APPENDIX 11: CONSTRUCTION SOIL & WATER SUB PLAN

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CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN

OUR REF:7863

KYEEMAGH PUBLIC SCHOOL
JACOBSON AVENUE,
KYEEMAGH NSW 2261

PREPARED BY: CAMERON AMRI
DATE: 03/07/2020
REVISION: **E**

DOCUMENT VERIFICATION

Project Title	Kyeemagh Public School
Document Title	Construction Soil and Water Management Plan Report
Project No.	7863
Description	Construction soil and water management plan
Client Contact	Taylor Constructions

	Name	Signature
Prepared by	Cameron Amri	
Checked by	Michael Grogan	
Issued by	Michael Grogan	

REPORT DELIVERABLES

This report is to meet condition B17 of the SSD Conditions.

This report shall be referenced to meet condition B12 & B17 of the SSD Condition of application number SSD 9439.

Condition	Condition requirements	Document reference
B17	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:	
	be prepared by a suitably qualified expert, in consultation with Council;	Appendix B & Appendix 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'.	Appendix D
	include an Acid Sulfate Soils Management Plan, including measures for the management, handling, treatment and disposal of acid sulfate soils, including monitoring of water quality at acid sulfate soils treatment areas;	Section 2.2 & Appendix A
	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);	Section 5.4 & Appendix D
	detail all off-Site flows from the Site; and	Section 2.5 & Appendix D
	describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI and 1 in 5-year ARI.	Section 5.4

B12	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:	
	(a) detailed baseline data;	Section 2
	(b) details of: (i) the relevant statutory requirements (including any relevant approval, license or lease conditions);	Section 1.1
	(ii) any relevant limits or performance measures and criteria; and	Section 6

	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 6.5
	(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6 & Appendix D
	(d) a program to monitor and report on the: (i) impacts and environmental performance of the development;	Section 6.5.5 & 6.5.6 & 6.5.7
	(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;	6.5.7
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Appendix A
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 5
	(g) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	Section 6.4 & 6.5.5 & 6.5.6
	(ii) complaint;	6.5.7
	(iii) failure to comply with statutory requirements; and	6.5.6
	(h) a protocol for periodic review of the plan and any updates in response to incidents or matters of non-compliance	6.5.5

DOCUMENT HISTORY

Date	Revision	Issued to	Description
03/07/20	-A	DWP Suters	DRAFT Issue
30/07/20	-B	DWP Suters	DRAFT Issue
30/07/20	-C	DWP Suters	For CC1
14/09/20	-D	Taylors	For Construction
14/09/20	-E	Taylors	For Construction

Table of Contents

1

1 EXECUTIVE SUMMARY

Birzulis Associates have been commissioned by Taylor Constructions to prepare a Construction Soil and water Management Plan (CSWMP) for the proposed stage 1 and stage 2 construction at Kyeemagh Public School. This report addresses the site conditions and the management of such site conditions relevant to soil and water management in accordance with the requirements of the relevant Council DCP/SSD Guidelines.

The aim of this CSWMP is to address all risks associated with the water quality, erosion and sedimentation ensuring these are considered and managed effectively during construction. This reports aims to deliver a best-practice control and procedures to minimise or avoid erosion/sedimentation impacts and potential impacts to water quality.

The CSWMP will address and satisfy the following objectives:

- Relevant environmental legislation as it applies to this project
- Summarise and address potential water quality impacts on the environment from the proposed works on the proposed site
- Document procedures to control these possible and foreseeable environmental impacts.
- Ensure and demonstrate compliance to relevant legislation
- Ensure there are no adverse environmental impacts to the waterways and surrounding environment as a result of the proposed works.
- Address and comply with water quality discharge requirements for the site.
- Prevent pollution of surface water by sedimentation and excessive erosion of the site.
- Ensure staff and relevant construction personnel and procedures and an understanding of what is required to maintain and implement the required water quality elements and controls.
- Document all controls and mitigation for a 1 in 100 year flood event at the site.

Stage 1 of the proposed works involves the demolition of the existing buildings to the North-East of the site and construction of the buildings on that half of the site.

Stage 2 of the proposed works will occur approximately after practical completion (PC) of the stage 1 works and the demolition of the existing buildings to the South-West half of the site.

Both stages of the development will require:

- Demolition of the existing structures and removal of waste.
- Removal of topsoil and vegetation.
- Civil works and stormwater drainage works including connecting to the existing Council trunk drainage system.
- Construction of temporary roadway and turning circle for construction vehicles/equipment withing the envelope of the stage works.
- Remediation of temporary works and construction of hardstand pavements
- Construction of landscaping works

1.1 PLANNING RELEVANCE, LEGISLATION & ACT

The following legislation and regulatory framework relating to construction soil and water management are outlined below.

Immediate SSD Planning Requirement to be satisfied:

- As stipulated in the State Significant Development Conditions of Consent. Condition B17 required prior to the commencement of construction.

Environmental Planning and Assessment Act 1979 & Environmental Planning & Assessment Regulation 2000.

This Act and regulation establishes a system of environmental planning and assessment of development proposals for the State. This project has been assessed and approved under Section 89E of the Environmental Planning and Assessment Act 1979.

Project Relevance; Approval process for a legal Consent to develop and considerations for such.

Protection of the Environment Operations Act 1997

This Act includes all the controls necessary to regulate pollution and reduce degradation of the environment, provides for licensing of scheduled development work, scheduled activities and for offences and prosecution under this Act.

Project Relevance; This Act is of high relevance to the Project as it provides for the issuing of environmental protection notices to control work and activities not covered by licences. Section 148 of the Act requires a pollution incident-causing or threatening material harm to the environment to be notified to the EPA and other authorities immediately.

Contaminated Land Management Act 1997

This Act provides for a process to investigate and remediate land that has been contaminated and presents a significant risk of harm to human health. Section 60 of the Act is a "Duty to Report Contamination". This duty applied to owners of land and persons who become aware that their activities have contaminated the land.

Project Relevance; The relevance of this Act will be in the event that suspected or potentially contaminated ground is found during construction activities.

Commonwealth Environment Protection and Biodeversity Act 1999

The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development. The Act binds the Crown. Do not take, use, keep or interfere with "nationally significant" cultural and natural resources, protected wildlife and protected plants without approval.

Project Relevance; This Act is of little relevance to this project as it has been determined not to trigger the provisions of the act.

Soil Conservation Act 1938

This Act makes for the provision for the conservation of soil resources, farm water resources and the mitigation of erosion. The Act is binding on the Crown; however, the Crown is not liable for prosecution. The Act provides for notification in the government gazette catchments where erosion is liable to cause degradation of rivers and lakes (i.e. protected land).

Project Relevance; This Act has low relevance as the site is not located within "protected land". Further, such notification has not been given to the owner of the land.

Water Management Act 2000 & Water Management (General) Regulation 2004

This Act and Regulation provide for the protection, conservation and ecologically sustainable development of water sources of the State and in particular to protect, enhance and restore water sources and their associated ecosystems.

Project Relevance; This Act has no direct relevance at this time to the construction work under this contract. The project approval does not trigger the provisions of this Act

Water Act 1912

This Act provides for licences to extract water for construction purposes either from surface or artesian sources. Should construction water be extracted from surface (other than sedimentation ponds) or artesian sources, a licence will be required.

Project Relevance; This Act has no relevance as it is not proposed that construction water will be obtained from surface (for example, creeks, lakes) or artesian sources.

Rivers and Forseshores Improvement Act, 1948

The Rivers and Foreshores Improvement Act, 1948, is administered by DIPNR for regulating operations involving excavation and fill within the immediate vicinity of coastal rivers, lakes and estuaries. Under this Act, a Part 3A Permit is required for the undertaking of works within 40 metres of the bed and banks of a watercourse. By late 2003, the Water Management Act 2000 (WMA) will have repealed the Rivers and Foreshores Improvement Act, 1948 (RFIA). When this occurs, activities that require a Permit under Part 3A Approvals under the RFIA will require Controlled Activity Approvals under the WMA

Project Relevance; Nil as not within 40mof the bed and banks of a watercourse.

