



CIVIL REPORT

Jindabyne Education Campus HY

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Table of Contents

1. General	3
1.1 Introduction.....	3
1.2 Related Reports and Documents	3
1.3 The Development.....	3
1.3.1 Precinct and Surrounds.....	3
2. Erosion and Sediment Control.....	4
2.1 Sediment Basin	4
2.1.1 Maintenance of Sediment Basin	5
2.2 Sediment and Erosion Control Measures	5
2.3 Wet Weather Management	6
3. Further Commentary	7
Northrop Commentary	7
Appendix A	8

1. General

1.1 Introduction

Northrop Consulting Engineers Pty Ltd (Northrop) have been engaged by Hansen Yuncken to prepare the Civil Engineering design and documentation in support of a Construction Certificate for the New Jindabyne Education campus in 207 Barry Way, Jindabyne.

This report covers the works shown as the Northrop Drawing Package required for the development of the site including:

- Erosion and Sediment control;

1.2 Related Reports and Documents

This report is to be read in conjunction with the following reports and documents:

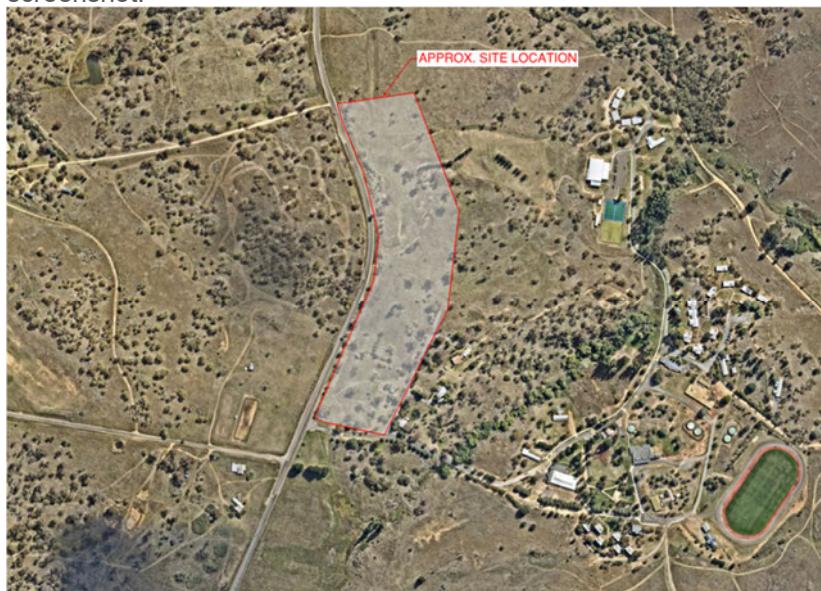
1. Detailed Design Phase Civil Documentation prepared by Northrop:
 - CSK01: Erosion and Sediment Control Plan
 - CSK02: Erosion and Sediment Control Details
2. NSW Department of Housing Manual, "Managing Urban Stormwater Soil & Construction" 2004 (Blue Book)
3. Snowy Monaro Regional Council Engineering Design Guidelines

1.3 The Development

1.3.1 Precinct and Surrounds

The site is located at 207 Barry Way, Jindabyne, in the local government area of Snowy Monaro Regional Council. The site is formally described as Lot 101 DP1019527.

The site is located on an empty land with some commercial centres nearby. Refer to below screenshot.



