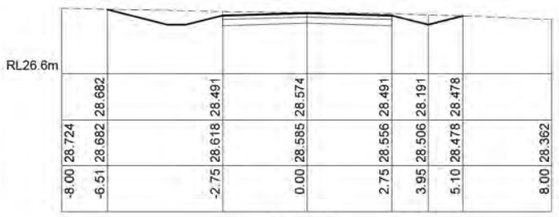

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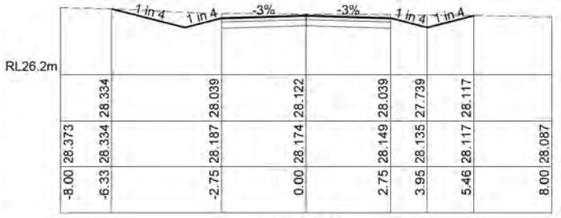
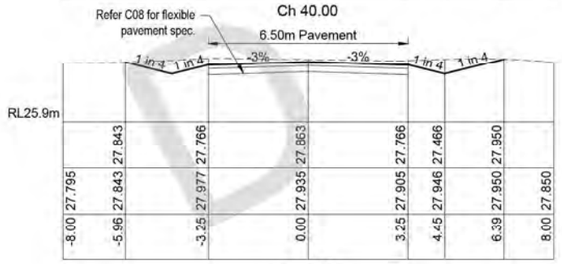


Ch 264.23



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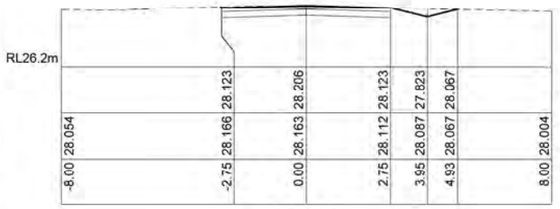
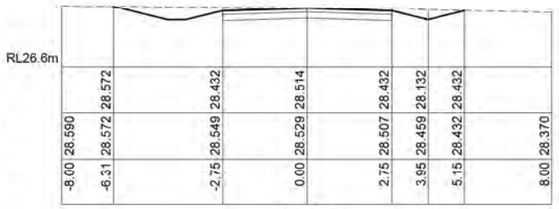
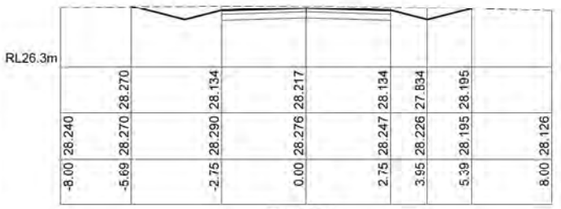


Ch 80.00



Ch 180.00



Ch 260.00

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Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Internal Access Road Cross Sections

ARDILL PAYNE & Partners
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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:100 @ A1, 1:200 @ A3 (0 1 2 3 4 5)
Datum	AHD
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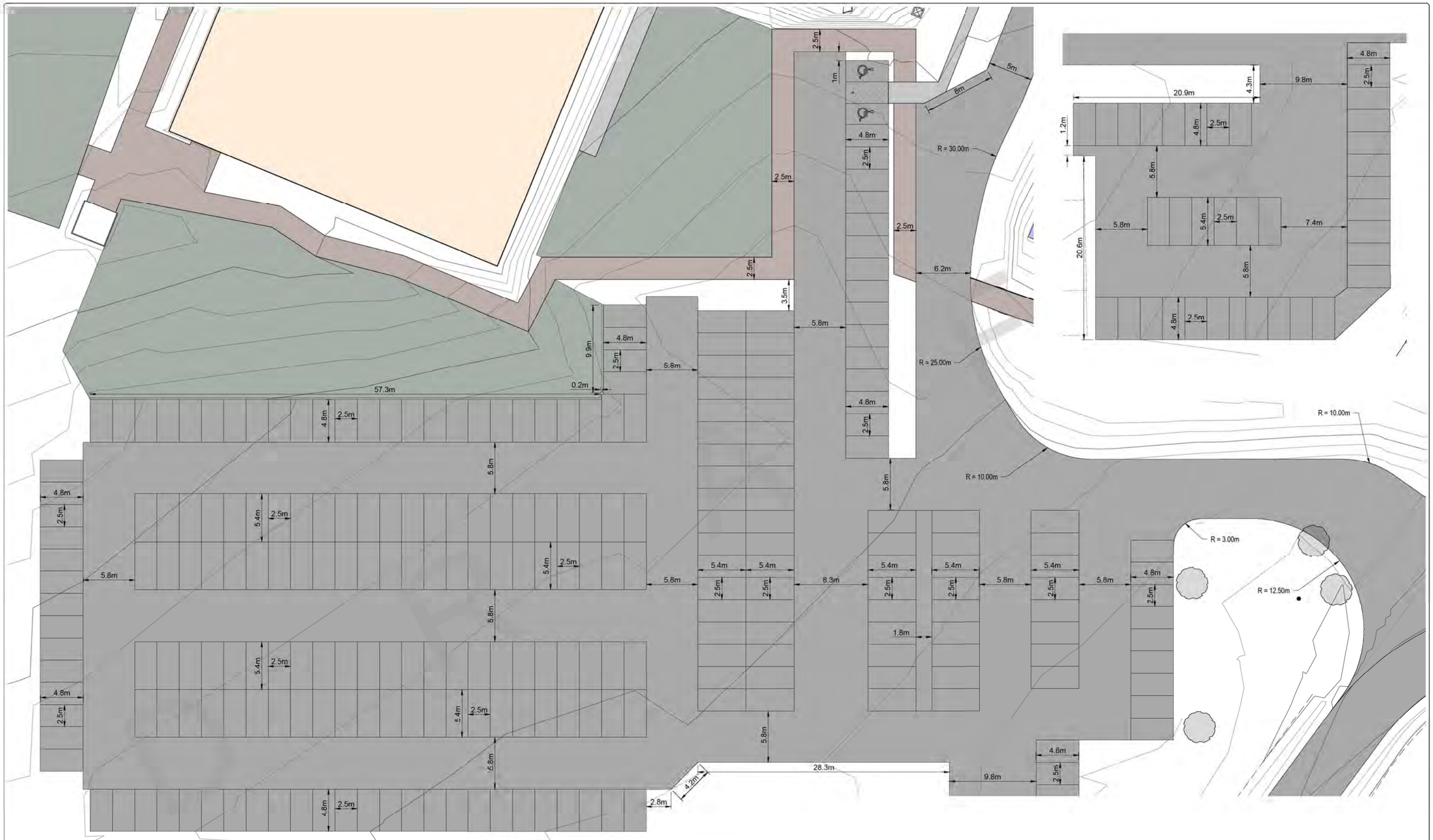
Dwg No.	C10
Issue	D



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Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Carparking Layout Plan

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Design	AH	Scale	1:200 @ A1, 1:400 @ A3
Drawn	AH		0 2 4 6 8 10
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_C01-C15_SSA_Construction-Plans-2022-10-04.dwg
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Job No.	11288	Dwg No.	C11
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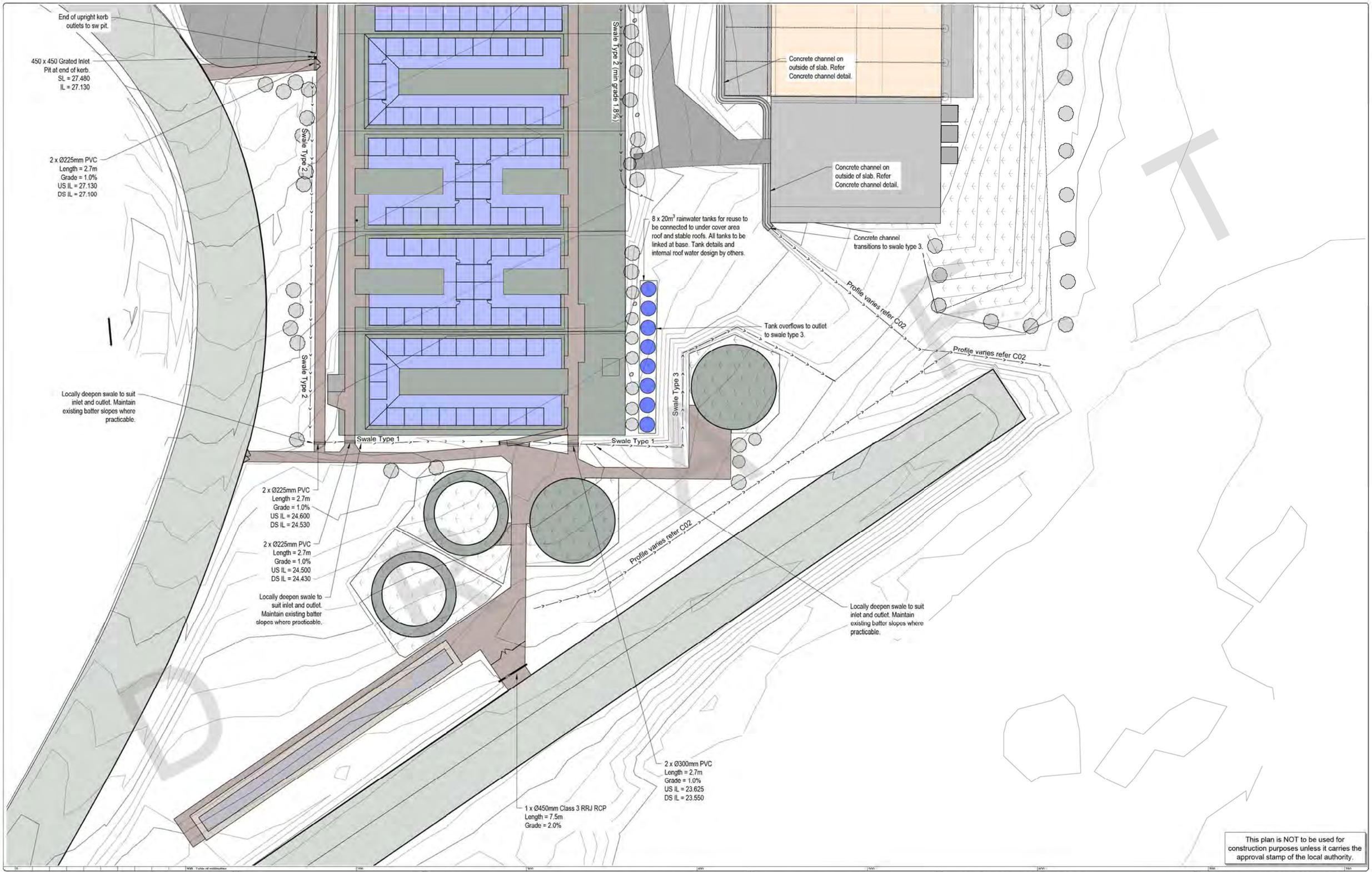

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Stormwater Layout Plan Part 1 of 2

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Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
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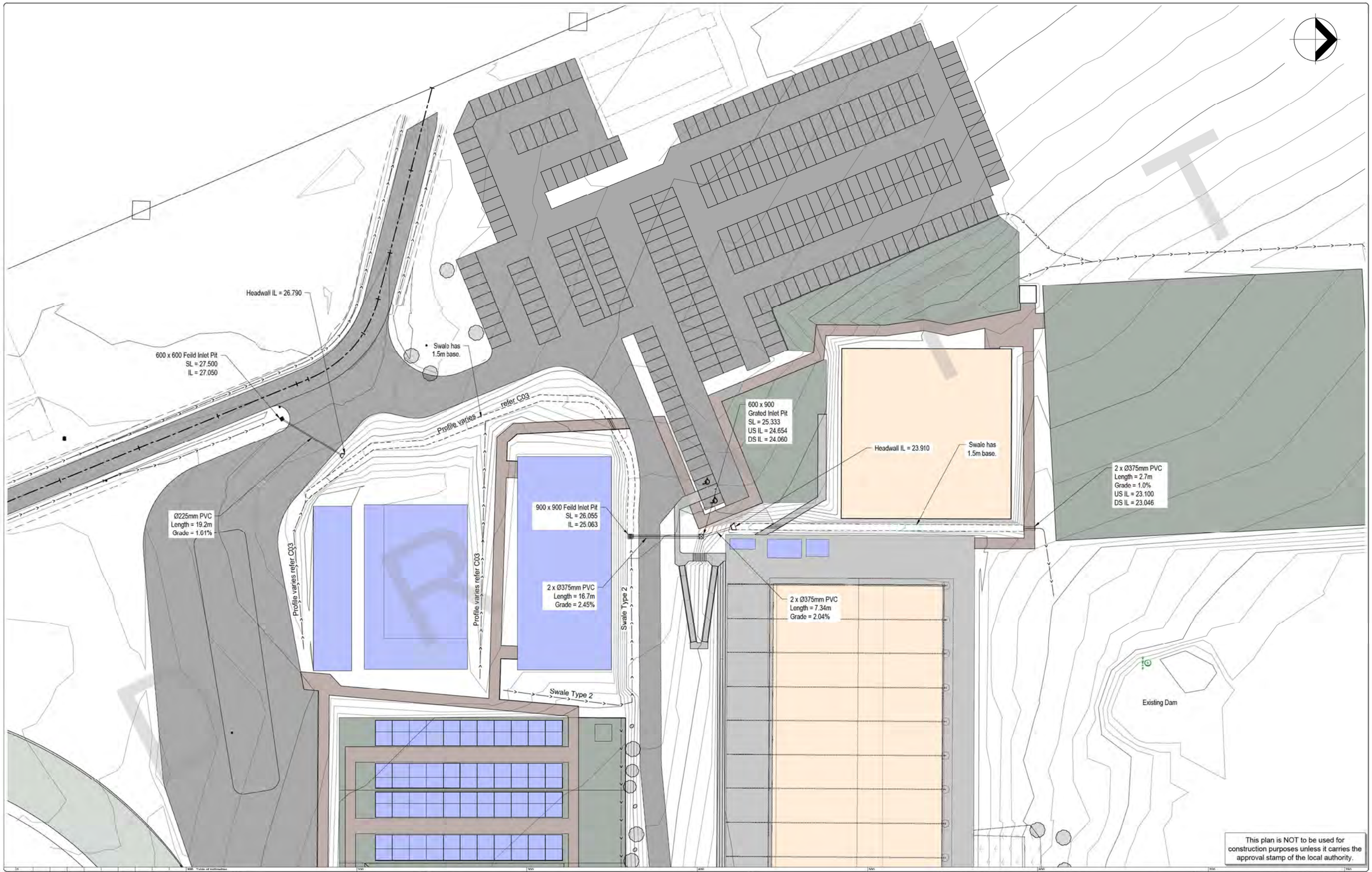

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Stormwater Layout Plan Part 2 of 2

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ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT
BALLINA 45 River Street Ph. 02 6686 3280
GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955
A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au

Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:400 @ A1, 1:800 @ A3 (0 4 8 12 16 20)
Datum	AHD
Drafting File	11288_C01-C15_IRRA_Construction-Plans-2022-10-04.dwg
Design File	
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Issue	D

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Stormwater Catchment Layout Plan

ARDILL PAYNE & Partners
ENGINEERS PLANNERS SURVEYORS
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BALLINA 45 River Street Ph. 02 6686 3280
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Design	AH	Scale	1:1000 @ A1, 1:2000 @ A3
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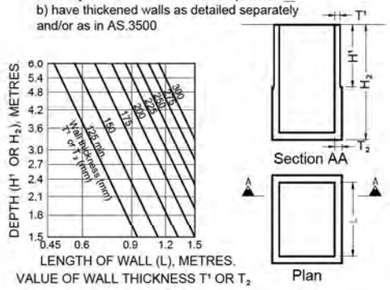
Approved	AH	Drafting File	11288_C01-D15_IDBA_Construction-Plans-2022-10-04.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	C14
		Issue	D

NOTE:
1. Concrete grade N32 to AS.3600.
2. Side walls of pits deeper than 1500mm shall be either:
a) reinforced with one layer of SL82 placed centrally and returned 300mm into pit base or
b) have thickened walls as detailed separately and/or as in AS.3500



MInimum Wall Thicknesses For Un-reinforced Concrete Pits
(Derived From AS3500)

Ballast Underlay:
Wet areas - 12mm-25mm crushed aggregate dryareas - as for side support & overlay
Side Support & Overlay:
Approved sand or metal dust free from rocks to form stable bed.
Backfill:
Under roads shall be metal dust to underside of pavement. In other areas shall be the material from the trench excavation free from rocks.

Note:
All materials to be placed in layers not exceeding 150mm compacted thickness & compacted to 95% standard dry density (A.S.1289)

Minimum Cover Requirements

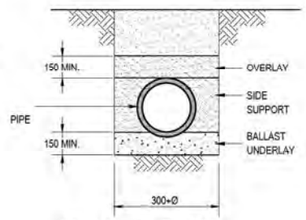
Areas not subject to vehicular loading: -450mm

Areas subject to vehicular loading:

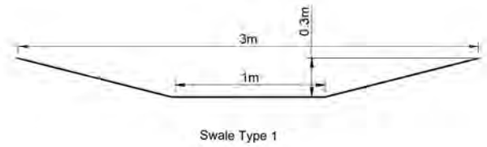
(a) Not in roadway: 600mm

(b) In sealed roadway: 600mm

(c) In unsealed roadway: 750mm



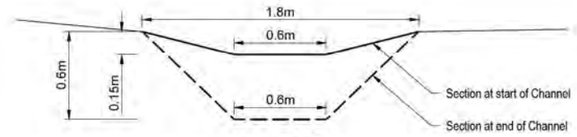
Pipe Laying Details
N.T.S.



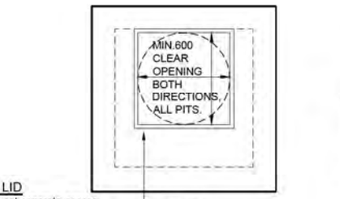
Swale Type 1

Swale Type 2

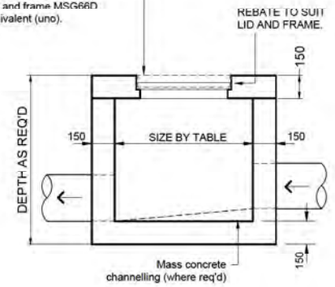
Swale Type 3



Channel Detail



PIT ACCESS LID
SOLID: Use precast concrete access cover, heavy duty (uno). circular lids are acceptable.
GRATED: Use webforge galv. heavy duty sump grate and frame MSG66D or approved equivalent (uno).



Elevation

Pit Plan and Elevation
SCALE 1:20

TABLE OF MINIMUM PIT SIZES
(REPRODUCED FROM AS/NZS 3500.3 2003 TABLE 8.2)

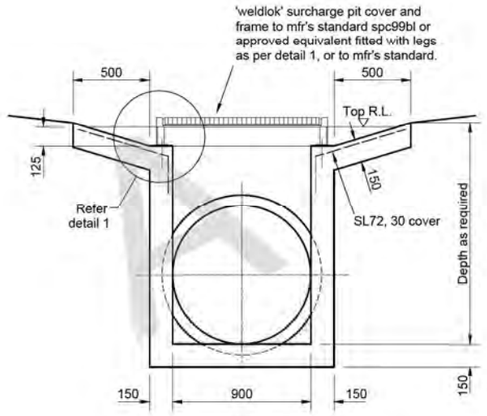
Depth to Invert of Outlet	Minimum Internal Measurements		
	Rectangular		Circular
	Width	Length	Diameter
≤ 600	450	450	600
> 600 ≤ 900	600 (See note 1)	900	900
> 900 ≤ 1200	600	900	1000
> 1200	900	900	1000

NOTE
1. AS3500 is over-ridden by NRLG spec.
2. Pits over 1.2m deep require step irons

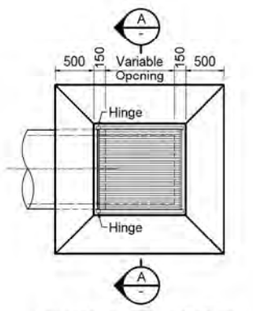
NOTE: STEP IRONS
1. Step irons shall be provided in all pits of depth greater than 1200mm, in accordance with local authority standard
2. Approved proprietary step irons complying with as.1657 may be used in lieu of fabricated step irons.

NOTE:
1. Concrete grade N32 to AS.3600.
2. Side walls of pits deeper than 1500mm shall be either:
a) reinforced with one layer of sl82 placed centrally and returned 300mm into pit base or
b) have thickened walls as detailed separately and/or AS IN AS.3500

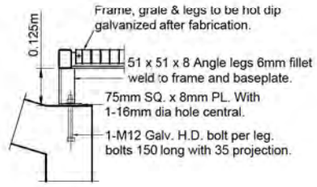
Standard Stormwater Pit Detail



Section A-A
Scale 1: 20



Grated Surcharge Pit Detail
Scale 1: 20



Detail 1
Scale 1: 10

Issue	Date	Description	App'd
D	06/10/2022	Revised Layout DRAFT	AH
C	26/08/2022	ERSED AND SW DETAILS	AH
B	13/07/2022	Specialty Pavement Details Added	AH
A	30/06/2022	Issue For Construction Approval	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Stormwater Construction Details

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Design	AH	Scale	Various - refer plan
Drawn	AH		
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_C01-C15_IDBA_Construction-Plans-2022-10-04.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	C15
		Issue	D

Moreton Hydraulic Services

Casino Showground Upgrade

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services

- > : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S S S S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ew ew ew : Existing Cold Water Service
- eh eh : Existing Hot Water Service
- w w w : Existing Water Main
- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units

Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number

P/D No.

Registered Plan Number

Lot 3 on DP823672

Site Address

Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details

Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Cover Page
Locality Plan

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H01-P	1	9

Date Plotted: 20 Sep 2022 - 08:35AM

EXISTING DAM

HORSE WASH DOWN WASTEWATER TREATMENT
PROPOSED 4,000L ALL WASTE SEPTIC TANK
3,000L PACKAGED PUMP STATION

150ØID HDPE FIRE SERVICE

TPH #2

300D PN16 WATER SERVICE

SEWER CONNECTION POINT FOR AMENITIES
SEWER CONNECTION POINT FOR DEMOUNTABLE AMENITIES
TRADE WASTE CONNECTION POINT FOR KOISK

TPH #5

3,000L GREASE ARRESTOR

Staging area for small outdoor arena events

150ØID HDPE FIRE SERVICE

500D PN16 WATER SERVICE

RAINWATER PUMP SHED
WATER FILTRATION BY PURETEC
150ØID HDPE FIRE SERVICE
RAINWATER STORAGE - 360kL

HORSE WASH DOWN WASTEWATER TREATMENT
PROPOSED 12,000L ALL WASTE SEPTIC TANK
3,000L PACKAGED PUMP STATION

TPH #3
TPH #4

400D PN16 WATER SERVICE

1000ØID DWV @ 1.65% MIN FALL
LOCATE AND CONNECT TO EXISTING SEWER CHAMBER

boundary line 881.820m

2x MINIMUM EFFECTIVE CAPACITY
144,000 Litre FIRE TANK STORAGE

FIRE TANK
FIRE TANK

LOCATE AND CONNECT TO EXISTING
150Ø WATER MAIN
150ØID HDPE FIRE SERVICE
100ØID HDPE FIRE TANK TOP UP LINE
150ØID HDPE FIRE SERVICE (pump suction)

TPH #1

100Ø RPZ Assembly (Fire Service)
100Ø Water Meter Assembly (Fire Service)
HYDRANT BOOSTER CABINET

150ØID HDPE FIRE SERVICE
FIRE PUMP SHED with DUAL FIRE PUMP SET (Diesel & Electric)
150ØID HDPE FIRE SERVICE (pump suction)
1000ØID HDPE FIRE TANK TOP UP LINE

50ØID PN16 WATER SERVICE

TPH #6

WATER SERVICE CONNECTION POINT FOR EQUESTRIAN POOL

1000L PACKAGED PUMP STATION
FOX ENVIROMENTAL OIL SEPERATOR
UNROOFED FX3000 (STORMWATER DIVERSION DEVICE)

TRUCK WASH BAY
STORMWATER TO HEADWALL OR CONNECT TO EXISTING STORMWATER INFASTRUCTURE

SUMMERLAND WAY

Part Site Plan - Area of Works

SCALE 1:500 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.06.2022

Plumbing Application Number
P/D No.
Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Part Site Plan - Area of Works
Fire Service Design Layout

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H02-P	2	9

Date Plotted: 20 Sep 2022 - 08:35AM

100ØID DWV @ 1.65% MIN FALL

SEWER CONNECTION POINT FOR AMENITIES

SEWER CONNECTION POINT FOR DEMOUNTABLE AMENITIES

TRADE WASTE CONNECTION POINT FOR KOISK

100ØID HDPE @ 1.65% MIN FALL

3,000L GREASE ARRESTOR

100ØID DWV @ 1.65% MIN FALL

123 17 18 19 36 35 37 38 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

Staging area for small outdoor arena events

y line 881.820m

79

100ØID DWV @ 1.65% MIN FALL

CONNECTION TO EXISTING SEWER CHAMBER

Sanitary & Trade Waste Design layout - Section 1

SCALE 1:200 @ A1

40ØID PUMPED DISCHARGE LINE

40ØID PUMPED DISCHARGE LINE

40Ø - 100Ø LIT

100ØID DWV @ 1.65% MIN FALL

40Ø - 100Ø LIT

100ØID DWV @ 1.65% MIN FALL

100ØID DWV @ 1.65% min fall

100ØID DWV @ 1.65% min fall

Max grade 1:40
6 200 mm

Max grade 1:40
5 000 mm

Max grade 1:25
15 000 mm

Max grade 1:20
15 000 mm

450X450 GRATED PIT
TRAPPED OUTLET IN BASE

450X450 GRATED PIT
TRAPPED OUTLET IN BASE

N

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Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S S S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ew ew : Existing Cold Water Service
- eh eh : Existing Hot Water Service
- w w : Existing Water Main
- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units

Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number

P/D No.