2 EXISTING CONDITIONS

2.1 LOCATION

The site is located at 30A Jacobson Avenue, Kyeemagh NSW 2216 is broken up into two lots D.Ps (D.P.120095 & D.P. 335734). The current site is the operating site of Kyeemagh Public School. The site is generally sparsely planted and with minimal hard pavements.

To the North-West the site abuts a previous townhouse villa style development. To the South-East the site abuts Beehag Street. To the South-East the site abuts Jacobson Avenue. To the North-East the site abuts the school childcare centre which operates on the site and is not proposed to be altered. The site falls from the West to the South East at approximately 4%.

The total site area is 10 329m².

The site is shown below represented as Figure 2.1

Figure 2.1.1 – Total D.P. Envelope

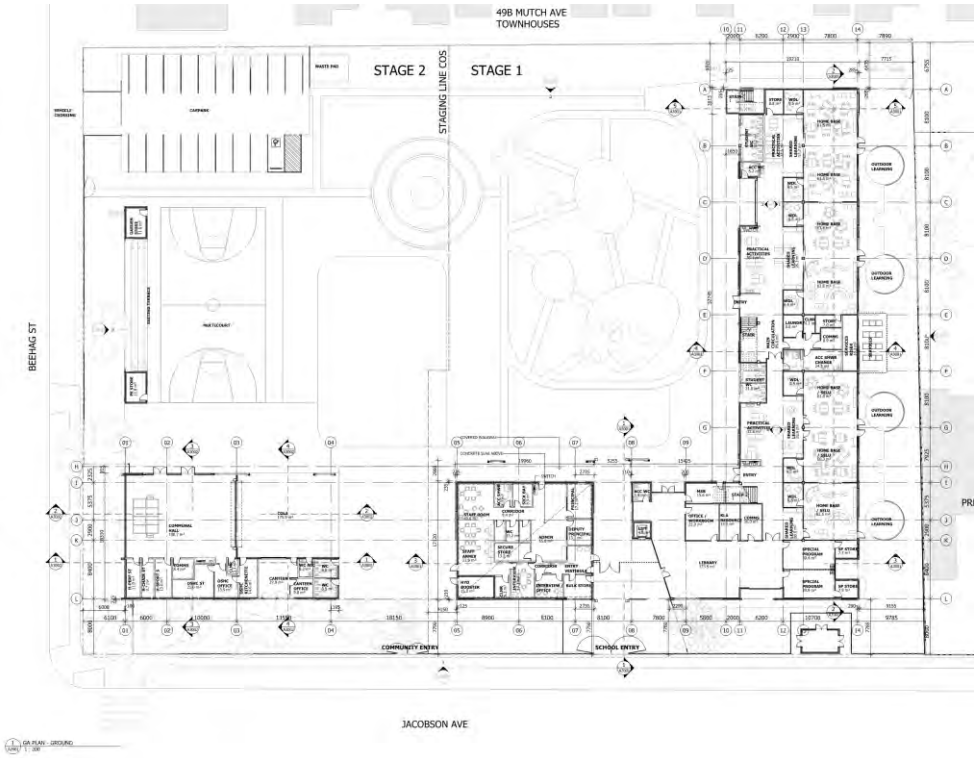

Figure 2.1.2 - Overall Site Plan

Figure 2.1.3 - Aerial View of Kyeemagh Public School (Source: Google Map 2020)

2.2 ACID SULFATE SOILS

A review of the Acid Sulfate Soil Map from the Rockdale Council LEP shows the site to be in a Class 2 Acid Sulfate Soil area. Should acid sulfate soils be encountered they shall be dealt with in accordance with the Acid Sulfate Soils Management Plan located as Appendix A.

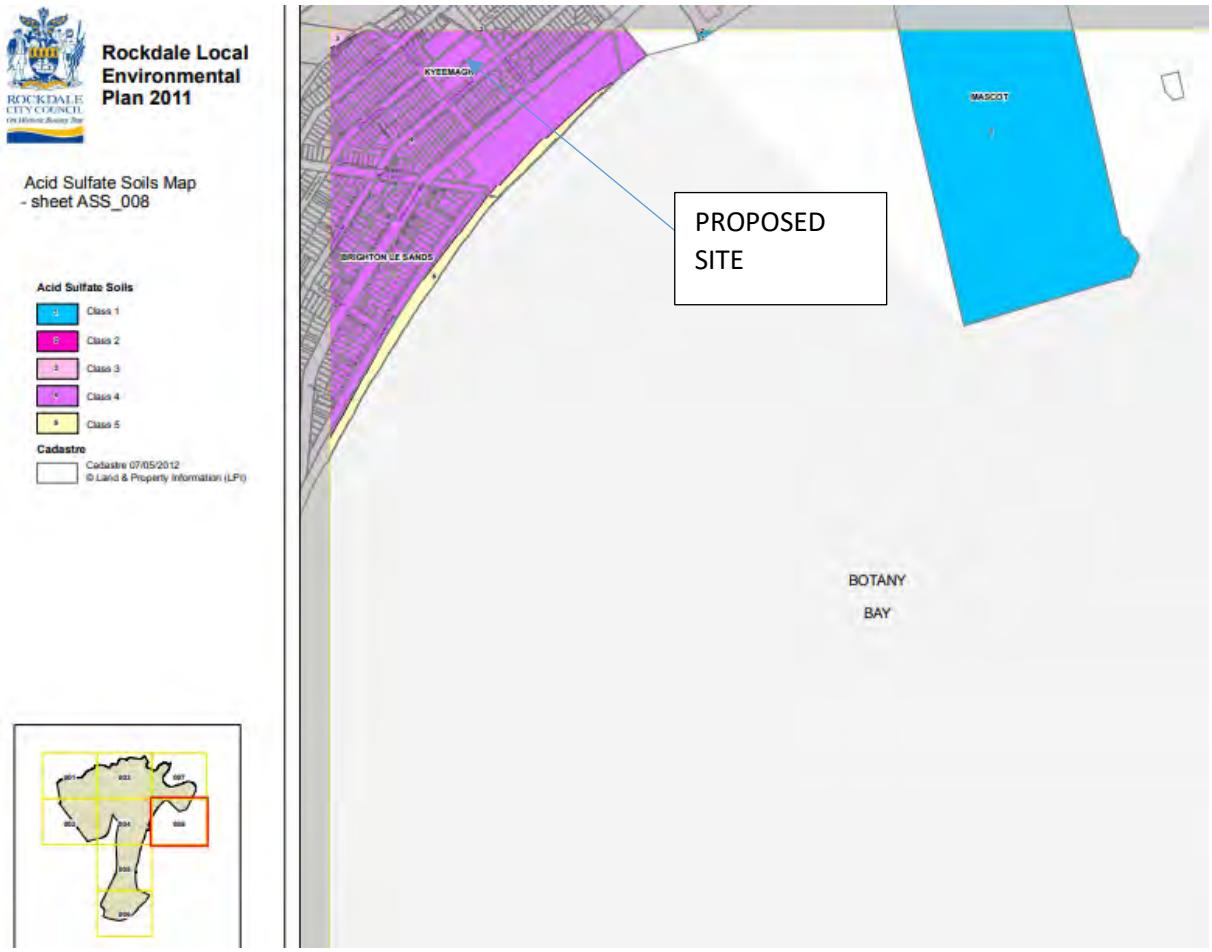

Figure 2.2.1 – Extract from Rockdale LEP 2011

A review of the Geotechnical report completed by Cardno showed soil test pH levels from 6.1 to 7.7 which is considered neutral.

Acid sulfate soil planning maps are indicative and on-site observations and testing should also be used to identify acid sulfate soils. The below shall be used to use visual guidance for more specific onsite assessment.

Potential acid sulfate soil indicators:

- Presence of mangroves, reeds, rushes, salt marsh or swamp vegetation etc
- Sulfurous (rotten egg gas) smell after rain, following a dry spell or when the soils are disturbed • Marine or estuarine sediments
- Soils can be described as unripe muds/sediments (soft, buttery, blue grey or dark greenish grey) which can include sands and gravels

- Milky blue/green water
- Shell fragments in the soil • Waterlogged, scalded or back swamp areas
- Land below 5m AHD elevation

Actual acid sulfate soil indicators:

- Any jarosite (a pale yellow mineral deposit) or iron oxide (rusty) colouring
- Extensive iron stains on any drain surfaces, or iron stained drain water and ochre deposits
- Corrosion of concrete and/or steel structures
- Surface or ground water on or draining from the site with a pH < 5.5, or of an unusually clear or milky green
- Sulfurous (rotten egg gas) smell when soils are disturbed

Class 2 Acid sulfate soils are where acid sulfate soils are likely to be found below the natural ground surface. Any works beneath the natural ground surface or works which are likely to lower the water table may encounter acid sulfate soils.

