

Darlington Public School – Redevelopment – Stage 1 & 2, Construction Phase – Construction Soil & Water Management Plan in accordance with Condition B11 & B15

Condition	Condition requirements	Document reference
B11	<p>Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020).</p> <p>Note:</p> <ul style="list-style-type: none"> The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans. 	Refer Plan
B15	The Construction Soil and Water Management Sub-Plan (CSWMSP) must address, but not be limited to the following:	
	(a) be prepared by a suitably qualified expert, in consultation with Council;	<ul style="list-style-type: none"> Appendix B - CV & Council Consultation
	(b) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;	<ul style="list-style-type: none"> Section 2.8.1 p.17-8
	(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';	<ul style="list-style-type: none"> 2.8.1 p.17-8 2.8.2 p.18 Appendix A Soil and Water Management Plan

	(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);	<ul style="list-style-type: none"> • 2.8.1 p.17 • 2.8.2 p.18 • 2.8.3 p.19 • Appendix A Soil and Water Management Plan
	(e) detail all off-Site flows from the Site; and	<ul style="list-style-type: none"> • 2.6 p.13
	(f) 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 5-year ARI.	<ul style="list-style-type: none"> • 2.8.2 p.18





Proposed Darlington Public School Re-development

Construction Soil and Water Management Report

Issued for:

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Report Amendment Register

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Table Of contents

1. Introduction	4
2. Project Description	5
2.1. Location	5
2.2. Existing Topography and Drainage	5
2.3. Proposed Re-development	6
2.4. Water Quantity	8
2.5. Water Quality	11
2.6. Drainage	13
2.7. Flooding	14
2.8. Sediment and Erosion Control (During Construction)	17
3. Summary	20
Appendix A – Soil and Water Management Plan	21
Appendix B – CV of Author	22

1. Introduction

Meinhardt - Bonacci has been commissioned by A W Edwards to prepare this Construction Soil and Water Management Report to support the State Significant Development Application (SSDA) for Darlington Public School re-development at 417 Abercrombie Street Darlington within the City of Sydney Local Government Area. The proposed re-development consists of a new building to cater for increased population.

This report provides a summary of the proposed soil and water management strategy during construction phase which addresses the relevant items in the SSD-9914 Draft Conditions V1 dated 27-10-2020 as outlined below:

Condition Number	Condition Heading	Condition	Relevant Section
B11 & B15	Construction Environmental Management Plan	The Construction Soil and Water Management Plan must address but not limited to the following:	
		a) Be prepared by a suitably qualified expert, in consultation with Council;	See Appendix B for the CV of the author
		b) Measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;	2.8.1
		c) Described all erosion and sediment controls to be implemented during construction, including as a minimum measure in accordance with the publication Management Urban Stormwater: Soil & Construction (Landcom 2004) commonly referred as the "Blue Book"	2.8.1 2.8.2 Appendix A Soil and Water Management Plan
		d) Provide a plan of how all construction works will be managed in a wet-weather events (ie. storage of equipment, stabilisation of the site)	2.8.3 Appendix A Soil and Water Management Plan
		e) Detail all off-site flows from the site	2.6
		f) 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 5-year ARI	2.8.2

2. Project Description

2.1. Location

The proposed development is located in Darlington, NSW and within City of Sydney local government area. The site is bounded by Abercrombie Street to the south, Golden Grove Street to the west, a two-storey building on the northwest of the site and a private driveway and a student accommodation to the east. Refer to Figure 1 for a locality and aerial map of the proposed development.



Figure 1 Locality and Aerial Map of the Site (Source: Nearmaps)

2.2. Existing Topography and Drainage

The site is approximately 0.72 ha and generally slopes from the northwest corner of the site at RL 37.15 to the southeast corner of the site at RL 29.97 over 134 m which results in a steep gradient of approximately 5.4%. The site comprises of two basketball courts, teaching buildings and playgrounds. Most of the site (91%) is considered to be impervious (mixture of concrete and bitumen) with limited garden areas.

The existing internal drainage system appears to be discharging via 11 kerb outlets to the kerb and gutter system on Abercrombie Street and Golden Grove Street. The existing overland flow path is running in a north to south direction to Abercrombie Street.

Additional survey provided by C.M.S Surveyor on 12th March 2020 indicates that there is an existing 375mm concrete drainage pipe on Golden Grove Street, the pipe is running in a north-south direction. Survey also indicates that western portion of the site is currently discharging to Golden Grove Street via the kerb outlets,

the flows are expected to be captured by the kerb inlets pits further downstream, and eventually conveyed by the 375mm concrete drainage pipe mentioned previously.

2.3. Proposed Re-development

The proposed development consists construction of a new building between 2 & 3 stories and new landscape areas and a new basketball court. In order to keep the school functioning during the time of construction, staging is proposed.

The proposed development will include the following civil engineering elements:

- Earthworks cut/fill;
- Stormwater drainage system cater for the major/minor storm events defined by City of Sydney Council Development Control Plan (DCP);
- Stormwater quantity control using on-site detention systems;
- Stormwater quality control system using stormfilter cartridges;
- Soil and water management strategies during construction phase.

2.3.1. Staging

The development is proposed to be undertaken in 3 stages. Early works includes the construction of a games court. Stage 1 involves the construction of a new pre-school building, while southern portion of the site remains untouched during Stage 1. Stage 2 involves the construction of a new building in the southwest corner of the site. Refer to Figure 2, Figure 3 and Figure 4 for approximate construction staging extent.



Figure 2 Early Works (fjmt, 01.05.2020)

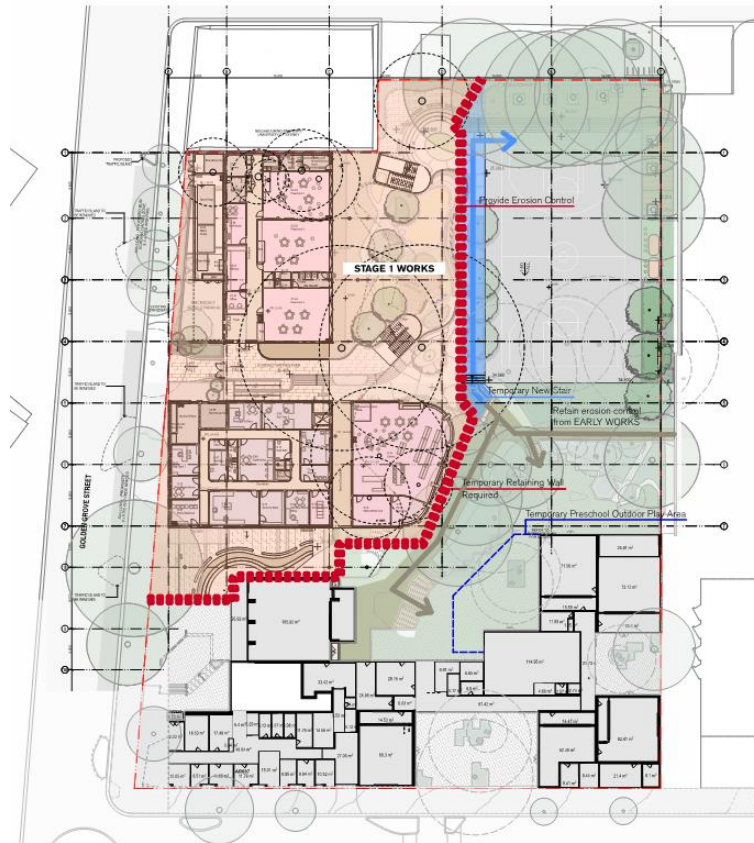


Figure 3 Stage 1 Works (fjmt, 01.05.2020)



Figure 4 Stage 2 Works (fjmt, 01.05.2020)

2.4. Water Quantity

City of Sydney Council has advised that Sydney Water are to approve any additional discharge into the existing street stormwater network. In accordance with Sydney Water On-Site Stormwater Detention Guide (2014), an on-site detention system is required for all education buildings or structures, therefore because of the change in development, Sydney Water would view this a new development enquiry.

Sydney Water has been contacted and they advised that to determine the Permissible Site Discharge (PSD) and Site Storage Requirement (SSR), they required total site area, pre-development and post development areas are to be provided to Sydney Water. Based on the architectural plan by fjmt Architects dated 21st November 2019, the following information was provided to Sydney Water:

- Total site area: 7,260.65 m²
- Pre-development impervious area: 5,711.81 m²
- Post development impervious area: 5,343.43 m²

Based on above information, Sydney Water advised a detention system with minimum volume of 124 m³ is to be placed on site to limit the peak flows discharging from the site and (with a Permissible Site Discharge of 248 L/s). Sydney Water further suggested approval for the OSD would only be given as part of the Section 73 application for this development. However, based on the flow restrictions discussed below, the detention system will be larger than required minimum site storage.