Registered Plan Number

Lot 3 on DP823672

Site Address

Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details

Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

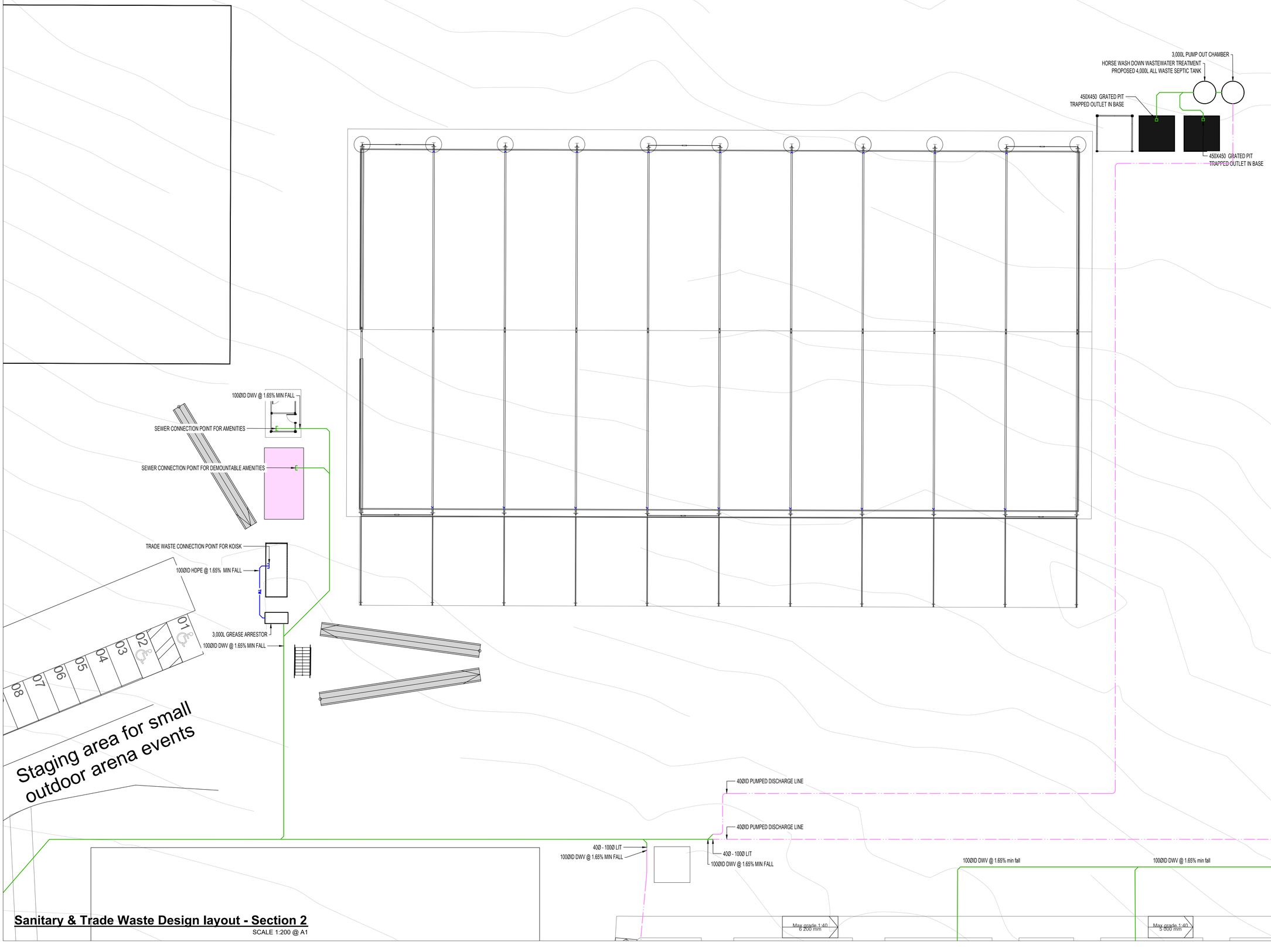
Title
Site Plan & Locality Plan
Legend & General Notes

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
22108S.DWG	H03-P	3	9

Date Plotted: 20 Sep 2022 - 08:35AM



Sanitary & Trade Waste Design layout - Section 2

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
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website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
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- : Non-potable Water Service
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- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
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- etw etw : Existing Trade Waste
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- eh eh : Existing Hot Water Service
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- : Existing Stormwater

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- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units

Fixtures:No Fixtures Fixtures Units: 0

P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number

P/D No.

Registered Plan Number

Lot 3 on DP823672

Site Address

Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details

Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title

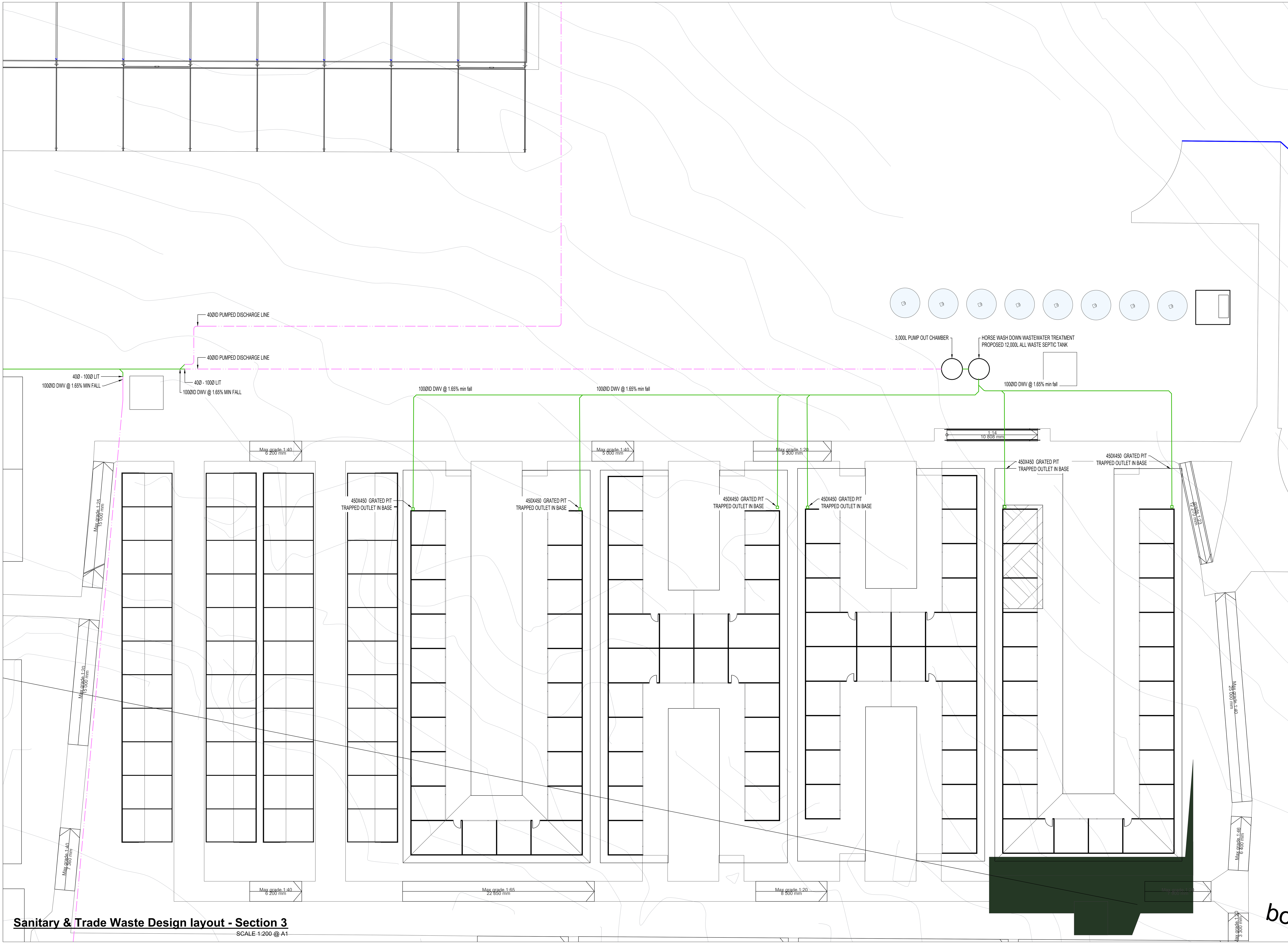
Sanitary & Trade Waste Design layout - Section 2

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
22108S.DWG	H04-P	4	9

Date Plotted: 20 Sep 2022 - 08:35AM



Sanitary & Trade Waste Design layout - Section 3

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
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website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- > : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S S S S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ew ew ew : Existing Cold Water Service
- eh eh : Existing Hot Water Service
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- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
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- : Thermostatic Mixing Valve
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- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units
Fixtures: No Fixtures   Fixtures Units: 0

P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Sanitary & Trade Waste Design layout - Section 3

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H05-P	5	9

Date Plotted: 20 Sep 2022 - 08:36AM

50ØID WATER SERVICE IN GROUND
32ØID WATER SERVICE IN GROUND
PUMP ASSEMBLY
WATER FILTRATION BY PURETEC
40ØID WATER SERVICE IN GROUND
Max grade 1:40
5 000 mm
40Ø RPZ ASSEMBLY
20Ø DCV ASSEMBLY FOR WASHDOWN HOSE
WATER TROUGH CONNECTION POINT
Max grade 1:20
9 300 mm
1:14
10 808 mm
grade 1:23
2 270 mm
Max grade 1:40
23 000 mm
Max grade 1:46
6 400 mm
Max grade 1:65
22 850 mm
Max grade 1:20
8 500 mm
Max grade 1:20
3 300 mm

Water Service Design Layout - Stables

SCALE 1:150 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
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- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
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- : Tempered Hot Water
- : Non-potable Water Service
- FS : Fire Service
- : Gas Line
- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S : Existing Sewer Main
- etw : Existing Trade Waste
- : Existing Vent
- ew : Existing Cold Water Service
- eh : Existing Hot Water Service
- w : Existing Water Main
- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.
Registered Plan Number
Lot 3 on DP823672
Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia
Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

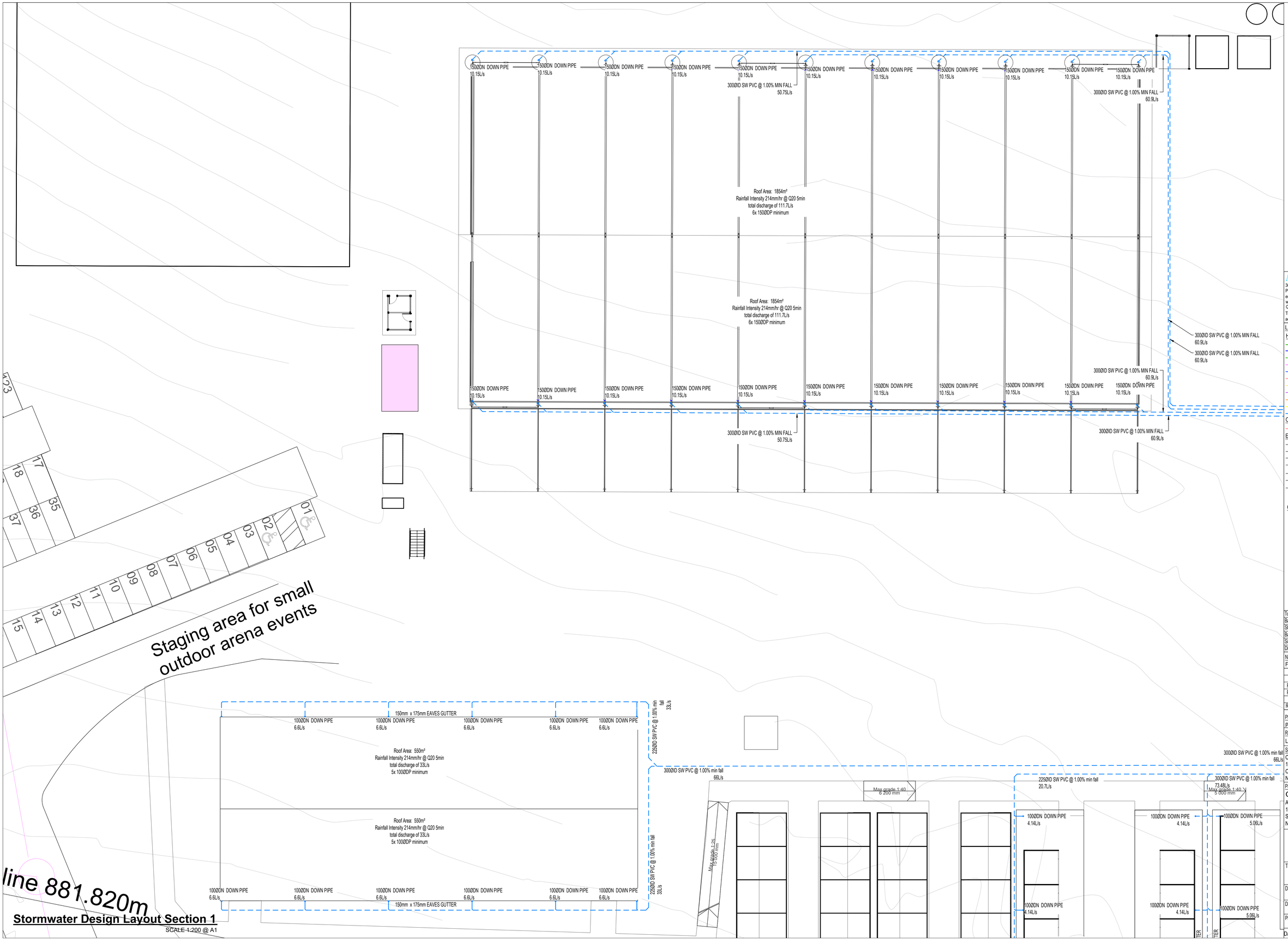
Title
Water Service Design Layout - Stables

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H06-P	6	9

Date Plotted: 20 Sep 2022 - 08:36AM



Stormwater Design Layout Section 1

SCALE 1:200 @ A1

N

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
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This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
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- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

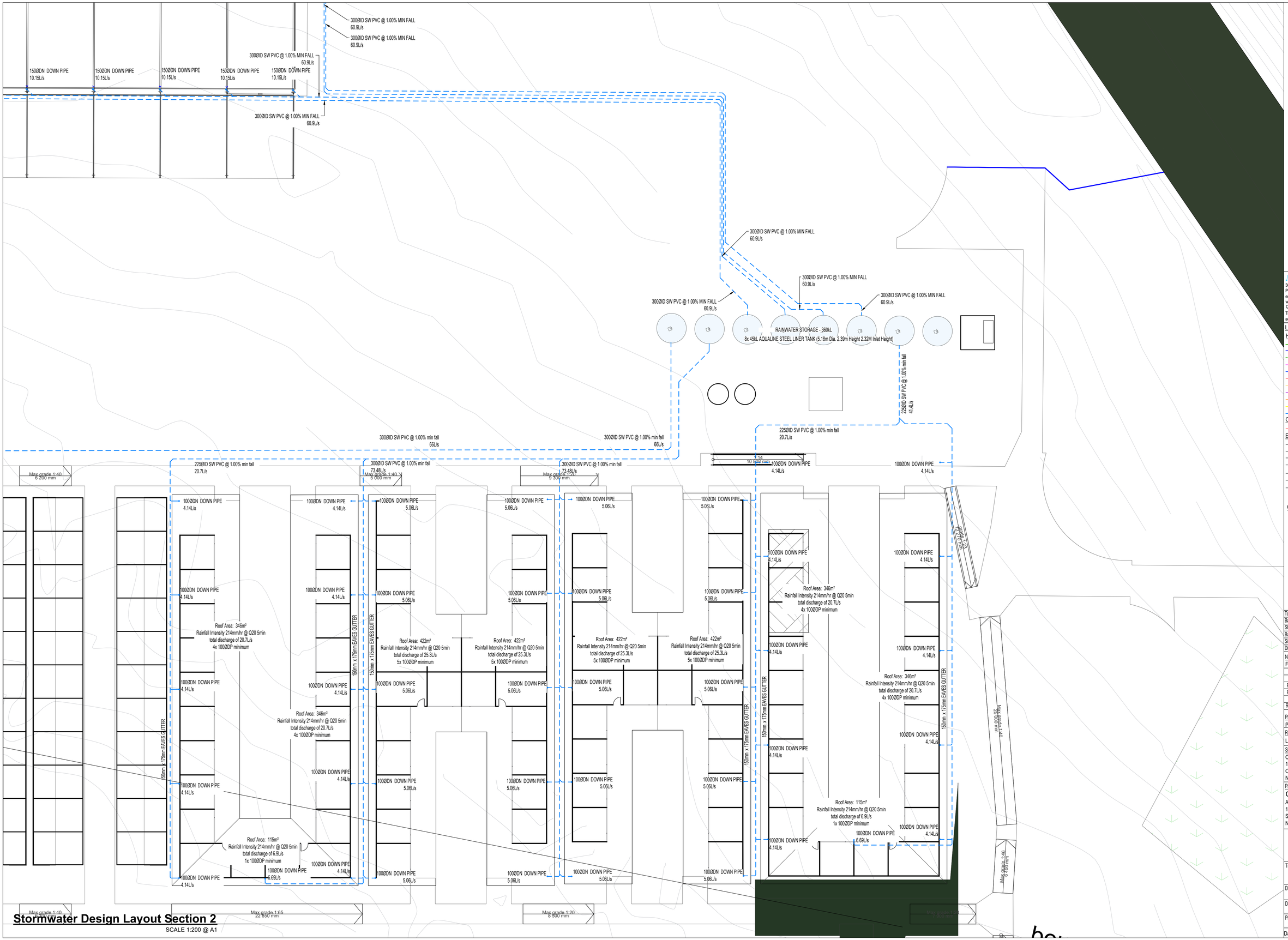
Title
Stormwater Design Layout Section 1

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H07-P	7	9

Date Plotted: 20 Sep 2022 - 08:36AM



Stormwater Design Layout Section 2

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
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website: mhservices.net.au
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This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

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Other Services

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Existing Services

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Common Symbols

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- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units

Fixtures: No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Stormwater Design Layout Section 2

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H08-P	8	9

Date Plotted: 20 Sep 2022 - 08:36AM

FIRE HOSE LENGTH - 60M
HYDRANT SPRAY DISTANCE - 10M

EXISTING DAM

TPH #2

OUT DOOR ARENA

UNDERCOVER ARENA

TPH #5

TPH #3

TPH #4

Staging area for small outdoor arena events

DAY STALLS

boundary line 881.820m

TPH #1

FIRE TANK

FIRE TANK

BOOSTER CABINET

STORAGE SHEDS

STABLES & DAY YARDS

TPH #6

boundary line 881.820m

SUMMERLAND WAY

Fire Hydrant Coverage

SCALE 1:500 @ A1

Moreton Hydraulic Services
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email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S : Existing Sewer Main
- etw : Existing Trade Waste
- : Existing Vent
- ecw : Existing Cold Water Service
- eh : Existing Hot Water Service
- w : Existing Water Main
- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P3	Issue For Review	20.09.2022
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Fire Hydrant Coverage

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
22.10.2022	22.10.2022

Project Number	Dwg no. & Revision	Sheet No.	of
22108S.DWG	H09-P	9	9

Date Plotted: 20 Sep 2022 - 08:36AM

CASINO SHOWGROUND – ELECTRICAL SCOPE

Part 1 works

Power supply

- Includes new HV supply to serve part 1 works through a 700kva pad mount transformer
- Includes underground reticulation generally shown on the RVC proposed plan
- Includes submains for the new main switchboard and 3 x distribution boards. All submains are rated at a maximum of the below switchboard allowances.
- Includes 1 x new 530Amp main switchboard to serve Part 1 works
- Includes 3 x floor mounted distribution boards at following locations;
    - Undercover arena
    - Stables
    - Relocated show office location
- Power supply to 3x63A power bollard provided by other in multipurpose area
- Includes 3 x 63A 1 phase pedestal power bollards for overnight camping area near entry gate
- Allow for decommission and removal of existing power poles and cabling (3off) in camping to allow construction of truck turning area (Power supply to the men's shed will be maintained from existing supply until new HV supply is completed).
- Reconnection of men's shed to new transformer Disconnect men's shed and stable complex from transformer
- Power to rainwater reticulation pumps
- Supply 3 phase power to horse walkers
- Supply power for equestrian pool pumps
- Power to sewer/septic pump out pits (2off)
- Power supply to hydrant pump
- Supply 1 all weather DGPO on each column to the covered arena (22off)
- Supply 3off three phase outlet to covered arena included 1 off hanging pendant in center of arena
- Supply 1off inground pit in concrete pavement with single and three phase for temp kiosk and bathrooms
- Supply 1off DGPO for each 4 stables mounted externally of the stables
- Supply 4off DGPO for each tack room in the stable complex
- Supply 4off weatherproof DGPOs to day stalls

Lighting

- High bay lighting and power requirements for the covered arena
- Lighting to covered arena awning for spectator – flush mount light rather than pendant
- 1off LED batten light per each 2 stables
- 1off LED batten fitting for each tack room
- Allow spot lighting to perimeter of the stables for access lighting
- Allow for spot lights from end of stables to the horse training yards and pool
- 2off Pole lights with lighting each side to carpark area – position TBC
- 4off light poles to the corners of the outdoor arena – pole height max 8.5m, TBC if more lights are needed
- Provide lighting from above poles to warm area
- Lighting Lux levels as follows
    - 300Lux arena,
    - 200Lux outdoor
    - 80Lux warm up

- RVC Storage sheds – allow capacity for the following;
    - 3off bay storage shed – One LED light per bay
    - 2off DGPO (indoor) per bay
    - 1off outdoor spotlight
- RVC show office – allow capacity for the following;
    - 2off data points,
    - 6off DGPO,
    - 1off outdoor spotlight,
    - 1off outdoor DGPO

RIFLE RANGE RD

SUMMERLAND WAY

Multipurpose Area
Overflow Carpark
Camping

Turf Equestrian Area
Warm Up Area

Warm Up Outdoor
Event Area
70x40

Undercover Indoor Arena
80x40
Lean-to along Southern End

Possible
Formalised
Parking

Day Stalls

Stable Areas

Storage Sheds

Day
Yards

Pool
Round Yards
Walkers

Relocated Show Office

Richmond Valley Council

Proposed New Electricity Locations and Infrastructure Casino Showground

Priority #1 = All of Stage (1).

LEGEND

- Outdoor Light Pole and LED
- Pedestal for Campsites
- Power Access (likely outdoor/camping access points)
- Back-to-back LED Street Lamps and New Pole
- New Distribution Board
- New Main Switchboard
- New Power Pole and New Transformer
- New Underground Service
- New Underground Service
- Supply Line from Transformer

Lot Boundaries

N

Produced by Richmond Valley Council
Date: 30/09/2021

Appendix B

Biodiversity Database Search Results

cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Plants in selected area [North: -28.83 West: 153.00 East: 153.10 South: -28.93] returned a total of 15 records of 9 species.
Report generated on 14/06/2022 11:18 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Fabaceae (Faboideae)	2833	*Desmodium acanthocladum*		Thorny Pea	V	V	2	
Plantae	Flora	Fabaceae (Faboideae)	3030	*Sophora fraseri*		Brush Sophora	V	V	2	
Plantae	Flora	Fabaceae (Mimosoideae)	7757	*Archidendron hendersonii*		White Lace Flower	V		1	
Plantae	Flora	Lythraceae	11643	*Rotala tripartita*			E1		1	
Plantae	Flora	Myrtaceae	4096	*Eucalyptus glaucina*		Slaty Red Gum	V	V	1	
Plantae	Flora	Myrtaceae	11894	*Gossia fragrantissima*		Sweet Myrtle	E1	E	2	
Plantae	Flora	Myrtaceae	4255	*Melaleuca irbyana*		Weeping Paperbark	E1		4	
Plantae	Flora	Myrtaceae	4284	*Rhodomyrtus psidioides*		Native Guava	E4A		1	
Plantae	Flora	Proteaceae	5372	*Grevillea hilliana*		White Yiel Yiel	E1		1	

cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Animals in selected area [North: -28.83 West: 153.00 East: 153.10 South: -28.93] returned a total of 532 records of 28 species.
Report generated on 14/06/2022 11:12 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Reptilia	Elapidae	2645	*Cacophis harriettae*		White-crowned Snake	V,P		1	
Animalia	Aves	Anseranatidae	0199	*Anseranas semipalmata*		Magpie Goose	V,P		8	
Animalia	Aves	Anatidae	0216	*Oxyura australis*		Blue-billed Duck	V,P		6	
Animalia	Aves	Anatidae	0214	*Stictonetta naevosa*		Freckled Duck	V,P		12	
Animalia	Aves	Phaethontidae	0107	*Phaethon rubricauda*		Red-tailed Tropicbird	V,P	C,J	1	
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*		Black-necked Stork	E1,P		97	
Animalia	Aves	Ardeidae	0196	*Ixobrychus flavicollis*		Black Bittern	V,P		1	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*		White-bellied Sea-Eagle	V,P		1	
Animalia	Aves	Accipitridae	8739	^^*Pandion cristatus*		Eastern Osprey	V,P,3		1	
Animalia	Aves	Jacanidae	0171	*Irediparra gallinacea*		Comb-crested Jacana	V,P		12	
Animalia	Aves	Rostratulidae	0170	*Rostratula australis*		Australian Painted Snipe	E1,P	E	4	
Animalia	Aves	Scolopacidae	0161	*Calidris ferruginea*		Curlew Sandpiper	E1,P	CE,C,J,K	1	
Animalia	Aves	Scolopacidae	0152	*Limosa limosa*		Black-tailed Godwit	V,P	C,J,K	1	
Animalia	Aves	Turnicidae	0013	*Turnix maculosus*		Red-backed Button-quail	V,P		2	
Animalia	Aves	Cacatuidae	0265	^*Calyptorhynchus lathami*		Glossy Black-Cockatoo	V,P,2		2	
Animalia	Aves	Tytonidae	0252	^^*Tyto longimembris*		Eastern Grass Owl	V,P,3		1	
Animalia	Aves	Campephagidae	0428	*Coracina lineata*		Barred Cuckoo-shrike	V,P		1	
Animalia	Aves	Monarchidae	0376	*Carterornis leucotis*		White-eared Monarch	V,P		1	
Animalia	Mammalia	Dasyuridae	1017	*Phascogale tapoatafa*		Brush-tailed Phascogale	V,P		2	
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*		Koala	E1,P	E	28	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*		Squirrel Glider	V,P		8	
Animalia	Mammalia	Macropodidae	1260	*Macropus dorsalis*		Black-striped Wallaby	E1,P		2	
Animalia	Mammalia	Macropodidae	1234	*Thylogale stigmatica*		Red-legged Pademelon	V,P		1	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*		Grey-headed Flying-fox	V,P	V	324	
Animalia	Mammalia	Molossidae	1329	*Micronomus norfolkensis*		Eastern Coastal Free-tailed Bat	V,P		8	
Animalia	Mammalia	Vespertilionidae	1336	*Nyctophilus bifax*		Eastern Long-eared Bat	V,P		2	
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*		Greater Broad-nosed Bat	V,P		1	
Animalia	Mammalia	Miniopteridae	1346	*Miniopterus australis*		Little Bent-winged Bat	V,P		3	

cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Communities in selected area [North: -28.83 West: 153.00 East: 153.10 South: -28.93] returned 0 records for 12 entities.
Report generated on 14/06/2022 11:15 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				*Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion*		Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion	E3		K	
Community				*Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*		Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				*Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community*		Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community		E	K	
Community				*Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*		Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				*Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*		Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				*Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions*		Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3		K	
Community				*Lowland Rainforest of Subtropical Australia*		Lowland Rainforest of Subtropical Australia		CE	K	
Community				*Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion*		Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3		K	
Community				*Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion*		Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3		K	

Community	*Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	*Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	*Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions*	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3	K	

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 26-May-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	35
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	13
Commonwealth Heritage Places:	1
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
Maccullochella ikei Clarence River Cod, Eastern Freshwater Cod [26170]	Endangered	Species or species habitat may occur within area	In buffer area only
FROG			
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phyllodes imperialis smithersi			
Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Petauroides volans			
Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Arthraxon hispidus			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Myrsine richmondensis Purple-leaf Muttonwood, Lismore Muttonwood [83888]	Endangered	Species or species habitat may occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [11263]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [15420]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11260]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11259]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11262]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [11261]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10082]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10080]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10076]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10079]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10077]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10078]	NSW	In buffer area only
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO [10081]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Casino Post Office	NSW	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus			
Osprey [952]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus			
Spectacled Monarch [83946]		Species or species habitat likely to occur within area overfly marine area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
330 kV Transmission Line, 205km in Length	2010/5326	Controlled Action	Completed	In feature area
Casino Ipswich Pipeline	2007/3877	Controlled Action	Completed	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Clarence-Moreton	Clarence-Moreton	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Appendix C

Threatened Species Potential Occurrence Assessment

Table C.1 Threatened Flora Potential Occurrence Assessment

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Archidendron hendersonii	White Lace Flower	V	-	Riverine and lowland subtropical rainforest and littoral rainforest.	Marginal habitat occurring locally but no habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Desmodium acanthocladum	Thorny Pea	V	V	Fringes of riverine subtropical and dry rainforest on basalt-derived soils at low elevations.	Suitable habitat locally. Not detected on or adjacent to the site.	Unlikely to occur within Activity area. Test of significance not required.
Eucalyptus glaucina	Slaty Red Gum	V	V	Found only on the north coast of NSW and in separate districts: near Casino where it can be locally common, and farther south, from Taree to Broke, west of Maitland. Grows in grassy woodland and dry eucalypt forest. Grows on deep, moderately fertile and well-watered soils.	Suitable habitat locally. Not detected on or adjacent to the site.	Unlikely to occur within Activity area. Test of significance not required.
Gossia fragrantissima	Sweet Myrtle	E	E	Dry subtropical and riverine rainforest, isolated plants can be found in paddocks from regrowth mostly on basalt-derived soils. Occurs in south-east Queensland and in north-east NSW south to the Richmond River.	Marginal habitat occurring locally but no habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Grevillea hilliana	White Yiel Yiel	E	-	Only populations known in NSW in Brunswick Heads and Tweed Heads, in small remnant patches.	No suitable habitat on site	Unlikely to occur within Activity area. Test of significance not required.
Melaleuca irbyana	Weeping Paperbark	E	-	Open eucalypt forest in poorly drained, usually clay, soils.	Suitable habitat immediately offsite associated with wetland areas.	Unlikely to occur within Activity area. Test of significance not required.
Rotala tripartita		E	-	Grows in free-standing water, with sedges. Rare in N.S.W., recorded only from near Casino	Suitable habitat immediately offsite associated with wetland areas.	Detected near the site but unlikely to be impacted. Test of significance not required.