As the site is within an Acid Sulfate "likely" zone and there is cutting of soil proposed there is a risk acid sulfate soils may be encountered. We recommend further testing be undertaken in areas where soil levels are proposed to be reduced by 1m.

The referenced Acid Sulfate Soil Management Plan is the reference to manage the acid sulfate soil particularly for investigation, handling, treatment, and management of such soils.

The Acid Sulfate Soil Management Plan is referenced in this report and more relevant management and treatment of such soils are extracted and located in Appendix A. Section 4 & 5 of that report itemised the management procedures required to manage Acid Sulfate soil after it is identified.

Section 5.2 to 5.8 are attached in Appendix A is they specifically relate to mitigation and management of Acid Sulfate Soils for this site.

2.3 GROUND WATER PROTECTION

Generally possible sources of ground water contamination can be linked to :

- Industrial effluent and manufacturing wastes

- Leaking underground storage tanks and pipe lines (not stormwater/rainwater)
- Landfill stockpiles or contaminated soil producing leachate ‘
- Intensive agricultural fertiliser and pesticide use or waste generation
- Contamination from septic tanks and from sewerage and wastewater lagoons
- Mining industry processes and wastes
- Contamination from wells
- Urban stormwater
- Atmospheric fallout
- Inter-aquifer contamination by alteration of flow
- Chemical storage

We assess the operation use of the site is not such as to generate a risk to ground water contamination subject to correct chemical storage in line with MSDS’s and safe work guidelines.

2.4 TEMPORARY EROSION AND SEDIMENT CONTROL BASINS

The requirement for sediment basins is carried out using a RUSLE calculation.

A=R K LS C P

Where A = Computed soil loss (tonnes/ha/yr)

R = rainfall erosivity factor = 2075

K = slope erodibility factor

LS = Slope length/gradient factor

C = ground cover factor

P = practice factor

Variable	**Value**	**Remark**
Rainfall Erosivity (R)	3075	From literature review
Soil erodibility (K)	0.06	Figure A3, The Blue Book
Site slopes av	Pre- 0.8% post 0.8%	
Slope Length (LS)	0.52	Table A1, The Blue Book
Erosion control practice (P)	1.3	Table A2, The Blue Book
Ground cover (C)	1.0	50% grass cover as construction completed in stages Figure A5, The Blue Book
Potential Erosion Hazard	Low	Figure 4.6, The Blue Book
Rainfall Zone	Zone 1	Figure 4.9, The Blue Book

Soil Density (kN/m³)	19	From geotechnical report
Calculation soil loss A (t/ha/yr)	125	
Soil Loss Class	1 (erosion hazard = very low)	Table 4.2, The Blue Book
Soil loss (m³/ha/yr)	96	
Is a sediment basin required	**No**	

Where the soil loss from the catchment/s is less than 150m³/ha/yr then a sediment is not required as per Section 6.3.2.d of the Blue Book.

Nil

2.5 EXISTING STORMWATER DISCHARGE POINTS

The site operating as a public school has an existing pit and pipe system with an existing discharge to the Council trunk drainage system on Jacobson Avenue (located in the stage 2 envelope of works). The site also has a small depression within the site which normally would contribute to saturation of the soil however is not considered to do so given the high permeability of the soil (marine sand).

The low point of the site is located at the Eastern corner. The low point of the site is not proposed to be altered from the current condition. The overland flow water that discharges the site from this low point falls to Jacobson Avenue.

The existing stormwater elements from a visual survey undertaken revealed the onsite system to be in poor condition and blocked in many cases. We are proposing to clean the existing system for the construction works to not be surcharged by storm flows during the Stage 1 works.

The indicative external stormwater network is shown in **Error! Reference source not found.** and is t he Council trunk drainage system and is believed to be in a satisfactory condition.

3 GENERAL INSTRUCTIONS

This SWMP shall be read in conjunction with the latest engineering plans which have the Sediment and Erosion Control Plan and details, any other reports or design drawings and or any written instructions that concern themselves with water management of the site during construction and during the operational phase of the site.

The Principle Contractor shall ensure that all soil and water management works recommendations are incorporated in works and undertaken in accordance with the Blue Book.

4 LAND DISTURBANCE CONDITIONS

Where practical, the soil erosion onsite will be as recommended below so the hazard will be as low as reasonably possible.

Land Use	Scope	Remarks
Construction areas	Disturbance to be no greater than within 5m from the edge of any essential construction activity shown on the plans	Barrier fencing and sediment fencing or similar fencing to be used so all workers can clearly identify these zones were appropriate.
Access areas	Maximum 6m in width	Site manager to define the zones onsite and all workers to clearly be able to identify these zones
Remaining Lands	Fenced off	Identified by barrier fencing

5 ASPECTS, IMPACTS AND RISKS

5.1 STORMWATER QUANTITY

Normally the removal of existing stormwater eleemtns during construction increases the surface flow volumes and velocities on a site. This can then increase movement of debris silt and scouring of water channels.

DRAINS software was used to generate runoff modelling that represents the existing and post development stormwater conditions. A summary of peak flows is shown below.

As the site discharge in located in stage 2 this is advantageous. There should be no significant change to the site runoff during construction as the envelope of the buildings being demolished in stage 1 is comparatively small. The intent is to maintain the existing stormwater pipe discharge from the site for the majority of the buildings (which are in the stage 2 envelope) while the stage 1 works are constructed. As part of the stage 1 works a new stormwater discharge is to be constructed and a stage 1 infiltration system. Based on storm events up to the 50 year storm the infiltration tank will not overflow to the new connection. As such we consider stormwater quantity to be reduced post construction and during construction.

5.2 STORMWATER QUALITY

Bulk earth works, vegetation clearing activities during construction phases, if not managed adequately, can lead to increased soil displacement. This element is considered adequately managed in the Sediment and Erosion Control Plan and relevant details.

The post construction stormwater quality runoff for the relevant catchments are required to meed requirements for Council compliance and for GreenStar Compliance.

The construction is proposing to meet a 2 point targer under Credit 26 Stormwater for this project which places the pollution reduction target as per Colum B shown below.

Aim of Credit	To reward projects that minimise peak storm water outflows from the site and reduce pollutants entering the public stormwater infrastructure or other water bodies.
Compliance Criteria	All stormwater discharged from the site must meet the Pollution Reduction Targets outlined in column B or C as a minimum of the following table:

Pollutants	**Reduction Target (% of the typical urban annual load)**		
	A	B	C
Total Suspended Solids (TSS)1	80	80	90
Gross Pollutants	85	90	95
Total Nitrogen (TN)2	30	45	60
Total Phosphorus (TP)2	30	60	70
Total Petroleum Hydrocarbons3	60	90	90
Free Oils3	90	90	98

5.3 FLOODING

Construction works can sometimes generate additional site runoff contributing to flooding of adjacent or downstream sites during significant rainfall events or in the absence of relevant flood protection measures such as temporary water containment.

This has been provided for this site using the two infiltration tanks. As such the construction stormwater runoff will be less than the current site runoff.

The site flood level is RL 2.65m for the 100 year ARI storm event which places the site above this level meaning the site material stockpile locations will be safe from significant migration during this event.

5.4 WET WEATHER EVENT MANAGEMENT

As noted above the site is unaffected by flooding up to the 100 year even based on the site levels. This will be further safe guarded by the raised site levels as per the approval.

There is a risk during large rain events that water runoff will result in sediment washing off site and or damage to the sediment and erosion control systems in place.

The following mitigation measures will be implemented for the following scenarios

General Management

- forecast for heavy rain and make decisions on the following accordingly.
- storage of hazardous materials and equipment away from flow paths and known drainage channel
- layout of site compound facilities to take into consideration of the flow paths which are shown on the sediment and erosion control plans and the civil drawings.
- ensure evacuation routes are kept clear during high risk periods based on weather and storm forecasts.
- ensure loose materials, fuel, chemicals and equipment can either be secured or removed during a flood event if required
- equipment shall be covered as required if runoff from equipment can be hazardous or create sediment or oil displacement.