The architectural plan was last updated on 3rd August 2020; however, the impermeable areas have not been changed significantly. Hence above advice of SSR and PSD from Sydney Water is still valid. The water quantity control measures for different stages have been outlined as below.

As outlined in the report on Detailed Site Investigation for Contamination by Douglas Partners dated February 2019, no free groundwater was observed in the bores during drilling for the short time that they were left open.

2.4.1. Early Works and Stage 1 Water Quantity Control

A meeting has been held between City of Sydney Council and Meinhardt - Bonacci on 17th March 2020, Council's advice on OSD system has been sought to ensure the proposed design is adequately complying with Council's intended water quantity control.

As discussed in Section 5.1, staging is proposed for this development to maintain school operations, which will result in not having final stormwater quality and quantity control measures in place during early works and stage 1. However, given that the existing early works and stage 1 catchment is approximately 15% more impermeable than the proposed catchment, it is anticipated that there is no increase in flow rates before the final installation of the OSD system. Council Engineer had no objection to this design approach.

2.4.2. Stage and Final Water Quantity Control

Following meeting with City of Sydney Council on 17th March to discuss options for stormwater discharge from the site, it was advised by Council engineer that the existing stormwater pit and pipe network on Golden Grove Street is currently at full capacity and undersized. To avoid overloading the existing public drainage system, the discharge rate from the site to Golden Grove Street will be limited to the pre-development condition. A hydraulic model has been set up in DRAINS to assess the existing and proposed drainage conditions.

Additionally, as per City of Sydney Technical Specifications A4 Stormwater Drainage Design, the maximum permitted discharge from any property to kerb outlet is 25 L/s for storms up to and including 20 year ARI. Technical specification advise the proposed development only permits on kerb outlet discharge.

As shown in the existing catchment plan in Figure 5. The catchments have been defined based on the existing points of discharge to Golden Grove Street and Abercrombie Street. As indicated in DRAINS model, the existing flows discharging from the site via the kerb outlets on Golden Grove Street is 53 L/s during 20 year ARI storm events. The existing discharging rate to Abercrombie Street is 288 L/s during 20 year ARI storm events.

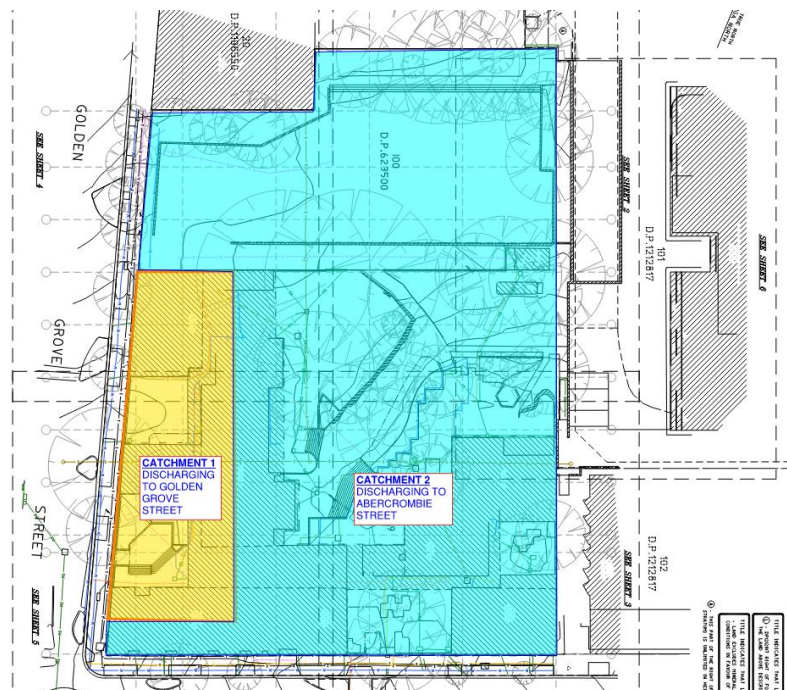


Figure 5 Existing Catchments

To limit the post-development flows to the extent outlined above, detention systems are required on site. 2 on-site detention (OSD) tanks are required – an OSD with an internal volume of 70 m³ OSD 1 discharging to Golden

Grove Street and a second one with an internal volume of 120 m³ OSD 2 discharging to Abercrombie Street via a single kerb outlet as per Council guideline, refer to Figure 12 for OSDs locations. The OSD system storage is subject to change due to the imperviousness of the final surfacing material.

DRAINS modelling results in Figure 7 and Figure 8.

The 2 OSD tank detention system is required for the following reasons:

- Additional survey of the existing drainage system on Golden Grove Street (received on 12th March 2020) confirmed the existing invert levels of the stormwater pipes to be higher than most of the southeast portion of the site, therefore it would be impossible to drain the entire site to one location, in this case more area will bypass OSD 1. In order to capture/treat as much stormwater as possible, OSD 2 is required on the lower end of the site and prevent a larger portion of the site from bypassing treatments.
- Demonstrating that no additional flows discharge to Golden Grove St to match the existing condition (60 L/s). Refer to DRAINS result shown in Figure 7 below, the flows discharging to the drainage line on Golden Grove Street is 30 L/s during 20 year ARI after treated by OSD 1, which reduces the flows rates to Golden Grove Street by half.
- City of Sydney have a maximum kerb outlet discharge rate 25 L/s. Refer to DRAINS result shown in Figure 7, the flows discharging to the single Kerb outlet on Abercrombie Street is 25 L/s during 20 year ARI after treated by OSD 2.
- Meeting the minimum Site Storage Requirement (SSR) of 124 m³ as advised by Sydney Water. With 190 m³ detention volume, this requirement is met. The OSD is sized up to accommodate the increased volume required to limit the flows as per the above two points.
- The Permissible Site Discharge (PSD) requirement set by Sydney Water is 248 L/s, with a total 53 L/s post development flow rate, this requirement is met with the proposed detention system.

