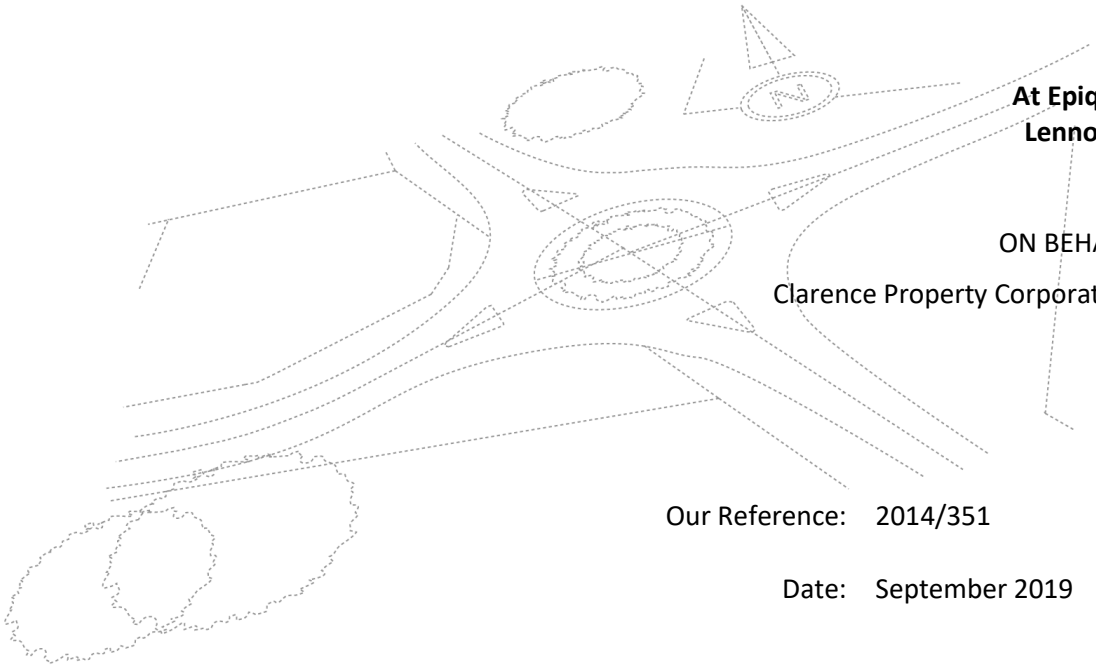
• JOHN NEWTON B. Surv; M.I.S. Aust. • TONY DENNY B. Surv; (Hons); M.I.S. Aust. • DAMIAN CHAPELLE BTP. CPP.

Engineering Services Report

Development Application for
Community Centre

Upon:
Lot 216 DP1017615



At Epiq Estate
Lennox Head

ON BEHALF OF:
Clarence Property Corporation Ltd

Our Reference: 2014/351

Date: September 2019

Newton Denny Chapelle
CONSULTING SURVEYORS & PLANNERS

• P O Box 1138, Lismore, N.S.W. 2480 • Phone (02) 6622 1011 • Fax (02) 6622 4088 DX7779 Lismore
• Email office@newtondennychapelle.com.au • Also at: Cassino Court, 100 Barker St., Casino N.S.W. 2470 • Phone/Fax (02) 6662 5000

Revision History				
REVISION #	**DATE**	**DESCRIPTION**	**ORIGINATOR**	**APPROVED**
A	02/09/2019	Issued for DA	CP	DC

ABN: 18 094 689 845

1/31 Carrington Street,
PO Box 1138, Lismore
NSW 2480

Telephone: (02) 6622 1011
Fax: (02) 6622 4088

office@newtondennychapelle.com.au
http://www.newtondennychapelle.com.au

Newton Denny Chapelle
CONSULTING SURVEYORS & PLANNERS

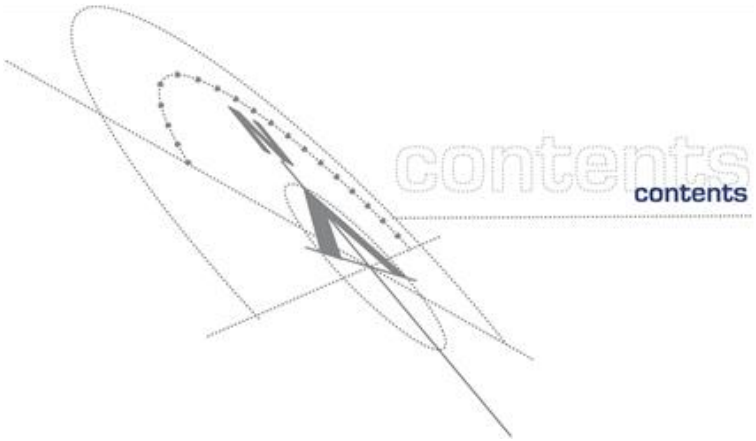


Table of Contents

Executive Summary

Executive Summary 1

1 Introduction 2

2 Report Scope 2

2.1 Reference Documents 2

3 Site Description 3

3.1 Existing Site Conditions 3

3.2 Description of Proposed Development 3

4 Bulk Earthworks 3

4.1 Flooding 4

5 Site Access and Parking 5

5.1 Pedestrian and Public Transport Accessibility 5

6 Stormwater Management 5

7 Sewer Services 6

7.1 Sewer Contributions 6

8 Water Reticulation 7

8.1 Water Contributions 7

9 Electrical and Telecommunication Services 7

10 Sediment and Erosion Control Plan 8

Appendices

Appendix A — **Concept Engineering Plans:**

Drawing Number:	Title:
14351-AP-CI-01	Services Plan

Appendix B — **Ballina Shire Council Acid Sulfate Soil Management Plan for Minor Works**