1-year ARI

- Brief personnel at prestart
- Review of all current ERSED controls and ensure ESCP is still current
- Stormwater would be managed using the following controls
    - o Sediment fencing
    - o Diversion bunds / swales
    - o Coir logs/ sandbags/ silt socks

- Upstream stormwater runoff is expected to bypass the site using the swale system proposed. Other runoff will be minimum given the moderate infiltration rate and be handled by the ESCP.

5 Year ARI

- Implement as above for the 1-year ARI event
- Ensure all plant and equipment are removed from areas of concentrated flow
- Sedimentation basins maximum capacities will be maintained where practically possible

100 Year ARI

• Implement as above for the 1-year ARI event

• Remove all plant and equipment from site areas where there is potential for inundation

• Perimeter controls are not expected to be breached.

• Flow will be directed to the street for the existing buildings in placeprior to commencement of the stage 2 works. There will always be a site connection to the street for site water to be drained based on the stage 1 system or the existing system which is to remain prior to commencement of stage 2 works.

6 CONSTRUCTION IMPACTS

6.1 EROSION CONTROL

Erosion control is primary to a erosion and sediment control strategy. This can be achieved through:

- Limiting the area of disturbance and only disturbing what is required. Also limiting the time period of disturbance.
- Integrating elements that reduce or control the volume of water moving over surfaces. This includes, diversion through swales and table drains, and piped or lined channels to stabilised outlets.
- Measures the slow the velocity of water over exposed surfaces within the construction area such as hay bail barriers, introducing roughness, flow check measures, textiles, binding compounds or exposed surface protections. Binding products and surface protection can be spray on stabilisers, mulches, blankets, temporary vegetation and permanent progressive landscape construction.

The above is achieved using the correct implementation of the Erosion and Sediment Control Plan shown on the engineering drawings and any other recommendations in this report.

To achieve the requirements of not concentrating water flows which can lead to transportation of sediment off site it is recommended the swales on the stormwater design drawings be constructed as soon as practicable to divert upstream water around the site.

6.2 SEDIMENT MANAGEMENT

This is secondary to erosion control in minimising water pollution as a result of construction. Where required sediment basins are generally located at the low points of site discharges.

Requirements for sediment control basins are in accordance with Section 6.3.2.d of the Managing Urban Stormwater: Soils and Construction (the Blue Book). The soil loss from the catchment is led than that required for a sediment basin and as such one is not required.

6.3 STOCKPILE STABILISATION

As there is significant volumes of fill being proposed for the site it is foreseeable that material stockpiles will be required unless can be demonstrated as other by the Builder Taylor Constructions. Stockpiles within the site which will be in effect for more than 10 days should be stabalised. As per the Erosion and Sediment Control Plan all stockpiles are to have sediment fences on the downstream

slopes and generally should be located a minimum of 5m from overland flow swales. If unused for 10 days then stockpiles shall also be stabalised in accordance with the below relative to the relevant material in the stockpile:

- Coarse grained stockpiles
  - Downstream perimeter rock armouring.
- Less coarse grained stockpiles
  - Polymer binder application
  - Application of hydro-seed or hydromulch.

6.4 HAZARDOUS MATERIALS

Hazardous material can often be transported to the site for construction purposes or from the site in the form of asbestos removal during demolition works. This will be addressed in accordance with the Construction Waste Management Sub-Plan (CWMSP) condition B16 prepared by others.

6.5 MANAGEMENT MEASURES

6.5.1 Topsoil management

As part of works topsoil is to be stripped and stockpiled for use later in the project. Stopsoil stockpiles shall be treated as per the requirements of stockpiles noted above.

6.5.2 Wind Erosion Management

At a minimum, exposed areas will be watered regularly to minimise dust and water carts to be readily available as this is an ongoing process. Additional watering may be required on windy days.

6.5.3 Site Drainage

As noted above, the swales are to be constructed as soon as practicable and treated in accordance with the above. This will prevent external catchment runoff penetrating the site. A bentonite impregnated geotextile liner will be used (Bentofix or equivalent) in unsealed sections of the working areas. This will form a suitable barrier to prevent contaminants from working areas entering the ground water or contaminating the soil of the site.

6.5.4 Revegetation Earthworks

Areas where earthworks have been completed are to be stabalised within ten days in accordance with the above recommendations. All erosion and sediment control are to remain inplace until stabilisation or revegetation is established. All stabalised areas are to be free of vehicle traffic to prevent disturbance.

Stabalisation of earthworks include, but are not limited to the following:

- Mulch covers
- Latex tape sprays
- Bitumen emulsion sprays
- Tarp cover
- Grass seeding

For areas stabalised with seeding, regular watering is required until an effective ground cover has been established. Re-seeding may be required in areas if inadequate coverage.

6.5.5 Maintenance Controls

Erosion and sediment control measures should be inspected and maintained regularly, generally daily and within 24 hours of each rainfall event. The site supervisor should be responsible for this to be undertaken. It is recommended the daily inspection be recorded including the following relevant information:

- Condition of each element noted on the Erosion and Sediment Control Plan
- Any maintenance requirements of each element
- Volume of sediment removed and if the location of the element is appropriate. Disposal method of site trapped sediment.
- Condition of site entry and gravel rip/rap
- Condition of stockpile protection if relevant
- Site stormwater disposal location conditions
- Drains checked to ensure adequate site runoff and for signs of erosion
- Any sediment erosion control linings
- Condition of revegetation works if relevant.

It is recommended these are sent to the Superintendent weekly.

6.5.6 Auditing

Auditing of the above and importing of soil material and controlled fill shall be monitored and tracked in accordance with the CEMP condition B13 of the CoC.

6.5.7 Responsibility

The Contractor is deemed to have the following responsibilities in relation to Soil and Water Management of this site:

- To ensure all works noted above are undertaken as instructed and generally in accordance with the Blue Book (Managing Urban Stormwater – Soils and Construction, Landcom 2004.
- All sub-contractors are made aware of their responsibilities in this area and made accountable.
- Checks are completed in accordance with the above Maintenance Controls (6.5.5)

7 REFERENCES

Geotechncial report by Cardno reference 5017190151 dated 23 January 2019

Schematic Design Report – Civil prepared by Birzulis Associates Pty Ltd dated 24 June 2020 revision C

Rockdale LEP 2011 – Part 6.1 Acid sulphate soils

Rockdale DCP 2011

Landcom (2004) Managing Urban Stormwater: Soils and Construction known as the Blue Book

Acid Sulfate Soils Management Plan prepared by Cardno reference 80818157 dated 23 January 2019.

8 APPENDIX A – Acid Sulfate Soil Management Plan

4 Acid Sulfate Soil Management Strategy

The following sections detail the management strategy for ASS on the project, and management measures to be applied in the event that ASS is disturbed. The management measures will apply to disturbance of natural soils at depths of 7 mBGL and greater. Precautionary measures including inspection should be undertaken for any disturbance of soils at and below the water table (nominally 3.8 to 3.9 mBGL) if required.

All earthworks, ASS treatment and stockpiling of soil must be undertaken in accordance with the project environmental controls and management plans. The Contractor is required to review the applicable plans and satisfy themselves that works on the site conform to requirements detailed in all applicable documents including this ASSMP.

Cardno has evaluated various options for the management of ASS on the site during construction works. These are discussed in subsequent sections.

4.1 Avoidance Strategies

During detailed design of the project, opportunities to reduce the disturbance of ASS on site have been identified. The avoidance of disturbing ASS beneath the Site has been selected as the primary mitigation measure for the project. In general, relatively limited disturbance of natural soils will be required, and works with the exception of piling for the main building foundation are currently proposed to occur above the water table, and not disturb ASS.

4.2 Minimisation of Disturbance

The likelihood and duration of disturbance should be minimised through detailed project planning. In general, efforts should be made to:

- Reduce the amount of ASS disturbed during the project;
- If ASS is to be disturbed, minimise the duration untreated soil is stockpiled; and
- Reduce the duration soil surfaces (including excavations) are left exposed.