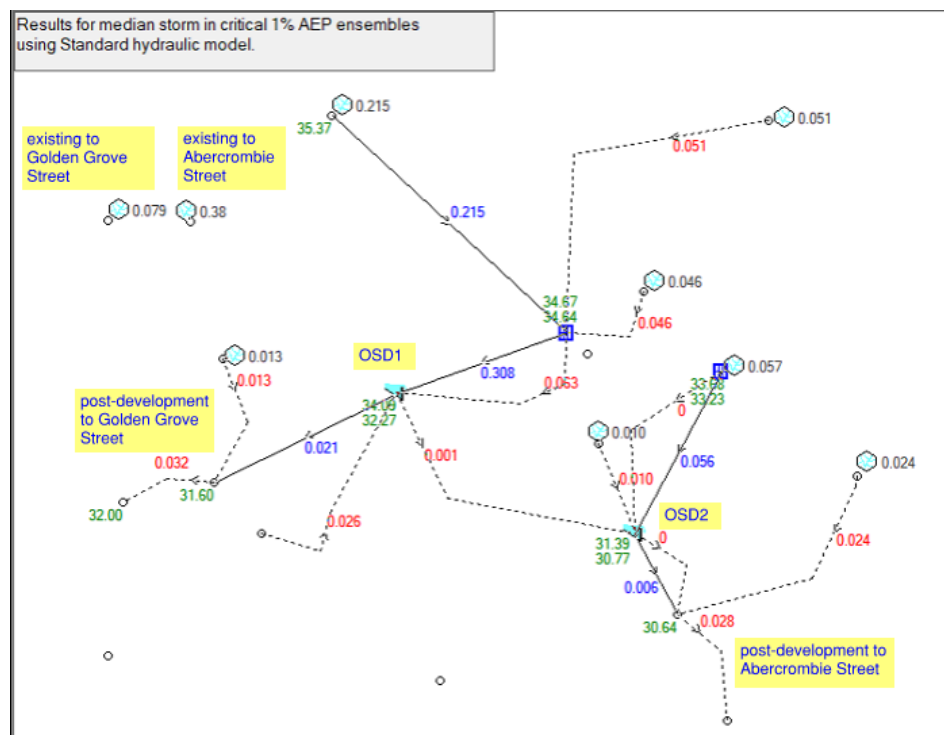


Figure 6 DRAINS Result - Proposed Development 100 Year ARI

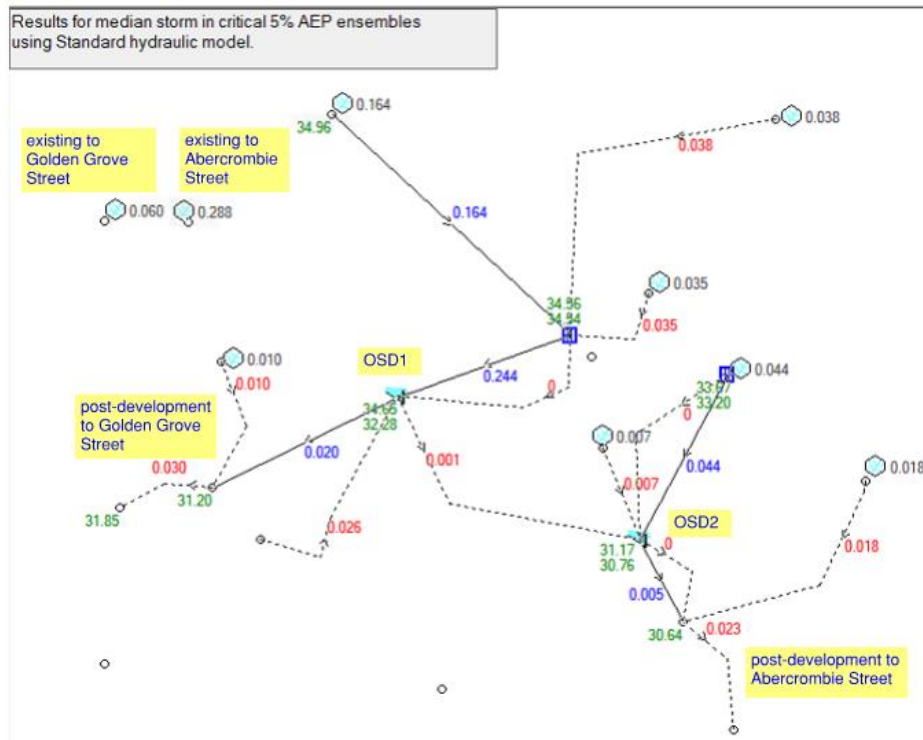


Figure 7 DRAINS Result - Proposed Development 20 Year ARI

2.5. Water Quality

To protect the ecology of City of Sydney, it is expected that this development will require to satisfy the water quality requirements of City of Sydney Council. *Sydney City Council DCP 2012 Section 3* outlines that any development greater than 1000m² must undertake a stormwater quality assessment to demonstrate that the development will achieve the post development pollutant load standards indicated below (Figure 9):

- reduce the baseline annual pollutant load for litter and vegetation larger than 5mm by 90%;
- reduce the baseline annual pollutant load for total suspended solids by 85%;
- reduce the baseline annual pollutant load for total phosphorous by 65%; and
- reduce the baseline annual pollutant load for total nitrogen by 45%.

Figure 8 City of Sydney Pollution Reduction Target Rates (DCP 2012)

2.5.1. Water Quality Strategy

Proprietary water quality treatment products including Enviropods and stormfilter cartridges will be the main treatment measures to achieve Council's adopted pollutants reduction rates. Rainwater runoff from roof will be reticulated into the rainwater tank for landscape irrigation use. Rainwater re-use would also assist in meeting water quality requirements. The proposed development also demonstrates Water Sensitive Urban Design (WSUD), site constraints may not allow bio-retention, however other landscaped measures including swales and small raingarden(s) may be used as part of the water quality treatment train.

Similar to the water quantity control strategy, final water quality control measures will not be in place until the completion of stage 2, however, the pollutant source from the existing land use within the stage 1 extent is a mixture of bitumen pavement and roof while the proposed stage 1 pollutant source is roof and landscape. Therefore, the change of land use already provides water quality improvement to the existing situation.

The results of MUSIC modelling show that stormwater has been treated and the pollutant removal rate achieves pollutant reduction targets adopted by City of Sydney Council. The results from the MUSIC model are shown in Figure 11. The MUSIC result also indicates that the 30kL rainwater can meet 95% of the reuse demand.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	7.38	7.06	4.3
Total Suspended Solids (kg/yr)	872	131	85
Total Phosphorus (kg/yr)	1.75	0.455	73.9
Total Nitrogen (kg/yr)	16.1	7.7	52.1
Gross Pollutants (kg/yr)	180	0.796	99.6

12

Given that the stormwater treatment device Stormfilter cartridges will be installed within the OSD tank, similar discussion of staging/lot consolidation applies to water quality system as they will not be available during stage 1 construction.

2.6. Drainage

The re-development will need to install a major/minor stormwater system. Pits and pipes will capture and convey run-off generated from minor storm events up to the 20 year average recurrence interval (ARI) in accordance with Educational Facilities Standards & Guidelines (EFSG). The final discharge points are split into the drainage system on Abercrombie Street and Golden Grove Street after being treated by water quality and water quantity measures. Figure 11 below shows the final drainage scheme.

The proposed basketball court with surrounding footpath and landscape will make connection to the existing drainage line. And eventually make connection to proposed stage 1 drainage system.

Early works and stage 1 drainage system will then make connection to the existing internal drainage line and eventually discharge via the kerb outlets to Abercrombie Street while stage 2 drainage system will partially make connection to the drainage system on Golden Grove Street after treated by OSD 1 and will partially discharge to Abercrombie Street via a single kerb outlet after treated by OSD 2.

A major system is also required for the proposed development in the form of overland flow paths. The major overland flow system is designed to convey flows surcharged from the underground drainage system for storm events up to and including 100 year ARI. The overland flow is to be directed away from the buildings towards the public road kerb and gutter system on Abercrombie Street provided that there are no adverse impacts on the downstream properties.

Refer to Figure 12 for overall stormwater drainage system layout and overland flow path for the final scheme.

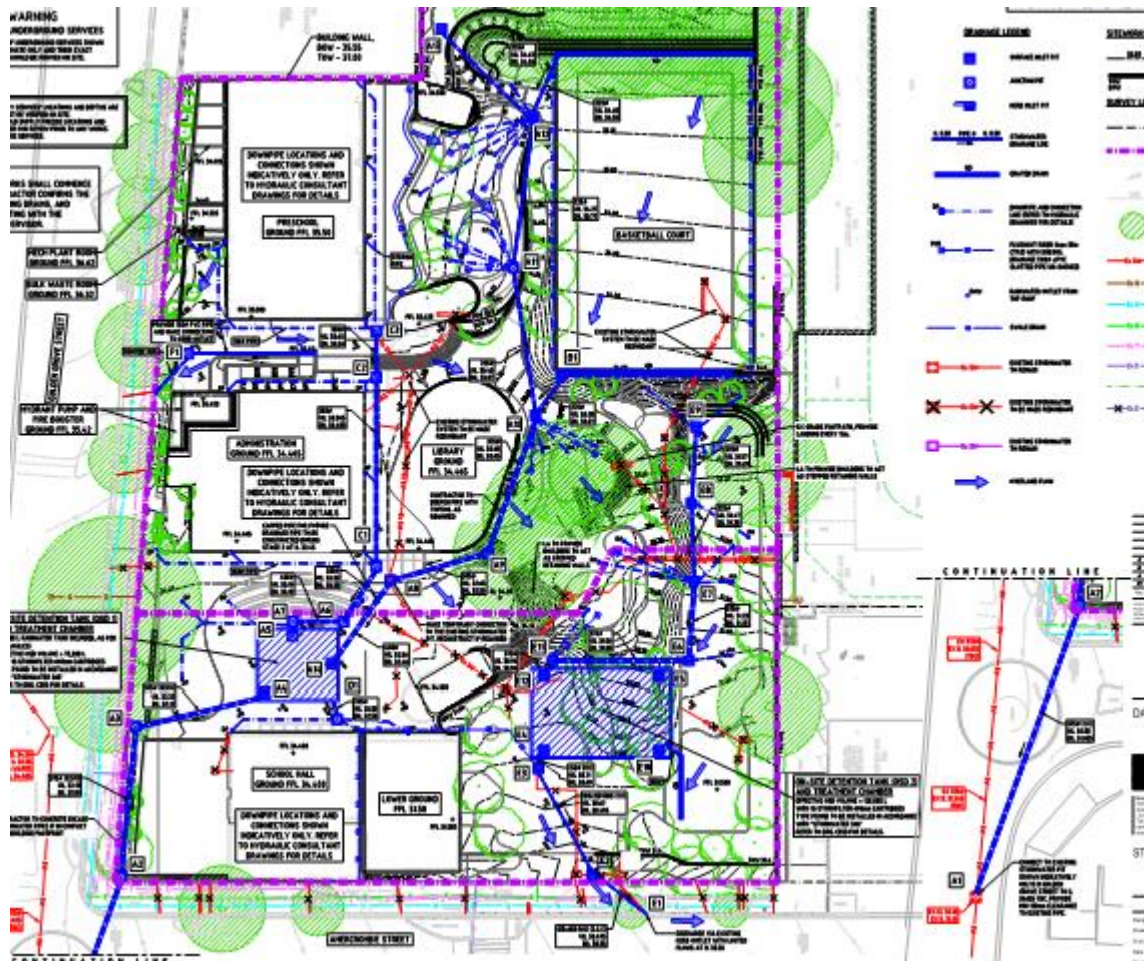


Figure 11 Stormwater Strategy

2.7. Flooding

Based on the flood information from the City of Sydney, specifically the flood report Blackwattle Bay Catchment Floodplain Risk Management Plan by WBA Water dated September 2015, majority of the site is not subject to inundation during the 100 Average Recurrence Interval (ARI) event and Probably Maximum Flood (PMF) as shown in Figure 13 and Figure 14.