Executive Summary

This Engineering Services Report is to accompany the Development Application seeking approval the proposed Epiq Sportsfield community facility. This building is located upon Lot 216 DP 1017615 with access via Hutley Drive. The building will include a community hall, change rooms, store rooms and a canteen.

This report details the engineering design elements required for the development to comply with the relevant approvals, polices, standards and regulations required for a residential development in the Ballina Shire Council Local Government Area. The following components have been assessed:

- Access and Parking – Access to the building will be via the existing carpark to the north of the building site. Entry to this carpark is via the existing connection road (road 5) off Hutley Drive. 110 carparks have been provided in in this area to service the sports fields in accordance with condition 3.15 of DA2004/1113.
- Pedestrian and Public Transport Accessibility – The existing bridge to the east of the site will provide connection to the greater Epiq Estate pedestrian network and nearby bus stops located within Hutley Drive adjacent to the Neighbourhood Shopping Centre Site.
- Stormwater Attenuation – As the site drains directly into the tidal reaches of North Creek stormwater attenuation is not proposed in accordance with the Ballina Shire Stormwater Management Standards for Development.
- Stormwater Quality – The BSC stormwater quality targets can be achieved for the site via the installation of an infiltration swale to treat the impervious roof area.
- Water Reticulation – Connection to the existing dual reticulation network adjacent to the western side of the Hutley Drive swale will be provided for the building.
- Sewer Reticulation – The building will be connected to the existing gravity main running through the site. The redundant portion of this line will be capped.

1 Introduction

Newton Denny Chapelle has been engaged by Clarence Property Corporation Ltd to prepare an Engineering Services Report to accompany the Development Application for the Epiq Community Centre and Amenities. The site is located upon Lot 216 DP 1017615 adjacent to Hutley Drive, Lennox Head, refer Figure 1-1:

Figure 1-1 - Site Location

2 Report Scope

This report focuses on providing sufficient concept engineering design details to facilitate a thorough understanding of the proposed works. The works covered by this report include new infrastructure for traffic, earthworks, stormwater (quality and attenuation) and servicing provisions for the proposed development.

It is recognised that a subsequent submission of detailed (construction certificate) engineering design plans and specifications are required to be made before final approval of the development is granted by Ballina Shire Council. At this Stage any minor amendments of the design elements proposed will be addressed to meet any of the Council's requirements.

2.1 Reference Documents

The following documents have been referenced in the preparation of this report:

- Gilbert + Sutherland, *Revised Stormwater Assessment & Management Plan, Pacific Pines Estate, Montwood Drive & Hutley Drive, Lennox Head, New South Wales, July 2014*

- Ballina Shire Council, *Ballina Development Control Plan 2012 - Chapter 3 – Urban Development*
- Ballina Shire Council – *Stormwater Management Standards for Development – 2015*
- Water Services Association of Australia, *Sewerage Code of Australia, WSA 02-2002*
- Northern Rivers Local Government – *Development Design Manual*

3 Site Description

3.1 Existing Site Conditions

Bulk Earthworks for the site have been completed as part of the previous stages of the Epiq Estate development. The site generally grades east to west with the areas surrounding the building site can be summarised as:

- North – Is formed with the existing carpark with access from Hutley Drive (via Road 5).
- Eastern – Is formed with the existing drainage swale adjacent to Hutley Drive
- South – Is formed with the existing Sportfield
- West - Is formed with the existing Sportfield

3.2 Description of Proposed Development

The proposed community facility we be located centrally between the two sporting fields and directly south of the constructed public carpark. The proposed facility included:

- Community hall and covered patio;
- Change rooms;
- Male and Female amenities;
- Kitchen, canteen and 2x store rooms;
- Office and First Aid Room;
- Umpires Room.

4 Bulk Earthworks

The site has previously been shaped as part of the Epiq sport field development. The site grades west to east at approximately at approximately 1.5% (from 2.9m to 2.3m AHD). Excavation on the site is expected to be limited to the installation of the building footings and service trenching. The building site is mapped as class 2 Acid Sulfate Soil prone, refer to Figure 4-1:

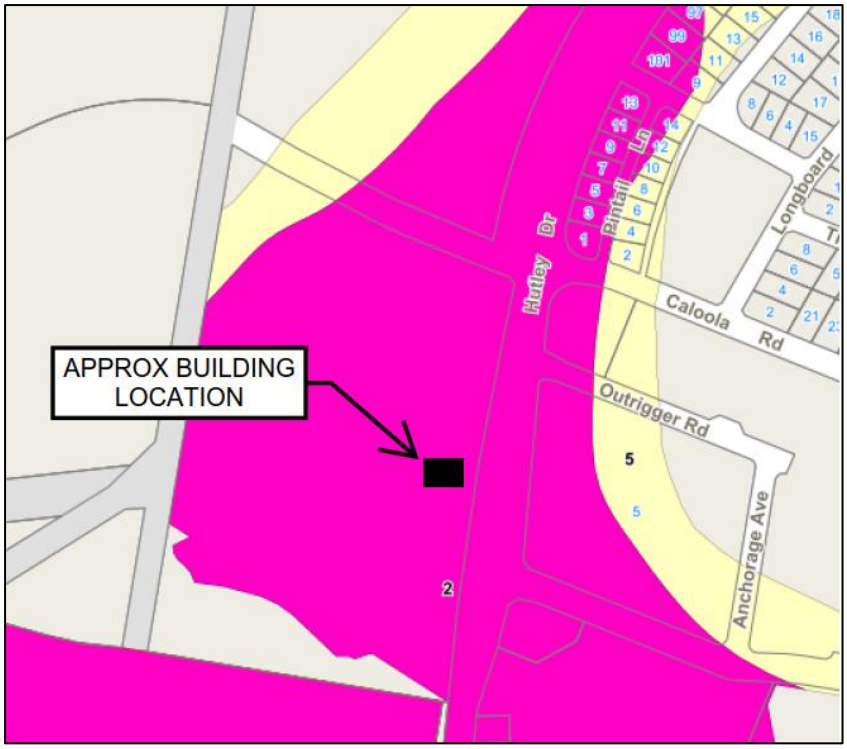


Figure 4-1 - Excerpt from BSC Mapping - Acid Sulfate Soils

The earthworks shall be undertaken in accordance with the Ballina Shire Council Acid Sulfate Soil Management Plan for Minor Works attached in Appendix B.

4.1 Flooding

The site is mapped within the flood planning area, refer Figure 4-2.

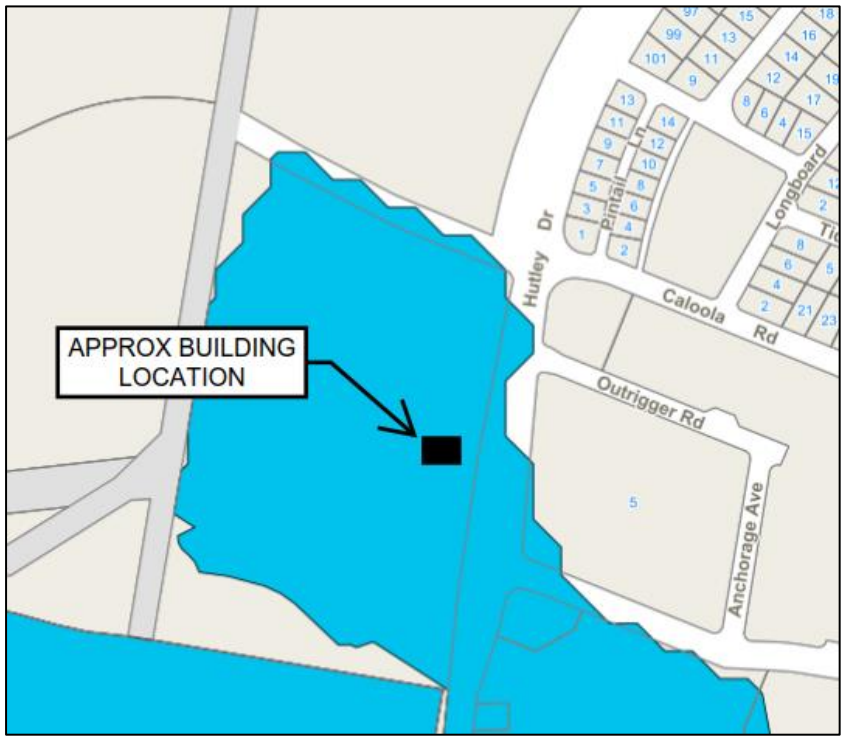


Figure 4-2 - Excerpt from BSC Mapping - Flood Planning

The minimum floor height for the building is to be 2.1m AHD in keeping with Condition 3.13 of DA2004/1113.

5 Site Access and Parking

Primary access to the site will be via the existing carpark to the north of the building site. Entry to this carpark is via the existing connection road (road 5) off Hutley Drive. 110 carparks have been provided in in this area to service the sports fields in accordance with condition 3.15 of DA2004/1113.

5.1 Pedestrian and Public Transport Accessibility

Connection to the existing pedestrian network will be via bridge over the drainage swale adjacent to Hutley Drive. This bridge provides access to the greater Epiq Estate footpath network. Public transport connections (bus stops) are provided on Hutley Drive adjacent to the Neighbourhood Shopping Centre site and within 400m of the proposed building.

6 Stormwater Management

Stormwater management for the site has been considered as part of the underlying Epiq Estate subdivision. The stormwater management plan for Epiq Estate was developed by Gilbert and Sutherland (Revised Stormwater Assessment and Management Plan – Pacific Pines Estate – July 2014). This plan provides an assessment of the stormwater quality and attenuation objectives for the site and outlines the stormwater management measures required to be implemented by the underlying development.