Cardno has been advised that in accordance with the project mitigation strategy of disturbance avoidance that Screw / Helical Piles have been selected as an appropriate piling method for the building foundation piles which will require penetration of the ASS. This method removes the need for the exposure and potential oxidation of ASS by eliminating spoil return from pile borings. Should other methods of piling be required due to design or construction constraints, the contingency measures below should be employed.

4.3 Excavation Inspection

During excavations into natural soils that encounter the water table or depths of 7 mBGL inspection of excavated spoil should be undertaken by a suitably trained person for indictors of ASS. These excavations may include building footings, water tank installation pits, and infiltration system pits. If indicators such as sulphurous odours, organic matter, mottling or staining are observed, a suitably qualified environmental scientist should be engaged to undertake confirmation sampling for the presence of ASS as required. If ASS is identified, the contingency protocols in the sections below will be implemented.

5 Contingency Protocols

The following section details the contingency protocols for management measures in the event that works on site require excavation and treatment of ASS and/or groundwater interference or dewatering.

5.1 Excavated Soils

If soils identified as PASS are to be treated promptly following excavation (refer to **Section 5.1.4** for maximum stockpiling durations). Treatment should be achieved through the addition of the prescribed quantity of lime to the soil followed by mechanical mixing to ensure the lime is evenly mixed through the soil. Mechanical mixing of soils can be undertaken using earthmoving equipment, pug-mills or similar.

A review of analytical results obtained from the soil investigation programs undertaken on the site (Cardno 2019a) showed S_{CR} concentrations ranged from 0.05 to 0.35 %S. This ASSMP has taken a conservative approach and based the liming or neutralisation rate on the highest S_{CR} concentration (0.35 %S). The liming dosing rate for this project has been calculated in general accordance with the guidance contained within the ASSMAC Guideline (Stone et al., 1998).

Specifically, the lime dosing rate calculation incorporates:

- Sulfur concentrations as Net Acidity;
- An Effective Neutralising Value (ENV) of 1 (pure, finely ground lime with a particle size <0.3mm); and
- A safety factor of 1.5.

The liming rate for excavated PASS on site is 8.8 kg of lime per tonne of soil. Note for geotechnical purposes to improve the physical properties of the soil a higher liming rate may be required, if so designated by the Geotechnical Engineer.

If an alternative neutralising media is selected (i.e. using crushed limestone or other low ENV coarse granular material) a re-calculation of the neutralisation equation should be undertaken and the liming rate adjusted accordingly.

5.1.1 Excavation Surface

If excavated surfaces are to remain exposed, these exposed surfaces should also be applied with the lime at the rate specified in **Section 5.1**. To minimise further disturbance of Potential Acid Sulfate Soils below the final excavation level, the lime should be mixed into the upper 100mm of residual soil, then validated against the performance criteria specified in **Section 5.1.2**.

5.1.2 Soil Treatment Performance Criteria

The following performance criteria should be met to confirm effective neutralisation of soils:

- The neutralising capacity of the treated soil must exceed the existing plus potential acidity of the soil (e.g. pH_{FOX} must be > 5);
- The neutralising material has been thoroughly mixed with the soil pH must be in the range 6.0 to 8.5;
- Excess neutralising agent must remain within the soil until all acid generation reactions are complete and the soil has no further capacity to generate acidity.

If the performance criteria above are not met, additional rounds of lime treatment should be undertaken until the criteria are satisfied.

5.1.3 Validation Testing

Following lime treatment of excavated soils, soil validation sampling is required to confirm the effectiveness of the treatment. Stockpile samples should be collected at the rate specified in Table 1 of the ENM Order (NSW EPA, 2014) and analysed for pH_F and pH_{FOX}.

For the purpose of assessing the QA/QC performance of the soil validation testing program 5% of samples (1 in 20) should be submitted for acid – base accounting at a laboratory NATA accredited for such analysis.

5.1.4 Stockpiling Durations

Where ASS are to be treated and re-used on site, short term stockpiling is permissible. The maximum stockpiling durations for untreated soils are summarised in **Table 5-1**.

Table 5-1 Maximum ASS Stockpiling Duration

Material Type	Approximate Clay Content (%)	Maximum Duration of Stockpiling
Coarse texture Sands to loamy sands	≤5	14 days
Medium texture Sandy loams to light clays	5-40	21 days
Pyritic peat	N/A	21 days
Fine texture Medium to heavy clays & silty clays	≥40	28 days

5.1.5 Soil Treatment Area

ASS treatment of stockpiled soils should be conducted on a purpose constructed treatment pad for the mechanical application of the neutralising agents and/or for short-term stockpiling of soils.

DER (2015) provides recommendations for the minimum construction requirements for Acid Sulfate Soils Treatment pads. The treatment pad may be constructed to either of the following general specifications:

- Constructed using an alkaline material, such as crushed limestone or lime-treated material with a minimum thickness of 300 mm and a 150 mm high bund around the edges. The pad should be compacted to minimise infiltration and be graded such that rainwater runoff is directed to a collection point within the pad.
- An impervious physical barrier such as a bunded concrete slab, compacted clay or layer of bitumen may be used as a treatment pad. In this case the base layer should be slightly domed or sloped to prevent leachate from pooling in the treatment pad, with a run-off collection drain constructed at the margins of the pad to manage run-off.

Treatment pads should be located on stable ground, away from overland flow paths and preferably in locations where bund and run-off / leachate collection pond construction does not disturb in situ ASS. Treatment pads should be set up to allow maximum treatment batch sizes of 500 m^3 at a time as it can be difficult to representatively sample larger batches, and re-treatment of large failed batches is expensive.

If earthworks are to be undertaken during a period where significant rainfall is expected the pad construction will also need to incorporate a lined sump area to enable collection of run-off for appropriate treatment. Run-off collected in this manner shall be directed to a dewatering effluent treatment area for assessment and treatment if necessary.

5.2 Groundwater Management

Groundwater monitoring results to date have indicated that groundwater at the site has of pH of between 6 and 7, which is considered representative of rainwater infiltration, however should disturbance of ASS on the project be required, it is recommended that further monitoring be conducted to monitor possible impacts.

Groundwater monitoring should be undertaken during construction or when dewatering, if there are sustained exceedance of the adopted surface water performance criteria and/or by visual evidence of impact (e.g. widespread jarosite mineralisation, stressed vegetation or impact to flora / fauna).

If required, groundwater monitoring would likely be conducted using the existing bore network, or with supplementary bores for the purposes of:

- Detection of groundwater impact potential resulting from the disturbance of ASS and/or dewatering;
- Assessment of up-gradient (background) groundwater quality;
- Estimation of groundwater flow direction.

If required, groundwater monitoring should include field gauging of groundwater water levels and physicochemical parameters (pH, redox potential, electrical conductivity, dissolved oxygen, temperature):

- Once a week during dewatering.
- Once approximately one month following completion of construction works.

Groundwater monitoring with collection of samples for analytical testing should be conducted in accordance with methodologies outlined in AS NZS 5667.11 - 1998 *Water Quality - Sampling Part 11 Guidance on Sampling of Groundwaters*.

Groundwater samples should be analysed for pH, electrical conductivity, heavy metals, nutrients and anions and cations. If groundwater monitoring shows deterioration in groundwater quality additional monitoring should be undertaken.

5.3 Additional Contingencies

5.3.1 Weather Events

It is the responsibility of the Principal Civil Contractor (PCC) to take precautions in response to environmental conditions or adverse weather events. The principal weather related risk for this project is likely to be heavy rainfall events, given the project location. The PCC should prepare procedures that detail the proposed responses to forecast heavy rainfall events. These procedures should consider the risks posed by flooding of the work site, stockpiling locations and the ASS treatment areas.

5.3.2 Over Liming

Where lime treatment of the soil results in overshooting of the upper pH performance criteria (pH 8.5), the PCC should segregate this soil from other soils on the site. The advice of an environmental professional should be sought in relation to potential management / disposal options, having consideration for the alkalinity of the soil, and the potential for the discharge of alkaline water as run-off.

Potential disposal options include:

- Blending of the soil with other untreated ASS materials;
- Deep burial of the soil; and
- Disposal of the soil to landfill.