2. Erosion and Sediment Control

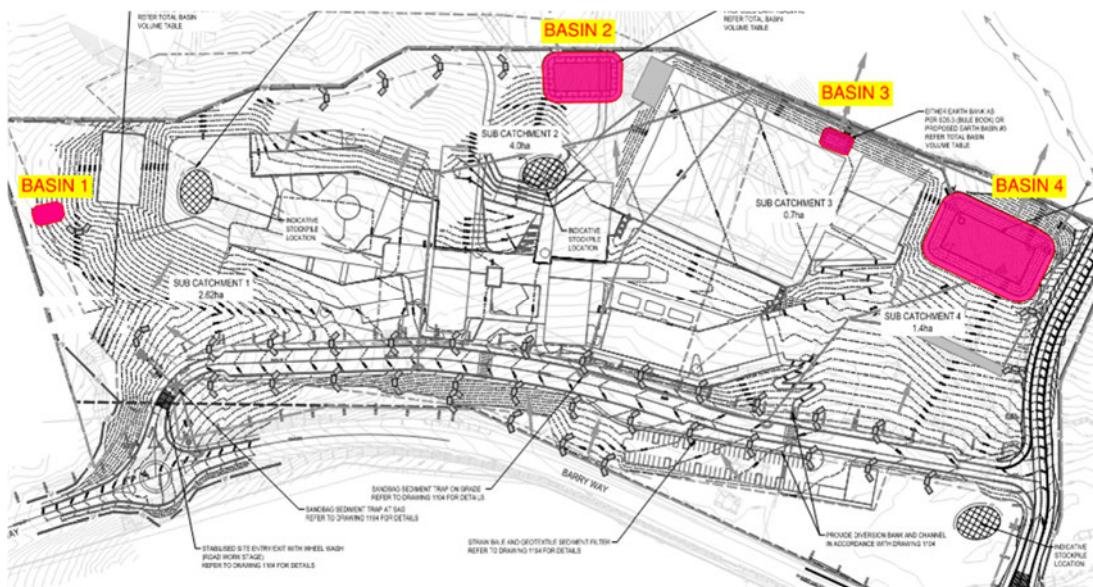
The objectives of the erosion and sediment control for the development site are to ensure:

- Adequate erosion and sediment control measures are applied prior to the commencement of construction and are maintained throughout construction; and
- Construction site runoff is appropriately treated in accordance with Snowy Monaro Regional Council requirements.
- The erosion and sediment control plan for the site has been prepared to address Condition B19 of SSD-15788005 for the proposed development at 207 Barry Way, Jindabyne, Lot 101 DP1019527. Specific responses to the requirements of Condition B19 can be found in Section 3 of this report.

As part of the works, the erosion and sedimentation control will be constructed in accordance with Council requirements and the NSW Department of Housing Manual, "Managing Urban Stormwater Soil & Construction" 2004 (Blue Book) prior to any earthworks commencing on site. The Concept Sediment and erosion control measures are documented in Northrop's concept design sketch CSK01 and CSK02.

2.1 Sediment Basin

Four temporary sediment basins have been designed to capture site runoff during construction and has been located at locations shown in below screenshot. The construction of the basin will be undertaken in stages to enable maximum runoff capture assisted by diversion swales and direct runoff to the basin.



Calculations to determine the concept design basin size have been based on available geotechnical information regarding soil types and through the use of the Soils and Construction Volume 1 Manual.

To ensure the sediment basins are working effectively they will be maintained throughout the construction works. Maintenance includes ensuring adequate settlement times or flocculation and pumping of clean water to reach the minimum storage volume at the lower level of the settling zone. The settling zone will be identified by pegs to clearly show the level at which design storage capacity is available.

The pumped water from the sediment basin can be reused for dust control during construction, refer Section 2.1.1 for Maintenance of the sediment basin.

Overflow weirs are to be provided to control overflows for rainfall events in excess of the design criteria which caters for a storm event up to and including the 1% AEP storm event.

The concept sediment basin sizing is summarised in the table below. Detailed sediment basin sizing, configuration and location shall form part of the Construction Certificate application.

Site	C_v	$R_{x-day, y-\%ile}$	Total catchment area (ha)	Settling zone volume (m ³)	Sediment storage volume (m ³)	Total basin volume (m ³)
1	0.35	24.4	2.62	223.748	15	238.748
2	0.35	25.1	4	351.4	72	423.4
3	0.35	25.1	0.7	61.495	30	91.495
4	0.35	25.1	1.68	147.588	60	207.588

The sediment basin has been located for future conversion into the permanent water quality and detention devices.

2.1.1 Maintenance of Sediment Basin

Prior to any forecast weather event, likely to result in sediment laden runoff on the site, dewatering is to be undertaken to provide sufficient capacity to capture sediment laden water from the site. Any sediment laden water captured on site must be treated to ensure it will achieve Council's water quality objectives prior to its release from site. A sample of the released treated water must be kept on site in a clear container with the sample date recorded.