Figure 12 Flood Map – 100 Year ARI Design Flood Event (WBA Water dated September 2015)

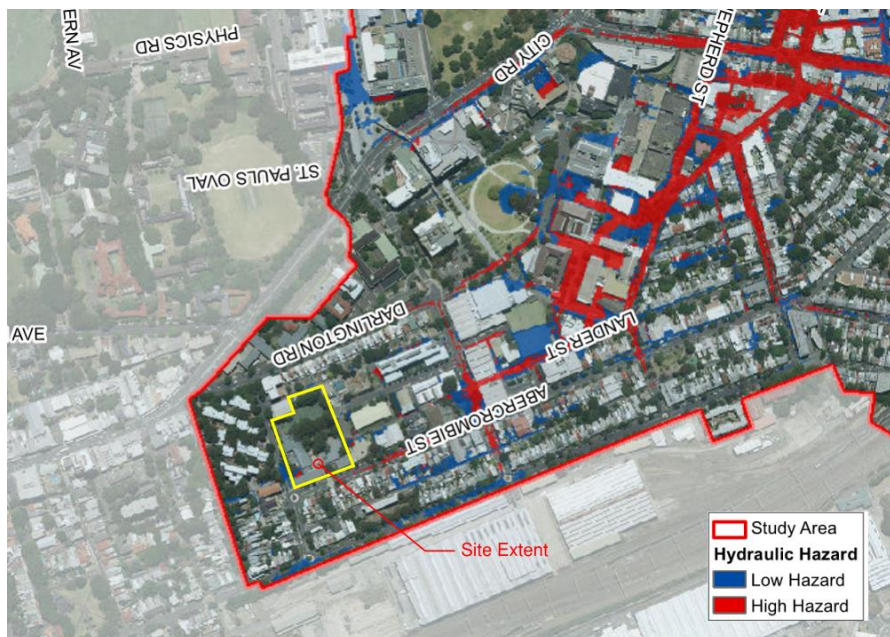


Figure 13 Flood Map – PMF Design Flood Event (WBA Water on September 2015)

A flood model provided by WMA Water for the University of Sydney has been used to further check the flood conditions. A report for above development – *University of Sydney Flood Risk Management Stage 1 – Campus Flood Study Review* dated on December 2013 outlines that potential effects of climate change, sea level rise and an increase in rainfall intensity has been taken in consideration in the study/flood model.

As indicated below in the flood extent maps generated from above mentioned flood model, Figure 15 and Figure 16 - majority of site is not subject to 100 year ARI and the PMF flooding. However, the flood model shows there is a small batch of water at the western school entrance from Golden Grove Street, this is likely caused by an existing trapped low point, not traceable to the flood water from the street as shown in the flood maps. Given that the existing levels around low point is approximated at RL 33.05 while the immediate street level is at RL

34.12, during major storm event, the water from the street side tracks into the low point from the school entrance, the existing grated inlet pit at the low point is filled up and creates localised ponding.

Under existing conditions, the flood is confined to the road, kerbs and vegetations strip. During proposed re-development, the site will maintain this relationship with the council roadway and verge and grading within the site including the covered learning area and building entrances have been set to utilize the relationship with the flood condition.

This issue will be removed for the proposed development as the proposed level around the entrance will be higher (RL 34.37) than existing level, additionally, an overland flow path has been provided to Abercrombie Street from the entrance to avoid any trapped low point.



Figure 14 Flood Extent - 100 Year ARI (with 50mm Water Depth Cut-off)

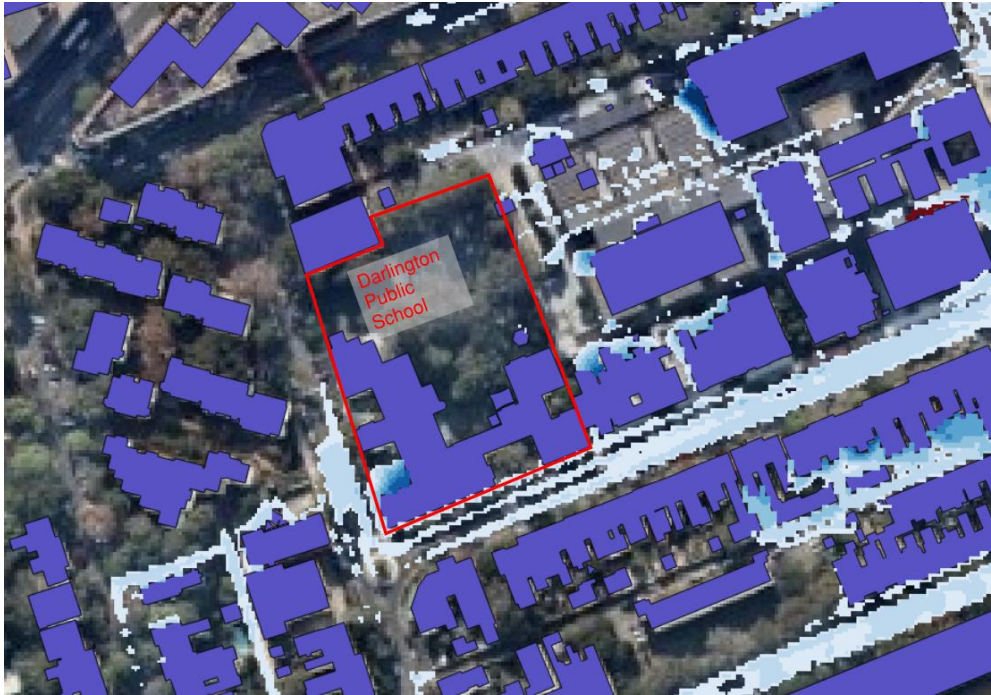


Figure 15 Flood Extent - PMF (with 50mm Water Depth Cut-off)

The above flood maps are produced with 50 mm rainfall cut-off style applied to distinguish flood flows from direct rainfall sheet flows, the results are consistent with the Blackwattle Bay Catchment Floodplain Risk Management Plan by WBA Water. Based on above discussion, it is believed the site is not flood affected and the existing localised trapped low point will be removed from the proposed development.

Additionally, during the meeting with City of Sydney Council, Council Engineer was not opposed to above design approach. Therefore, no further flood modelling will be carried out.

2.8. Sediment and Erosion Control (During Construction)

2.8.1. General Management

The erosion and sediment control measures for the site will be implemented during construction. The design of these measures are to be in accordance with the Landcom "Blue Book". A soil and water management plan drawing set has been prepared as shown in **Appendix A**.

For erosion and sediment control of the site, the following measures are provided to minimise the risk of sediments laden runoff being discharged from the site:

- *A sediment fence/hoarding to be provided around the site*
- *Catch drain (or diversion bund) diverting external catchment away from site*
- *Temporary access to site with shaker pad*
- *An indicative stockpile area with sediment fence around it during construction. The stockpile must be located out of water flow paths (and be protected by earth banks/drains as required).*
- *Geotextile inlet pit filters or sandbags to be placed around existing stormwater pits.*
- *Water cart to spray excavated surfaces to reduce dust pollution.*
- *No greater than 2500m² of soil should be disturbed at any one time. Ground should be stabilised/sealed prior to disturbing greater than 2500m² of soil.*

- *All disturbed areas are to be stabilised within 14 working days of the completion of earthworks. All disturbed areas are to be protected so that the land is permanently stabilised within six months.*
- *Sediment removed from any sediment trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.*
- *Water shall be prevented from entering the permanent drainage system unless it is sediment free. Drainage pits are to be protected in accordance with the final approved Sediment and Erosion Control Plan.*
- *Trapped sediment shall be removed immediately from areas subject to runoff or concentrated flow.*
- *Trapped sediment shall be removed where the capacity of sedimentation trapping devices fall below 60%.*
- *Revegetation schemes are to be adhered to and any grass coverings are kept healthy, including watering and mowing.*
- *Storage of hazardous materials and equipment away from flow paths and known drainage channel.*
- *Ensure loose materials, fuel, chemicals and equipment can either be secured or removed during a major storm event.*
- *Equipment shall be covered as required if runoff from equipment can be hazardous or create sediment or soil displacement.*
- *Allow for vehicle washdown during wet weather to ensure sediment is not tracked on roadways leaving the site.*
- *Shaker grates should be provided where dirty vehicles leave the site.*

2.8.2. Specific Management for Different Storm Event

1 year ARI storm

- *Ensure contractors understand the general management outlined above*
- *Ensure the site is prepared as per the Soil and Water Management Plan drawing*

