

Our Ref: 180168

7<sup>th</sup> April 2020

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## **ALEXANDRIA PARK COMMUNITY SCHOOL (SSDA 17\_8373) STORMWATER MANAGEMENT REPORT MODIFICATION**

### **Introduction**

SCP have been engaged by Richard Crookes Construction to complete a modification to the Stormwater Management Report prepared originally by Woolacotts for the proposed redevelopment of Alexandria Park Community School at 7-11 Park Road, Alexandria.

The modification to the SSDA is in relation to a new synthetic turf, FIFA grade sports field that is to be located within the north eastern corner of the site and partially within Park Road. Refer to Figure 1 below for the site location.



**Figure 1 – Site Locality Plan**



## **The Site**

The site is currently an active school with various educational buildings located in the southern half of the site and grassed playing area to the north of the existing buildings. More recently a temporary school has been constructed in the north western corner of the site to facilitate the staged construction of the school redevelopment.

The site has an existing Sydney Water stormwater culvert flowing from north east to south west through the middle of the site. The culvert is located centrally within an easement in favour of Sydney Water. Refer to Figure 2 below for the Sydney Water culvert and associated easement.

The site is currently subject to flooding during the 1% Annual Exceedance Probability (AEP) storm with an overland flow path flow from east to west from Park Road to Belmont Street. Figure 3 below presents the 1% AEP flood map and existing ponding and overland flow path across the site.

## **Basis of Design**

This report should also be read in conjunction with:

- Architectural design prepared by Tanner Kibble Denton
- Landscape design prepared by Context
- Detailed survey and services investigation prepared by LTS Lockley
- APCS - Flood Assessment prepared by SCP Consulting

## **Design Criteria and Standards**

The design criteria and standards for the civil works include:

- Australian Rainfall and Runoff (2016)
- Soil and Water Management, Landcom's Soil and Construction Manual (Blue Book)
- Relevant Australian Standards

## **Proposed Development**

The proposed development will consist of new multi-storey education buildings, covered outdoor areas, gymnasium, sports courts and a FIFA compliant synthetic playing field

## **Flooding and Flood Mitigation**

The existing site is flood prone as described in Woolacotts SSDA report. Flood planning levels for the 1% and PMF events provided in Woolacotts report are still relevant and have been applied to the APCS project.

The proposed synthetic playing field is located in this area of flooding which will result in the displacement of these flood waters into the surrounding streets and public areas resulting in an increase in flood levels adjacent residential properties in Buckland Street.

As discussed above the proposed synthetic sports field is required to be FIFA compliant which includes being raised above the 1% AEP flood level. By raising the sports field this will displace flood water into the surrounding streets and neighbouring properties.

Various options to mitigate these impacts have been discussed and reviewed by City of Sydney with a 2,400m<sup>3</sup> flood storage cell to be provided under the eastern side of the sports field to reduce the flood level to existing conditions. This cell has inlet pits located within Park Road that will allow flood water to displace into the cell during flood events.



## **Stormwater Design**

All existing stormwater drainage that services the existing buildings will be made redundant in the demolition works. The existing Sydney Water culvert and stormwater drainage servicing Belmont Street will remain and be protected throughout the duration of the works.

A new pit and pipe system will be provided to capture and convey the 5% AEP storm event to the Sydney Water culvert with a series of new connections being provided to the culvert as requested by Sydney Water. All external surfaces will be graded at a minimum of 1% to facilitate runoff to the pit and pipe network.

Since the site stormwater drainage connects to Sydney Water's stormwater system the site is subject to Sydney Water on-site detention requirements. These requirements were outlined in Woolacotts initial discussions with Sydney Water which required a detention volume of 459m<sup>3</sup>. Refer to the Woolacotts report appended to this report.

The stormwater drainage system has been designed in accordance with City of Sydney Development Control Plans 2012 and Sydney Water on-site detention requirements and 459m<sup>3</sup> of On-Site Detention provided in the raingarden. Refer to drawings SW1 and SW2 appended to this report.

## ***Water Sensitive Urban Design***

A water quality treatment train has been developed for the APCS project to provide reductions in gross pollutants, suspended solids, phosphorus and nitrogen in accordance with local Authority requirements. Initiatives included in the treatment train include:

- Rainwater reuse
- A centralised rain garden
- Proprietary stormwater filter cartridges and litter baskets
- Microplastic retention mats at pedestrian egress points to the synthetic sports field.

## **Erosion and Sediment Control**

An Erosion and Sediment Control Plan will be prepared in accordance with Landcom's Soil and Construction manual (commonly known as the Blue Book), Volume 1, March 2004 since the disturbed site area will be greater than 2,500m<sup>2</sup>.

Temporary sediment basins, construction exits, sandbags, straw bales and sediment control fences will be required to manage erosion and sediment throughout the construction of the project.