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Rhodomyrtus psidioides	Native Guava	CE	-	Rainforest and its margins with sclerophyll vegetation, often near creeks and drainage lines. Pioneer species in disturbed environments such as regrowth and rainforest margins.	No suitable habitat on site	Unlikely to occur within Activity area. Test of significance not required.
Sophora fraseri	Brush Sophora	V	V	Moist situations near rainforest.	No suitable rainforest habitat on site	Unlikely to occur within Activity area. Test of significance not required.

Table C.2 Threatened Fauna Potential Occurrence Assessment

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Aves						
Anseranas semipalmata	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	Suitable foraging habitat adjacent to the site. No suitable habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Calidris ferruginea	Curlew Sandpiper	E	CE	Tidal mudflats, sandy ocean shores and occasionally inland freshwater or salt-lakes.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	No suitable foraging or nesting habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Carterornis leucotis	White-eared Monarch	V	-	Coastal rainforest, swamp forest and wet eucalypt forest, prefers edges where trees frequently covered with vines.	Suitable foraging habitat adjacent to the site. No suitable habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Coracina lineata	Barred Cuckoo-shrike	V	-	Rainforest, eucalypt woodlands, swamp woodlands and timber along watercourses.	Suitable foraging habitat adjacent to the site. No suitable habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Suitable foraging habitat adjacent to the site. No suitable habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Haliaeetus leucogaster	White-bellied Sea-eagle	V	-	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean). Habitats may include freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds in addition to bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	Potential to flyover the site but unlikely to occur within the Activity Area.	Unlikely to occur within Activity area. Test of significance not required.
Irediparra gallinacea	Comb-crested Jacana	V	-	Among vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Marginal habitat associated with offsite dams. No habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Ixobrychus flavicollis	Black Bittern	V	-	Dense vegetation fringing and in streams, swamps, tidal creeks and mudflats, particularly amongst swamp sheoaks and mangroves.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Limosa limosa	Black-tailed Godwit	V	-	Tidal mudflats, sandspits, swamps, shallow river-margins and reservoirs.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Oxyura australis	Blue-billed Duck	V	-	Deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Marginal habitat associated with offsite dams. No habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Pandion cristatus	Eastern Osprey	V	-	Littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Typically occur in coastal areas but occasionally travel inland along major rivers. Wetland habitats include inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes.	Potential to flyover the site but unlikely to occur within the Activity Area.	Unlikely to occur within Activity area. Test of significance not required.

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Phaethon rubricauda	Red-tailed Tropicbird	V	-	Marine, coastal cliffs and under bushes in tropical Australia.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Rostratula australis	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	No suitable habitat on the site. Marginal habitat surrounding the site.	Unlikely to occur within Activity area. Test of significance not required.
Stictonetta naevosa	Freckled Duck	V	-	Permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. In drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Marginal habitat associated with offsite dams. No habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Turnix maculosus	Red-backed Button-quail	V	-	Grassland, sedgelands near creeks. Swamps and wetlands.	No suitable habitat on the site. Marginal habitat surrounding the site.	Unlikely to occur within Activity area. Test of significance not required.
Tyto longimembris	Eastern Grass Owl	V	-	Areas of tall grass, including tussocks in swampy areas, grassy plains, swampy heath, cane grass, sedges on flood plains.	No suitable habitat on the site. Marginal habitat surrounding the site.	Unlikely to occur within Activity area. Test of significance not required.
Mammals						
Macropus dorsalis	Black-striped Wallaby	E	-	Dry rainforests and moist eucalypt forest with rainforest understorey or dense shrub layer.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Micronomus norfolkensis	**Eastern Coastal Free-tailed Bat**	V	-	Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts in tree hollows.	Potential foraging habitat associated with the site and surrounds	Potential to occur within Activity area. Test of significance required.
Miniopterus australis	**Little Bent-winged Bat**	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Potential foraging habitat associated with the site and surrounds	Potential to occur within Activity area. Test of significance required.
Nyctophilus bifax	Eastern Long-eared Bat	V	-	Lowland subtropical rainforest and wet and swamp eucalypt forest, extending to adjacent moist eucalypt forest.	No suitable habitat on the site and surrounds	Unlikely to occur within Activity area. Test of significance not required.

Scientific Name	Common Name	Status		Habitat Requirement	Suitability of Site Habitat	Potential Occurrence & Requirement for Test of Significance
		BC Act	EPBC Act			
Petaurus norfolcensis	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	Suitable foraging habitat adjacent to the site. No suitable habitat on the site.	Unlikely to occur within Activity area. Test of significance not required.
Phascolarctos cinereus	**Koala**	V	E	Appropriate food trees in forests and woodlands, and treed urban areas.	Preferred Koala feed trees on the site and surrounds	Potential to occur within Activity area. Test of significance required.
Pteropus poliocephalus	**Grey-headed Flying-fox**	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Potential foraging habitat on the site and surrounds	Potential to occur within Activity area. Test of significance required.
Scoteanax rueppellii	**Greater Broad-nosed Bat**	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Potential foraging habitat associated with the site and surrounds	Potential to occur within Activity area. Test of significance required.
Thylogale stigmatica	Red-legged Pademelon	V	-	Rainforest, vine scrub, moist eucalypt forest with dense understorey and ground cover.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.
Reptilia						
Cacophis harriettae	White-crowned Snake	V	-	Low to mid-elevation dry eucalypt forest and woodland with well developed litter layer.	No suitable habitat on the site	Unlikely to occur within Activity area. Test of significance not required.

Appendix D

Tests of Significance

Five-part Tests (BC Act listed species)

The BC Act requires a test of significance (five-part test) when assessing whether an action, development or activity is likely to significantly affect threatened species, ecological communities or their habitats. Based on the potential for several threatened fauna species and ecological communities occurring at the site, tests of significance have been completed (refer to **Appendix E**Error! Reference source not found.).

An *Assessment of Significance* has been undertaken for the following:

Threatened Fauna

Arboreal mammals

- Koala

Megachiropteran bats

- Grey-headed Flying-fox

Microbats

- Eastern Coastal Free-tailed Bat
- Little Bent-winged Bat
- Greater Broad-nosed Bat

Threatened Ecological Communities

Freshwater Wetlands on Coastal Floodplains

a) In the case of a threatened species, whether the proposed development or activity 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,

Koala

The development is unlikely to have an adverse effect on the life cycle of the Koala such that a viable local population is likely to be placed at risk of extinction as:

- The works may result in the removal of two Forest Red Gums (preferred Koala feed trees) within an area of infrequent paddock trees on the site. While Koalas may forage on the site, the removal of these two identified trees on the site is unlikely to diminish foraging resources at the site significantly given the presence of large areas of Forest Red Gum to the east of the site.
- The local movement potential of the subject species would not be impacted by the Proposal.

Grey-headed Flying-fox

The development is unlikely to have an adverse effect on the life cycle of the subject species such that a viable local population is likely to be placed at risk of extinction as:

- The subject vegetation does not include any areas identified as being significant roosting habitat and comprises a comparatively minor amount of potential foraging habitat in the context of the site and adjacent areas of suitable foraging habitat.
- The local movement potential of the subject species would not be impacted by the development.

Microbats

- The development is unlikely to remove any roosting habitat for these species.

- A small area of marginal (aerial) foraging habitat would be modified as part of the Proposal. Larger areas of better-quality habitat occur to the east of the site.

b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

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

As part of a Stormwater Management Plan for the site a swale is proposed linking the small dam to the north of the site with a larger dam to the west of the Proposal. This would require minor earthworks within areas of PCT 780 (Freshwater Wetland TEC) occurring on the site. Allowing for a 6 m works corridor for construction of the swale, approximately 0.16 ha of wetland vegetation is estimated to be impacted by construction of the swale. Post-construction the swale is likely to recolonise with locally occurring wetland/ grass species.

Indirect impacts on areas of Freshwater Wetland TEC adjacent to the site are unlikely post-construction given that the Stormwater Management Plan concludes:

- The downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP.
- The proposed stormwater system will meet the quality targets outlined in Table I-9.1 Stormwater Quality Targets, of the RVDCP Part I 9 – Water Sensitive Urban Design.
- Liquid and solid waste collection and treatment was not considered by this report as these areas shall instead be drained to the sewer network and shall be treated separately.

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,

The disturbance required for construction of the stormwater swale is unlikely to modify the composition of the local occurrence of the Freshwater Wetland TEC given:

- A small proportion of the local occurrence of the TEC would be impacted by the Proposal;
- Drainage for the broader area of TEC is unlikely to be substantially altered as a result of the Proposal.
- Post-construction the swale is likely to recolonise with locally occurring wetland/ grass species.

c) In relation to the habitat of a threatened species or ecological community:

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

- *Freshwater Wetland TEC:* Allowing for a 6 m works corridor for construction of the swale, approximately 0.16 ha of wetland vegetation is estimated to be impacted by construction of the swale. Post-construction the swale is likely to recolonise with locally occurring wetland/ grass species.
- *Koala:* The proposed works would result in the minor loss of habitat comprising two preferred Koala feed tree (Forest Red Gums). This represents a very minor proportion of habitat for the local population of Koalas.
- *Grey-headed Flying-fox:* The Activity would have minor impacts including the removal of 14 native and 2 exotic trees occurring within a highly disturbed site which would result in the minor loss of potential foraging habitat for this species. This represents a very minimal proportion of foraging habitat for this species occurring in the locality of the site.
- *Microbats*: A small area of marginal (aerial) foraging habitat would be modified as part of the Proposal. Larger areas of better quality habitat occur to the east of the site.

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

The habitat to be removed is already disturbed and fragmented as a result of previous and current land use. No significant fragmentation of habitat would occur; the development is unlikely to result in significant barriers to dispersal to any of the subject species listed.

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

The habitat to be removed is minor in a local context where better quality habitat occurs extensively. Hence the Proposal is unlikely to affect the long-term survival of any of the subject species listed.

Considering this and that the Activity is considered unlikely to have an adverse effect on the life cycle of any of the subject species such that a viable local population is likely to be placed at risk of extinction (refer to response to (a)); the habitat affected at the site is not considered significant to the long-term survival of the subject species in the locality.

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No areas of outstanding biodiversity value have been declared in the Richmond Valley LGA.

e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A threatening process is a process that threatens, or that may threaten, the survival or evolutionary development of species or ecological communities. The current list of key threatening processes under the BC Act, and whether the Activity is recognised as a threatening process is shown in **Table F.1**.

Table F.1 Key Threatening Processes (KTP)

Listed Key Threatening Process (as described in the final determination of the Scientific Committee to list the threatening process)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	*Possible*	*Unlikely*
Alteration of habitat following subsidence due to longwall mining			✓
Aggressive exclusion of birds by noisy miners			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic climate change	✓		
Bush rock removal			✓
Clearing of native vegetation	✓		
Competition and grazing by the feral European Rabbit			✓
Competition and habitat degradation by feral goats			✓
Competition from feral honeybees			✓
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest Eucalypt dieback associated with over-abundant psyllids and bell miners			✓
Habitat degradation by Feral horses, *Equus caballus*			✓
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition			✓
Herbivory and environmental degradation caused by feral deer			✓

Listed Key Threatening Process (as described in the final determination of the Scientific Committee to list the threatening process)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	*Possible*	*Unlikely*
Importation of red imported fire ants			✓
Infection by *Psittacine circoviral* (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis			✓
Infection of native plants by *Phytophthora cinnamomi*			✓
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae			✓
Introduction of the large earth bumblebee			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch broom			✓
Invasion and establishment of the Cane Toad			✓
Invasion, establishment and spread of *Lantana camara*			✓
Invasion of native plant communities by African Olive			✓
Invasion of native plant communities by *Chrysanthemoides monilifera* (bitou bush and boneseed)			✓
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of the yellow crazy ant into NSW			✓
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants			✓
Loss of hollow-bearing trees			✓
Loss or degradation (or both) of sites used for hill-topping by butterflies			✓
Predation and hybridisation of feral dogs			✓
Predation by the European red fox			✓
Predation by the feral cat			✓
Predation by *Gambusia holbrooki*			✓
Predation by the Ship Rat on Lord Howe Island			✓
Predation, habitat degradation, competition and disease transmission by feral pigs			✓
Removal of dead wood and dead trees			✓

The Activity may be characteristic of two KTPs:

- Anthropogenic climate change
- Clearing of native vegetation

The development would incrementally contribute to Anthropogenic climate change, through the generation of carbon dioxide during operation of machinery and vehicles and associated fuel consumption however the impact is not considered significant.

Clearing of native vegetation proposed is unlikely to be considered significant considering the modified habitat of impacted vegetation and the extent of preferable habitat surrounding the site.

On this basis the degree that the Development would contribute to any threatening process is not considered likely to place the local population of any of the subject species or communities at significant risk of extinction

Appendix E

AHIMS search and Native Title Advice

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Showground

Client Service ID : 690757

Andrew Humpherys

Level 1/64 Ballina Street
Lennox Head 2478

Attention: Andrew Humpherys

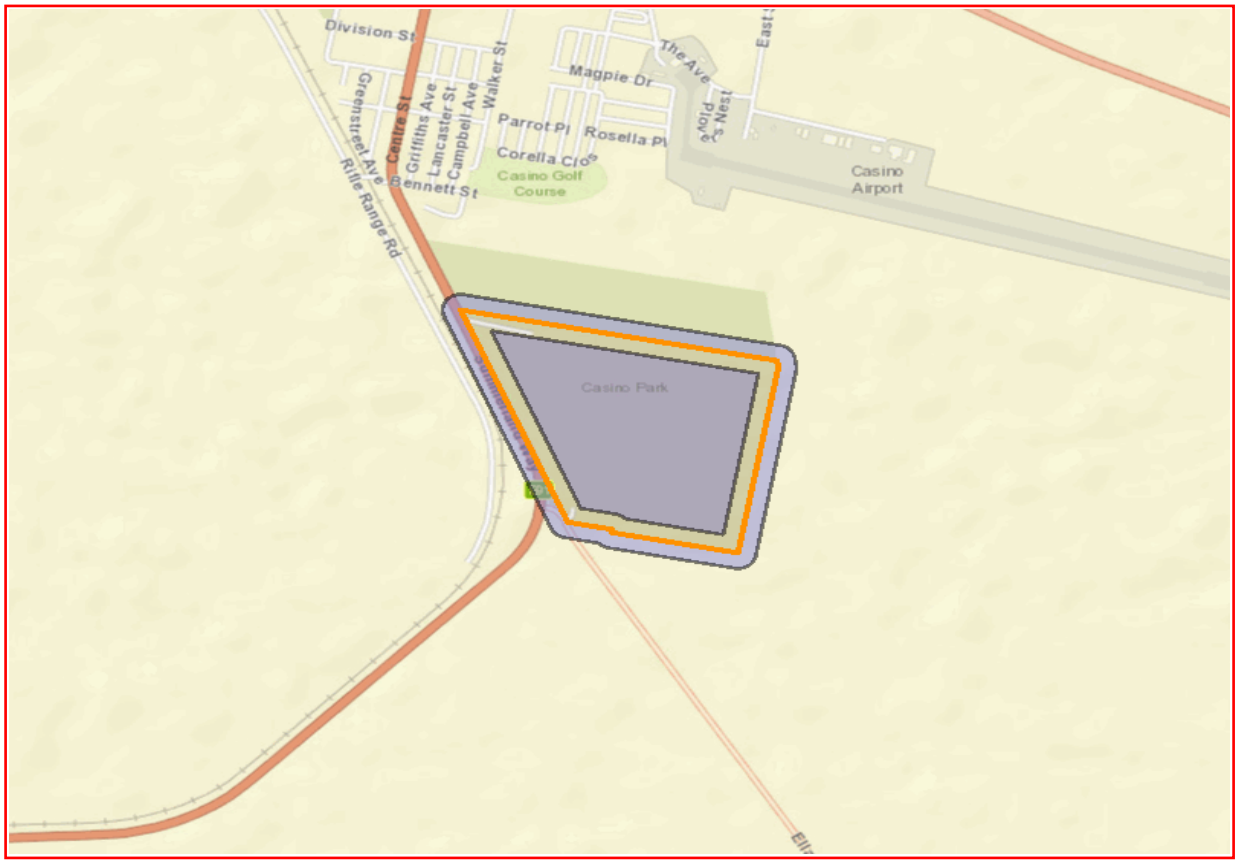
Email: ahumpherys@geolink.net.au

Date: 10 June 2022

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 3, DP:DP823672, Section : - with a Buffer of 50 meters, conducted by Andrew Humpherys on 10 June 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Showground

Client Service ID : 690776

Andrew Humpherys

Level 1/64 Ballina Street
Lennox Head 2478

Attention: Andrew Humpherys

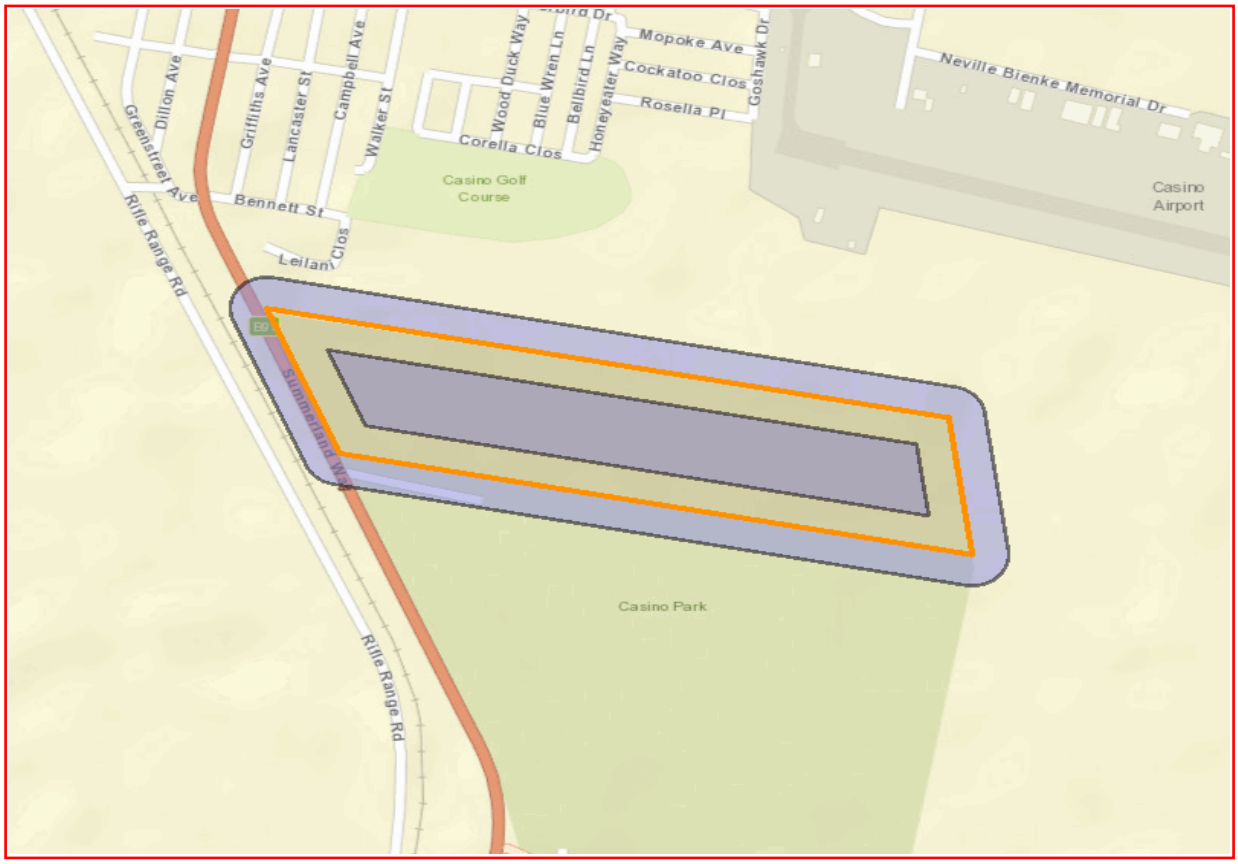
Email: ahumpherys@geolink.net.au

Date: 10 June 2022

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 72, DP:DP755627, Section : - with a Buffer of 50 meters, conducted by Andrew Humpherys on 10 June 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Showground

Client Service ID : 690782

Andrew Humpherys

Level 1/64 Ballina Street
Lennox Head 2478

Attention: Andrew Humpherys

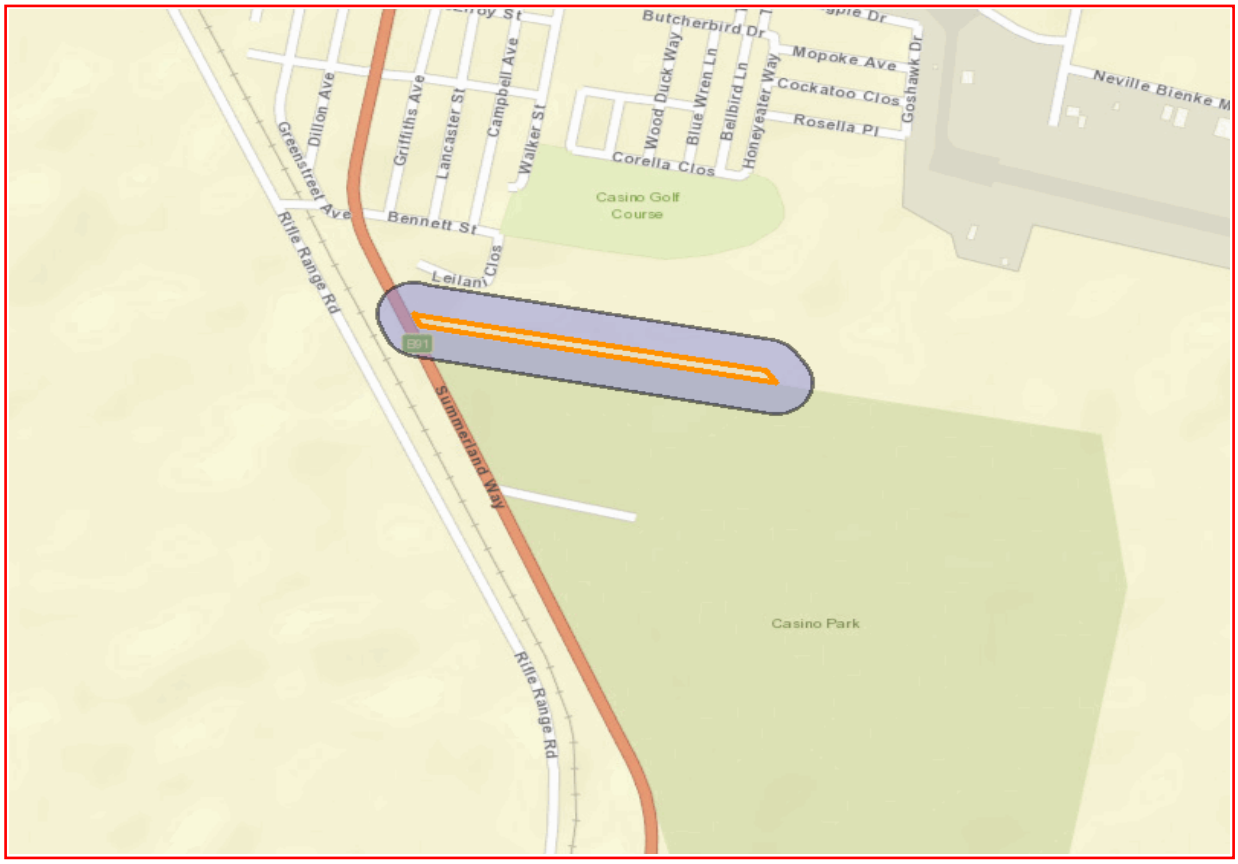
Email: ahumpherys@geolink.net.au

Date: 10 June 2022

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 73, DP:DP755627, Section : - with a Buffer of 50 meters, conducted by Andrew Humpherys on 10 June 2022.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



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- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
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- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

Council Reference:
Native Title Advice

Telephone enquiries to:
GIS / Asset Systems

Dear Sir / Madam

Letter of Native Title Advice for REF approval and delivery of works at Casino Showground

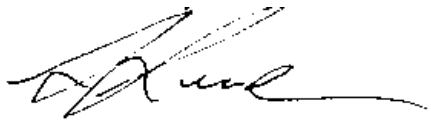
This letter of Native Title Advice considers the REF approval and delivery of works at Casino Showground.

The Casino Showground covers Lot 72 DP 755627, Lot 73 DP 755627 and Lot 3 DP 823672. The land is Crown reserve (R97756) gazetted on 4 April 1985 for the purpose of Public Recreation, Racecourse, Showground. An extract from the Crown Land Reserves Portal, Gazette Notice and current title search in relation to the land are attached.