The new development will create an increase in impervious area associated with the roof area. This roof area is approximately 890m², refer Figure 6-1:

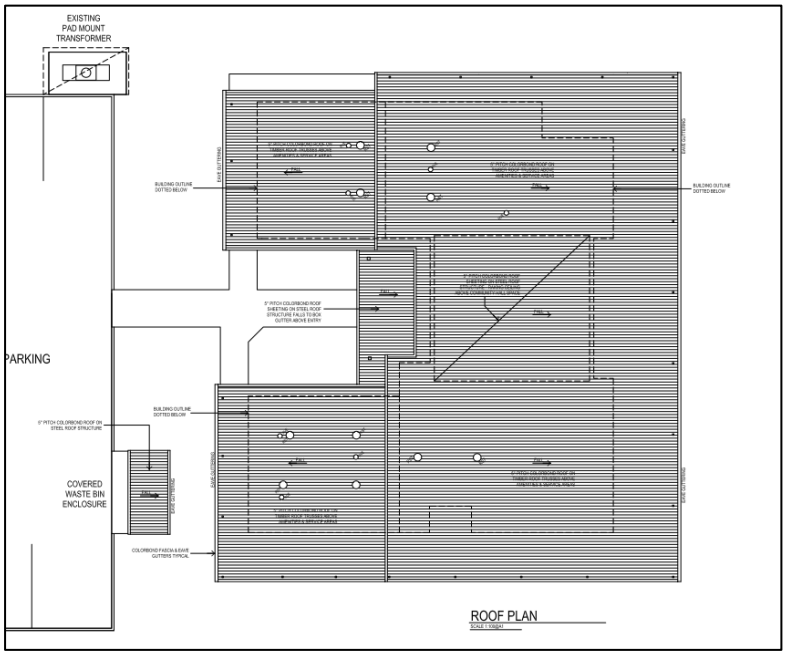
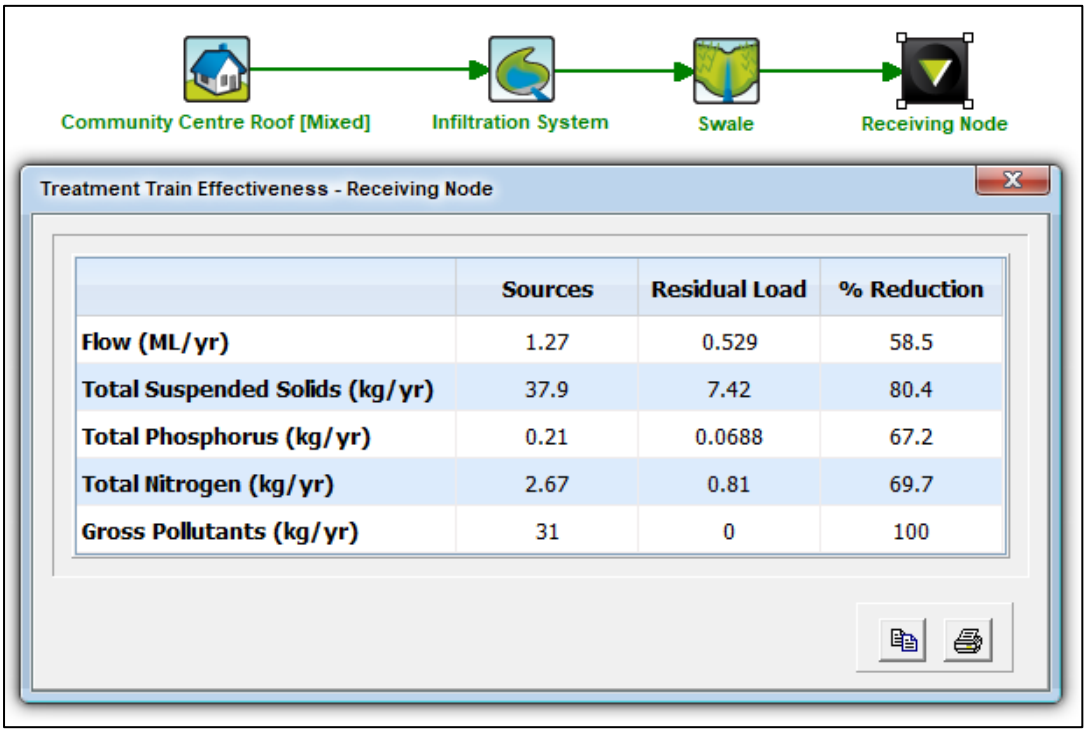


Figure 6-1 - Roof Area (excerpt from Peter Turner Plan A04)

The site will drain directly into the existing drainage swale on the western side of Hutley Drive. This swale drains into the tidal reach of North Creek. In accordance with Section 2.3.2 of Ballina Shire Council Stormwater Management Standards for Development stormwater discharge attenuation is required and not proposed for this development. Runoff generated by the site will primarily associated with the impervious roof area. Roof water will be treated via a new infiltration swale and within the swale adjacent to Hutley Drive. The following MUSIC model has been developed to ensure it meets the BSC quality treatment targets:



	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.27	0.529	58.5
Total Suspended Solids (kg/yr)	37.9	7.42	80.4
Total Phosphorus (kg/yr)	0.21	0.0688	67.2
Total Nitrogen (kg/yr)	2.67	0.81	69.7
Gross Pollutants (kg/yr)	31	0	100

Figure 6-2 - Excerpt from MUSIC Model

As shown in Figure 6-1 the BSC treatment targets can be achieved for the proposed development.