5 year ARI storm (minor storm event)

- *Ensure the management plan outlined in 1 year ARI is still active*
- *Ensure all equipment are removed from areas of high flows*
- *Provide sedimentation basin and ensure catch drain directs flows to the sedimentation basin for temporary storage*

100 year ARI storm (major storm event)

- *Ensure the management plan outlined in 5 year ARI is still active*
- *Ensure all equipment are removed from areas of high flows*
- *Provide sedimentation basin and ensure catch drain directs flows to the sedimentation basin for temporary storage*

- *Contractors on site should avoid accessing near earthworks during and after major rainfall*

2.8.3. Wet Weather Management

Prior to wet weather

- *Forecast for heavy rain and contractor to declare if the site is safe to carry out construction activities*
- *Ensure loose materials, fuel, chemicals and equipment can be either secured or removed prior to heavy rainfall*
- *All equipment shall be stored in designated area as shown in the Soil and Water Management Plans*
- *Geotechnical engineer shall review earthworks batters and ground conditions to ensure stability*

Post wet weather

- *Maintain pre wet weather conditions as outlined above*
- *Contractor to inspect all workplaces to determine and declare if the site is safe to carry out construction works, risk assessments shall be undertaken prior to any clean-up works*
- *Contractors may be required to undertake dewatering in order for site to be reopened*
- *Ensure all measures included in the Soil and Water Management Plans are in place*
- *Inspect the site to ensure no damage caused by wet weather*
- *Access roads and paths shall be cleaned and restored if damaged.*

3. Summary

This Construction Soil and Water Management report has been prepared to support the application of the re-development of Darlington Public School.

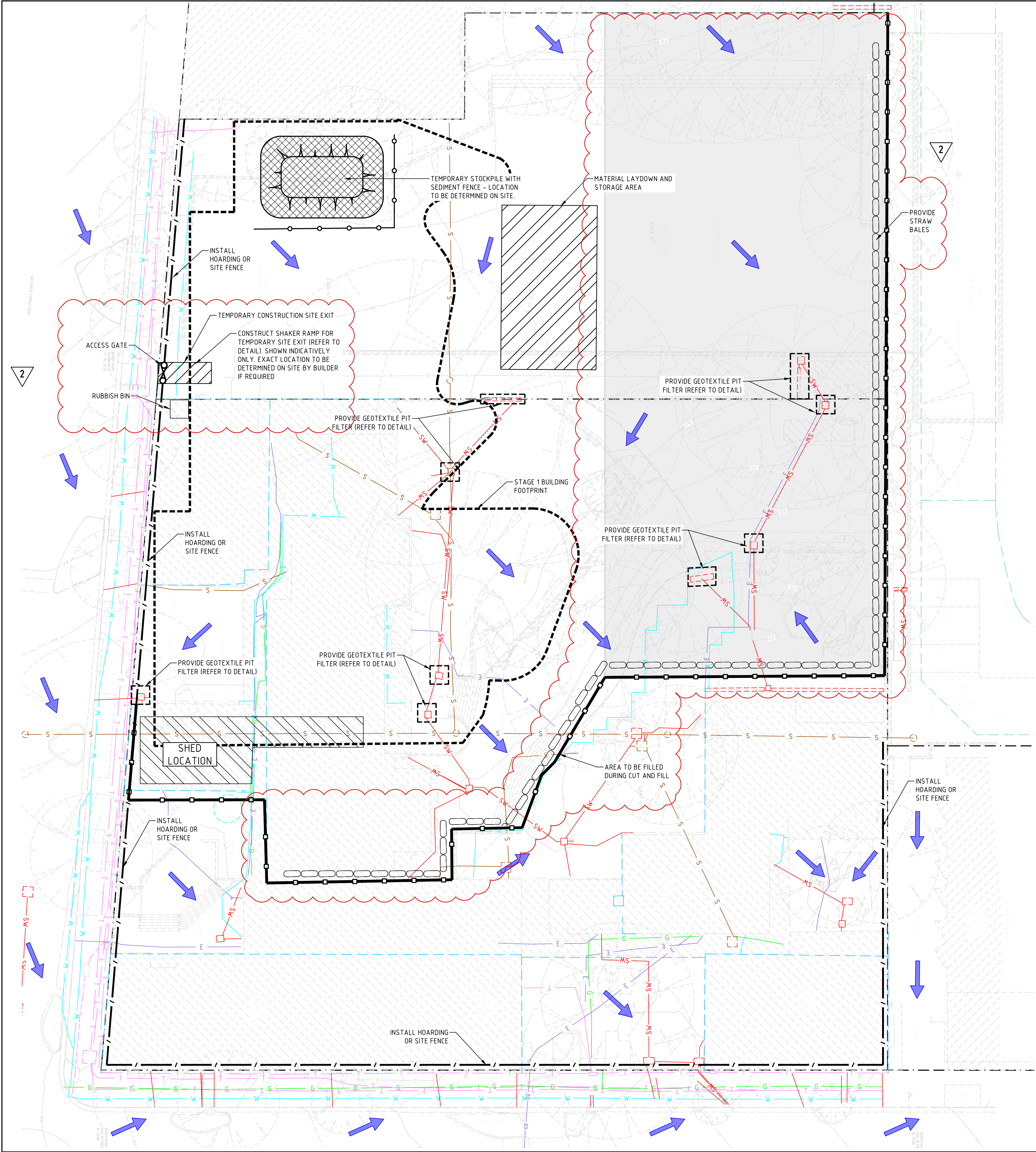
The civil design works described in this report comply with City of Sydney Council DCP, City of Sydney Technical Specifications A4 Stormwater Drainage Design, Sydney Water OSD guideline, SEARs, Australian Standards and best-practiced principles.

The proposed stormwater strategy for this schematic design addresses water quantity by providing an on-site detention tanks to reduce peak flow limiting PSD for events up to and including 100 year ARI storm, but limited to existing constraints.

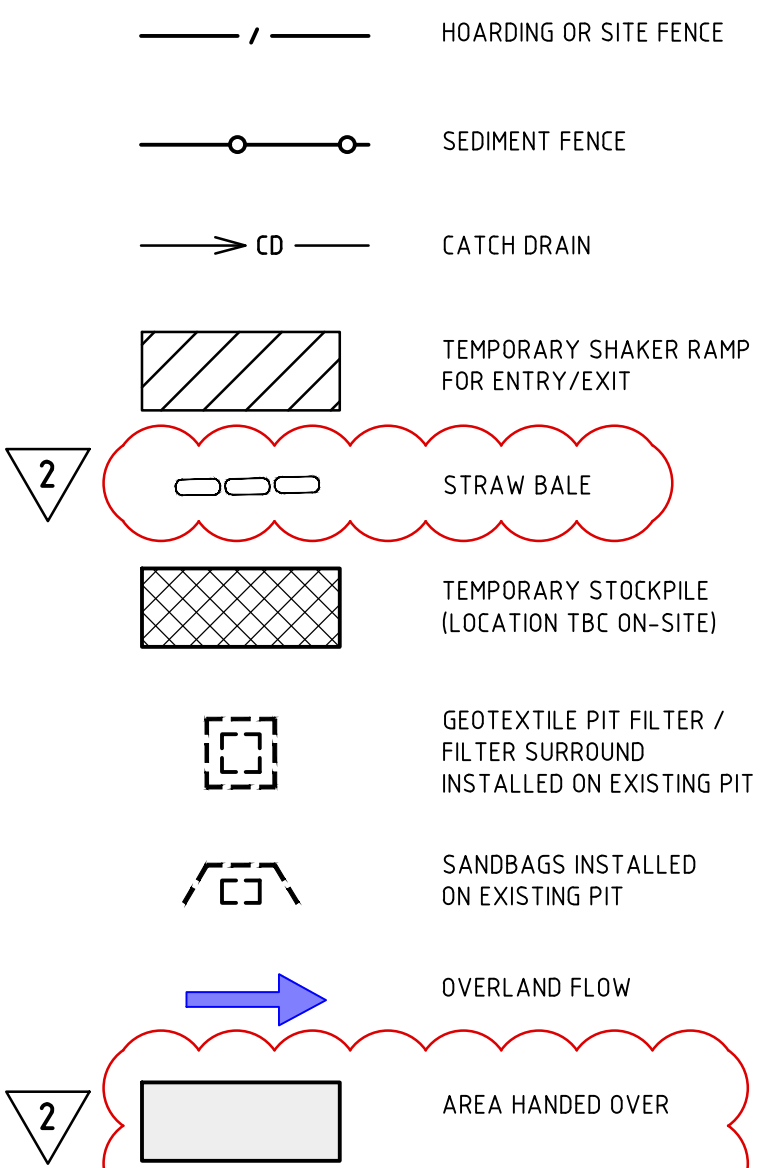
The proposed water quality improvement measures demonstrated that the development complies with the requirements outlined in from City of Sydney Council DCP.