5.3.3 Offsite Disposal of Soil

Where offsite disposal of treated ASS is required, this material should be classified in accordance with the NSW EPA (2014) *Waste Classification Guidelines*. Due to the presence of Acid Sulfate Soils, *Part 4: Acid Sulfate Soils* of the NSW EPA (2014) *Waste Classification Guidelines* will apply to natural soils at depth identified as PASS, which details timing for excavation and disposal requirements as well as the licensing requirements for landfills accepting the soil.

9 Appendix B – CV of Engineer

CAMERON AMRI
SENIOR CIVIL & STRUCTURAL ENGINEER

Bachelor of Engineering in Civil Engineering
University of Technology Sydney

Professional memberships

Member of the Institution of Engineers, Australia
Chartered Professional Engineer (CPEng)
Registered on the National Engineering Register (NER)
Registered Professional Engineer of Queensland

Experience
Since completing his degree in 2007, Cameron has worked as a civil structural engineer for MLH, Kneebone & Beretta, E2 Design and for Birzulis Associates Pty Ltd.

A selection of projects Cameron has been involved in:

Aged Care
- HammondGrove, Hammondville
- Scalabrini Village Bexley
- Scalabrini Village Drummoyne
- Scalabrini Village Austral
- Scalabrini Village Chipping Norton
- Scalabrini Village Griffith
- Scalabrini Village Yoogali

Religious
- Our Lady of Mount Carmel
- Catholic Parish of Mary Immaculate

Education
- Thomas Reddall High School
- Westmead Public School
- Springwood High School
- Chifley Campus
- Parramatta West Public School
- Blacktown Tafe
- Wiley Park Girls High School
- Chester Hill High School
- Doonside High School
- Westfield Sports High
- Ingleburn High School
- Wenona School, North Sydney
- Granville Public School
- Bellevue Hill Public School
- Riverstone High School
- Mount Annan Public School
- Matthew Pearce Primary School
- Mount Druitt Tafe
- NirimbaTafe

10 Appendix C – Evidence of Consultation with Council

Post Approval – Consultation

Consultation needs to be meaningful, done with courtesy and respect and be well documented. These are people/ organisations that we need to be building meaningful relationships with.

Conditions of all consent can require consultation with a range of stakeholders. Consultation in the post approval world needs to be well documented to satisfy the condition requirements.

Examples include Council, service providers (eg. Electricity gas etc.), consult with local bus provider and TfNSW.

Read each condition carefully, any reference to consult triggers consultation.

Typically on State Significant Development, there will be a specific consultation condition as to how this piece can be appropriately addressed.

Consultation is not:

- A token gesture
- Done at the end of the piece of work,
- An email to the relevant stakeholder with no response;
- A meeting with the stakeholder with no meeting minutes.

Consultation is:

- Meaningful
- Done prior to the requirement,
- Captures an outcome,
- Identifies matters resolved,
- Identifies matters unresolved,
- Any disagreements are disclosed; and
- How we are going to address unresolved matters?

How to capture all the relevant details on consultation requirements? Any consultation requirement in a condition is required to be accompanied with the following table:

Post Approval Consultation Record

Identified Party to Consult:	Bayside Council
Consultation type:	Phone and email correspondence
When is consultation required?	During the Design phase, prior to construction
Why	Condition Number B17 and Condition requiring consultation with Council requiring the report be prepared in Consultation with Council.
When was consultation scheduled/held	Phone conversation with 2 July 2020 and email correspondence. Email correspondence on 2 July 2020. Email correspondence on 3 July 2020. Email on 7 July 2020. Phone discussion 30 July 2020 Email 5 August 2020 Email on 3 September 2020
When was consultation held	As per the above.
Identify persons and positions who were involved	Christopher Thompson from Bayside Council
Provide the details of the consultation	Phone conversation with the above and the author of this report 2 July 2020 and email discussing the project. Introduction to the type of project and the overall civil design intent. Specifically, the biological control and the infiltration system proposed and Construction Soil and Water Management Plan. Email correspondence on 2 July 2020 with the above and the author of this report sending copy of the civil drawings to Bayside Council including DRAINS file. Email correspondence on 3 July 2020 with the above and the author of this report discussing infiltration system maintenance requirements and access to provide maintenance to infiltration system. Email on 7 July 2020 with the above and the author of this report sending copy of the first version of this report to Council as required under the requirements of Consulting with Council. Phone discussion with Christopher Thompson discussing the Construction Soil and Water Management Plan draft that was sent for Council response and the biological controls. It was agreed that we would provide biological control upstream of the infiltration system and there were no stipulations from Council regarding the Construction Soil and Water Management Plan.
What specific matters were discussed?	Biological control, Construction Soil and Water Management Plan, infiltration system types and maintenance, and software modelling.
What matters were resolved?	Infiltration system specific product was approved.
What matters are unresolved?	On phone conversation today Birzuils has agreed to provide biological control upstream of infiltration system. Please note this is not related to Construction Soil and Water Management Plan. There are no unresolved matters regarding this report. We had to comment on the biological control as it comes up as unresolved in the attached email correspondence. We have verbal confirmation with Christopher Thompson from Bayside Council there are no unresolved matters pertaining to this report. We have agreed to continue consulting regarding the stormwater biological control.

Any remaining points of disagreement?	Nil regarding this report's scope.
How will SINSW address matters not resolved?	There are no matters unresolved for this report.

Cameron Amri

From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Monday, 14 September 2020 12:21 PM
To: Cameron Amri
Subject: RE: KYEEMAGH Public School
Attachments: Construction Soil and Water Management Plan Kyeemagh Public rev D.pdf

Hi Cameron,

I can confirm it is acceptable and I have no issues with the Construction Soil and Water management Plan.

Best regards,

Christopher Thompson Development Engineer
444-446 Princes Highway, Rockdale NSW 2216
T 02 9562 1645
E christopher.thompson@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

From: Cameron Amri [mailto:camri@birzulisassociates.com]
Sent: Monday, 14 September 2020 12:04 PM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Subject: RE: KYEEMAGH Public School

Hey mate,

Hope you had a great weekend.

I'm getting grief from SiNSW that I need firm "evidence" that I have consulted with Council about this report. I have commented that we have discussed all the issues and the only area that initially was unresolved that is now resolved is the biological control given we have inputted treatment upstream of the biological system. Is there any chance that you can respond to say Council has no issues with the proposed report. The latest report is attached.

Regards

Cameron Amri
Civil & Structural Engineer
BIRZULIS ASSOCIATES
583 Darling Street
Rozelle NSW 2039
(02) 95557230
0456 316 513
camri@birzulisassociates.com
www.birzulisassociates.com

From: Cameron Amri
Sent: Thursday, 30 July 2020 8:56 AM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Subject: FW: KYEEMAGH Public School

Hey mate,

Hope you are having a great week. Any comment on this report. Is Council happy with it?

Regards

Cameron Amri
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camri@birzulisassociates.com
www.birzulisassociates.com

From: Cameron Amri
Sent: Tuesday, 7 July 2020 12:35 PM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Subject: RE: KYEEMAGH Public School

Hello again,

Hope you are having a great week. I'm required by the State Significant Development CoC to "consult with Council" regarding this report. Attached is the draft report.

I think the report will help to understand our argument that there is no significant need to treat water as part of biological control as the site is not an industrial site with a chemical operational cycle but I think we can add some for of treatment system for the car park water which would be good to filter prior to the infiltration system. I'm happy to update the plans to reflect that. 😊

Regards

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camri@birzulisassociates.com
www.birzulisassociates.com

From: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Sent: Friday, 3 July 2020 11:33 AM
To: Cameron Amri <camri@birzulisassociates.com>
Subject: RE: KYEEMAGH Public School

Hi Cameron,

I could not review the drains file for some reason. Anyway I have attached the calculation spreadsheet we have on file for your review.

The music model must be run and treatment measures shall be made prior to stormwater entering the infiltration system (infiltration system cant be used for stormwater treatment). The results should be attached to the stormwater plans at the end and details for treatment measures provided.

Happy to have ACO stormbrixx used, you just need to be certifying that design is acceptable with regards to achieving the requirements of Rockdale Technical Specification Stormwater Management.

Emergency overflow needs to be addressed to ensure that no ponding occurs within the school.