- No aluminum based products may be used to treat turbid water (flocculating/coagulants) on site without the prior written permission from an appropriate Council Officer. The applicant must have demonstrated ability to use such products correctly and without environmental harm prior to any approval.
- The chemical/ agents (Flocculating/coagulants) used in Type D and Type F Basins to treat turbid water captured in the basin must be applied in concentrations sufficient to achieve Council's water quality objectives (TSS <50mg/L Turbidity <60 NTU 6.5 <ph <8.5) within the 5 day rainfall depth used to calculate the capacity of the basin, after a rainfall event.
- All manufacturers instructions must be followed for the use of any chemicals/agents used on site except where approved by the responsible person or an appropriate Council Officer.
- Sufficient quantities of chemicals/agents to treat turbid water (Flocculating/coagulants) must be placed such that water entering the basin mixes with the chemical/agents and is carried into the basin/trap.
- The sediment basin to be dewatered as soon as practical once water captured in the basin achieves Council's water quality objectives
- Inspect the sediment basin after each rainfall events and/or weekly. Ensure that all the sediment is removed once the sediment storage zone is full. Ensure that outlet and emergency spillway works are maintained in a fully operational condition at all times.

2.2 Sediment and Erosion Control Measures

Prior to any earthworks commencing on site, sediment and erosion control measure shall be implemented generally in accordance with the Construction Certificate drawings and the "Blue Book". The measures shown on the drawings are intended to be a minimum treatment only as the contractor

will be required to modify and stage the erosion and sedimentation control measures to suit the construction program, sequencing and techniques. These measures will include:

- A temporary site security/safety fence is to be constructed around the site, the site office area and the proposed sediment basin;
- Sediment fencing provided downstream of disturbed areas, including any topsoil stockpiles;
- Dust control measures including covering stockpiles, installing fence hessian and watering exposed areas;
- Placement of hay bales or mesh and gravel inlet filters around and along proposed catch drains and around stormwater inlets pits within the site;
- The construction of a temporary sediment basin as noted above in Section 2.1;
- Stabilised site access at the construction vehicle entry/exits.

Any stockpiled material, including topsoil, shall be located as far away as possible from any associated natural watercourses or temporary overland flow paths. Sediment fences shall be installed to the downstream side of stockpiles and any embankment formation. All stockpiles and embankment formations shall be stabilised by hydroseeding or hydro mulching on formation.

2.3 Wet Weather Management

In circumstances of heavy rain sufficient to affect site access and ground conditions the Site Manager and Site HSE Committee representative should complete a site inspection before work commences. The inspection needs to focus on;

- The suitability of pedestrian access to the amenities and into the construction work areas
- The suitability of access for plant and equipment
- The suitability of ground conditions for plant and equipment to operate
- Nominate the construction zones suitable for work to commence
- Actions to remediate those areas not suitable for work to commence (de-water; prepare ground conditions and access ways etc.)

3. Further Commentary

The Minister for Planning and Open Spaces has provided Conditions of Consent (Application Number: SSD - 15788005) for the New Jindabyne Education Campus. Conditions associated with the Construction Soil and Water Management Plan have been provided below with further commentary for consideration by School Infrastructure NSW and the Certifying Authority.

B19. Construction Soil and Water Management Sub-Plan (CSWMSP)

The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:

- (a) be prepared by a suitably qualified expert, in consultation with Council;**
- (b) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;**
- (c) describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication *Managing Urban Stormwater: Soils & Construction* (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';**
- (d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilization of the Site);**
- (e) detail all off-site flows from the site;**

Northrop Commentary

The following comments have been provided with respect to Condition B1 for consideration by School Infrastructure NSW and the Certifying Authority.