A sediment and erosion control plan will be put in place during the construction phase to ensure neighbouring properties are not adversely impacted by the construction. The plan is prepared under the guidance of Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom, 2004).

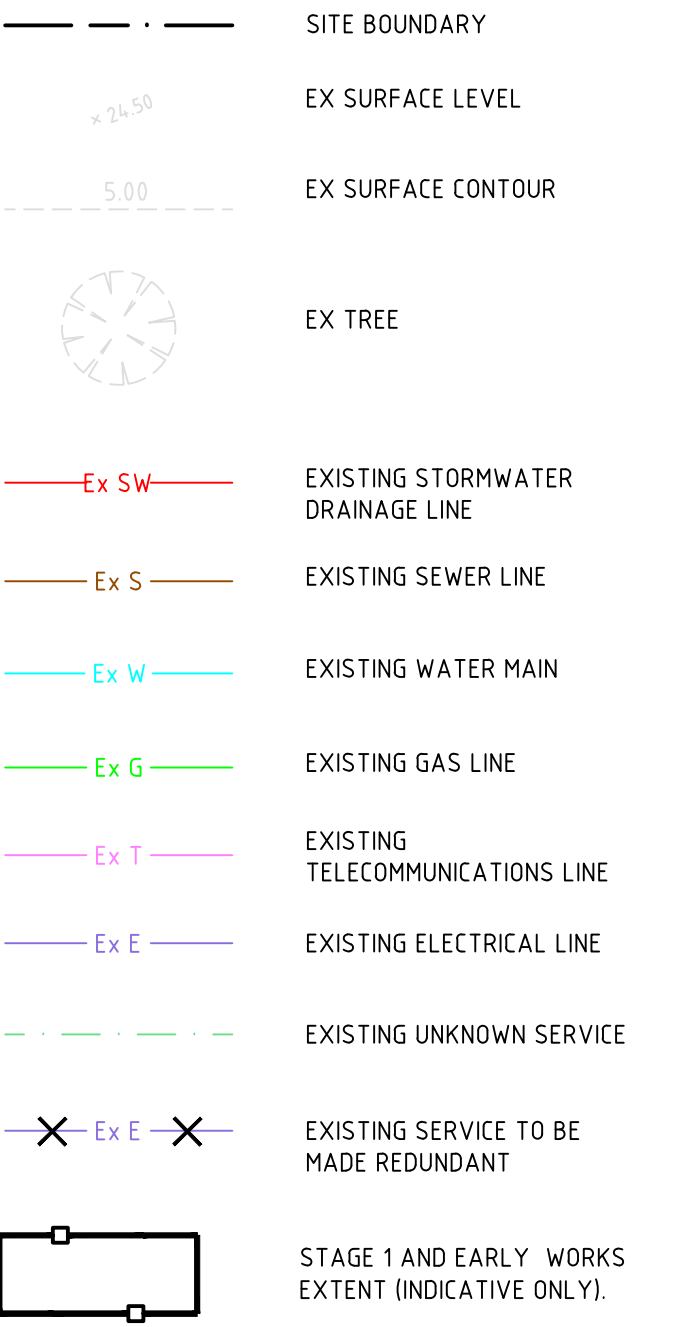
Appendix A – Soil and Water Management Plan



SOIL AND WATER MANAGEMENT LEGEND



SURVEY LEGEND



SOIL AND WATER MANAGEMENT NOTES

- IT HAS BEEN ASSUMED THAT HOARDINGS/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
- ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".

SEDIMENT CONTROL CONDITIONS

- SEDIMENT FENCES AND STRAW BALES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS & WATERWAYS CANNOT OCCUR.
- STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
- WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
- TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.

SITE INSPECTION & MAINTENANCE CONDITIONS

THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL:

- ENSURE THAT DRAINS OPERATE PROPERLY & TO EFFECT ANY NECESSARY REPAIRS
- REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS & PAVED AREAS.
- REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
- ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
- CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS.
- MAINTAIN EROSION & SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

AS PART OF THE STATUTORY 'DILIGENCE OF CARE' RESPONSIBILITIES, THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:

- THE VOLUME & INTENSITY OF ANY RAINFALL EVENTS
- THE CONDITION OF ANY SOIL & WATER MANAGEMENT WORKS
- THE CONDITION OF VEGETATION & ANY NEED TO IRRIGATE
- THE NEED FOR DUST PREVENTION STRATEGIES
- ANY REMEDIAL WORKS TO BE UNDERTAKEN

THE BOOK WILL BE KEPT ONSITE & MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF WORKS.

2	RE-ISSUED FOR CONSTRUCTION	23.02.21	MD	-
1	ISSUED FOR CONSTRUCTION	09.02.21	MD	-
D	WORK IN PROGRESS	03.02.21	AM	-
1	ISSUED FOR CONSTRUCTION	27.01.21	AM	-
C	ISSUED FOR TENDER ADDENDUM	07.08.20	AM	-
B	ISSUED FOR TENDER	17.07.20	AM	-
A	ISSUED FOR SDK DESIGN DEVELOPMENT	22.06.20	HM	-
P2	DRAFT SCHEMATIC DESIGN ISSUE (P5%)	01.05.20	HM	-
P1	70% SSDA REVIEW	04.03.20	JF	-
Rev	Description	Date	By	App