7 Sewer Services

The site is serviced by an existing gravity main that runs to the middle of the sports field site. This line was installed with the intention of servicing an old site layout. With the buildings current position the majority of this line is now redundant. The existing line will be cut to provide a connection for the building with the redundant section capped, refer to attached servicing plan.

7.1 Sewer Contributions

Sewer contributions have been calculated as per:

- Water Directorate, Section 64 Determination of Equivalent Tenements Guidelines
- Ballina Shire Council, 2019/20 Fees and Charges

Table 7-1 - Sewer Contributions

Contribution	Rate (2019/20)	Units	ET / Unit	Quantity	Total ET	Amount
Public Amenities	$5,215	WC's	0.63	16	10.08	$52,567.20
Public Amenities	$5,215	Showers	0.63	11	6.93	$36,139.95
Take Away / Fast Food (no amenities)	$5,215	m²	0.01	33	0.33	$1,720.95
					Total:	**$90,428.10**

8 Water Reticulation

A potable and recycled water connection will be provided to the community centre building. These connections will be made with the existing 100mm potable and non-potable water main running adjacent to Hutley Drive to the east of the site, refer to attached servicing plan.

8.1 Water Contributions

Water contributions have been calculated as per:

- Water Directorate, Section 64 Determination of Equivalent Tenements Guidelines
- Ballina Shire Council, 2019/20 Fees and Charges
- Rous Water, Rous Water Development Servicing Plan – Bulk Supply 2016

Table 8-1 - Water Contributions

Contribution	Rate (2019/20)	Units	ET / Unit	Quantity	Total ET	Amount
Ballina Shire Contributions						
Public Amenities	$3,407	WC's	0.4	16	6.4	$21,804.80
Public Amenities	$3,407	Showers	0.4	11	4.4	$14,990.80
Take Away / Fast Food (no amenities)	$3,407	m²	0.01	33	0.33	$1,124.31
Rous Contributions						
Public Amenities	$8,733	WC's	0.4	16	6.4	$55,891.20
Public Amenities	$8,733	Showers	0.4	11	4.4	$38,425.20
Take Away / Fast Food (no amenities)	$8,733	m²	0.01	33	0.33	$2,881.89
					Total:	**$135,118.20**

9 Electrical and Telecommunication Services

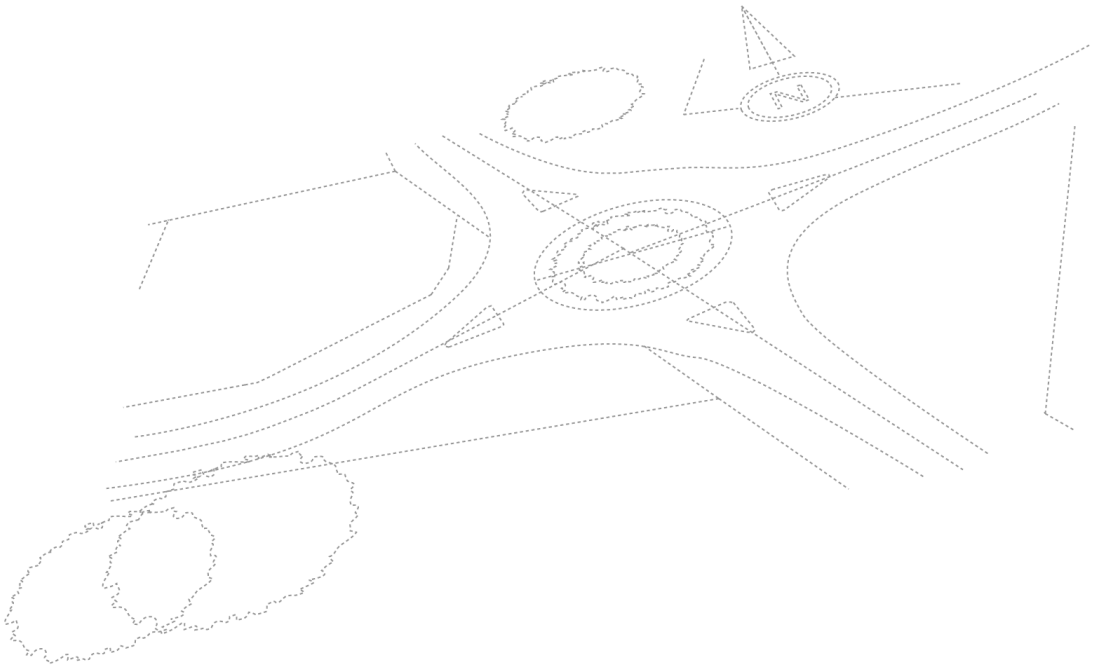
An electrical substation is located adjacent to the building with feed in electrical pits installed on the site as part of the previous stages of Epiq Estate. A communications conduit is located adjacent to the water mains directly east of the building location. It is considered that the development will be serviced from this existing infrastructure.