The land is not under a current Native Title Claim, the land is not 'excluded land' as defined in section 8.1 of the *Crown Land Management Act 2016*, therefore native title rights and interests may exist over the land.

It has been assessed that the REF approval and delivery of works at the Casino Showground are considered as Past Acts, and any potential Future Acts are validated under Subdivision 24J of the Future Acts Regime, in accordance with the *Native Title Act 1993* (Table 1).

Yours faithfully

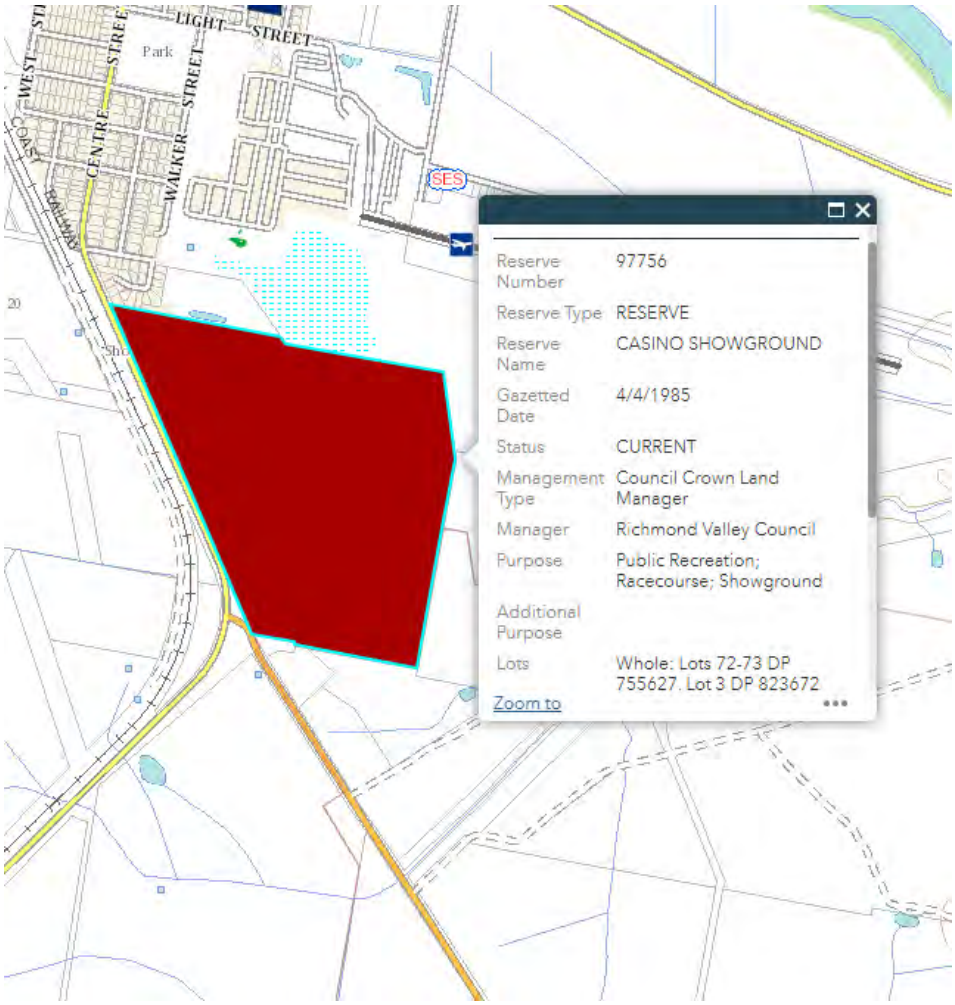


Andrew Leach
Manager Asset Planning and Native Title Manager

Richmond Valley Council, 10 Graham Place, (Locked Bag 10) Casino NSW 2470
T: 02 6660 0300 F: 02 6660 1300 E: council@richmondvalley.nsw.gov.au
W: richmondvalley.nsw.gov.au RichmondValleyCouncil ABN 54 145 907 009

Table 1. Validation of potential Future Acts through Subdivision 24J – Future Acts Regime, Native Title Act 1993

SUBDIVISION J – Activities pursuant to reservations		
Section	**Requirement**	**Requirement satisfied + comments**
24JA(1)(a)	The reservation, proclamation, dedication, condition, permission or authority (the **reservation**) was created on or before 23 December 1996; and	Yes – the reservation was gazetted on 04/04/1985
24JA(1)(b)	The reservation was valid; and	Details of the reservation have been checked on the NSW Government Crown Land Manager Reserves Portal. There is no reasonable basis for inferring that statutory procedural requirements were not satisfied at the time.
24JA(1)(c)	The creation of the reservation was done by the Crown (the Commonwealth or State); and	Yes
24JA(1)(d)	The whole or part of any land or waters under the reservation was to be used for a particular purpose; and	Yes – Public Recreation, Racecourse, Showground
24JA(1)(e)	The later act is done in good faith:	Yes – the use is permitted under the *Crown Land Management Act 2016* – s 2.12
	(i) under or in accordance with the reservation; or	Yes – the use is for the reserve purpose of Public Recreation
	(ii) in the area covered by the reservation, so long as the act's impact on native title is no greater than the impact that any act that could have been done under or in accordance with the reservation would have had.	



Extract 1: Crown Land Reserves Portal

(2177) Sydney, 4th April, 1985.

RESERVES FROM SALE

IN pursuance of the provisions of section 28, Crown Lands Consolidation Act, 1913, I declare that the Crown lands described hereunder shall be reserved from sale for the public purposes specified and such lands are reserved accordingly.

JANICE CROSIO, Minister for Natural Resources.

FOR SHOWGROUND, RACECOURSE AND PUBLIC RECREATION

Land District and Municipality—Casino

No. 97756, Parish South Casino, County Richmond, 62.31 hectares, at Casino, being portions 72, 73 and 195. GF82 R 55.

Extract 2: Government Gazette Notice

LAND REGISTRY SERVICES

GLOBALX

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 3/823672

SEARCH DATE	TIME	EDITION NO	DATE
2/6/2021	8:40 AM	-	-

CERTIFICATE OF TITLE HAS NOT ISSUED

LAND

LOT 3 IN DEPOSITED PLAN 823672
AT SOUTH CASINO
LOCAL GOVERNMENT AREA RICHMOND VALLEY
PARISH OF SOUTH CASINO COUNTY OF RICHMOND
TITLE DIAGRAM DP823672

FIRST SCHEDULE

THE STATE OF NEW SOUTH WALES

SECOND SCHEDULE (2 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

* 2 THE LAND IS A RESERVE WITHIN THE MEANING OF PART 5 OF THE CROWN LANDS ACT 1989 AND THERE ARE RESTRICTIONS ON TRANSFER AND OTHER DEALINGS IN THE LAND UNDER THAT ACT, WHICH MAY REQUIRE CONSENT OF THE MINISTER.

NOTATIONS

NOTE: CERTIFICATE OF TITLE NOT ISSUED LODGED DEALINGS SHOULD BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLE VOL 7978 FOL 141

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

lnrichvl01 PRINTED ON 2/6/2021

Richmond Valley Council, 10 Graham Place, (Locked Bag 10) Casino NSW 2470
T: 02 6660 0300 F: 02 6660 1300 E: council@richmondvalley.nsw.gov.au
W: richmondvalley.nsw.gov.au RichmondValleyCouncil ABN 54 145 907 009

LAND REGISTRY SERVICES

GLOBALX

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 72/755627

SEARCH DATE	TIME	EDITION NO	DATE
2/6/2021	8:38 AM	-	-

CERTIFICATE OF TITLE HAS NOT ISSUED

LAND

LOT 72 IN DEPOSITED PLAN 755627
AT CASINO
LOCAL GOVERNMENT AREA RICHMOND VALLEY
PARISH OF SOUTH CASINO COUNTY OF RICHMOND
(FORMERLY KNOWN AS PORTION 72)
TITLE DIAGRAM CROWN PLAN 826.1744

FIRST SCHEDULE

THE STATE OF NEW SOUTH WALES (CA135043)

SECOND SCHEDULE (2 NOTIFICATIONS)

* 1 THE LAND IS A RESERVE WITHIN THE MEANING OF PART 5 OF THE CROWN LANDS ACT 1989 AND THERE ARE RESTRICTIONS ON TRANSFER AND OTHER DEALINGS IN THE LAND UNDER THAT ACT, WHICH MAY REQUIRE CONSENT OF THE MINISTER.
* 2 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

lnrichvl01 PRINTED ON 2/6/2021

LAND REGISTRY SERVICES

GLOBALX

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 73/755627

SEARCH DATE	TIME	EDITION NO	DATE
2/6/2021	8:40 AM	-	-

CERTIFICATE OF TITLE HAS NOT ISSUED

LAND

LOT 73 IN DEPOSITED PLAN 755627
AT CASINO
LOCAL GOVERNMENT AREA RICHMOND VALLEY
PARISH OF SOUTH CASINO COUNTY OF RICHMOND
(FORMERLY KNOWN AS PORTION 73)
TITLE DIAGRAM CROWN PLAN 826.1744

FIRST SCHEDULE

THE STATE OF NEW SOUTH WALES (CA135043)

SECOND SCHEDULE (2 NOTIFICATIONS)

* 1 THE LAND IS A RESERVE WITHIN THE MEANING OF PART 5 OF THE CROWN LANDS ACT 1989 AND THERE ARE RESTRICTIONS ON TRANSFER AND OTHER DEALINGS IN THE LAND UNDER THAT ACT, WHICH MAY REQUIRE CONSENT OF THE MINISTER.
* 2 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

lnrichvl01 PRINTED ON 2/6/2021

Extract 3: Current Title Search

Appendix F

Contaminated Land Search

Search results

Your search for: LGA: RICHMOND VALLEY COUNCIL

Matched 2 notices relating to 1 site.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
CASINO	86 Johnston STREET	Casino Roadhouse	2 current

Page 1 of 1

22 June 2022

Cattle dip site locator

This search retrieved 0 dip sites.

For more information about each dip site, click on the name below.

Dip name	Road	Town/Locality	Council

Find dip sites

Dip name

Road

Summerland road

Town/Locality

casino

Council

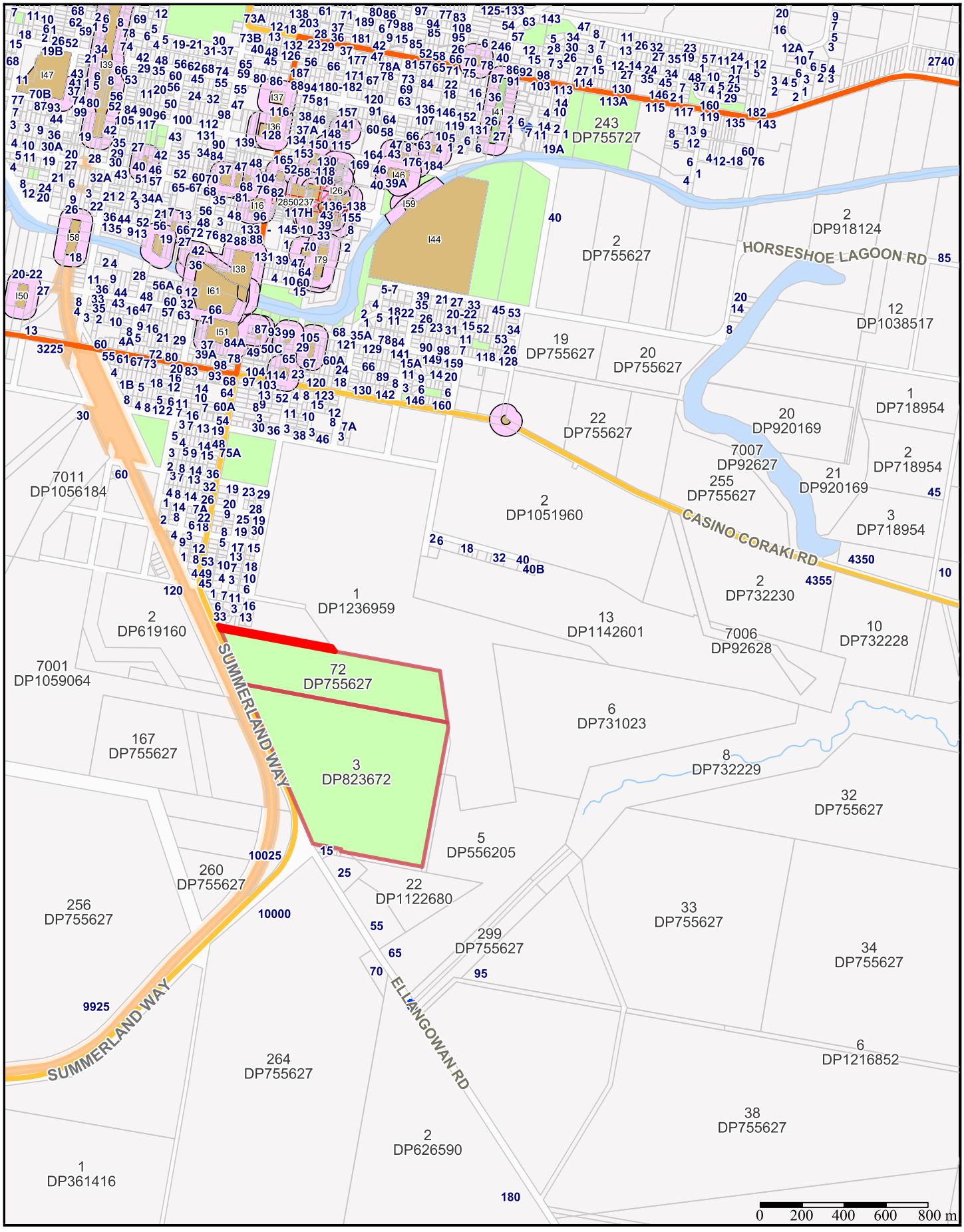
---select all---

Search

The information contained in this web page is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry& Investment NSW or the user's independent adviser.

Appendix G

Heritage Search



Richmond Valley Council

Printed Date: 21/06/2022

Search Results

2 results found.

St Marys Catholic Church Canterbury St	Casino, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Marys Convent Including Fence and Tree Centre St	Casino, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Report Produced: Wed Jun 22 22:09:19 2022

Appendix H

Stormwater Management Plan

Ardill Payne & PARTNERS

ENGINEERS PLANNERS SURVEYORS ENVIRONMENTAL PROJECT MANAGEMENT

STORMWATER MANAGEMENT PLAN

Submission to Richmond Valley Council

Casino Showground Upgrade, Summerland Way, Casino NSW 2480
Lot 72 DP 755627, Lot 3 DP 823672

For:
Richmond Valley Council

June 2022

BALLINA
45 River Street
PO Box 20
BALLINA NSW 2478
02 6686 3280

GUNNEDAH
Germane House
285 Conadilly Street
GUNNEDAH NSW 2380
02 6742 9955

Document Control Sheet

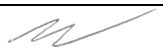
Filename:	11288_2022-06-16_Stormwater Management Plan (SMP).docx				
Job No.:	11288				
Job Captain:	Ryan Beavis				
Author:	Arthur Hyde				
Client:	Richmond Valley Council				
File/Pathname	s:\01 Jobs\11200-11299\11288 Civil_Casino Showground\01 Administration\02 Reports\11288_2022-06-16_Stormwater Management Plan (SMP).Docx				
Revision No:	Date:	Checked By		Issued By	
		Name	Signed	Name	Signed
0	20/06/22	A Hyde		R Beavis	
1	30/06/22	A Hyde		R Beavis	
2					

Table of Contents

1. Introduction

Ardill Payne and Partners (APP) has been commissioned to develop a Stormwater Management Plan (SMP) for the proposed Casino Showground Upgrade Summerland Way Casino (Lot 72 DP755627 and Lot 3 DP 823672). The development includes the construction of new stables, day yards, storage sheds, admin offices, additional car parking, horse warm up area, outdoor area, and under cover area, as well as other assorted horse facilities and associated access and amenity infrastructure. A locality of the site is provided below in **Figure 1**. A Concept Layout of the proposed development is provided in **Attachment 1**.

This SMP employs the principles of water sensitive urban design (WSUD), which focuses on reducing pollutant export and storm flows as well as improving visual aesthetics of the urban landscape as part of the greater concept of ecologically sustainable design (ESD). The SMP uses the guidelines outlined in the *Richmond Valley Development Control Plan 2021* (RVDCP).

Figure 1 – Site locality (Source: Richmond Valley Council)

2. Objectives

The proposed development is permitted without consent under part 5 of the EP&A act in accordance with the provision of the SEPP. As such an REF is being provided for approval under part 5 of the EP&A act. Considering this the objectives and requirements outlined in the Richmond Valley Development Control Plan are not directly applicable to the development. However the stormwater quality objectives outlined in part I of the RVDCP have been adopted as a bench mark to assess a reasonable level of treatment that should be provided as part of the development. Requirements for stormwater attenuation on site have been assessed based on capacity for downstream dam structures to capture and detain post development flows for reuse and/or typical outflow events.

Considering this the following objectives have been identified for this report:

- Demonstrate that the downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP.
- Demonstrate the proposed stormwater system will meet the quality targets outlined in Table I-9.1 Stormwater Quality Targets, of the RVDCP *Part I 9 – Water Sensitive Urban Design*.

It should be noted that this report does not incorporate liquid and solid waste collection and treatment consideration. It is understood that the floor of stable areas and other areas that will be hosed down to clean away liquid and or solid waste shall not drain to the stormwater network. These areas shall instead be drained to the sewer network and shall be treated separately.

3. Existing Site Conditions

The subject site on which the Casino Showground Upgrade is proposed is located on the north-western edge of lot 3 DP 823672 and the western side of lot 72 DP 755627. The subject site area is approximately 8.78 Ha and generally slopes to the east. The site is bordered by Summerland Way to the west, a vegetated area to the east, residential land to the north, and the remainder of the showground area to the south. Water from the existing site generally drains to the north-east before entering a low wide vegetated paddock area that flows south-east to a constructed dam area.

The existing site is predominantly grass paddocks with the existing developed area located in the southern half of the site. This developed section contains several buildings of various sizes as well as associated access roads off Summerland Way and various pervious horse training areas and stalls. In the existing case the subject site has an impervious fraction of 8.7%.

The subject site is not expected to receive runoff from neighbouring properties due to site topography, and therefore has not been included in catchment calculations. It should be noted that the existing downstream constructed dam structure does receive flow from the existing upstream residential areas after those flows have passed through a natural wetland / lake area.

4. Proposed Site Conditions

Access to the site will be via an upgraded loop road off the Summerland Way. The proposed site drainage system will discharge to the existing vegetated area to the east of the site after passing through the existing constructed dam. A Concept Layout of the proposed development is provided in **Attachment 1**. The proposed upgrade will include construction of various structures and infrastructure outlined in **Attachment 1** and in expected to result in a total impervious area of approx. 22378m^2 resulting in a 25.5% impervious area across the subject site. Details regarding catchment breakdowns and conveyance of stormwater runoff through the site are provided on the stormwater layout plans in **Attachment 2**.

5. Proposed Stormwater Management

It is proposed to implement several stormwater management measures to meet the quantity and quality requirements for the proposed site. These elements of the SMP include:

- Various swales for stormwater treatment and conveyance throughout the site.
- Rainwater tanks for stormwater reuse collect water from the proposed stables and under cover area providing stormwater treatment.
- Usage of the existing dam structure downstream of the development for stormwater treatment and attenuation.

Stormwater runoff from the on-ground hardstand areas and minor roof areas will be directed into grass swales via overland flow paths. The grass swales will be used to both treat the runoff and direct it towards the north west corner of the subject site where it will then flow to the existing dam structure.

This dam structure will then detain and treat flows before outletting to the existing vegetated land southwest of the subject site. The roof areas of the proposed stable and under cover areas shall be directed towards a series of proposed rainwater tanks (8x20m^3 or equivalent) used for watering horses in addition washdown and other usages with overflows directed to grass swales flowing towards the existing dam structure. Reuse rates from the proposed tanks have been determined based on a 50% occupancy of the proposed 136 horse stalls with each horse drinking approx. 30L per day in accordance with conservative RSPCA rates. Additional details of the stormwater management measures are provided in the subsequent sections.

6. Stormwater Quantity Management

The proposed showground upgrade will result in a net increase in impervious area across the subject site. In keeping with general principals of stormwater management it may be considered appropriate to ensure that peak flows downstream of the subject site are not increased as a result of the development.

As noted in section 5, stormwater from the proposed development will be directed to the existing downstream dam structure. This report shall demonstrate that the downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP. This dam structure has an approximate surface area of 7900m^2 with an unspecified depth.

Calculations available in **Attachment 3** have determined that the increase in impervious area from 8.7% pre-development to 25.5% Post development shall result in a net increase in flow volume to the dam structure of 150m^3 during the 1% AEP critical storm event (15minute storm). This equates to a 19mm

increase in water height in the dam. It is not expected that this shall have any significant impact on the regularity of dam spillage.

It should also be noted that in the event that dam volume is exceeded there is no significant infrastructure that is likely to be affected by any increase in peak flows from the development site as it flows to Oaky Creek. The Oaky Creek catchment time of concentration is significantly larger than the pre-development time of concentration for the site. As such infrastructure down stream of oaky creak is not expected to be affected by peak flow distributions from the development site.

7. Stormwater Quality Management

This development has been modelled based off the stormwater quality targets outlined in Table I-9.1 Stormwater Quality Targets of the RVDCP *Part I 9 – Water Sensitive Urban Design*. These targets are as follows.

- Total suspended solids (TSS)
    - Coarse Sediment (0.1 to 0.5mm): 80%
    - Fine Particles (<0.1mm): 50%
- Total phosphorus (TP): 45%
- Total nitrogen (TN): 45%
- Gross pollutants (Litter): 70%

It is proposed that these pollutant reductions be achieved through a treatment train approach that integrates several treatment solutions together. These treatment solutions will also form part of the visual aesthetics of the site in alignment with good practice WSUD. It is proposed that grass swales, rainwater tanks, and the existing dam structure be used to achieve these treatment targets. The details for the existing rainwater tanks have been provided in section 5 of this report. For the purpose of this assessment it has been assumed that the dam structure is at least 0.5m deep (average) with an extended detention depth of at least 50mm. Outflow from the dam structure has been assumed to be minor below the weir level. Further details of the proposed treatment measures are provided in the Stormwater Layout Plan in **Attachment 2**.

The abovementioned treatment train has been modelling using MUSIC software. A screenshot of the proposed treatment train is provided along with additional detail in **Attachment 4**. Based on the modelling in MUSIC, the proposed treatment train provides the pollutant reductions presented in **Table 1**.

Table 1 – Treatment train pollutant reductions

Pollutants	Target reduction (%)	Achieved reduction (%)
Total suspended solids (TSS)	80.0 (Coarse) / 50.0 (Fine)	95.7
Total phosphorus (TP)	45.0	68.1
Total nitrogen (TN)	45.0	47.3
Gross pollutants	70.0	100

Note: Treatment targets adopted from *Richmond Valley Development Control Plan 2021 Table I-9.1 Stormwater Quality Targets.*

8. Conclusion

This SMP developed by APP outlines the methods used to assess the stormwater impacts of the development. Firstly, this report demonstrates that the downstream dam structure has sufficient capacity to detain and attenuate stormwater flows from the site up to the 1%AEP. Secondly, this report demonstrates that the proposed stormwater system will meet the quality targets outlined in Table I-9.1 Stormwater Quality Targets, of the RVDCP *Part I 9 – Water Sensitive Urban Design*.

Note that liquid and solid waste collection and treatment was not considered by this report as these areas shall instead be drained to the sewer network and shall be treated separately.

9. Scope of Engagement

This report has been prepared by Ardill Payne & Partners (APP) at the request of AGS Commercial on behalf of Richmond Valley Council for the purpose of assessing the stormwater impacts of the proposed Casino Showground Upgrade and is not to be used for any other purpose or by any other person or corporation.

This report has been prepared from the information provided to us and from other information obtained as a result of enquiries made by us. APP accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

APP declares that it does not have, nor expects to have, a beneficial interest in the subject project.

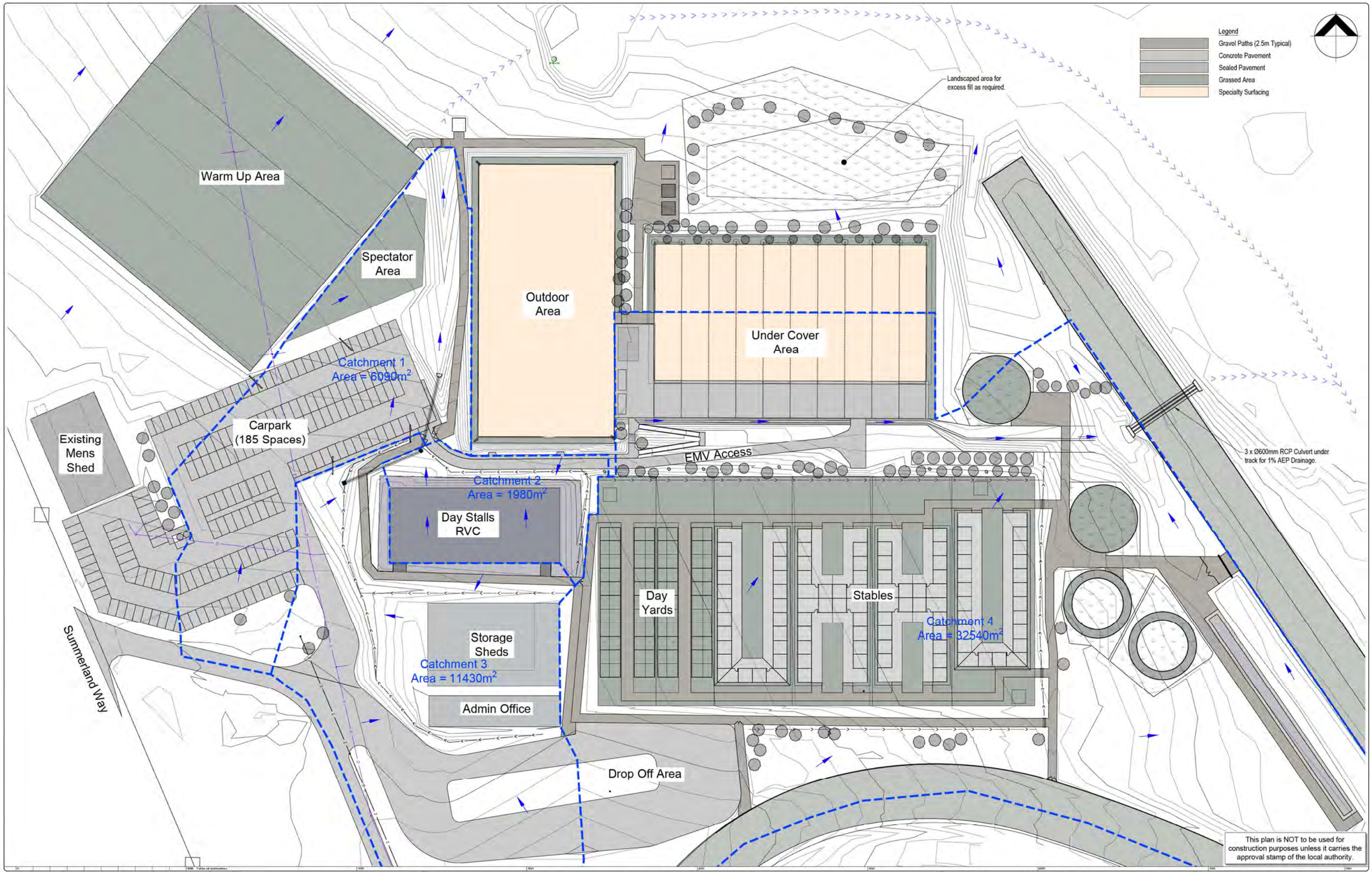
To avoid this advice being used inappropriately, it is recommended that you consult with APP before conveying the information to another who may not fully understand the objectives of the report. This report is meant only for the subject site/project and should not be applied to any other.