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DARLINGTON PUBLIC SCHOOL

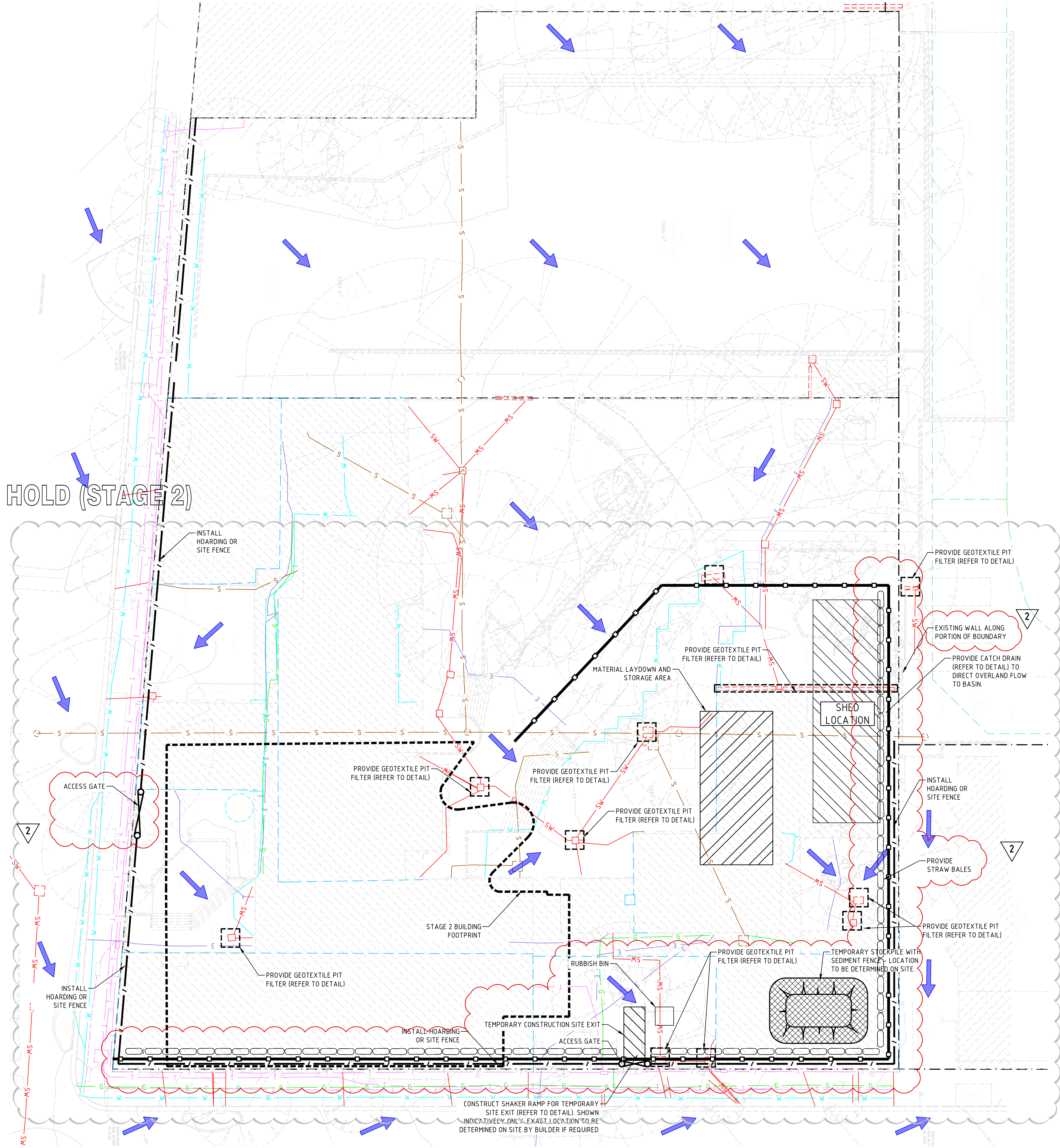


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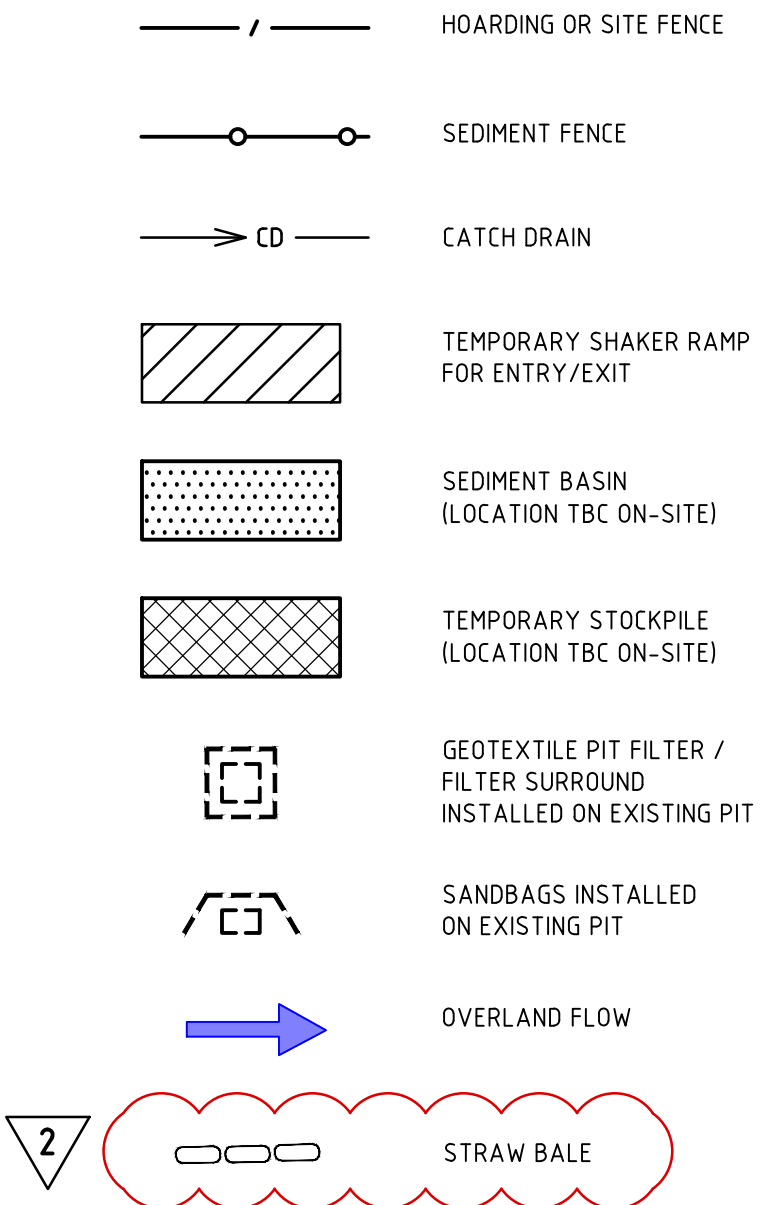
SOIL AND WATER MANAGEMENT PLAN
STAGE 1

FOR CONSTRUCTION

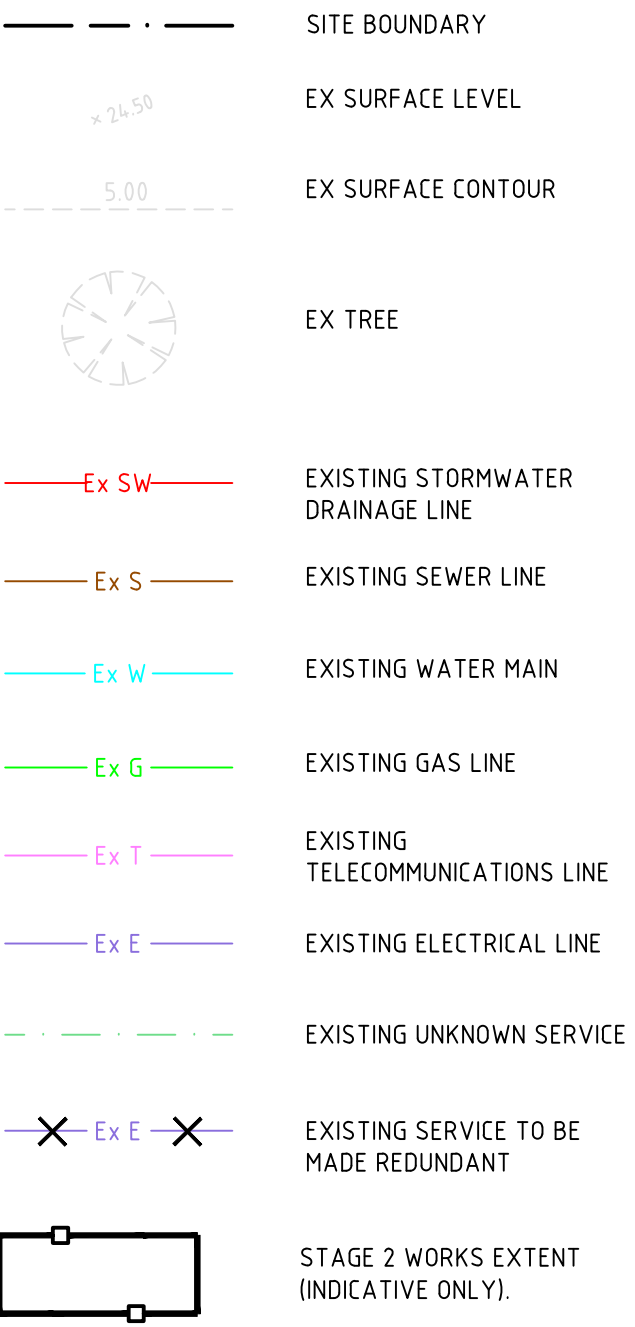
Designed	EW	Approved	Date	North
Drawn	JF			
Scale	1:200	Project Ref	Drawing No	Rev
Date	FEB 2020			
Sheet	A1	1191701C	C004	2



SOIL AND WATER MANAGEMENT LEGEND



SURVEY LEGEND



SOIL AND WATER MANAGEMENT NOTES

- IT HAS BEEN ASSUMED THAT HOARDINGS/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
- ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".

SEDIMENT CONTROL CONDITIONS

- SEDIMENT FENCES AND STRAW BALES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSE SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES) AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS & WATERWAYS CANNOT OCCUR.
- STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
- WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
- TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.

SITE INSPECTION & MAINTENANCE CONDITIONS

THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL:

- ENSURE THAT DRAINS OPERATE PROPERLY & TO EFFECT ANY NECESSARY REPAIRS
- REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS & PAVED AREAS.
- REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
- ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
- CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS.
- MAINTAIN EROSION & SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

AS PART OF THE STATUTORY 'DILIGENCE OF CARE' RESPONSIBILITIES, THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:

- THE VOLUME & INTENSITY OF ANY RAINFALL EVENTS
- THE CONDITION OF ANY SOIL & WATER MANAGEMENT WORKS
- THE CONDITION OF VEGETATION & ANY NEED TO IRRIGATE
- THE NEED FOR DUST PREVENTION STRATEGIES
- ANY REMEDIAL WORKS TO BE UNDERTAKEN

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Rev	Description	Date	By	App

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DARLINGTON PUBLIC SCHOOL



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SOIL AND WATER MANAGEMENT PLAN
STAGE 2

FOR CONSTRUCTION			
Designed	EW	Approved	Date
Drawn	JF		
Scale	1:200	Project Ref	Drawing No
Date	FEB 2020		Rev
Sheet	A1	1191701C	C005 2

Appendix B – CV of Author & Council Consultation



George KRZYWDA

Principal Civil Engineer

George has over 30 years' experience in the masterplanning, design, design management, project management and construction delivery of multi-discipline projects in the Defence, Aviation, Land Development, Commercial, Residential and Industrial sectors.

George has specialist expertise in the planning and design of major developments, ground stabilisation, heavy duty pavements, urban and rural roadworks, environmental remediation, land subdivisions, preparation of flood studies and analysis of storm water drainage systems.

He also has proficient skills in the use of hydrological and hydraulic computer modelling programs for drainage design, including DRAINS and HECRAS and in the use of water quality treatment modelling program, MUSIC.