10 Sediment and Erosion Control Plan

During construction sediment and erosion control measures (including staging of works) will be installed to ensure the loss of soil from the site is minimised. Temporary sediment and erosion control measures such as silt fencing are the responsibility of the Contractor and will be installed prior to construction.

Appendix A Concept Engineering Plans

Drawing Number:	Title:
BE0	Bulk Earthworks Plan



HUTLEY DRIVE

ROAD 5

ELECTRICAL CONDUITS (Ø100mm & Ø125mm)
COMMS CONDUIT
Ø100mm POTABLE WATER MAIN
Ø100mm NON-POTABLE WATER MAIN

FOR JOIN TO STREET MAINS REFER STAGE 1B WORK AS EXECUTED PLANS

NEW WATER SERVICES CONNECTION. POTABLE AND RECYCLED.

EASEMENT FOR UG POWER LINES

SUB STATION EASEMENT

150mm Outlet

DISCHARGE ROOF WATER TO 10m x 1.5m INFILTRATION TRENCH. REFER TYPICAL SECTION

NEW SEWER CONNECTION. CAP REDUNDANT LINE.

Concrete Edge Strip

Bitumen Carpark

Concrete Barrier Kerb

375 RCP

PIT Inv.375Ø RL 1.22

Entry

Top of Bank

Metal Bldg

SVs

PP

E/PIT

SMH

Stay

RCW

IO

216
DP 1017615
PUBLIC RESERVE

Cricket Pitch

WATER CONTROL BOX

Centre of Drain

Subsoil Line

Scour Protection

Block Ret Wall

(V)

2 x 150mm Outlets Inv 1.07 Inv 1.24

1.5m
1:4 TYP
0.4m
0.5m INFILTRATION MEDIA

INFILTRATION TRENCH
TYPICAL SECTION

Abbreviations
RCW - Reclaimed Water Valve
I/O - Inspection Outlet
E/Pit - Electricity Pit
SMH - Sewer Manhole
SV - Stop Valve
E Underground Power (Conduit Only)
Bank
Denotes Finished Surface Level

NOTE: MINOR SUBSOIL LINES NOT SHOWN ON THIS DRAWING

ROAD 20.115 WIDE
(Not Formed)

FOR APPROVAL

REV	DESCRIPTION	BY	APP.	DATE
A	FIRST ISSUE			02.09.19

REVISIONS

SCALES SHOWN ARE FOR AN A1 SIZE ORIGINAL DRAWING

0 5 10 15 20 25

1cm = 5m
1:500

SCALES

HORIZ. DATUM	MGA
VERT. DATUM	AHD
SURVEY	NDC
DRAWN	PS
DESIGN	
APPROVED DATE	

APPROVALS

Newton Denny Chapelle
Surveyors Planners Engineers
Email: office@newtondennychapelle.com.au

Lismore
Suite 1
31 Carrington St. Lismore 2480
T: 66 221011 F: 66 224088

Casino
100 Barker St. Casino 2470
T & F : 66 625000

CLARENCE PROPERTY

EPIQ ESTATE LENNOX HEAD
SPORTS FIELD AMENITIES & COMMUNITY CENTRE
SERVICES PLAN

Reference No.	DRAWING No.	REVISION
14/351	14351-AP-CI-01	A

Plot Date: 04 Sep, 2019 CAD File Name: K:\Jobs\2014\14351 - Clarence Property\Sportsfield Building\Engineering\Drawings\14351_WAX_Sportsfield_final MJO.dwg

Appendix B Ballina Shire Council

Acid Sulfate Soil Management Plan for Minor Works

Acid Sulfate Soil Management Plan for Minor Works

Lodge Plan at Ballina Shire Council • 40 Cherry Street Ballina (Mon-Fri 8.15am to 4.30pm)
mail PO Box 450 Ballina 2478 • **e** council@ballina.nsw.gov.au • **abn** 53 929 887 369
t 1300 864 444 • **w** ballina.nsw.gov.au

This request will be processed as part of your Development Application (DA) and will be included in the consent conditions in the Notice of Determination from Council.

1. Land Description

DA Number *if known*

Property Address

Lot/DP or Lot/Section/DP or Lot/Strata Plan Number

2. Proposed Development

The development is considered as **Minor Works** as defined in the attached Management Plan:

- ☐ Dwelling
- ☐ Dwelling Additions
- ☐ On Site Sewage Management Systems and associated works
- ☐ Dividing Fence and other Residential Fence
- ☐ Domestic Swimming Pool (proposed excavation less than 10 tonnes of Acid Sulfate Soil)
- ☐ Other Development considered by Council's Public and Environmental Health group to be **Minor Works**

3. Soil Type

- ☐ Sandy Material
- ☐ Clayey or Other Materials

4. Soil Class

- ☐ Class 1
- ☐ Class 2
- ☐ Class 3
- ☐ Class 4
- ☐ Class 5

refer to map on page 4 for acid sulfate soil classifications (more detailed maps are available through Council's Interactive Mapping at ballina.nsw.gov.au)

5. Owner's Consent

☐ Individual or Joint Ownership ☐ Organisation/Company Ownership ☐ Strata Property

Owner's Name

Owner's consent is required to be provided with Development Applications.