10. Attachments

Attachment 1	Proposed Concept Layout Plan
Attachment 2	Concept Stormwater Management Plan
Attachment 3	Pre and Post Development Flow Calcs
Attachment 4	MUSIC Model and Output

ATTACHMENT 1

Attachment 1: Proposed Concept Layout Plan



Issue	Date	Description	App'd
A	19/05/2022	Original Issue	AH

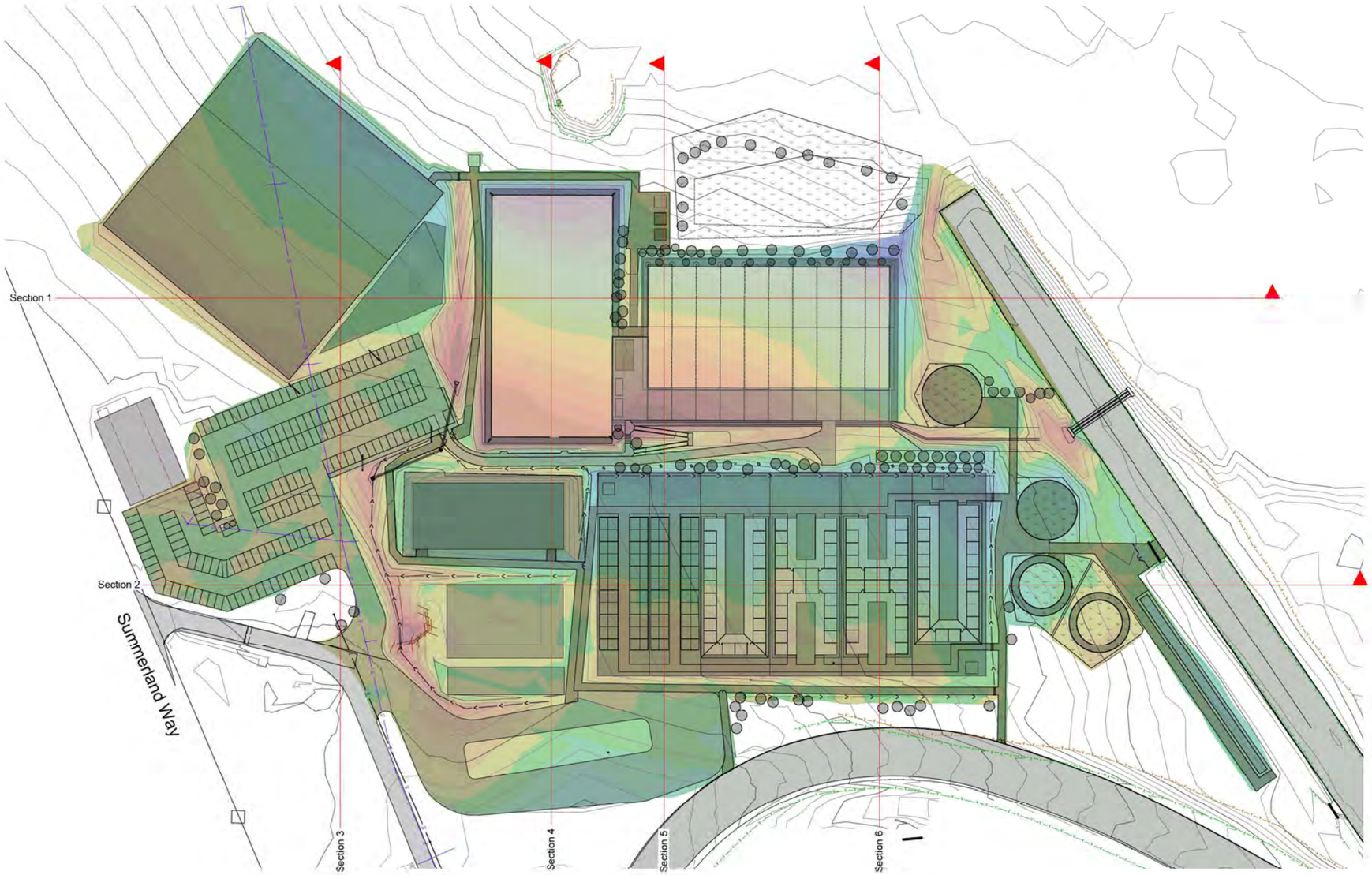
Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Proposed Concept Layout Plan

ARDILL PAYNE & Partners
ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT
BALLINA 45 River Street Ph. 02 6686 3280
GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955
A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au

Design	AH	Scale	1:500 @ A1, 1:1000 @ A3
Drawn	AH		0 5 10 15 20 25
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_SK01-0K05_IBSA_CONCEPT8.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	SK01
		Issue	A



This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
A	19/05/2022	Original Issue	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Proposed Bulk Earthworks Layout Plan

ARDILL PAYNE & Partners
ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT
BALLINA 45 River Street Ph. 02 6686 3280
GUNNEDAH 285 Conadilly Street Ph. 02 6742 9955
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Design	AH	Scale	1:1250 @ A1, 1:2500 @ A3
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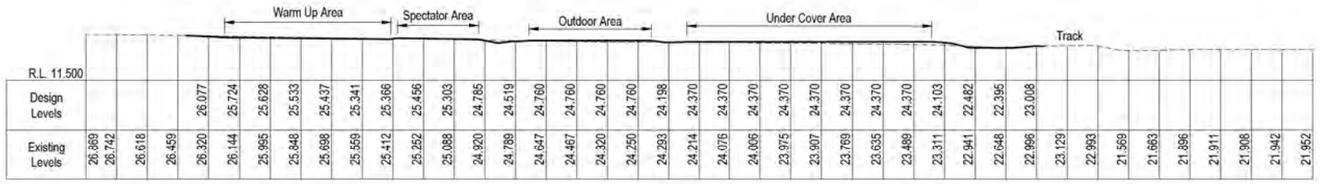
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_SK01-SK05_IBSA_CONCEPT8.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	SK02
		Issue	A



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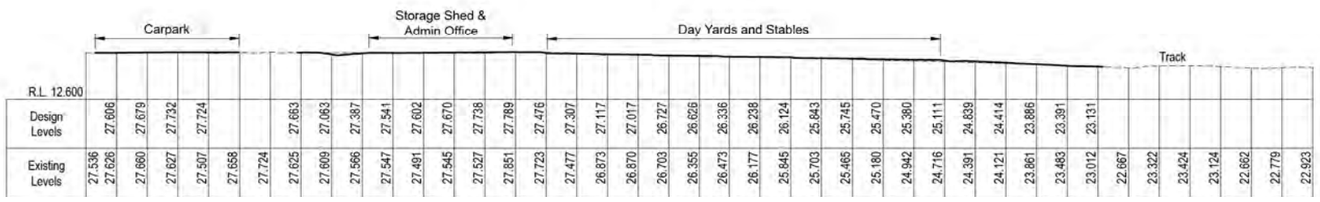

Section 2
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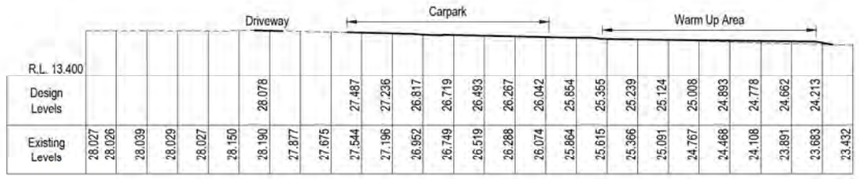

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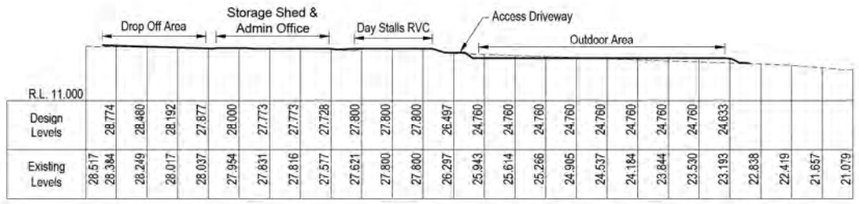

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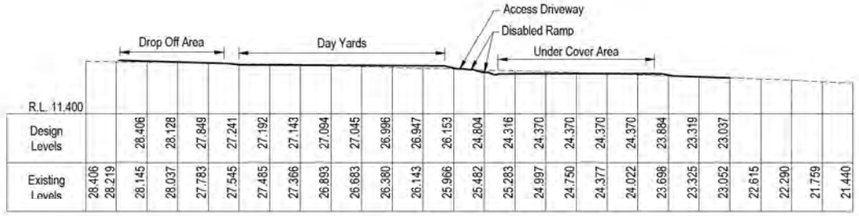

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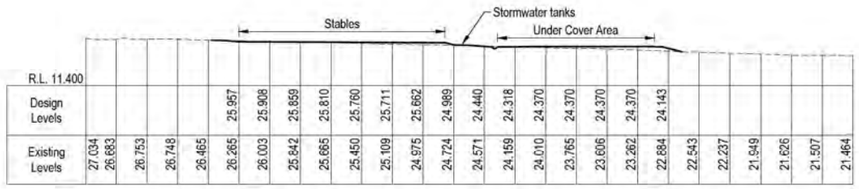

Section 6
Scale: Horizontal 1:1000 Vertical 1:1000 @A1

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
A	19/05/2022	Original Issue	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Proposed Concept Sections Natural Scale

ARDILL PAYNE
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ENVIRONMENTAL PROJECT MANAGEMENT
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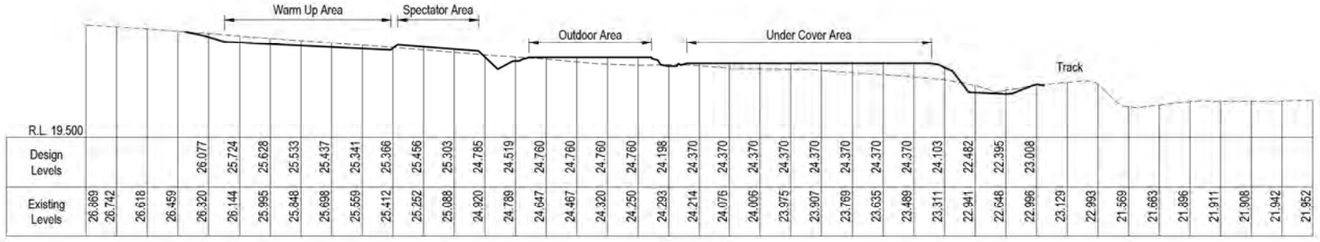
Design	AH
Drawn	AH
Checked	RB
Approved	AH
Date	19/05/2022
Job No.	11288
Scale	1:100 @ A1, 1:200 @ A3 (0 1 2 3 4 5)
Datum	AHD
Drafting File	11288_SK01-SK05_ISSA_CONCEPTS.dwg
Design File	
Dwg No.	SK03
Issue	A



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Existing Levels	26.369 26.742	26.618	26.459	26.320	26.144	25.995	25.848	25.698	25.559	25.412	25.252	25.088	24.920	24.789	24.647	24.467	24.320	24.250	24.293	24.214	24.076	24.006	23.975	23.907	23.769	23.635	23.489	23.311	22.941	22.648	22.996	23.129	22.993	21.569	21.663	21.896	21.911	21.908	21.942	21.952

Section 1
Scale: Horizontal 1:1000 Vertical 1:200 @A1

Design Levels	27.606	27.679	27.732	27.724			27.663	27.063	27.387	27.541	27.602	27.670	27.738	27.789	27.476	27.307	27.117	27.017	26.727	26.626	26.336	26.238	26.124	25.843	25.745	25.470	25.380	25.111	24.839	24.414	23.886	23.391	23.131							
Existing Levels	27.536 27.626	27.660	27.627	27.507	27.658	27.724	27.625	27.609	27.566	27.547	27.491	27.545	27.527	27.851	27.723	27.477	26.873	26.870	26.703	26.355	26.473	26.177	25.845	25.703	25.465	25.180	24.942	24.716	24.391	24.121	23.861	23.483	23.012	22.667	23.322	23.424	23.124	22.662	22.779	22.923

Section 2
Scale: Horizontal 1:1000 Vertical 1:200 @A1

Design Levels						28.076			27.487	27.236	26.817	26.719	26.493	26.267	26.042	25.854	25.355	25.239	25.124	25.008	24.893	24.778	24.662	24.213	
Existing Levels	28.027 28.026	28.039	28.029	28.027	28.150	28.190	27.877	27.675	27.544	27.196	26.952	26.749	26.519	26.288	26.074	25.864	25.615	25.366	25.091	24.767	24.468	24.108	23.891	23.683	23.432

Section 3
Scale: Horizontal 1:1000 Vertical 1:200 @A1

Design Levels	28.774	28.480	28.192	27.877	28.000	27.773	27.773	27.728	27.800	27.800	27.800	26.497	24.760	24.760	24.760	24.760	24.760	24.760	24.760	24.760					
Existing Levels	28.517 28.384	28.249	28.017	28.037	27.954	27.831	27.816	27.577	27.621	27.800	27.800	26.297	25.943	25.614	25.266	24.905	24.537	24.184	23.844	23.530	23.193	22.838	22.419	21.657	21.079

Section 4
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Design Levels		28.406	28.128	27.849	27.241	27.192	27.143	27.094	27.045	26.996	26.947	26.153	24.804	24.316	24.370	24.370	24.370	24.370	23.884	23.319	23.037				
Existing Levels	28.406 28.219	28.145	28.037	27.783	27.545	27.485	27.366	26.893	26.683	26.380	26.143	25.966	25.482	25.283	24.997	24.750	24.377	24.022	23.698	23.325	23.052	22.615	22.290	21.759	21.440

Section 5
Scale: Horizontal 1:1000 Vertical 1:200 @A1

Design Levels					25.957	25.908	25.859	25.810	25.760	25.711	25.662	24.989	24.440	24.318	24.370	24.370	24.370	24.370							
Existing Levels	27.034 26.683	26.753	26.748	26.465	26.265	26.003	25.842	25.665	25.450	25.109	24.975	24.724	24.571	24.159	24.010	23.765	23.606	23.262	22.884	22.543	22.237	21.949	21.626	21.507	21.464

Section 6
Scale: Horizontal 1:1000 Vertical 1:200 @A1

This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
A	19/05/2022	Original Issue	AH

Client:
Richmond
Valley
Council

Project:
Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title:
Proposed
Concept Sections
Exaggerated Sections

ARDILL PAYNE
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ENGINEERS PLANNERS SURVEYORS
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Design	AH	Scale	1:100 @ A1, 1:200 @ A3
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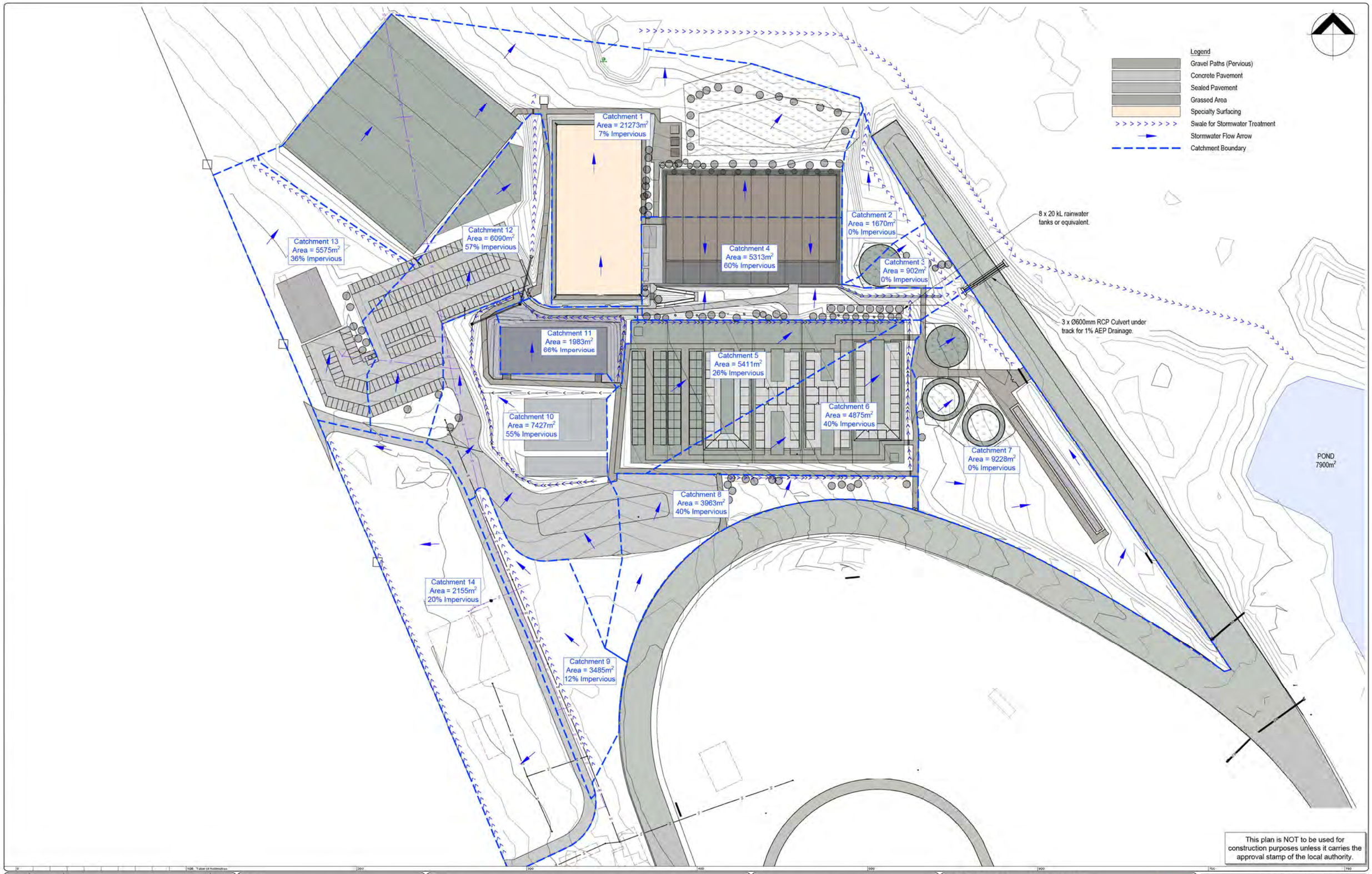
Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_SK01-SK09_IBSA_CONCEPTS.dwg
Date	19/05/2022	Design File	
Job No	11288	Dwg No.	SK04
		Issue	A

ATTACHMENT 2



This plan is NOT to be used for construction purposes unless it carries the approval stamp of the local authority.

Issue	Date	Description	App'd
A	19/05/2022	Original Issue	AH

Client: Richmond Valley Council

Project: Casino Showground Upgrade
Summerland Way Casino
NSW 2480

Title: Concept Stormwater Management Plan

ARDILL PAYNE & Partners
ENGINEERS PLANNERS SURVEYORS
ENVIRONMENTAL PROJECT MANAGEMENT
BALLINA 45 River Street Ph. 02 6686 3280
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A.B.N. 51 808 558 977 e-mail: info@ardillpayne.com.au

Design	AH	Scale	1:800 @ A1, 1:1600 @ A3
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Checked	RB	Datum	AHD
Approved	AH	Drafting File	11288_SK10_ISSA_SW-CONCEPT.dwg
Date	19/05/2022	Design File	
Job No.	11288	Dwg No.	SK05
		Issue	A

S:\01 Jobs\11200-11299\11288 Civil_Casino Showground\05 Drawings\01 Civil\01 Current\11288_SK10_ISSA_SW-CONCEPT.dwg, 20/05/2022 4:45:20 PM

ATTACHMENT 3

Attachment 3: Pre and Post Development Flow Calcs

Ardill Payne & PARTNERS

	Subject Site Area =	8.78	Ha
Existing 1% AEP Flow		Proposed 1% AEP Flow	
Existing Fraction Impervious =	8.70%	Proposed Fraction Impervious	25.50%
C10 factor (From QUDM)	0.72	C10 factor (From QUDM)	0.75
Fy for 1% AEP =	1.2	Fy for 1% AEP =	1.2
C100 = Fy x C10 = 0.72 x 1.2 =	0.864	C100 = Fy x C10 = 0.72 x 1.2 =	0.9
Time of Concetration =	15 Min	Time of Concetration =	15 Min
1% AEP Rainfall Intensity =	190 mm/hr	1% AEP Rainfall Intensity =	190 mm/hr
Q = C x I x A / 360		Q = C x I x A / 360	
Q = 0.864 x 190 x 8.78 / 360 =	4.004 M^3/S	Q = 0.864 x 190 x 8.78 / 360 =	4.1705 M^3/S

Increase In Flow

Existing Q - Proposed Q = 4.004 - 4.1705 = 0.167 M^3/S

Increase in volume to dam

Increase in flow x Storm Duration = 0.167x(15x60) = 150.138

Increase in height of water in dam

Increase in volume to dam / dam area

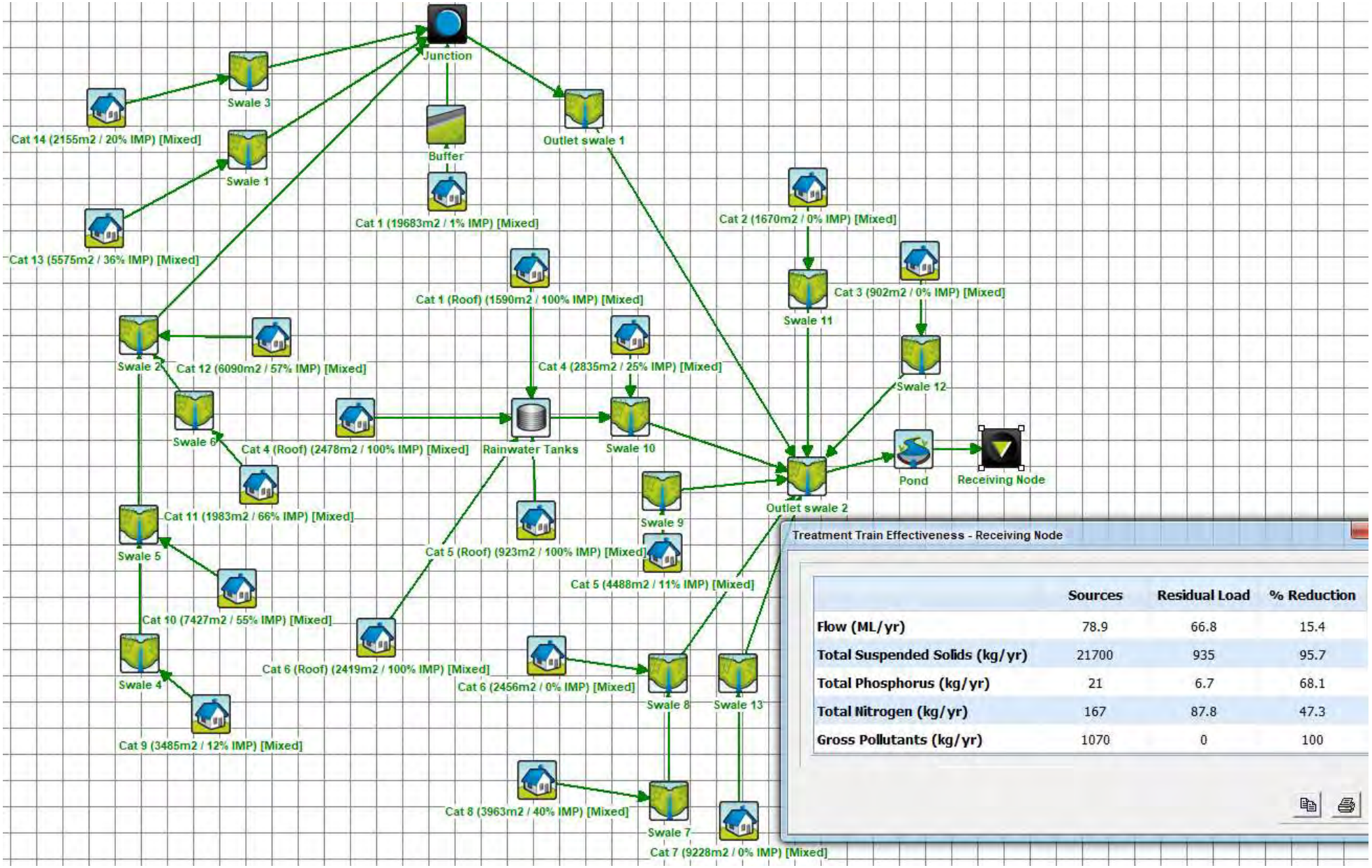
Dam area = 7931 m^2

Increase in height of water = 150.138 / 7931 = 0.018931 m

Increase in height of water = 18.93053 mm

ATTACHMENT 4

Attachment 4: MUSIC Model and Output



	Sources	Residual Load	% Reduction
Flow (ML/yr)	78.9	66.8	15.4
Total Suspended Solids (kg/yr)	21700	935	95.7
Total Phosphorus (kg/yr)	21	6.7	68.1
Total Nitrogen (kg/yr)	167	87.8	47.3
Gross Pollutants (kg/yr)	1070	0	100

Appendix I

Hydraulic Services Plans

Moreton Hydraulic Services

Casino Showground Upgrade

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ew ew ew : Existing Cold Water Service
- eh eh : Existing Hot Water Service
- w w w : Existing Water Main
- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Cover Page
Locality Plan

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H01-P	1	9

Date Plotted: 23 Jun 2022 - 01:15PM

N

EXISTING DAM

Warm up Area

Site strip mound

HORSE WASH DOWN WASTEWATER TREATMENT
PROPOSED 4,000L ALL WASTE SEPTIC TANK

3,000L PACKAGED PUMP STATION

150ØID HDPE FIRE SERVICE

Undercover Arena
See arena plan - Sheet A03

Outdoor Arena

TPH #2

320ØID PN16 WATER SERVICE

500ØID PN16 WATER SERVICE

Amenities

Kiosks

SEWER CONNECTION POINT FOR AMENITIES

SEWER CONNECTION POINT FOR DEMOUNTABLE AMENITIES

TRADE WASTE CONNECTION POINT FOR KOISK

3,000L GREASE ARRESTOR

2x 144,000 Litre FIRE TANK STORAGE

FIRE PUMP SHED with DUAL FIRE PUMP SET (Diesel & Electric)

150ØID HDPE FIRE SERVICE

FIRE TANK

FIRE TANK

150ØID HDPE FIRE SERVICE (pump suction)