Maintenance needs to be provided for to ensure that the system can be readily and easily maintained. This should be via pits that are readily accessible I.e. 900x900mm wide. Does the manufacturer address maintenance for ACO stormbrixx? Could you provide this information to me?

All pits are to be provided with Child proof J-Locks or similar.

Best regards,

Christopher Thompson Development Engineer
444-446 Princes Highway, Rockdale NSW 2216
T 02 9562 1645
E christopher.thompson@bayside.nsw.gov.au **W** www.bayside.nsw.gov.au

---

From: Cameron Amri [mailto:camri@birzulisassociates.com]
Sent: Thursday, 2 July 2020 1:47 PM
To: Christopher Thompson <Christopher.Thompson@bayside.nsw.gov.au>
Subject: RE: KYEEMAGH Public School

DRAINS model is attached. There will be a balance pipe between the tanks which will make them work as one large tank but we have split in the design to take into account the staged construction.

Regards

Cameron Amri
Civil & Structural Engineer
BIRZULIS ASSOCIATES
583 Darling Street
Rozelle NSW 2039
(02) 95557230
0456 316 513
camri@birzulisassociates.com
www.birzulisassociates.com

From: Cameron Amri
Sent: Thursday, 2 July 2020 1:46 PM
To: 'christopher.thompson@bayside.nsw.gov.au' <christopher.thompson@bayside.nsw.gov.au>
Subject: KYEEMAGH Public School

Hi Chris,

Thank you for your time. This is what I have in mind at this stage. I will be updating the plans to remove the granite paving as it doesn't comply with the EFS&G and upgrading infiltration tank 1 to a stronger product that can take vehicle loads. Also I will move tank 1 away from any possible vehicle loads as a safeguard just in case.

I will send the DRAINS file separately. There is also a MUSIC model but with infiltration and very little site run-off the targets are met very easily.

Basically all I'd like is Council approval for the use of this type of infiltration system and if you see any areas of uncompliance to Council's stormwater Guidelines.

Regards

Cameron Amri
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camri@birzulisassociates.com
www.birzulisassociates.com

From: Ricketts, Luke <Luke.Ricketts@aco.com>
Sent: Wednesday, 24 June 2020 10:43 AM
To: Cameron Amri <camri@birzulisassociates.com>
Subject: FW: ACO STORMBRIXX KYEEMAGH

Hi Cameron,

Great to meet you yesterday.

ACO's StormBrixx HD tank is recommended for the Kyeemagh Public School project. See attached parts list, specification information and general installation drawings (2 Layer HD).

For the 100m³ infiltration tank, the recommended StormBrixx HD tank has a size of 14.4m x 6m x 1.22m (2 layer). The tank has a net volume of 100.14m³ (100.14kL) and gross volume of 105.41m³.

Customer to check and confirm tank size, geotextile, tank accessories and the number of access points are suitable for the project. Access shaft and access shaft riser recommended at the location of the inlet and outlet pipes, refer to page 24 in brochure.

The links below show the ACO StormBrixx products installed in recent projects:
https://www.acostormbrixx.com.au/portfolio-item/canberra-data-centre-canberra-act/
https://www.acostormbrixx.com.au/portfolio-item/azure-retirement-village-and-hub-canberra-act/

StormBrixx Technical Handbook and Product Catalogue can be downloaded at: www.acostormbrixx.com.au/

Installation guidance: https://www.acostormbrixx.com.au/product-support/installation/

For design assistance on your next project, Click here.

Regards,

Luke Ricketts

Luke Ricketts | Specification Sales Representative
ACO Pty Ltd
134-140 Old Bathurst Road | Emu Plains NSW 2750
Tel.+612 4747 4000 | Fax +612 4747 4040
Mobile +61 413 750 708 | Luke.Ricketts@aco.com
http://www.acoaus.com.au/

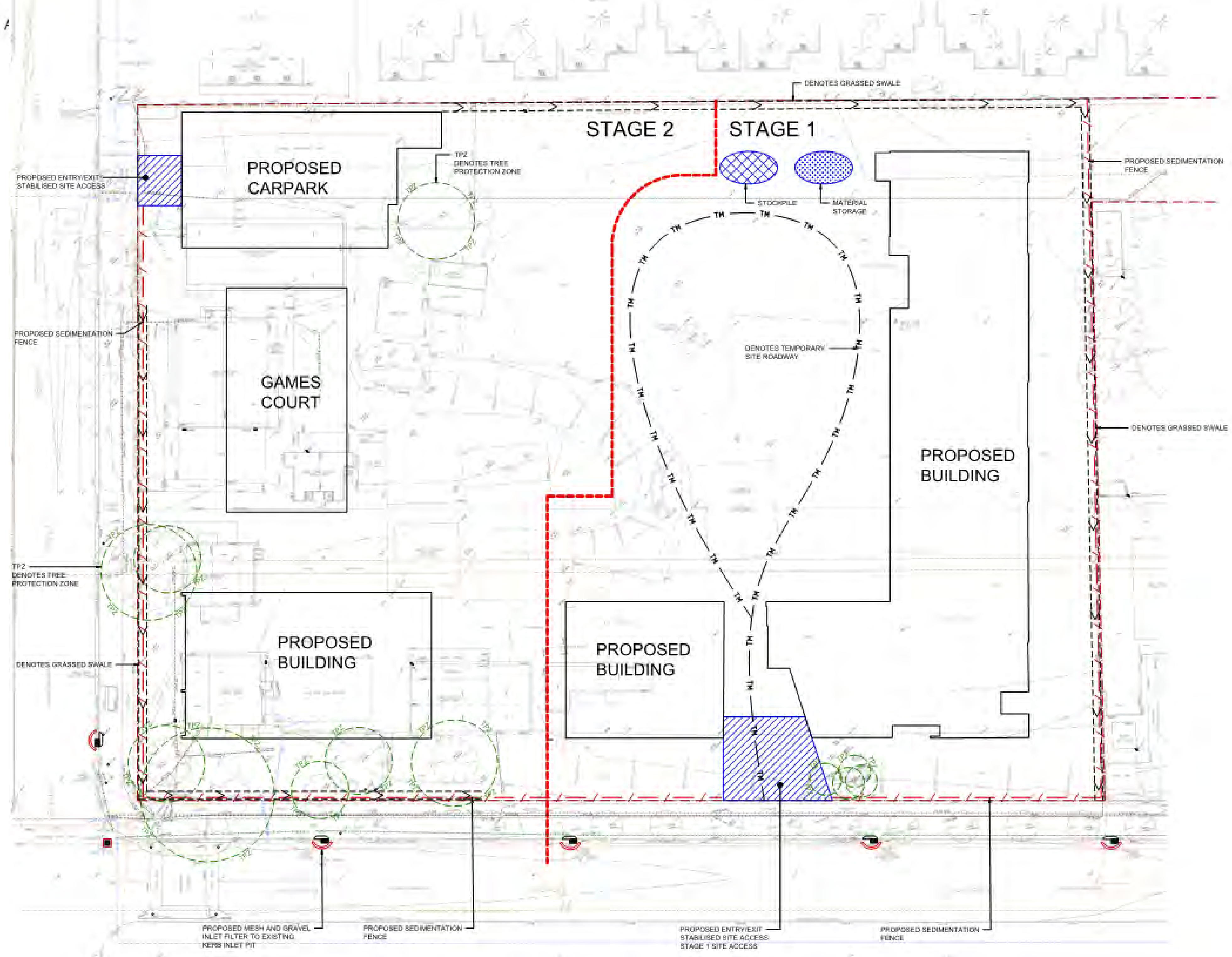
4

11 Appendix D – Erosion and Sediment Control design drawings

Drawings prepared by Birzulis Associates Pty Ltd. The latest version of each of these documents and this report should be used at all stages during the construction.

BIRZULIS ASSOCIATES Pty Ltd
Consulting Structural + Civil Engineers

Sydney Office
583 Darling Street, Rozelle NSW 2039
Telephone: 9555 7230
Email: office@birzulisassociates.com



SOIL EROSION AND SEDIMENT CONTROL PLAN
SCALE 1:250

GENERAL NOTES.