6. Applicant's Declaration

It is accepted that Acid Sulfate Soils are present on the site and may be disturbed during the proposed development of the site. It is confirmed that the proposed project will be carried out in compliance with the attached Acid Sulfate Soil Management Plan.

Applicant Name

Applicant Signature

Date

Explanatory Notes

This plan provides guidance for the management of acid sulfate soils where they are disturbed during **minor** works including the installation of:

- Footings for single dwelling and duplex developments
- Sewer and storm water drainage associated with single dwellings and duplex developments
- Swimming pools (residential only)
- On Site Sewage Management Systems and associated works
- Other works determined by Council's Public and Environmental Health Section as minor which disturb less than 10 tonnes of soil.

Acid Sulfate Soils

Acid Sulfate Soils (ASS) are extremely acidic and sulfur rich soils found within the floodplain of coastal areas generally below RL 5m AHD. Potential Acid Sulfate Soils (PASS) is the common name given to soil and sediment containing iron sulfide (usually pyrite). They can become Actual Acid Sulfate Soils (AASS) and produce sulfuric acid if they become exposed to air through excavation or lowering of the water table.

Problems caused by Acid Sulfate Soils can include:

- Fish kills and aquatic habitat changes
- Corrosion of concrete, iron and steel
- Reduced plant growth – bare patches and scalds
- Poor foundation bearing capacity (clay sediments only)
- Iron staining of paths, driveways and retaining walls

Where does this plan apply?

Under Clause 7.1 of Council's Local Environment Plan 2012 (and clause 36 of BLEP 1987) a person is required to obtain development consent to undertake works on land shown as being Class 1, 2, 3, 4 or 5 on the Acid Sulfate Soil Planning Maps.

Class of Land	Specified Works
1	• Any works
2	• Works below the ground surface • Works by which the watertable is likely to be lowered
3	• Works beyond 1 metre below the natural ground surface • Works by which the watertable is likely to be lowered beyond 1 metre below the natural ground surface
4	• Works beyond 2 metre below the natural ground surface • Works by which the watertable is likely to be lowered beyond 2 metres below the natural ground surface
5	• Works within 500 metres of Class 1, 2, 3 or 4 land which are likely to lower the watertable below 1 metre AHD in adjacent Class 1, 2, 3 or 4 land

Explanatory Notes *continued*

Council must not grant consent unless it has considered:

a) A preliminary soil assessment to ascertain the presence or absence of acid sulfate soils within the area of proposed works unless the applicant agrees that acid sulfate soils are present within the area of proposed works
b) Where the preliminary soil assessment ascertains (or the applicant agrees) that acid sulfate soils are present, the adequacy of an acid sulfate soils management plan prepared in accordance with guidelines, as amended from time to time.
c) The likelihood of the proposed development resulting in the oxidation of acid sulfate soils and discharge of acid water from the area of the proposed works; and
d) Any comments received from any relevant public authority the Council may consult with in respect of the application.

The guidelines nominated in (b) above (Acid Sulfate Soil Manual produced by the Acid Sulfate Soil Management Advisory Committee) require soil and water assessment including chemical analysis to develop a detailed management plan. However, the guidelines note that the level of assessment undertaken or the complexity of an acid sulfate soils management plan, should match the level of risks to the environment from the proposed activity. Council has concluded that the risk to the environment from the defined minor works is very low and the conservative liming rates adopted will address any likely negative impacts.

Exemption

If the applicant can demonstrate the land has been lawfully filled, and any excavation will not extend below the depth of the fill, an Acid Sulfate Soil Management Plan is not required.

Acid Sulfate Soil Planning Maps

The NSW Department of Land & Water Conservation have produced maps which indicate the likely presence of acid sulfate soils and what depth below natural ground surface they may be expected to occur, see attached. These maps may be viewed at Council offices or on Council's website.

Management

Where the applicant has agreed ASS are present on site the following management strategies are deemed satisfactory. Agricultural lime is recognised as a cost efficient method of neutralising acid generated by ASS.

Agricultural lime is to be used to treat ASS. Hydrated or slaked lime must not be used without specific approval from Council. Lime is to be thoroughly mixed with the excavation material. Treatment is to occur on-site unless previous approval has been obtained from Council's Public and Environmental Health Section for alternative arrangements.

Excavated material is to be treated within 48 hours of excavation or the following measures are to be in place:

1. Provide a bed of agricultural lime beneath excavated material
2. Provide non-ASS bunds to excavated material to contain any leachate
3. Treat excavated material within 7 days of excavation.

Liming Rates

- Sandy material (assuming maximum 1% pyrite): apply a minimum 50kg agricultural lime per tonne of excavated soil.
- Clayey material (assuming maximum 3% pyrite): apply a minimum 150kg agricultural lime per tonne of excavated soil.