100ØID HDPE FIRE TANK TOP UP LINE

Outdoor Arena and Warm up Area spectator area

Parking by RVC

EXISTING MENS SHED

100ØID HDPE FIRE TANK TOP UP LINE

150ØID HDPE FIRE SERVICE (pump suction)

150ØID HDPE FIRE SERVICE

AHD+26.35

Path - AS1428 compliant

EMV Access

EMV Access

EMV Access

Parking by RVC

Parking by RVC

100ØID DWV @ 1.65% MIN FALL

LOCATE AND CONNECT TO EXISTING SEWER CHAMBER

Day Stalls by RVC

boundary line 881.820m

Equestrian/Pedestrian Pathway

Parking by RVC

LOCATE AND CONNECT TO EXISTING 150Ø WATER MAIN

150ØID HDPE FIRE SERVICE

100ØID HDPE FIRE TANK TOP UP LINE

150ØID HDPE FIRE SERVICE (pump suction)

150ØID HDPE FIRE SERVICE

150ØID HDPE FIRE SERVICE

TPH #1

Storage Sheds by RVC

Admin Office by RVC

100Ø RPZ Assembly (Fire Service)

100Ø Water Meter Assembly (Fire Service)

HYDRANT BOOSTER CABINET

SUMMERLAND WAY

OVERNIGHT CAMPING

Equestrian/Pedestrian Pathway

Stables & Day Yards
See stable & day yards plan - sheet A02

Day Yards

Day Yards

Stables

Stables

Stables

1000L PACKAGED PUMP STATION

FOX ENVIROMENTAL OIL SEPERATOR
UNROOFED FX3000 (STORMWATER DIVERSION DEVICE)

Future truck wash location

TRUCK WASH BAY

STORMWATER TO HEADWALL OR CONNECT TO EXISTING STORMWATER INFASTRUCTURE

TPH #5

Round Yard

RAINWATER PUMP SHED

WATER FILTRATION
BY PURETEC

HORSE WASH DOWN WASTEWATER TREATMENT
PROPOSED 12,000L ALL WASTE SEPTIC TANK

3,000L PACKAGED PUMP STATION

RAINWATER STORAGE - 360kL

Weighbridge

150ØID HDPE FIRE SERVICE

500ØID PN16 WATER SERVICE

TPH #3

TPH #4

Existing chute fence

Round Yard

Chute Access

TPH #6

Wall

Walker

500ØID PN16 WATER SERVICE

WATER SERVICE CONNECTION POINT FOR EQUESTRIAN POOL

150ØID HDPE FIRE SERVICE

Equestrian Pool - 70m

Existing chute

Equestrian/Pedestrian Pathway

boundary line 881.820m

Existing track fence

Paddock Space

TPH #7

Part Site Plan - Area of Works

SCALE 1:500 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.06.2022
Rev	Issue / Amendment	Date

Plumbing Application Number

P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
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10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Part Site Plan - Area of Works
Fire Service Design Layout

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H02-P	2	9

Date Plotted: 23 Jun 2022 - 01:15PM

Outdoor Arena and Warm up Area spectator area

100ØID DWV @ 1.65% MIN FALL
40ØID PUMPED DISCHARGE LINE
40Ø - 100Ø LIT
SEWER CONNECTION POINT FOR AMENITIES
SEWER CONNECTION POINT FOR DEMOUNTABLE AMENITIES
TRADE WASTE CONNECTION POINT FOR KOISK
100ØID HDPE @ 1.65% MIN FALL
3,000L GREASE ARRESTOR
100ØID DWV @ 1.65% MIN FALL

40ØID PUMPED DISCHARGE LINE
40Ø - 100Ø LIT
100ØID DWV @ 1.65% MIN FALL
40Ø - 100Ø LIT
100ØID DWV @ 1.65% MIN FALL

100ØID DWV @ 1.65% MIN FALL
CONNECTION TO EXISTING SEWER CHAMBER

line 881.820m

Max grade 1:40
6 200 mm
Max grade 1:25
5 000 mm
Max grade 1:40
5 000 mm
Max grade 1:20
5 000 mm

450X450 GRATED PIT
TRAPPED OUTLET IN BASE
450X450 GRATED PIT
TRAPPED OUTLET IN BASE

Sanitary & Trade Waste Design layout - Section 1

SCALE 1:200 @ A1

N

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S S S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ecw ecw ecw : Existing Cold Water Service
- eh eh : Existing Hot Water Service
- w w w : Existing Water Main
- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

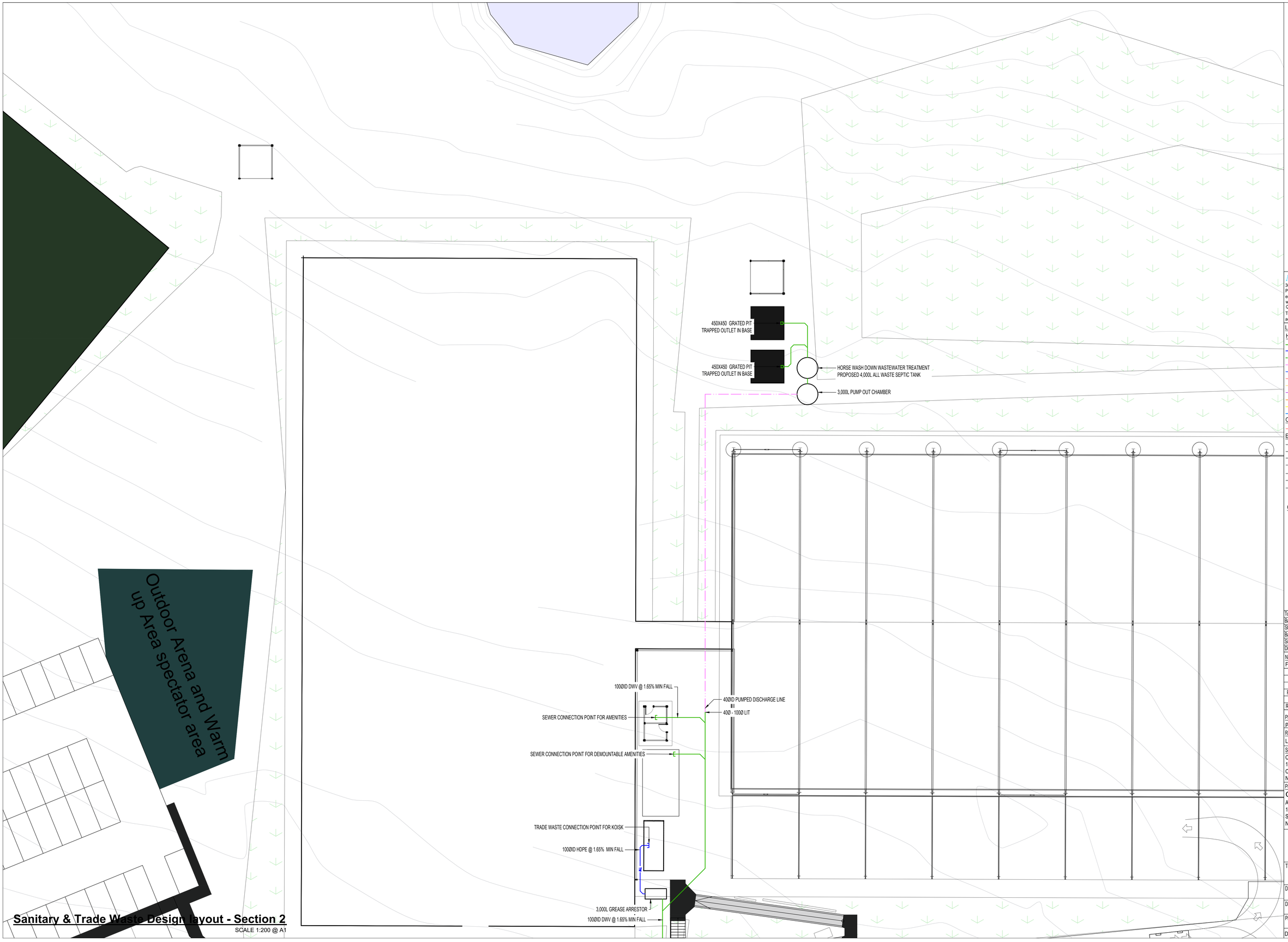
Title
Site Plan & Locality Plan
Legend & General Notes

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H03-P	3	9

Date Plotted: 23 Jun 2022 - 01:15PM



Sanitary & Trade Waste Design layout - Section 2

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services

- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
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- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services

- : Fire String Lines

Existing Services

- ehd : Existing House Drain
- S S S S : Existing Sewer Main
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- : Existing Vent
- ew ew ew : Existing Cold Water Service
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- : Existing Stormwater

Common Symbols

- : Elevated Pipework Dropper
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- : Thermostatic Mixing Valve
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- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Sanitary & Trade Waste Design layout - Section 2

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H04-P	4	9

Date Plotted: 23 Jun 2022 - 01:15PM

Sanitary & Trade Waste Design layout - Section 3

SCALE 1:200 @ A1

bo

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
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website: mhservices.net.au
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This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
: Sanitary Drainage
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: Tempered Hot Water
: Non-potable Water Service
FS FS : Fire Service
G : Gas Line
: Stormwater Drainage

Other Services
: Fire String Lines

Existing Services
ehd : Existing House Drain
S S S S : Existing Sewer Main
etw etw : Existing Trade Waste
: Existing Vent
ew ew ew : Existing Cold Water Service
eh eh : Existing Hot Water Service
w w w : Existing Water Main
: Existing Stormwater

Common Symbols
: Elevated Pipework Dropper
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: Check Valve
: Isolation Valve
: Cold Water Relief Valve
: Water Meter
: Reduced Pressure Zone Device
: Double Testable Check Valve
: Pressure Limiting Valve

Toilet (WC)	0		
Basin (Bn)	0		
Shower (Shr)	0		
Bath (Bth)	0		
Sink (Sk)	0		
Dishwasher (dw)	0		

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

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AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Sanitary & Trade Waste Design layout - Section 3

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H05-P	5	9

Date Plotted: 23 Jun 2022 - 01:15PM

Arena and Warm
ea spectator area

Roof Area: 1854m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 111.7L/s
6x 150ØDP minimum

150ØDN DOWN PIPE 10.15L/s (×9)

300ØID SW PVC @ 1.00% MIN FALL
50.75L/s

N

Moreton Hydraulic Services
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email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
- : Sanitary Drainage
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- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S : Existing Sewer Main
- etw : Existing Trade Waste
- : Existing Vent
- ecw : Existing Cold Water Service
- eh : Existing Hot Water Service
- w : Existing Water Main
- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Stormwater Design Layout Section 1

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H06-P	6	9

Date Plotted: 23 Jun 2022 - 01:15PM

100ØDN DOWN PIPE 6.6L/s (×6)
150mm x 175mm EAVES GUTTER
225ØID SW PVC @ 1.00% min fall 33L/s

Roof Area: 550m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 33L/s
5x 100ØDP minimum

Roof Area: 550m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 33L/s
5x 100ØDP minimum

300ØID SW PVC @ 1.00% min fall 66L/s

Max grade 1:40 6 200 mm

Max grade 1:25 15 000 mm

Max grade 1:20 15 000 mm

Max grade 1:40 9 300 mm

225ØID SW PVC @ 1.00% min fall 20.7L/s

100ØDN DOWN PIPE 4.14L/s (×8)

Roof Area: 346m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 20.7L/s
4x 100ØDP minimum

150mm x 175mm EAVES GUTTER

Roof Area: 115m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 6.9L/s
1x 100ØDP minimum

100ØDN DOWN PIPE 6.9L/s

300ØID SW PVC @ 1.00% min fall 73.48L/s

Max grade 1:40 5 000 mm

100ØDN DOWN PIPE 5.06L/s (×8)

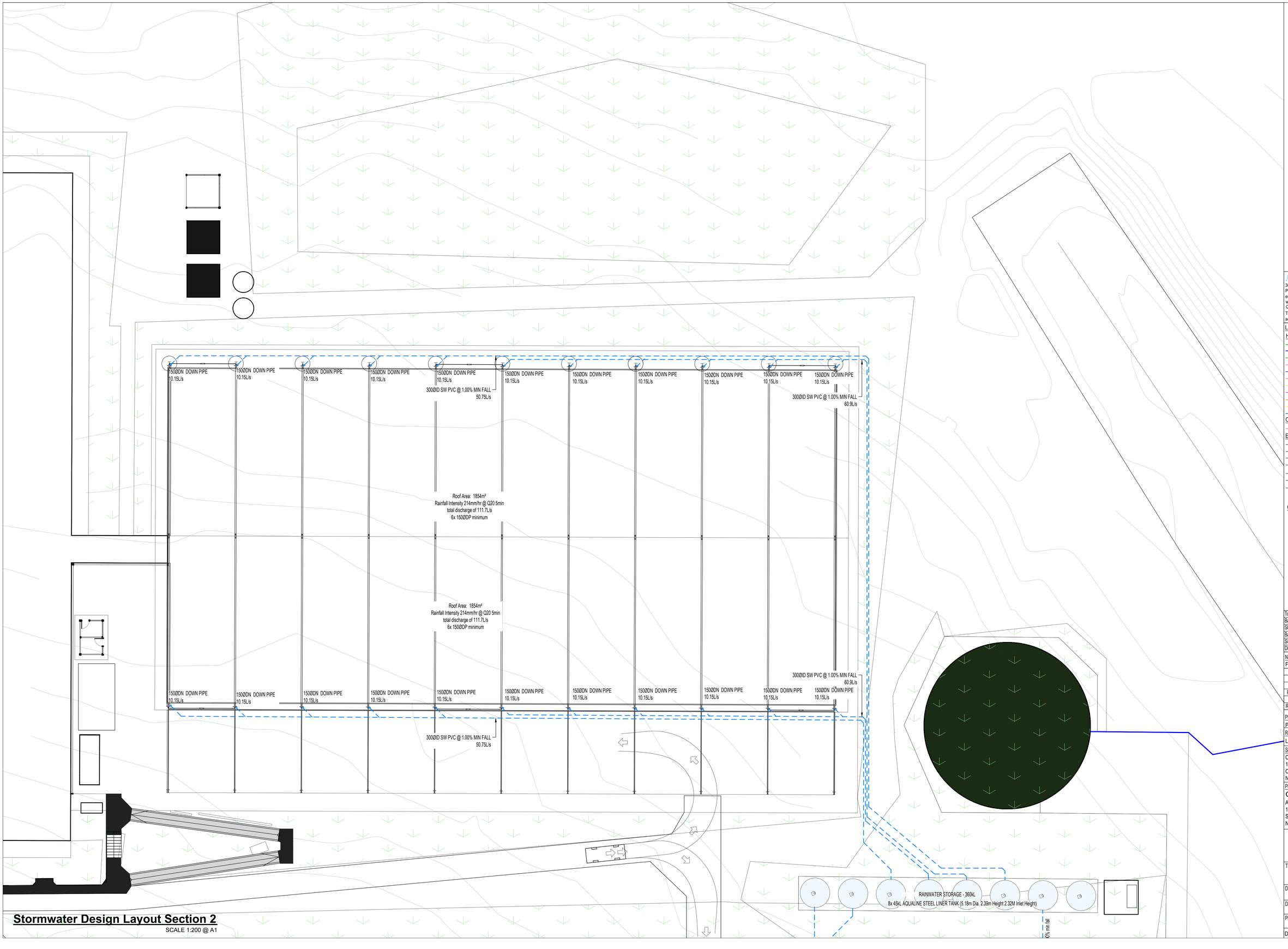
Roof Area: 422m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 25.3L/s
5x 100ØDP minimum

Max grade 1:65

Max grade 1:20

Stormwater Design Layout Section 1

SCALE 1:200 @ A1



Stormwater Design Layout Section 2

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
- : Sanitary Drainage
- TW : Trade Waste
- : Sanitary Drainage Vent
- : Pumped Discharge Line
- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S S S : Existing Sewer Main
- etw etw : Existing Trade Waste
- : Existing Vent
- ew ew ew : Existing Cold Water Service
- eh eh : Existing Hot Water Service
- w w w : Existing Water Main
- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022
Rev	Issue / Amendment	Date

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
Casino Showgrounds
10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Stormwater Design Layout Section 2

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H07-P	7	9

Date Plotted: 23 Jun 2022 - 01:15PM

Roof Area: 1854m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 111.7L/s
6x 150ØDP minimum

150ØDN DOWN PIPE 10.15L/s

300ØID SW PVC @ 1.00% MIN FALL 50.75L/s

300ØID SW PVC @ 1.00% MIN FALL 60.9L/s

RAINWATER STORAGE - 360kL
8x 45kL AQUALINE STEEL LINER TANK (5.18m Dia. 2.39m Height 2.32M Inlet Height)

250ØID SW PVC @ 1.00% min fall 41.4L/s

300ØID SW PVC @ 1.00% min fall 66L/s

225ØID SW PVC @ 1.00% min fall 20.7L/s

300ØID SW PVC @ 1.00% min fall 73.48L/s

100ØDN DOWN PIPE 4.14L/s

100ØDN DOWN PIPE 5.06L/s

Roof Area: 346m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 20.7L/s
4x 100ØDP minimum

Roof Area: 422m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 25.3L/s
5x 100ØDP minimum

Roof Area: 115m²
Rainfall Intensity 214mm/hr @ Q20 5min
total discharge of 6.9L/s
1x 100ØDP minimum

100ØDN DOWN PIPE 6.69L/s

150mm x 175mm EAVES GUTTER

Max grade 1:40 6 200 mm

Max grade 1:40 5 000 mm

Max grade 1:20 9 300 mm

Max grade 1:46 25 000 mm

Max grade 1:40

Max grade 1:65

Max grade 1:20

Existing chute fence

Stormwater Design Layout Section 3

SCALE 1:200 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
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This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

Hydraulic Services
- : Sanitary Drainage
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- : Sanitary Drainage Vent
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- : Cold Water Service
- : Hot Water Service
- : Tempered Hot Water
- : Non-potable Water Service
- FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S : Existing Sewer Main
- etw : Existing Trade Waste
- : Existing Vent
- ecw : Existing Cold Water Service
- eh : Existing Hot Water Service
- w : Existing Water Main
- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- RPZD : Reduced Pressure Zone Device
- DCV : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures: No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
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10095 Summerland Way
Casino
NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Stormwater Design Layout Section 3

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
221085.DWG	H08-P	8	9

Date Plotted: 23 Jun 2022 - 01:15PM

FIRE HOSE LENGTH - 60M
HYDRANT SPRAY DISTANCE - 10M

OUT DOOR ARENA
UNDERCOVER ARENA
Outdoor Arena and Warm up Area spectator area
DAY STALLS
STABLES & DAY YARDS
STORAGE SHEDS
BOOSTER CABINET
Future truck wash location
Existing chute fence
Existing track fence
boundary line 881.820m

TPH #1
TPH #2
TPH #3
TPH #4
TPH #5
TPH #6
TPH #7

Fire Hydrant Coverage
SCALE 1:500 @ A1

Moreton Hydraulic Services
36 Milne Street Laidley Qld 4341
Phone: 5465 1154 Fax: 5465 1172 Mobile: 0418154749
email: mark@mhservices.net.au
website: mhservices.net.au
Q.B.C.C. Hydraulic Design Licence No. 45325

This plan has been designed to, and is in accordance with AS/NZS 3500 Parts 1,2,3 and 4

LEGEND

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- : Non-potable Water Service
- FS : Fire Service
- G : Gas Line
- : Stormwater Drainage

Other Services
- : Fire String Lines

Existing Services
- ehd : Existing House Drain
- S : Existing Sewer Main
- etw : Existing Trade Waste
- : Existing Vent
- cw : Existing Cold Water Service
- eh : Existing Hot Water Service
- w : Existing Water Main
- : Existing Stormwater

Common Symbols
- : Elevated Pipework Dropper
- : Water Service Riser
- : Thermostatic Mixing Valve
- : Tempering Valve
- : Check Valve
- : Isolation Valve
- : Cold Water Relief Valve
- : Water Meter
- : Reduced Pressure Zone Device
- : Double Testable Check Valve
- : Pressure Limiting Valve

Toilet (WC)	0	
Basin (Bn)	0	
Shower (Shr)	0	
Bath (Bth)	0	
Sink (Sk)	0	
Dishwasher (dw)	0	

Number of Fixtures & Fixture Units
Fixtures:No Fixtures Fixtures Units: 0

Rev	Issue / Amendment	Date
P2	Issue for REF	23.06.2022
P	Preliminary Issue	13.05.2022

Plumbing Application Number
P/D No.

Registered Plan Number
Lot 3 on DP823672

Site Address
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NSW. 2470 Australia

Project & Client Details
Casino Showground Upgrade
AGS Commercial Pty Ltd
172 Casino Street
South Lismore
NSW. 2480 Australia

AHSCA
Association of Hydraulic Services Consultants Australia

Title
Fire Hydrant Coverage

Drawn By	Designed By	Checked By
B. Daly	M. Harnett	M. Harnett

Date Drawn	Date Checked
23.06.2022	23.06.2022

Project Number	Dwg no. & Revision	Sheet No.	of
22108S.DWG	H09-P	9	9

Date Plotted: 23 Jun 2022 - 01:15PM

Appendix J

Geotechnical Report

PO Box 5120 Ballina Mail Centre, NSW 2478
17 De-Havilland Crescent, Ballina
Telephone: (02) 6686 8567
Email: Office@asct.com.au
A.B.N: 92 602 346 127

GEOTECHNICAL SITE INVESTIGATION

Prepared by ASCT - Ballina office, for Richmond Valley Council.

SUBJECT SITE

Casino Showgrounds, Summerland Way, Casino, NSW 2470.

ASCT Reference
H21-2553.

AUSTRALIAN SOIL AND CONCRETE TESTING
A.S.C.T.

PO Box 5120 Ballina Mail Centre, NSW 2478
17 De-Havilland Crescent, Ballina
Telephone: (02) 6686 8567
Email: Office@asct.com.au
A.B.N: 92 602 346 127

6th October 2021

Ref No: H21-2553.

Richmond Valley Council

10 Graham Place
Casino, NSW 2470

Dear Richmond Valley Council,

Re: Proposed Developments at Casino Showgrounds, Summerland Way, NSW 2470.

Australian Soil and Concrete Testing Pty Ltd (ASCT) is pleased to present the completed *Geotechnical Site Investigation* report, in response to your request.

As per your commission, ASCT was tasked with investigation works appropriate to classification of the site in accordance with *Australian Standard AS 2870 – Residential Slabs & Footings*, and associated parameters requisite to the proper design & construction of a structural footings system.

Details of our investigation process, the findings and results are contained within the body of this report. However, please find below a summation of the investigation results;

Site Classification (AS 2870)	Abnormal Site - Class P (requiring Professional engineering input)
Potential Problems Encountered	Poor Bearing
Characteristic Surface Movement (Y_s)	20 to 40mm
Design Bearing Capacity	70 to 400 kPa
Groundwater	Not Encountered

AUSTRALIAN SOIL AND CONCRETE TESTING
A.S.C.T.

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17 De-Havilland Crescent, Ballina
Telephone: (02) 6686 8567
Email: Office@asct.com.au
A.B.N: 92 602 346 127

1.0 Introduction & Understanding

The subject of this site investigation report is;

Casino Showgrounds, Summerland Way, NSW 2470.

It is our understanding that new residential developments is proposed for the site. Accurate information regarding the 'footprint' of the proposed structure was available at the time of investigation.

Information, including anecdotal evidence, provided by our client has been accepted as accurate & complete, and incorporated into the investigation process as appropriate.

2.0 Desktop Study

ASCT maintains an extensive library of previous AS 2870 site classifications. This important resource is consulted with every ASCT site investigation, and appropriate information has been employed during this investigation.

A limited inspection of the available aerial photography, provided no significant information regarding the site history.

Inspection of soil mapping for the area, *TWEED HEADS - Geological Series Sheet SH 56-3 (1:250,000)*, predicts soils of the *Jgs – Grafton Formation* origin.

The site was determined to lie within *Climatic Zone 1*, and therein have a *Depth of design suction change* (H_s) in the order of 1.5m.

Having regard to the guidance provided within AS 2870, a value of *Soil suction change* (ΔpF) of 1.2 Pico farads (pF) was deemed appropriate for the site.

3.0 Field Work

Field work at the investigation site was conducted by ASCT representative on the 27th September 2021.

These works included;

- Recording of all significant site features having, or potentially having, an effect on the site classification.
- Recording the location, and/or physical measurements, of certain significant features (e.g.: ASCT test holes, Tree heights, Slopes, Structures).
- Digital photography.
- A determination of the ultimate bearing pressure exhibited by the site soils.
- Excavation, and logging of one or more test holes.
- An assessment of groundwater conditions.
- The retrieval of one or more soil samples, for subsequent laboratory testing.

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3.1 Site Description

The site as found by ASCT on the day of the field work is described below. Photo and a simple plan of the site are included in Appendix A.

The site is located in a rural area amidst gently sloping terrain.

No trees or vegetation which could affect the sites normal moisture conditions were observed.

No outcropping of boulders is evident within the site.

At the time of investigation vehicle/drill rig access onto the site was easily achievable.

3.2 Sub-Surface Profile

Detailed borehole (BH) logs, in accordance with AS 1726 section 6.2, are included in Appendix A.

In essence; the sub-surface profile consists of Silty Sand (SM) underlain by Silty Clay (CH) and Clayey Sand (XW, Extremely Weathered Sandstone) through to the target investigation depth.

The site exhibits soil stratum which ASCT have determined to be of natural origin.

The investigation results indicate that an essentially uniform sub-surface profile exists at the site.

The sub-surface conditions encountered may hinder normal footing construction due to poor bearing.

3.3 Groundwater

No groundwater was encountered during the investigation field-work.

The presence of groundwater table/seepage depends on rainfall, ground conditions, permeability, adjacent creek/pond water levels and will differ with time.

While it is impossible to accurately predict future levels in a complex groundwater system, especially in a limited investigation such as this, ASCT does not believe that groundwater will be an issue at this site.

3.4 Bearing Capacity

Where possible ASCT employs the results of AS 1289.6.3.2 – Dynamic Cone Penetrometer (DCP) testing, in the assessment of bearing capacity. In such instances the results of the DCP testing are included on the borehole logs, provided in Appendix A. Other inputs, such as visual/tactile assessments and the use of portable engineering equipment (e.g.: pocket penetrometer), also contribute to the overall assessment.

The following zones have an allowable (or design) bearing capacity of less than 100kPa. This is poor and likely to be inadequate for the support of a normal footings system:

- Borehole 3: from a depth of 1.0m to 1.5m below surface level.
- Borehole 4: from a depth of 0.7m to 0.9m below surface level.
- Borehole 6 from a depth of 0.6m to 1.3m below surface level.
- Borehole 7 from a depth of 0.4m to 1.1m below surface level.

All other zones tested by ASCT (see borehole logs, Appendix A) have allowable bearing capacity in the order of 100 to 400kPa which is reasonable and likely to be adequate for the support of a normal footings system.

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4.0 Laboratory Work

During the field-work phase a disturbed soil sample was retrieved from Borehole 1, at a depth of 0.5m.