1. THIS PLAN IS A CONCEPT PLAN ONLY FOR STORMWATER DISPOSAL & EROSION CONTROL. IT IS NOT SUITABLE FOR CONSTRUCTION. THIS PLAN SHOULD BE ADAPTED BY THE BUILDER DURING DEMOLITION, EXCAVATION & CONSTRUCTION PHASES TO ENSURE ADEQUATE PERFORMANCE.
2. ALL DRAINAGE LAYOUT & DETAILS ARE DIAGRAMMATIC & INDICATIVE ONLY. ACTUAL LOCATION, SIZES, LEVELS & GRADES MAY LATER WHEN DETAIL DESIGN WORKS ARE DOCUMENTED.

EROSION & SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
2. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
3. NO PARKING OR STOCKPILING OF MATERIAL IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
4. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
5. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

NOTE:
THIS PLAN IS TO READ IN CONJUNCTION WITH THE CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN

NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
2	[illegible]	-	[illegible]
1	[illegible] APPROVAL	-	[illegible]
P3	SURVEY ADDED	-	[illegible]
P2	SCHEMATIC DESIGN ISSUE	-	[illegible]
P1	DRAFT [illegible] ISSUE	-	[illegible]

ARCHITECT
TAYLOR

BIRZULIS ASSOCIATES
CONSULTING STRUCTURAL & CIVIL ENGINEERS
583 DARLING STREET ROZELLE NSW 2039
tel: (02) 9555 7230 email: office@birzulisassociates.com
www.birzulisassociates.com

PROJECT
KYEEMAGH PUBLIC SHOOL
JACOBSON AVE, KYEEMAGH

TITLE
SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALES		DATE	
1:250 @ A1		MAY 2020	
DRAWN	DESIGN	VERIFIED	APPROVED
JM	CA/MG	-	-

ISSUE	PROJECT No.	DRAWING No.
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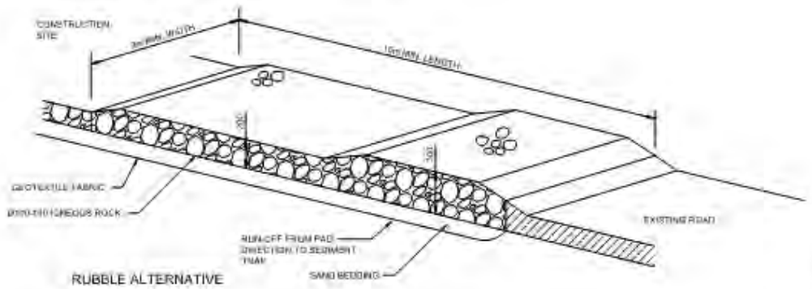
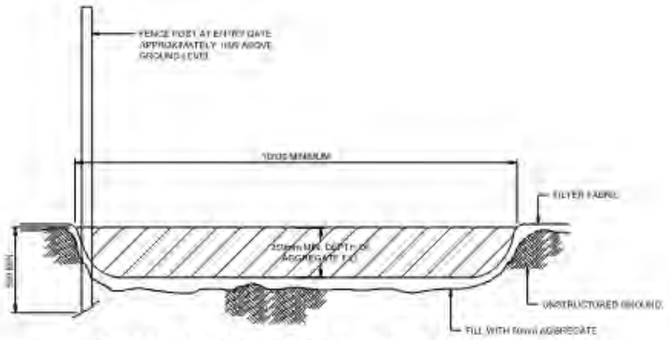
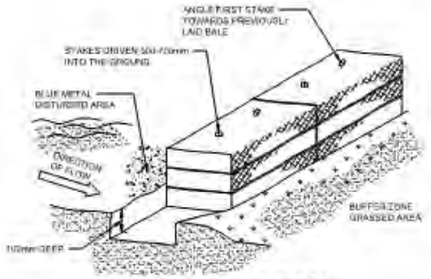


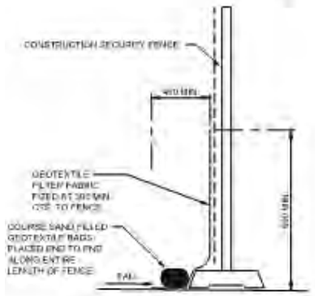
TEMPORARY CONSTRUCTION EXIT
NOT TO SCALE



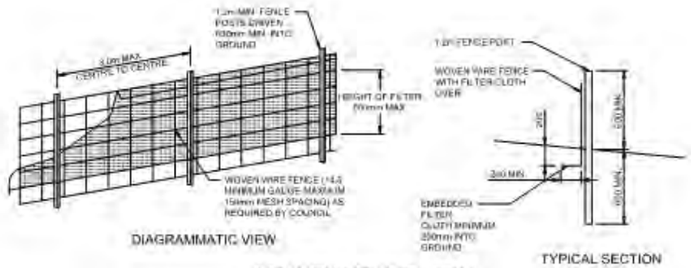
CROSS-SECTION OF CONSTRUCTION ENTRY/EXIT DETAIL
NOT TO SCALE



HAY BALE BARRIER DETAIL
NOT TO SCALE



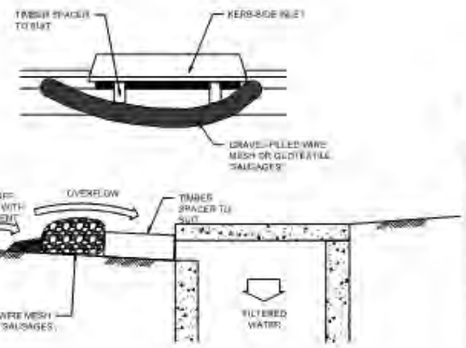
SEDIMENT FENCE ON PAVED SURFAC E
NOT TO SCALE



DIAGRAMMATIC VIEW

TYPICAL SECTION

SEDIMENT FENCE DETAIL
NOT TO SCALE

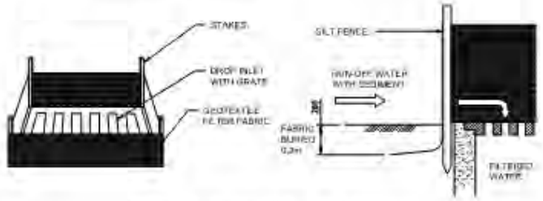


MESH AND GRAVEL INLET FILTER
SCALE 1:20

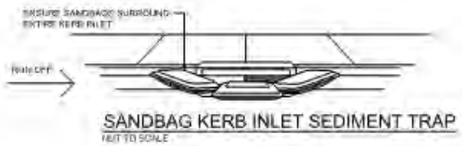
NOTES:

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS SECTION ABOUT 150mm HIGH AND 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE IN BETWEEN IT AND THE KERB INLET, MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT LADEN WATERS CANNOT PASS BETWEEN.

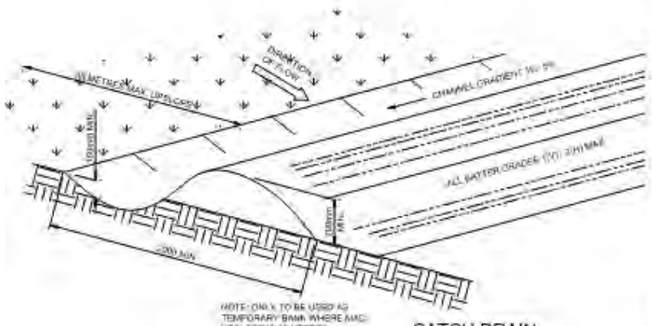
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP
NOT TO SCALE



SUMP SEDIMENT TRAP DETAIL
NOT TO SCALE



SANDBAG KERB INLET SEDIMENT TRAP
NOT TO SCALE



CATCH DRAIN
NOT TO SCALE

CATCH DRAIN CONSTRUCTION NOTES:

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION OF A TEMPORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
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 ASITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SWIPABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN 6 DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

STOCKPILES DETAIL
NOT TO SCALE

NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE

ARCHITECT
TAYLOR

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PROJECT
KYEEMAGH PUBLIC SHOOL
JACOBSON AVE, KYEEMAGH

TITLE
TYPICAL DETAILS - SOIL EROSION AND SEDIMENT CONTROL

SCALE:	DATE:
N/A @ A1	MAY 2020

DRAWN	DESIGN	VERIFIED	APPROVED
JM	CA/MG	-	-

ISSUE	PROJECT No.	DRAWING No.
2	7863	C.30