Northrop Commentary

- (a) The erosion and sediment control plans have been prepared by Stephen Fryer BE(Civil) MIEAust CPEngr NER. Please refer to the CV of the designer provided in Appendix. The project design team have forwarded this report to Snowy Monaro Regional Council for their review and comment. Refer Consultation Record in the Appendix.
- (b) Please refer to Section 2 of this report and associated Civil Engineering drawings CSK01 and CSK02. A shaker with wheel wash has been specified at the site egress points to remove loose soils and mud from vehicle wheels prior to leaving site.
- (c) Please refer to Erosion and Sediment Control drawings CSK01 and CSK02.
- (d) Clean water from the Sediment Basins are discharge to the empty space on the lot. Refer Section 2.1.1 for methodology prior to site stormwater during construction.
- (e) Please refer to Section 2 of this report and associated Civil Engineering drawings CSK01 and CSK02. The erosion and sediment control plans have been designed in accordance with the requirements of NSW Department of Housing Manual, "Managing Urban Stormwater Soil & Construction" 2004 (Blue Book).

Appendix



Stephen Fryer

Principal | Senior Civil Engineer
BE (Civil) MIEAust CPEng NER

Stephen has over 25 years of professional experience, leading teams to deliver robust civil engineering outcomes for land development and urban infrastructure. His success has stemmed from his proficiency in understanding and bringing together all aspects of urban infrastructure, and the strong relationships he has developed with councils and utility providers.

Since joining Northrop in 2006, Stephen has played an integral role in building the civil team to pursue technical excellence and deliver practical, bespoke solutions for our clients. He was made an Associate in 2010 and then appointed Principal in 2012.

In his client-centred approach and commitment to adding value, Stephen knows the importance of understanding and managing risk – developing clear solutions that prepare for unforeseen challenges and deliver successful project outcomes for clients. Stephen is the Parramatta Office Leader and heads up the Service Excellence working group for the Sydney region.

Project Experience

Industrial

- Bucher Municipal - Sydney Business Park
- Marsden Park Trade Centre
- Yennora Distribution Centre
- ASICS HQ, Marsden Park
- Lindsay Transport, Erskine Park
- Tigerpak – Sydney Business Park
- Axalta - Sydney Business Park
- DB Schenker, QLD
- Northline, QLD
- Toll Larapinta, QLD
- Gore Hill Business Park

Commercial

- Suttons Motors Vehicle Showrooms – Rosebery, Lidcombe, Homebush, Chullora, Mosman, Waitara,
- Holliday Inn Express – Newcastle
- Holliday Inn Express – Macquarie Park

Institutional & Educational

- Lismore Hospital
- Bathurst Correctional Centre
- Cessnock Correctional Centre
- The Ponds Public & High School
- Wagga Wagga High School
- Catherine Fields High School

Infrastructure

- IC3 West 17 Talavera Road, Macquarie Park

Public Domain & Open Spaces

- Wentworth Park Greyhound Track
- Bourke Street Cycleway
- Cooks River Cycleway
- Grand Pacific Walk
- Trench Reserve Boat Ramp – Penrith
- David Phillips Fields – Daceyville
- Charles Street Square – Parramatta
- Wattamolla Beach Reserve and Parking

Urban Development

- Le Windsor, Castle Hill
- Fern Creek Road and Orchard Street, Warriewood
- Rosewood Estate, Kellyville
- Sandstone Ridge, Marsden Park
- Seymour Residences – Roseville
- 10 Gilroy Ave Turramurra
- 5 – 15 Lamond Ave Turramurra
- Mirrabell Apartments, Turramurra
- Wagga Wagga Planning Study
- Campbelltown Overland Flow Path Rectification
- Liverpool Catholic Club
- Campsie RSL Expansion

Jindabyne Education Precinct - SSD1578805 Condition B19



Stephen Fryer

To: Volker Georgi



7 MB

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Fri 28/10/2022 2:04 PM



221504-CR017Re21_Erosion & Sediment Report.pdf 7 MB

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221504_Erosion & Sediment Control Plan.pdf 3 MB

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Fri 28/10/2022 2:04 PM

Hi Volker,

Nice to meet with you last week.

I am sending this email regarding Condition B19 of SSD 1578805 which directs consultation with Council regarding the preparation of the erosion and sediment control plan. The condition is as follows:

- B19. The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:
- (a) be prepared by a suitably qualified expert, in consultation with Council;
 - (b) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;
 - (c) describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the Blue Book;
 - (d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);
 - (e) detail all off-site flows from the site, and

Attached is a copy of the proposed erosion and sediment control plan and supporting report.

Feel free to discuss any aspect with me.

Regards