The sample was submitted to our NATA accredited Ballina facility for testing, in accordance with;

AS 1289.3.1.2 – Liquid Limit of a Soil (One point Casagrande), and

This laboratory testing produced results of;

Liquid Limit 57%.

5.0 Characteristic Surface Movement

Incorporating appropriate values for the Climatic Zone, depth of design suction change (H_S), soil suction change (ΔpF), lateral restraint factor (α), the thickness of each layer (h), and the properties of each layer (Instability Index I_{pt}); We have calculated the expected volume change associated with natural changes in soil moisture, and its' effect at the surface of the soil profile.

The resultant value is known as the *Characteristic Surface Movement* (Y_S), and we have determined it to be in the order of 20 to 40mm in line with AS 2870 Site Class M – "Moderately Reactive".

6.0 Site Problems

AS 2870 contains a list of potential problems that exclude a site from being classified under one of the 'Normal' classifications. Such sites are classified as Class P, so that the issues can be addressed using a tailored solution, by a professional Engineer.

Unfortunately, one or more of these potential problems were encountered at your site resulting in a classification of 'Class P'. While the problems may have been discussed in other sections of this report, they are listed here in the interests of clarity;

- Poor bearing: the allowable bearing capacity was determined to be less than 100kPa at various depths at boreholes 3,4,6 and 7 (see borehole logs appendix A - DCP blow counts <3/100mm). This is poor and likely to be inadequate for the support of a normal footings system within these zones.

7.0 Earthworks, Site Preparation and Trafficability (If Applicable)

Any earthworks undertaken should be carried out in a responsible manner in accordance with the relevant parts of AS3798 – 2007. It is recommended that all earthworks be carried out under Level 1 inspection and testing arrangements as detailed in clause 8.2 of AS3798-2007.

Prior to the placement of any structural fill across the site, any topsoil, unsuitable, deleterious and organically contaminated surface soils should be stripped to depths exposing competent ground. In addition, any tree roots remaining from any clearing operations should be completely removed.

The stripped surface prior to filling should be tyned, moisture conditioned and re-compacted to the minimum density ratios detailed in AS 3798-2007 of 95% Standard compaction for residential and 98% standard compaction for commercial developments.

All bulk fill materials should be placed in layers of approximately 0.2m loose and be moisture conditioned within the range of ±2% of Optimum Moisture Content (OMC). Then compacted to the minimum density ratios

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detailed in AS 3798-2007 of 95% Standard compaction for residential developments and 98% standard compaction for commercial developments.

Excluding any organic and deleterious materials, it is considered that the majority of materials won from excavation on site will generally be suitable for reuse as bulk filling provided that moisture content of the soils on placement approximates to the Optimum Moisture Content (OMC).

Where medium to high plasticity clays are proposed to be re-used as new structural filling materials in building or pavement areas, it is recommended that the cohesive material be placed at depth and granular material or weathered rock be placed close to the subgrade level. This will reduce the effects of seasonal moisture changes and foundations soil reactivity and improve surface trafficability.

It is appropriate to maintain surface drainage conditions during earthworks and ensure that runoff water is discharged away from the construction area to prevent any water ponding. Generally, clayey and silty materials are susceptible to moisture changes.

8.0 Responsibilities

The Australian Standard AS 2870 includes the following statements "*Footing design and construction involves a number of steps: site classification, selection of the footings system, structural design, construction in accordance with the required design details and construction methods, and proper maintenance. In particular, the owner has a responsibility to ensure the site is properly maintained and the Standard attempts to guide owners in this area.*".

We draw your attention to this responsibility and have provided a copy of the CSIRO BTF-18 "Foundation maintenance and Footing performance: A Homeowner's Guide" to assist you. The measures suggested in the CSIRO guide are simple & cost effective, and we recommend that you observe them in consultation with your designer.

We have taken every care to be to accurate, complete & objective in the execution of your commission. Should you have any queries, or require further assistance, please do not hesitate to contact our office. This report is your intellectual property and we will not provide it to any 3rd party without your permission. May we also respectfully request that if you provide this report to others (e.g.: your builder): you provide it in its' entirety, to avoid any miscommunication.

Yours faithfully,
Australian Soil & Concrete Testing Pty Ltd

Zar Harper
Engineering Geologist
BSc (*Geology)*

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LIMITATIONS OF GEOTECHNICAL SITE INVESTIGATION

COMMISSION OF SERVICES

This geotechnical site assessment report ("The Geotechnical Report") has been prepared in accordance with the commission set out in the contract or quote, or as otherwise agreed between the Customer and Australian Soil & Concrete Testing P/L (ASCT). The commission may be limited by a range of factors such as time, cost, accessibility or site constraints and conditions.

RELIANCE ON INFORMATION PROVIDED

In preparing the report, ASCT has relied upon information provided, surveys, analyses, designs, plans and other documentation provided by the customer or other individuals and organisations, most of which are referred to in preparing the report. Except as otherwise stated in the report, ASCT has not verified the accuracy or completeness of the information provided to the extent that the statements, opinions, facts, information, conclusions and recommendations in the report are based in whole or in part on the information provided. The recommendations and conclusions are contingent upon the accuracy and completeness of the information provided. ASCT will not be liable in relation to incorrect conclusions should any provided information or site condition be incorrect or have been concealed, withheld, mis-represented or otherwise not fully disclosed to ASCT.

GEOTECHNICAL INVESTIGATION

Geotechnical site classification is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical lot classification reports are prepared to meet the specific needs of individuals. This report was prepared expressly for the Customer and expressly for the purposes indicated. Use by any other persons for any purpose or by the customer for a different purpose, may result in problems which ASCT cannot be responsible for. The Customer should not use this report for other than its intended purpose without seeking additional geotechnical advice.

THIS GEOTECHNICAL REPORT IS BASED ON SITE SPECIFIC FACTORS

This geotechnical report is based on a subsurface investigation which only identifies the conditions at the locations and time when the investigation was undertaken. Unless further geotechnical advice is obtained this geotechnical report cannot be used when the nature of the site is changed or when the proposed development is modified for the site.

This geotechnical report cannot be applied to an adjacent site. The *Limitations of Geotechnical Site Investigation* in making an assessment of a site from a limited number of boreholes or test pits is the possibility that actual conditions may vary from those identified at the investigation locations. The Site investigation identifies specific subsurface conditions only at those points from which samples have been taken. The investigation programme undertaken is used to provide a general profile of the subsurface condition. The information obtained from the site investigation and subsequent laboratory testing is used to form a presumed opinion regarding the overall subsurface conditions and their likely behaviour with regard to the proposed development. The borehole logs are the subjective interpretation of the limited site investigation and cannot always be definitive.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

A geotechnical report is based on conditions which existed at the time of site investigation. The subsurface conditions may change due to natural forces or man-made influences. Civil works at or adjacent to the site and natural events such as floods or groundwater fluctuations may also affect subsurface conditions and the relevance of the geotechnical report. The geotechnical report should therefore be regarded as preliminary and ASCT should be consulted if unexpected conditions are encountered to determine the impact on the recommendations of the report.

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SLOPE STABILITY

This report does not cover slope stability. If this is required, an independent assessment and investigation should be undertaken by a qualified Geotechnical Engineer.

AVOID MISINTERPRETATION

The geotechnical report may be misinterpreted by other design professionals. ASCT should be retained to explain relevant geotechnical findings and to review the adequacy of plans and specifications and the implications to the report. The geotechnical report should be maintained as a whole and should not be copied, divided or altered.

GEOTECHNICAL INVOLVEMENT DURING CONSTRUCTION

It is recommended that ASCT should be retained through the construction stage to confirm the actual subsurface conditions are consistent with the geotechnical report. If variations are encountered additional tests may be required to confirm conditions comply with the design specifications and advise on changes to the construction if required.

REPORT FOR BENEFIT OF CUSTOMER

The geotechnical report has been prepared for the benefit of the customer and no other party. ASCT assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusion expressed in the report. ASCT will not be responsible for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusion expressed in the report (including, without limitation, matters arising from any negligent act or omission of ASCT or any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy and completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

ASCT will not be liable to update or revise the report to take into account any events of emergent circumstances or facts occurring or becoming apparent after the date of the report.

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APPENDIX A – Site Photos, Site Plan & Borehole Logs.

View of the site (BH2) facing a south easterly direction.

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View of the site (BH3) facing a north westerly direction.

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View of the site (BH4-8) facing an easterly direction.

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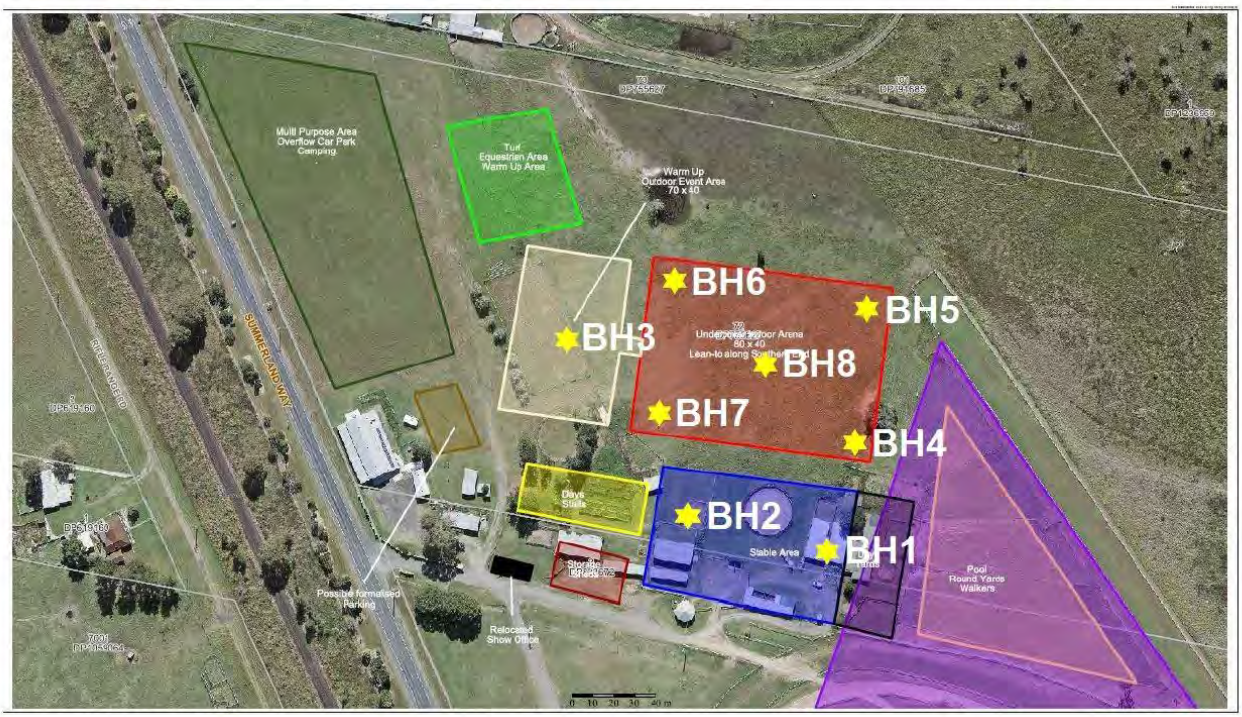

Plan of the site, with ASCT test positions.

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BOREHOLE LOG SHEET - 1

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SP	**SAND, NATURAL:** brown, non plastic, no dry strength,	Medium Dense	7	
0.1			fine to medium grained sand, with silt, moist.		Refusal	
0.2						
0.3		CH	**Silty CLAY, NATURAL:** mottled grey/brown, high			
0.4			plasticity, high dry strength, moist.			
0.5						Disturbed
0.6						
0.7						
0.8						
0.9		XW	**Gravelly SAND, NATURAL:** *(extremely weathered*			
1.0			*sandstone),* low plasticity, low dry strength, moist			
1.1			to dry.			
1.2						
1.3						
1.4			**DRILLING REFUSAL**			
1.5						
1.6						
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
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BOREHOLE LOG SHEET - 2

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** dark grey, non plastic, no dry		12	
0.1			strength, fine to medium grained, dry to moist.	Medium Dense	6	
0.2					4	
0.3					4	
0.4		CH	**Silty CLAY, NATURAL:** mottled grey/pale brown,	Stiff	4	
0.5			high plasticity, high dry strength, moist.		4	
0.6					3	
0.7					2	
0.8					3	
0.9					3	
1.0		XW	**SAND, NATURAL:** *(extremely weathered sandstone),*	Dense	10	
1.1			pale yellow, low plasticity, low dry strength, with		12	
1.2			clay, moist.		Refusal	
1.3						
1.4						
1.5						
1.6			**DRILLING REFUSAL**			
1.7						
1.8						
1.9						
2.0						
2.1						
2.2						
2.3						
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BOREHOLE LOG SHEET - 3

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		**SM**	**Silty SAND, NATURAL:** brown, non plastic, no dry	Medium Dense	8	
0.1			strength, fine to medium grained, dry to moist.		6	
0.2					6	
0.3					6	
0.4					6	
0.5		**CH**	**Silty CLAY, NATURAL:** mottled grey/pale brown,	Stiff	4	Disturbed
0.6			high plasticity, high dry strength, moist.		3	
0.7					3	
0.8			*colour change: mottled grey/red*		3	
0.9					3	
1.0					2	
1.1				Soft	1	
1.2				Firm	2	
1.3					2	
1.4					2	
1.5				Very Stiff	5	
1.6					10	
1.7		**XW**	**Clayey SAND, NATURAL:** *(extremely weathered*	Dense	Refusal	
1.8			*sandstone),* pale yellow, low plasticity, low dry			
1.9			strength, moist.			
2.0			**DRILLING TERMINATED:** target depth reached.			
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
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BOREHOLE LOG SHEET - 4

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** grey, non plastic, no dry strength,	Medium Dense	5	
0.1			fine to medium grained, dry to moist.		9	
0.2					8	
0.3					5	
0.4		CH	**Silty CLAY, NATURAL:** mottled grey/red,		5	
0.5			high plasticity, high dry strength, moist.	Stiff	4	
0.6					3	
0.7				Firm	2	
0.8					2	
0.9				Stiff	4	
1.0					4	
1.1					3	
1.2					4	
1.3					4	
1.4					8	
1.5		XW	**Gravelly SAND, NATURAL:** *(extremely weathered*	Dense	10	
1.6			*sanstone),* non plastic, no dry strength, moist.		12	
1.7		XW	**Clayey SAND, NATURAL:** *(extremely weathered*	Dense	Refusal	
1.8			*sandstone)* , grey, low plasticity, low dry strength,			
1.9			fine to medium grained, moist.			
2.0			**DRILLING TERMINATED:** target depth reached.			
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
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BOREHOLE LOG SHEET - 5

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** grey, non plastic, no dry strength,	Medium Dense	4	
0.1			fine to medium grained, dry to moist.		4	
0.2					5	
0.3					5	
0.4					4	
0.5		CH	**Silty CLAY, NATURAL:** mottled grey/red,	Stiff	4	
0.6			high plasticity, high dry strength, moist.		4	
0.7					3	
0.8					4	
0.9				Very Stiff	5	
1.0					5	
1.1					5	
1.2					4	
1.3					5	
1.4					5	
1.5					5	
1.6					5	
1.7					5	
1.8		XW	**Clayey SAND, NATURAL:** *(extremely weathered*	Medium Dense	9	
1.9			*sandstone)* , white, low plasticity, low dry strength,		9	
2.0			fine to medium grained, moist.		Stopped	
2.1			**DRILLING TERMINATED:** target depth reached.			
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
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5.0						

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BOREHOLE LOG SHEET - 6

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** grey, non plastic, no dry strength,	Medium Dense	4	
0.1			fine to medium grained, dry to moist.		3	
0.2					4	
0.3					4	
0.4					4	
0.5					3	
0.6		CH	**Silty CLAY, NATURAL:** mottled grey/pale brown,	Firm	2	
0.7			high plasticity, high dry strength, moist.		2	
0.8				Soft	1	
0.9					3	
1.0				Firm	2	
1.1					2	
1.2					2	
1.3				Stiff	3	
1.4					4	
1.5					4	
1.6		CI	**Sandy CLAY, NATURAL:** mottled orange/grey,	Hard	15	
1.7			medium plasticity, medium dry strength, moist.		Refusal	
1.8		XW	**Clayey SAND, NATURAL:** *(extremely weathered*	Dense		
1.9			*sandstone)* , white, low plasticity, low dry strength,			
2.0			fine to medium grained, moist.			
2.1			**DRILLING TERMINATED:** target depth reached.			
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
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4.9						
5.0						

AUSTRALIAN SOIL AND CONCRETE TESTING
A.S.C.T.

PO Box 5120 Ballina Mail Centre, NSW 2478
17 De-Havilland Crescent, Ballina
Telephone: (02) 6686 8567
Email: Office@asct.com.au
A.B.N: 92 602 346 127

BOREHOLE LOG SHEET - 7

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** grey, non plastic, no dry strength,	Medium Dense	8	
0.1			fine to medium grained, dry to moist.		8	
0.2					4	
0.3		CH	**Silty CLAY, NATURAL:** mottled grey/pale brown,		3	
0.4			high plasticity, high dry strength, moist.	Firm	2	
0.5					2	
0.6					2	
0.7					2	
0.8					2	
0.9					2	
1.0					2	
1.1				Stiff	3	
1.2					3	
1.3		XW	**Clayey SAND, NATURAL:** *(extremely weathered*	Dense	12	
1.4			*sandstone),* white, low plasticity, moist.		Refusal	
1.5		XW	**Sandy CLAY, NATURAL:** *(extremely weathered*			
1.6			*rock),* medium plasticity, medium dry strength,			
1.7			moist.			
1.8						
1.9						
2.0			**DRILLING TERMINATED:** target depth reached.			
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
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4.7						
4.8						
4.9						
5.0						

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BOREHOLE LOG SHEET - 8

Client:	Richmond Valley Council	**ASCT Ref No:**	H21-2553
Project:	- Casino Showgrounds, Casino	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Existing Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		SM	**Silty SAND, NATURAL:** grey, non plastic, no dry strength,	Medium Dense	4	
0.1			fine to medium grained, dry to moist.		5	
0.2					5	
0.3		CH	**Silty CLAY, NATURAL:** mottled grey/pale brown,	Stiff	3	
0.4			high plasticity, high dry strength, moist.		3	
0.5					3	
0.6					3	
0.7					4	
0.8					3	
0.9					3	
1.0					4	
1.1					4	
1.2					3	
1.3					5	
1.4		XW	**Clayey SAND, NATURAL:** *(extremely weathered*	Dense	15	
1.5			*sandstone),* white, low plasticity, moist.		Refusal	
1.6						
1.7						
1.8						
1.9						
2.0			**DRILLING TERMINATED:** target depth reached.			
2.1						
2.2						
2.3						
2.4						
2.5						
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4.9						
5.0						

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

PUBLISHING

BTF 18-2011 replaces Information Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870-2011, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

Notes

1. Where controlled fill has been used, the site may be classified A to E according to the type of fill used.
2. Filled sites. Class P is used for sites which include soft fills, such as clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soil subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.
3. Where deep-seated moisture changes exist on sites at depths of 3 m or greater, further classification is needed for Classes M to E (M-D, H1-D, H2-D and E-D).

Tree root growth
Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation
Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

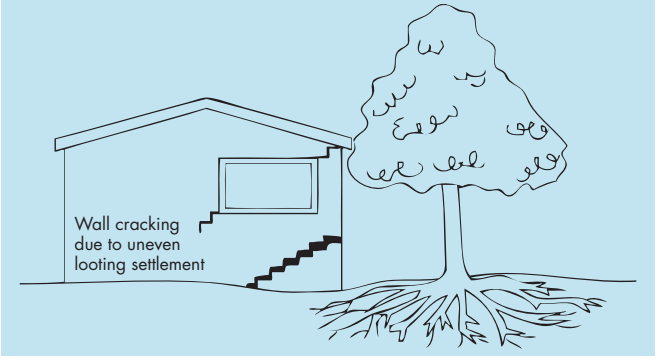
The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Trees can cause shrinkage and damage



Movement caused by tree roots
In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself
Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures
Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

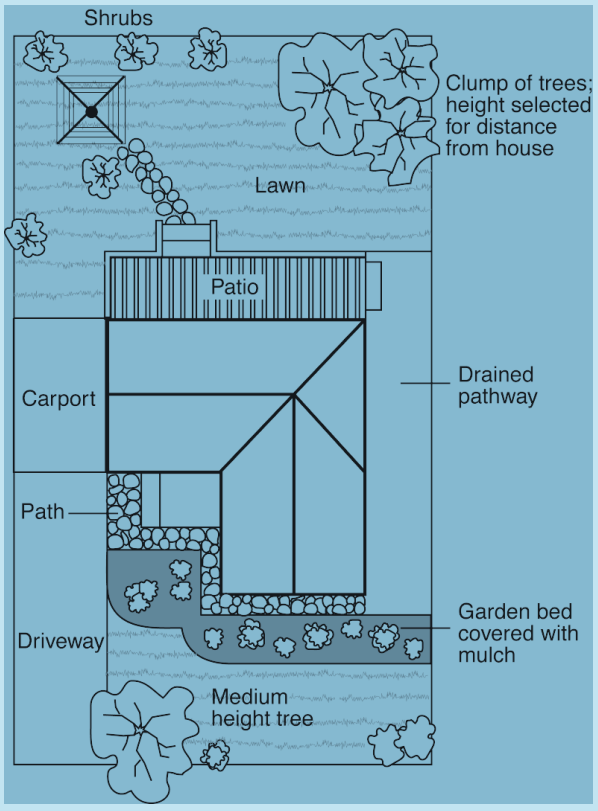
Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4

Gardens for a reactive site



extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

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Appendix K

BCA Advice

DEVEX PTY. LTD.
Development Logistics

REPORT REGISTER

The following report register documents the development and issue of this report prepared by Devex Pty. Ltd.

Ref	Issue No:	Comment:	Date:
2022/012	1	Report prepared for applicant	24 May 2022

AUTHORISATION

Report	Issue No:	Name	Signature	Date:
Prepared	1	Craig Nowlan		24 May 2022

DISCLAIMER

This report has been prepared for the purposes and exclusive use of Nathan Edwards (AGS Commercial) and Richmond Valley Council and is not to be used for any other purpose or by any other person or Corporation. Devex Pty Ltd accepts no responsibility for any loss or damage suffered, howsoever, arising to any person or Corporation who may use or rely on this report in contravention of the terms of this clause.

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Devex Pty. Ltd. has been requested by Nathan Edwards (AGS Commercial) to undertake a BCA Assessment for the proposed construction of an equestrian facility in conjunction with the Casino Showground Upgrade located on land identified as Lot 72, DP 755627 & Lot 3, DP 823762, 10095 Summerland Way, Casino.

The review has been requested to assist in the preparation of design documentation for the construction of the facility.

The report is to address the buildings compliance with the relevant provisions of the Building Code of Australia 2019 – Volume 1 and in particular the provision of building classification, construction type, essential fire safety measures and disabled access.

The assessment is based on a visual inspection of the site and a review of plans prepared by AGS Commercial dated 6/04/2022 in relation to the proposed development. A copy of the concept plans is attached to this report as Annexure A.

The audit has revealed that the building generally complies with the relevant provisions of the Building Code of Australia however there are a number of issues which require attention in order to ensure compliance with the relevant requirements is provided.

The report has assessed the adequacy of existing structure against current BCA 2019 requirements. The description of the services undertaken include:

- Audit Site Inspection
- BCA Report

This report does not include assessment of matters of a specialist nature. Limitations of this report include:

1. Determination of structural adequacy.

2.0 BRIEF

Nathan Edwards has requested that Devex Pty. Ltd. undertake an assessment of the construction of a proposed equestrian facility in conjunction with the Casino Showground Upgrade located on land identified as Lot 72, DP 755627 & Lot 3, DP 823762, 10095 Summerland Way, Casino.

The report is to assess the proposal against the applicable provisions of the BCA and in particular the provision of building classification, construction type, essential fire safety measures and disabled access.

The preparation of the report is required to assist AGS Commercial and Richmond Valley Council in the development of design documentation for the building.

3.0 SITE

The subject property is identified as Lot 72, DP 755627 & Lot 3, DP 823762, 10095 Summerland Way, Casino.

Aerial Photo Source: Six Maps

4.0 BUILDING CODE OF AUSTRALIA 2019 ASSESSMENT

1. BRIEF:

Devex Pty. Ltd have been requested to provide an assessment of the proposed development against the deemed to satisfy provisions of the BCA.

2. METHODOLOGY

2.1. PROCESS ADOPTED

The following method of assessment has been used in the preparation of this report:-

1) A site inspection was conducted on 18 May 2022.
2) Determine the basic assessment data for the building.
3) Assess the existing design of the building against the current Deemed-to-Satisfy requirements of Sections C, D, E, F, H and J of the BCA having regard to the scope listed above.

   Establish the status of each clause into the following categories:

   a) Clause is administrative information only **(Noted)**.
   b) Clause is not relevant to the building **(N/A)**.
   c) The building complies with the requirements of the clause (**Complies**).
   d) Compliance with the requirements of the clause is unable to be determined from the site inspection or the documentation available. **(Not Determined)**. A recommendation in the "Comments" column will indicate if further information or investigation is required or if the feature should be brought into conformity with the requirements of the BCA.
   e) Spot checks and the visual inspection revealed no non-compliances (**No issues identified**) (Note that a full audit is not conducted in regard of certain 'generic" items as identified in the scope)
   f) The building does not comply with the requirements of the clause **(Does Not Comply)**.

4) Nominate the status of the design against each BCA requirement.
5) The assessment is based on a review of plans prepared by AGS Commercial dated 6/04/2022, and a visual inspection of the property on 18 May 2022.

2.2. BUILDING CHARACTERISTICS

The following assessment data has been drawn from the provisions of the BCA.

2.2.1. Classification

The significant spaces in the design have been classified in accordance with the requirements of Clause A6 of the BCA and are summarised in the table below: -

Position	Space	Classification
Ground Floor	Undercover Arena	9b
	Stables and Day Yards	7b
	Amenities	10a
	Kiosks	Temporary Structures

2.2.2. Number of storeys contained

The design contains 1 storeys.

2.2.3. Rise in storeys

In accordance with the provisions of Clause C1.2 of the BCA the design has a rise in storey of 1.

2.2.4. Type of Construction

Clause C1.1 of the BCA requires the design to be of Type C construction.

2.2.5. Summary of construction determination

The type of construction required for the building is summarised in the table below.

Classification	7b, 9b and 10a
Number of storeys contained	1
Rise in storeys	1
Type of construction required	C

3. BCA ASSESSMENT

The following section of the report presents a summary of the assessment of the design of proposed commercial and residential development against the DTS provisions of Sections C, D, E, F, H and J of the BCA.

It is advised that the Undercover Arena and Amenities building will be assessed against the provisions of Parts C, D, E, F and J of the BCA whilst the Stables and Day Yards will be assessed against the provisions of Part H3. It is advised that the classification of the Stables and Day Yards is more closely aligned with the provisions of farm buildings than other classifications provided under Part A6.