NOTE: Treated ASS shall be retained on site or disposed of to a licensed waste management facility unless a specific resource recovery order and exemption has been granted by the NSW EPA (see *epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/apply-for-an-order-and-exemption*).

Privacy Protection Notice

The completed Acid Sulfate Soil Management Plan for Minor Works form contains personal information which is being collected for the purpose of assessing this plan and to enable Council to perform any other duty or task under any relevant legislation. The information will be processed by the Development and Environmental Health Group and may be made available to public enquiries under the Government Information (Public Access) Act. The information supplied is required under the Government Information (Public Access) Act. The information will be stored in Council's electronic document management system.

Acid Sulfate Soils Map

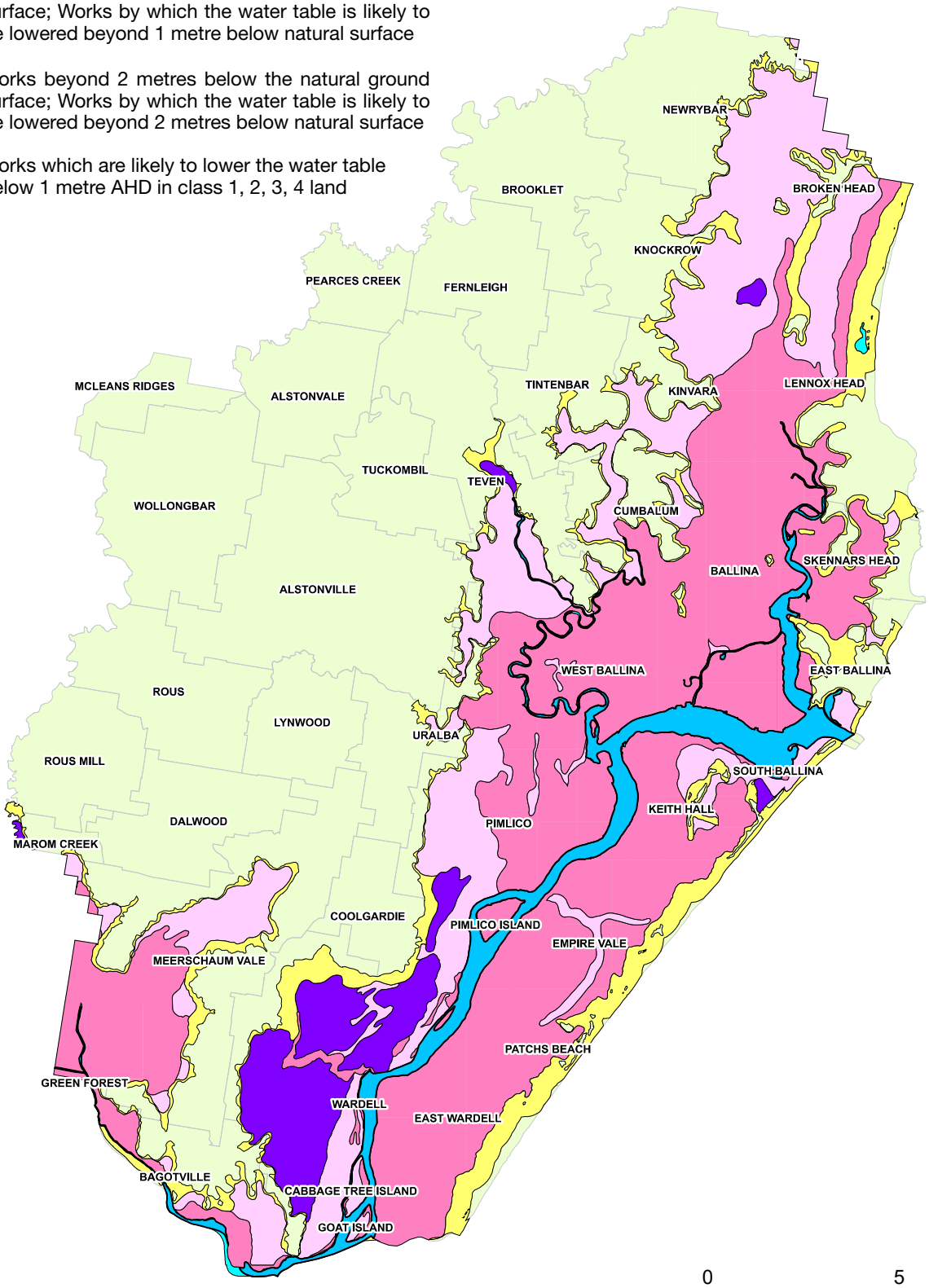
Class 1 Any Works

Class 2 Works below the ground surface; Works by which the water table is likely to be lowered

Class 3 Works beyond 1 metre below the natural ground surface; Works by which the water table is likely to be lowered beyond 1 metre below natural surface

Class 4 Works beyond 2 metres below the natural ground surface; Works by which the water table is likely to be lowered beyond 2 metres below natural surface

Class 5 Works which are likely to lower the water table below 1 metre AHD in class 1, 2, 3, 4 land



GDA

N W E S

Acid Sulfate Soils

Printed 09/11/2018

ballina shire council