Qualifications

- Bachelor of Engineering (Civil), Warsaw Institute of Technology, Poland

Professional Affiliations and Activities

- Member of Institution of Engineers Australia
- Professional Chartered Engineer CPEng
- Nationally Registered Engineer NER
- Asia Pacific Economic Cooperation Engineering Register (APEC)

Professional Experience

2020 - Present	Senior Civil Engineer	Bonacci Group (NSW) Pty Ltd
2017 - 2020	Senior Civil Engineer	SCP Consulting Pty Ltd. (Sydney and Darwin)
2005 - 2017	Associate, Civil	ACOR Consultants Pty Ltd. (Sydney)
2003 - 2004	Senior Civil Engineer	Brown Consulting (Sydney)
2002 - 2003	Senior Civil Engineer	Gary Trusewell & Associates (Sydney)
2002 - 2005	Senior Civil Engineer	GW Engineers (Sydney)
2001 - 2002	Senior Civil Engineer	BMP Development Consulting (Sydney)

Relevant Experience

Griffith Base Hospital Redevelopment Stage 2

Griffith, NSW

Griffith Planning Stage 2

Griffith, NSW

Nepean Hospital Redevelopment Stage 2

Sydney, NSW

Sydney Private Hospital Redevelopment

Sydney, NSW

Extension of one of the buildings, site grading, car park, stormwater drainage.

Prince Alfred Hospital Redevelopment

Sydney, NSW

Minor extensions, carpark, stormwater drainage.

Wagga Wagga Hospital Car Park

Wagga Wagga, NSW

Monaro Cluster High Schools

Bungendore and Jerrabomberra, NSW

Relevant Experience

Queen of Peace School

Sydney, NSW

Building and Education Revolution (BER)

Sydney, NSW

5 Public Schools

Queenwood School for Girls Arts and Technology Campus

Balmoral, NSW

Colyton Public School

Sydney, NSW

Chester Hill Public School

Sydney, NSW

Blakehurst High School

Blakehurst, NSW

North Sydney Boys High School

North Sydney, NSW

MLC School

Sydney, NSW

Meriden School

Sydney, NSW

Frensham School Indoor Swimming Pool

Sydney, NSW

Stanhope Gardens Catholic School & Church

Sydney, NSW

University of Western Sydney, Campbelltown Campus

Campbelltown, NSW

171 AVN SQN Relocation from Townsville to Luscombe Airfield at Holsworthy Army Base,

Holsworthy, NSW

Project Cost: \$92m

Design and documentation of civil engineering and stormwater drainage works for aprons and runway upgrade, internal roads and parking areas, aircraft shelters, maintenance hangers and the headquarters building. Assisting in construction stage supervision of civil works.

Holsworthy Base Redevelopment

Holsworthy, NSW

Project Cost: \$20m

Design and documentation of civil engineering works for the upgrading of stormwater drainage system within the Base including design of water quality treatment and detention basins, upgrading of stormwater drainage along internal roads, design of embankments protection for the local creek.

Newcastle Airport Redevelopment

Newcastle, NSW

Harrington Waters Estate, Residential Land Subdivision (1500 lots)

Harrington, NSW

Relevant Experience

Pasminco Site Redevelopment (170ha)

Lake Macquarie, NSW

Littlefields Road Residential Development (120 apartments)

Mulgoa, NSW

Pambulong Forest Residential Land Subdivision (900 lots)

Lake Macquarie, NSW

Kellyville Residential Land Subdivisions (400 lots)

Kellyville, NSW

Residential Gardens for Spanish Speaking Frail Aged

Rooty Hill, NSW

2 stages, all civil works and supervision of construction

Campbelltown Retirement Village

Campbelltown, NSW

140 bed nursing home

Burnside Gardens Community Centre

Oatlands, NSW

Castle Hill RSL Redevelopment

Castle Hill, NSW

Wentworthville Leagues Club Redevelopment

Wentworthville, NSW

Bupa at Bankstown

Bankstown, NSW

Riverlink Shopping Centre

Ipswich, QLD

Byron Bay Library

Byron Bay, NSW

District Council of Victor Harbour

SA

Stormwater drainage strategy studies

Victoria Road Flood Study

Gladesville, NSW

Maroubra Road Flood Study

Maroubra, NSW

Dobroid Channel Flood Study

Ashfield, NSW

Osborne South Shipyard Construction Facility

South Australia

Project Cost: \$450m

Stormwater drainage design.

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:	City of Sydney Council
Consultation type:	Email Correspondence
When is consultation required?	Prior to commencement
Why	B15 – Construction Soil and Water Management Sub-Plan
When was consultation scheduled	First email sent 1 st February
When was consultation held	4 th February 2021
Identify persons and positions who were involved	AW Edwards Project Coordinator – Riley Barns City of Sydney Council Specialist Planner – Reinah Urqueza
Provide the details of the consultation	The Construction Soil and Water Management Sub-Plan was submitted to council for review.
What specific matters were discussed?	The environmental controls to be implemented for the main works of the project.
What matters were resolved?	Council's Health Unit has reviewed the SWMP and raised no further issues.
What matters are unresolved?	No matters unresolved.
Any remaining points of disagreement?	No remaining points of disagreement
How will SINSW address matters not resolved?	Not required.

Christy Cheng

From: Riley Barns
Sent: Wednesday, 24 February 2021 8:55 AM
To: Christy Cheng
Subject: FW: TRIM CM: Darlington PS - Soil & Water Mgt Plan - SSDA Consultation Requirement

From: Reinah Urqueza <RUrqueza@cityofsydney.nsw.gov.au>
Sent: Thursday, 4 February 2021 9:54 AM
To: Riley Barns <rbarns@awedwards.com.au>
Cc: Joshua Faull <jfaull@cityofsydney.nsw.gov.au>; Daniel Lorenzetto <dlorenzetto@awedwards.com.au>; Glen Burley <gburley@awedwards.com.au>
Subject: RE: TRIM CM: Darlington PS - Soil & Water Mgt Plan - SSDA Consultation Requirement

Good morning Riley,

Council’s Health Unit has reviewed the SWMP and provide no further comments.

Kind regards,

Reinah Urqueza
Specialist Planner
Planning Assessments



Telephone: +612 9288 5882
cityofsydney.nsw.gov.au

From: Reinah Urqueza
Sent: Tuesday, 2 February 2021 12:34 PM
To: Riley Barns <rbarns@awedwards.com.au>
Cc: Joshua Faull <jfaull@cityofsydney.nsw.gov.au>; Daniel Lorenzetto <dlorenzetto@awedwards.com.au>; Glen Burley <gburley@awedwards.com.au>
Subject: RE: TRIM CM: Darlington PS - Soil & Water Mgt Plan - SSDA Consultation Requirement

Hi Riley,

Confirming receipt of your email. I have referred the SWMP to Council’s Health Unit to review and provide input. I will be in touch with comments as soon as I receive them, noting your timeframe for 15 February 2021.

Kind regards,

Reinah Urqueza
Specialist Planner
Planning Assessments



Telephone: +612 9288 5882
cityofsydney.nsw.gov.au

From: Riley Barns <rbarns@awedwards.com.au>
Sent: Monday, 1 February 2021 2:44 PM
To: Reinah Urqueza <RUrqueza@cityofsydney.nsw.gov.au>
Cc: Joshua Faull <jfaull@cityofsydney.nsw.gov.au>; Daniel Lorenzetto <dlorenzetto@awedwards.com.au>; Glen Burley <gburley@awedwards.com.au>
Subject: TRIM CM: Darlington PS - Soil & Water Mgt Plan - SSDA Consultation Requirement

Good Afternoon Reinah,

We understand you may be able to assist us with some consultation with council for the Darlington Public School Project.

As part of one of the SSDA conditions we need to submit the Soil & Water Manager plans in Consultation with Council, refer below.

We have prepared the following documents (updated for construction works) to adhere to all the requirements but need to cross of item 15(a) (Council Consultation).

I was hoping you could help us with the consultation portion of this requirement.

As part of this we will need to fill out the attached consultation template once we have completed the consultation.

We need to have this completed before the 15th of February; do you think this would be possible?

If it's easier to discuss over the phone, please do not hesitate to give me a call.

B	15	Construction Environmental Management Plan	The Construction Soil and Water Management Sub-Plan (CSWMSP) must address, but not be limited to the following:
	15a		(a) be prepared by a suitably qualified expert, in consultation with Council;
	15b		(b) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;
	15c		(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';
	15d		(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);
	15e		(e) detail all off-Site flows from the Site; and
	15f		(f) 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 5-year ARI.

Kind Regards,

Riley Barns
PROJECT COORDINATOR

A W Edwards Pty Limited
| M: 04032 46998
E: rbarns@awedwards.com.au
Level 1, 131 Sailors Bay Rd,
Northbridge NSW 2063
P: 02 9958 1474 | D: 02 8036 7339 | F: 02 9958 6208



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