3.1. PART C - FIRE RESISTANCE.

Clause	Description	Status	Comment
Part C1	**Fire Resistance & Stability**		
C1.1	Type of construction required	**Applies**	Type C construction
C1.2	Calculation of rise in storeys	**Applies**	Rise of 1
C1.3	Buildings of multiple classification	**N/A**	
C1.4	Mixed types of construction	**N/A**	
C1.5	Two storey Class 2, 3 or 9c buildings	**N/A**	
C1.6	Class 4 parts of buildings	**N/A**	
C1.7	Open stands and indoor stadiums	**N/A**	
C1.8	Lightweight construction	**Applies**	Architect to detail light weight construction if any.
C1.9	Non-combustible building elements	**N/A**	
C1.10	Fire hazard properties	**Applies**	Fire hazard properties for floor, wall and ceiling linings are to comply with the requirements of Specification C1.10. Architect to specify. Amenities building only it appears – n/a to arena. NE correct
C1.11	Performance of external walls in fire	**Applies**	Builder to detail construction methodology. Should the use of tilt up or pre-cast concrete panels be proposed the design shall be certified so as to prevent outward collapse. Amenities building only. NE correct
C1.12		**N/A**	
C1.13	Fire protected timber : Concession	**N/A**	
C1.14	Ancillary elements	**N/A**	

Clause	Description	Status	Comment
Spec C1.1	Fire-resisting construction	**Applies**	Further information required. A further detailed site plan is required to determine the location of the buildings proximity to the allotment boundary between Lot 3, DP 823672 and Lot 72, DP 755627. A part of a building element exposed to a fire source feature is required to have a Fire Resistance Level as detailed in Table 5 of Spec C1.1. A fire source feature is defined as a side or rear boundary of an allotment. It is advised that the appropriate resolution of this item would be to consolidate allotments to minimise exposure to a fire source feature. Lot consolidation will be ideal. NE RVC are working on getting the lots consolidated
Part C2	**Compartmentation & Separation**		
C2.1	Application of Part	**Applies**	
C2.2	General floor area and volume limitations	**Applies**	Does not comply. The floor area of the undercover arena is some 4076m^2. The maximum floor area of a Class 9b fire compartment – Type C Construction is 3000m^2. The options available for compliance include: (a) Obtain a Performance Solution from a suitably qualified Fire Engineer, or (b) Upgrade the Type of Construction to Type B which enables a maximum floor area of 5500m^2. This will necessitate the fire protection of columns within 18m of a fire source feature. If we connect the amenities to the arena, we can negate fire protection of adjacent columns as it becomes a single building. Will Craig be happy with this? If fire protection is an issue (need to protect the column from fire, but then protect the protection system from the weather…. Could be a maintenance issue). Kiosks, portable, are they viewed as fire source features? I have also earmarked amenities room as a suitable switchboard room for the arena and stables, not sure if this will be too costly, or what other options are, electrical engineers will have an idea but this would negate finding room in the stables or building a separate building…
NSW C2.3	Large isolated buildings	**N/A**	No perimeter vehicular access is provided to enable consideration as a large isolated building. Can easily provide vehicular access and show this on plan, but still falls short with a sprinkler system…
C2.4	Requirements for open space and vehicular access	**N/A**	
C2.5	Class 9a and 9c buildings	**N/A**	
C2.6	Vertical separation of openings in external walls	**N/A**	

Clause	Description	Status	Comment
C2.7	Separation by fire walls	**N/A**	
C2.8	Separation of classifications in the same storey	**N/A**	
C2.9	Separation of classifications in different storeys	**N/A**	
C2.10	Separation of lift shafts	**N/A**	
C2.11	Stairways and lifts in one shaft	**N/A**	
C2.12	Separation of equipment	**N/A**	
C2.13	Electricity supply system	**N/A**	
C2.14	Public corridors in Class 2 & 3 buildings	**N/A**	
Part C3	**Protection of Openings**		
C3.1	Application of Part	**Applies**	The provisions of C3.1(a)(iii) indicate that the requirements of Part C3 do not apply to openings in the vertical plane formed between building elements at the construction edge or perimeter of a balcony, verandah or the like. It is my opinion the openings between columns of the undercover arena are consistent with the openings referred to in this clause. How does the amenities building fit in with this clause? Class 10a makes it null and void is my understanding? If not, connecting to arena will once again remove the fire source feature. NE I took this comment that the openings are not considered the type that needs protection when readying the BCA
NSW C3.2	Protection of openings in external walls	**N/A**	Refer to C3.1 above.
C3.3	Separation of openings in different fire compartments	**N/A**	
C3.4	Acceptable method of protection	**N/A**	
C3.5	Doorways in fire walls	**N/A**	
C3.6	Sliding fire doors	**N/A**	
C3.7	Protection of doorways in horizontal exits	**N/A**	
C3.8	Openings in fire isolated exits	**N/A**	
C3.9	Service penetrations in fire isolated exits	**N/A**	
C3.10	Openings in fire isolated lift shafts	**N/A**	
NSW C3.11	Bounding construction: Class 2 & 3 and 4 buildings	**N/A**	
C3.12	Openings in floors for services	**N/A**	
C3.13	Openings in shafts	**N/A**	
C3.14	-	**-**	
C3.15	Openings for service installation	**N/A**	
C3.16	Construction Joints	**N/A**	
C3.17	Columns protected with lightweight construction	**N/A**	

3.2. PART D - ACCESS AND EGRESS

Clause	Description	Status	Comments
Part D1	**Provision for Escape**		
D1.1	Application of Part	**Applies**	

Clause	Description	Status	Comments
NSW D1.2	Number of exits required	**Applies**	Further information required. The location of required exits from the arena area are to be nominated on the architectural plans. Location of exits to comply with Cl D1.4. Exits only required for spectator area and not the competition area? Surely. As an open shed, everywhere is an exit realistically, however, do the defined locations of exit require a impermeable path at their terminus? D1.10 NE, Craig mentioned that we would expect another couple of exists out of the arena, one at the other end and one central. They can both be into the spectator area
D1.3	When fire-isolated exits are required	**N/A**	
D1.4	Exit travel distances	**Applies**	Further information required. The location of required exits from the arena area are to be nominated on the architectural plans. As above? NE, Craig mentioned that we would expect another couple of exists out of the arena, one at the other end and one central. They can both be into the spectator area
D1.5	Distance between alternative exits	**Applies**	
NSW D1.6	Dimensions of exits and paths of travel to exits	**Applies**	Location and size of exits to be provided. Size? No walls…. NE, I take this to demonstrate the above
D1.7	Travel via fire-isolated exit	**N/A**	
D1.8	External stairways in lieu of fire isolated exits	**N/A**	
D1.9	Travel by non-fire-isolated stairways or ramps	**N/A**	
NSW D1.10	Discharge from exits	**Applies**	
D1.11	Horizontal exits	**N/A**	
D1.12	Non required stairways, ramps or escalators	**N/A**	
NSW D1.13	Number of persons accommodated	**Applies**	Further information required. Applicant requested to provide details of max. number of persons/participants in arena at any one time. Details of seating arrangement of open spectator stand to be provided. **We need to find out from RVC intended capacity of the arena.** Factoring in the available spectator area we have the ability to hold >2000 people (assuming toilet capacity met), however this seems absurd, because, you know, equestrian… NE, TBC I have sent to RVC
D1.14	Measurement of distances	**Informative**	
D1.15	Method of measurement	**Informative**	
D1.16	Plant rooms and lift motor rooms and electricity network substations: Concession	**N/A**	
D1.17	Access to lift pits	**N/A**	
Part D2	**Construction of Exits**		
NSW D2.1	Application of Part	**Applies**	

Clause	Description	Status	Comments
D2.2	Fire isolated stairs or ramps	**N/A**	
D2.3	Non-fire-isolated stairways and ramps	**N/A**	
D2.4	Separation of rising and descending stair flights	**N/A**	
D2.5	Open access ramps & balconies	**N/A**	
D2.6	Smoke lobbies	**N/A**	
D2.7	Installations in exits and paths of travel	**Applies**	Electrical meterboards and distribution boards located in a path of travel are to be enclosed in a non-combustible cabinet and the door opening protected with smoke seals. Will be good to locate this. NE, Electrical designs underway
D2.8	Enclosure of space under stairs and ramps	**Applies**	Details of any enclosure below open spectator stands to be provided. Can we get some proper documentation of the stands from RVC? My memory inclines that these are not enclosed so should not really be an issue. And also the amount of stands they intend to dolly in? As this will help define capacity. NE, ill raise with RVC but not sure they can have open space under a set of stairs as fire could start
D2.9	Width of stairways	**N/A**	
D2.10	Pedestrian ramps	**N/A**	
D2.11	Fire-isolated passageways	**N/A**	
D2.12	Roof as open space	**N/A**	
NSW D2.13	Goings and risers	**N/A**	
D2.14	Landings	**N/A**	
NSW D2.15	Thresholds	**N/A**	
NSW D2.16	Barriers to prevent falls	**N/A**	
D2.17	Handrails	**N/A**	
D2.18	Fixed platforms walkways, stairways, and ladders	**N/A**	
NSW D2.19	Doorways and doors	**N/A**	
D2.20	Swinging doors	**Applies**	Required exit doors or gates from the arena are to swing in the direction of egress. Which doors/gates are being referred to here? The only gates affecting egress are a long way from the building and N/A, so unsure what is applicable here. NE, Craig you mentioned you were expecting 3 gates including the existing one
NSW D2.21	Operation of latch	**Applies**	Required exit doors or gates from the arena are to be provided with single handed downward action lever door furniture. Architect to detail. As above, please verify
D2.22	Re-entry fire-isolated exits	**N/A**	
D2.23	Signs on doors	**N/A**	
D2.24	Protection of openable windows	**N/A**	
D2.25	Timber stairways: Concession	**N/A**	
Part D3	**Access for People with Disabilities**		
D3.1	Application of Part	**Applies**	

Clause	Description	Status	Comments
D3.2	Access to buildings	**Applies**	
D3.3	Parts of buildings to be accessible	**Applies**	Disabled access to be provided as follows: ▪ From the car park to the arena ▪ To and within spectator area ▪ To and within accessible amenities. Provided, just need to document amenities.
D3.4	Concessions	**Applies**	Access not provided to and within arena area. Just to verify this to remove any shadow of a doubt – we are talking about competition area here where the horses/horse people ride said horses, correct?
D3.5	Accessible car parking	**Applies**	Details of accessible car parking spaces to be provided in accordance with AS2890.6 2009 by a suitably qualified Civil Engineer.
D3.6	Signage	**Applies**	Statutory signage to be provided to accessible amenities.
D3.7	Hearing augmentation	**N/A**	
D3.8	Tactile indicators	**Applies**	Further information required. Tactile indicators to be provided (if required) to stairs and ramps. Civil plans to be provided detailing paths of travel including changes in levels, ramps etc. These will be shown in my drawings, or civil engineers? I assume I will be documenting the majority of this? NE, can you please document this
D3.9	Wheelchair seating spaces in Class 9b assembly buildings	**N/A**	Further information required. Where spectator seating is provided to the arena , wheelchair seating spaces must be provided in accordance with Table D3.9. Will need capacity from RVC for this. Another factor of this that has not been considered is the height of the kickboard surrounds. The wheelchair areas will have to be raised and ramp access provided otherwise there will be no way to view the events.
D3.10	Swimming pools	**N/A**	
D3.11	Ramps	**N/A**	
D3.12	Glazing on an accessway	**N/A**	

3.3. PART E - SERVICES AND EQUIPMENT

Clause	Description	Status	Comments
Part E1	**Fire Fighting Equipment**		
E1.1	-		
E1.2	-		
E1.3	Fire hydrants	**Applies**	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2419.1 - 2005
E1.4	Hose reels	**Applies**	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2441 - 2005
E1.5	Sprinklers	**N/A**	
E1.6	Portable fire extinguishers	**Applies**	Portable fire extinguishers are to be selected and located in accordance with the requirements of AS2444 – 2001. Will apply schematic locations of all of the above to arch plans once provided by consultant.

Clause	Description	Status	Comments
E1.7	-		
E1.8	Fire control centres	**N/A**	
E1.9	Fire precautions during construction	**Applies**	Builder to provide protection
E1.10	Provision for special hazards	**N/A**	
Part E2	**Smoke Hazard Management**		
E2.1	Application of Part	**N/A**	
E2.2	General requirements	**N/A**	
E2.3	Provisions for special hazards	**N/A**	
Part E3	**Lift Installations**		
E3.1	Lift installations	**N/A**	
E3.2	Stretcher facility in lifts	**N/A**	
E3.3	Warning against use lifts in fire	**N/A**	
E3.4	Emergency lifts	**N/A**	
E3.5	Landings	**N/A**	
E3.6	Passenger lifts	**N/A**	
E3.7	Fire Services Control	**N/A**	
E3.8	Residential care buildings	**N/A**	
E3.9	Fire service recall control switch	**N/A**	
E3.10	Lift car fire service drive control switch	**N/A**	
Part E4	**Emergency Lighting, Exit Signs and Warning Systems**		
E4.1	-		
E4.2	Emergency light requirements	**N/A**	
E4.3	Measurement of distance	**Informative**	
E4.4	Design & operate emergency light	**Informative**	
E4.5	Exit signs	**N/A**	
NSW E4.6	Direction signs	**N/A**	
E4.7	Class 2 3, & 4 buildings: Exemptions	**N/A**	
E4.8	Design and operation of exit signs	**Informative**	
E4.9	EWIS systems	**N/A**	

PART F - HEALTH AND AMENITY

Clause	Description	Status	Comments
Part F1	**Damp and Weatherproofing**		
F1.1	Stormwater drainage	**Applies**	Detailed hydraulic plans to be provided demonstrating method of disposal for roofwater and surface water. Who is specifying downpipe and gutter sizings? Myself, hydraulic/civil engineers or arena subcontractor? NE, downpipes documented by MHS
F1.2	Blank		
F1.3	Blank		
F1.4	External above ground membranes	**N/A**	
F1.5	Roof coverings	**Applies**	
F1.6	Sarking	**Applies**	
F1.7	Water-proofing of wet areas	**Applies**	Waterproofing to comply with AS3740.
F1.8	Blank		

Clause	Description	Status	Comments
F1.9	Damp proofing	**Applies**	
F1.10	Damp proofing of floors on the ground	**Applies**	
F1.11	Provision of floor wastes	**N/A**	
F1.12	Sub-floor ventilation	**N/A**	
F1.13	Glazed assemblies	**Applies**	All glazing is to comply with AS 2047. Certificate required to be provided from the manufacturer and installer.
Part F2	**Sanitary and Other Facilities**		
F2.1	Facilities in residential buildings	**N/A**	
F2.2	Calculation of number of occupants and fixtures	**Applies**	
F2.3	Facilities in Class 3 to 9 buildings	**Applies**	Further information required. Details of the number of persons accommodated are to be provided so as to enable determination of the number of sanitary facilities to be provided. Note: The use of facilities contained elsewhere on the site may be used to calculate the number of facilities subject to such facilities being available for use for occupants of the proposed building. How far away can the facilities be located and still be used to calculate? How is Craig viewing use of port-a-loos in regards to facility calculation? NE, temp facilities do not count and Craig hasn't really confirmed what distances are but it would need to be accessible. I have discussed with him that people using stables have access to facilities in centre of race track and he said a single unisex accessible toilet at the arena
F2.4	Facilities for people with disabilities	**Applies**	Further information required. Details of the number of persons accommodated are to be provided so as to enable determination of the number of sanitary facilities to be provided. How are ambulant toilets factoring into use of port-a-loos? Will a M and F ambulant facility be required? NE, the above is all Craig mentioned when we met
F2.5	Construction of sanitary compartments	**Applies**	Once again, port-a-loos come into question?
F2.6	Interpretation: Urinals and washbasins	**Interpretative clause**	
NSW F2.7	Warm water installations	**N/A**	Deleted by NSW provisions.
F2.8	Waste Management	**N/A**	
F2.9	Accessible adult change facilities	**N/A**	
Part F3	**Room Sizes**		
F3.1	Height of rooms	**Applies**	Complies
Part F.4	**Light and Ventilation**		
F4.1	Provision of natural light	**N/A**	
F4.2	Methods and extent of natural light	**Applies**	
F4.3	Natural light borrowed from adjoining room	**Applies**	
F4.4	Artificial lighting	**N/A**	

Clause	Description	Status	Comments
NSW F4.5	Ventilation of rooms	**Applies**	Generally complies. Internal wet rooms including bathrooms are to be provided with a system of mechanical exhaust ventilation ducted to the exterior of the building.
F4.6	Natural ventilation	**Applies**	Complies
F4.7	Ventilation borrowed from adjoining room	**N/A**	
F4.8	Restriction on position of water closets and urinals	**Applies**	
F4.9	Airlocks	**Applies**	
F4.10	Blank		
F4.11	Carparks	**N/A**	
F4.12	Kitchen local exhaust ventilation	**N/A**	
Part F5	**Sound Transmission and Insulation**		
F5.1	Application of part	**N/A**	
F5.2	Determination of airborne sound insulation ratings	**N/A**	
F5.3	Determination of impact sound insulation ratings	**N/A**	
F5.4	Sound insulation of floors between units	**N/A**	
F5.5	Sound insulation of walls between units	**N/A**	
F5.6	Sound insulation rating of internal services	**N/A**	
F5.7	Sound insulation of pumps	**N/A**	
Spec F5.2	Sound Insulation for Building Elements	**N/A**	
Spec F5.5	Impact Sound — Test of Equivalence	**N/A**	
Part F6	**Condensation Management**		
F6.1	Application of part	**N/A**	
F6.2	Pliable building membrane	**N/A**	
F6.3	Flow rate and discharge of exhaust systems	**N/A**	
F6.4	Ventilation of roof spaces		
Part G	**Ancillary Provisions**		
G 1.1	Swimming Pools	**N/A**	
G1.2	Refrigerated chambers, strong-rooms and vaults	**N/A**	
G1.3	Outdoor play spaces	**N/A**	
G 2	Boiler, Pressure vessels, heating appliances, fireplaces, chimneys and flues	**N/A**	
G 3	Atrium Construction	**N/A**	
G 4	Construction in Alpine Areas	**N/A**	
G 5	Construction in Bushfire Prone Areas	**N/A**	
Part H	**Special Use Buildings**		
H 1	Class 9b Buildings	**N/A**	
H 2	Public Transport Buildings	**N/A**	
H 3	Farm Buildings and Farm Sheds	**Applies**	
H3.1	Application of Part	**Applies**	This Part applies to the Stables and Day Yards

Clause	Description	Status	Comments
H3.2	Fire resistance and separation	**Applies**	Further information required. A further detailed site plan is required to determine the location of the buildings proximity to the allotment boundary between Lot 3, DP 823672 and Lot 72, DP 755627. A part of a building element exposed to a fire source feature is required to have a Fire Resistance Level as detailed in Table 5 of Spec C1.1. A fire source feature is defined as a side or rear boundary of an allotment. It is advised that the appropriate resolution of this item would be to consolidate allotments to minimise exposure to a fire source feature.
H3.3	Provision for escape	**Applies**	Complies
H3.4	Construction of exits	**N/A**	
H3.5	Fixed platforms, walkways, stairways and ladders	**N/A**	
H3.6	Thresholds	**Applies**	Complies
H3.7	Swinging doors	**Applies**	Complies
H3.8	Fire fighting equipment	**N/A**	
H3.9	Fire Hydrants and Water Supplies	**Applies**	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2419.1 - 2005
H3.10	Fire Hose Reels	**N/A**	
H3.11	Portable fire extinguishers	**Applies**	Portable fire extinguishers are to be selected and located in accordance with the requirements of AS2444 – 2001.
H3.12	Emergency lighting requirements	**N/A**	
H3.13	Exit signs	**Applies**	Complies.
H3.14	Direction Signs	**N/A**	
H3.15	Design and operation of exit signs	**N/A**	
H3.16	Sanitary Facilities	**N/A**	
H3.17	Height of rooms and other spaces	**Applies**	Ceiling height to be a minimum 2.1m. Complies.
H3.18	Artificial lighting	**Applies**	Artificial lighting to be provided to tack rooms Noted. I assume stakeholders will be asking for lighting for all areas anyway?

PART J – ENERGY EFFICIENCY

Clause	Description	Status	Comments
Part J1	**Building Fabric**		
J1.1	Application of part	**N/A**	
J1.2	Thermal construction general	**N/A**	
J1.3	Roof and ceiling construction	**N/A**	
J1.4	Roof lights	**N/A**	
J1.5	Walls and glazing	**N/A**	
J1.6	Floors	**N/A**	
Part J2			
Part J3	**Building Sealing**		
J3.1	Application of Part	**N/A**	
J.3.2	Chimneys and flues	**N/A**	
J3.3	Roof lights	**N/A**	
J3.4	Windows and doors	**N/A**	

Clause	Description	Status	Comments
J3.5	Exhaust fans	**N/A**	
J3.6	Construction of roofs, walls and floors	**N/A**	
J3.7	Evaporative coolers	**N/A**	
Part J4	Left blank	**N/A**	
Part J5	**Air-Conditioning and Ventilation Systems**		
J5.1	Application of Part		
J5.2	Air-conditioning system control	**N/A**	
J5.3	Mechanical ventilation system control	**N/A**	
J5.4	Fan systems	**N/A**	
J5.5	Ductwork installation	**N/A**	
J5.6	Ductwork sealing	**N/A**	
J5.7	Pump systems	**N/A**	
J5.8	Pipework insulation	**N/A**	
J5.9	Space heating	**N/A**	
J5.10	Refrigerant chillers	**N/A**	
J5.11	Unitary air-conditioning equipment	**N/A**	
J5.12	Heat rejection equipment	**N/A**	
Part J6	**Artificial Lighting and Power**		
J6.1	Application of Part		
J6.2	Artificial lighting	**Applies**	Section J Report to be provided Is Craig happy for me to document this? It's quite straightforward given it will be DTS. NE, that would be great as section J report would be overkill
J6.3	Artificial lighting and power control	**Applies**	Section J Report to be provided
J6.4	Interior decorative and display lighting	**N/A**	
J6.5	Exterior artificial lighting	**Applies**	Section J Report to be provided
J6.6	Boiling water and chilled water storage units	**N/A**	
J6.7	Lifts	**N/A**	
Part J7	**Hot Water Supply**		
J7.1		**-**	
J7.2	Heated water supply	**N/A**	
J7.3	Swimming pool heating & pumping	**N/A**	
J7.4	Spa pool heating & pumping	**N/A**	
Part J8	**Facilities for Energy Monitoring**		
J8.1	Application of Part		
J8.2	Blank		
J8.3	Facilities for energy monitoring	**N/A**	

5.0 COMMENTS AND RECOMMENDATIONS:

As requested a preliminary assessment of proposed construction of an undercover arena and day stables to be constructed on land identified as Lot 72, DP 755627 & Lot 3, DP 823762, 10095 Summerland Way, Casino has been undertaken.

An audit of the proposed design has been undertaken and it is advised that the following issues will need to be incorporated into the undercover arena building design:

C1.11	Performance of external walls in fire	Builder to detail construction methodology. Should the use of tilt up or pre-cast concrete panels be proposed the design shall be certified so as to prevent outward collapse.
Spec C1.1	Fire-resisting construction	Further information required. A further detailed site plan is required to determine the location of the buildings proximity to the allotment boundary between Lot 3, DP 823672 and Lot 72, DP 755627. A part of a building element exposed to a fire source feature is required to have a Fire Resistance Level as detailed in Table 5 of Spec C1.1. A fire source feature is defined as a side or rear boundary of an allotment. It is advised that the appropriate resolution of this item would be to consolidate allotments to minimise exposure to a fire source feature.
C2.2	General floor area and volume limitations	The floor area of the undercover arena is some 4076m^2. The maximum floor area of a Class 9b fire compartment – Type C Construction is 3000m^2. The options available for compliance include: (a) Obtain a Performance Solution from a suitably qualified Fire Engineer, or (b) Upgrade the Type of Construction to Type B which enables a maximum floor area of 5500m^2. This will necessitate the fire protection of columns within 18m of a fire source feature.
NSW D1.2	Number of exits required	Further information required. The location of required exits from the arena area are to be nominated on the architectural plans. Location of exits to comply with Cl D1.4.
D1.4	Exit travel distances	Further information required. The location of required exits from the arena area are to be nominated on the architectural plans.
NSW D1.6	Dimensions of exits and paths of travel to exits	Location and size of exits to be provided.
NSW D1.13	Number of persons accommodated	Further information required. Applicant requested to provide details of max. number of persons/participants in arena at any one time. Details of seating arrangement of open spectator stand to be provided.
D2.7	Installations in exits and paths of travel	Electrical meterboards and distribution boards located in a path of travel are to be enclosed in a non-combustible cabinet and the door opening protected with smoke seals.
D2.8	Enclosure of space under stairs and ramps	Details of any enclosure below open spectator stands to be provided.
D2.20	Swinging doors	Required exit doors or gates from the arena are to swing in the direction of egress.
NSW D2.21	Operation of latch	Required exit doors or gates from the arena are to be provided with single handed downward action lever door furniture. Architect to detail.
D3.3	Parts of buildings to be accessible	Disabled access to be provided as follows: ▪ From the car park to the arena ▪ To and within spectator area

		▪ To and within accessible amenities.
D3.5	Accessible car parking	Details of accessible car parking spaces to be provided in accordance with AS2890.6 2009 by a suitably qualified Civil Engineer.
D3.9	Wheelchair seating spaces in Class 9b assembly buildings	Further information required. Where spectator seating is provided to the arena , wheelchair seating spaces must be provided in accordance with Table D3.9.
E1.3	Fire hydrants	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2419.1 - 2005
E1.4	Hose reels	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2441 - 2005
E1.6	Portable fire extinguishers	Portable fire extinguishers are to be selected and located in accordance with the requirements of AS2444 – 2001.
F2.3	Facilities in Class 3 to 9 buildings	Further information required. Details of the number of persons accommodated are to be provided so as to enable determination of the number of sanitary facilities to be provided. Note: The use of facilities contained elsewhere on the site may be used to calculate the number of facilities subject to such facilities being available for use for occupants of the proposed building.
F2.4	Facilities for people with disabilities	Further information required. Details of the number of persons accommodated are to be provided so as to enable determination of the number of sanitary facilities to be provided.
J6.3	Artificial lighting and power control	Section J Report to be provided

In addition, the audit of the proposed day stables has been undertaken and it is advised that the following issues will need to be incorporated into the building design:

H3.2	Fire resistance and separation	Further information required. A further detailed site plan is required to determine the location of the buildings proximity to the allotment boundary between Lot 3, DP 823672 and Lot 72, DP 755627. A part of a building element exposed to a fire source feature is required to have a Fire Resistance Level as detailed in Table 5 of Spec C1.1. A fire source feature is defined as a side or rear boundary of an allotment. It is advised that the appropriate resolution of this item would be to consolidate allotments to minimise exposure to a fire source feature
H3.9	Fire Hydrants and Water Supplies	Detailed hydraulic plans endorsed by a suitably accredited fire practitioner are to be provided demonstrating compliance with the requirements of AS2419.1 - 2005
H3.11	Portable fire extinguishers	Portable fire extinguishers are to be selected and located in accordance with the requirements of AS2444 – 2001.

Should you require any additional information in respect of this matter please contact the undersigned.

Craig Nowlan
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