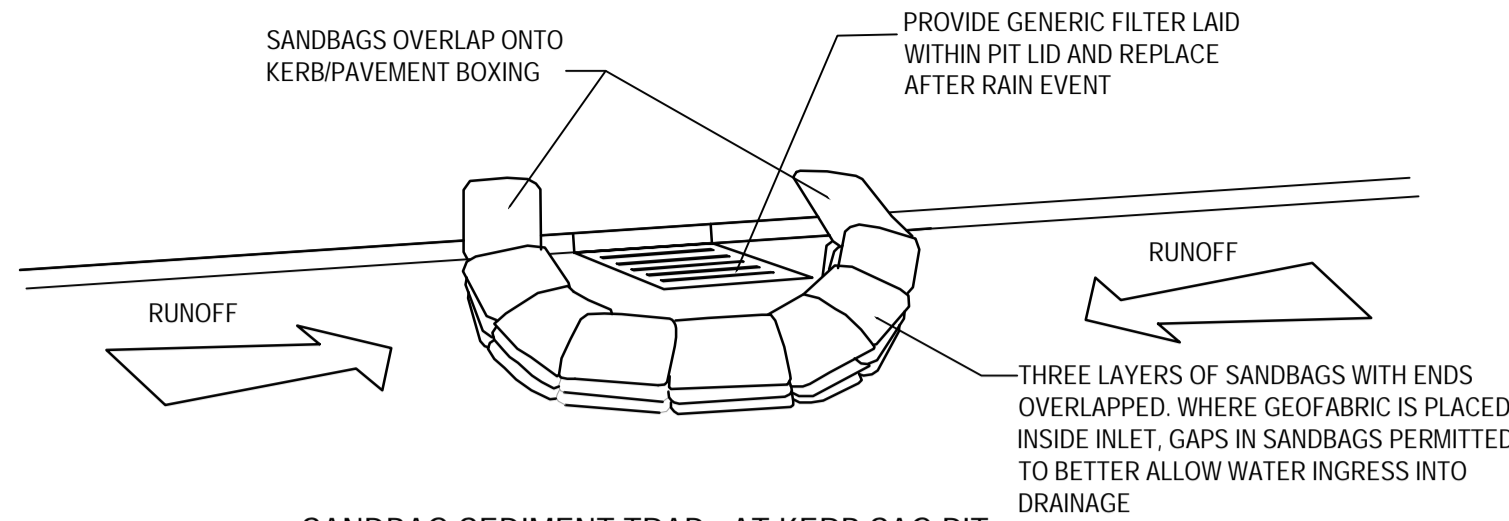
Refer to Drawings ES1 and ES2 appended to this report.

Yours faithfully

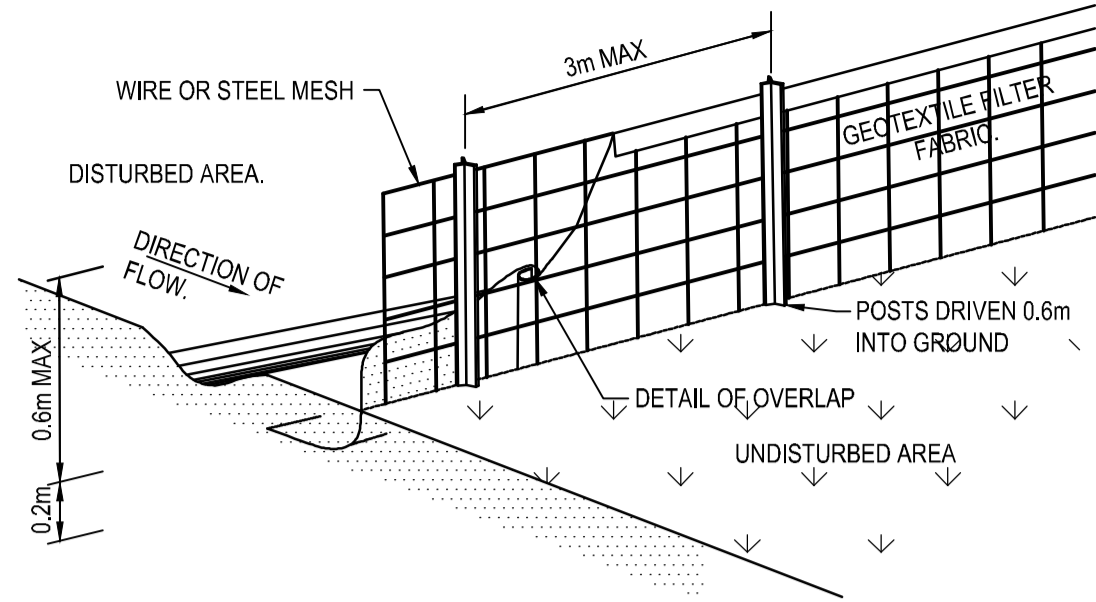
**SCP CONSULTING PTY LTD**

A handwritten signature in black ink, appearing to read 'James Clare', located below the company name.

**James Clare**  
**Associate Civil Engineer**

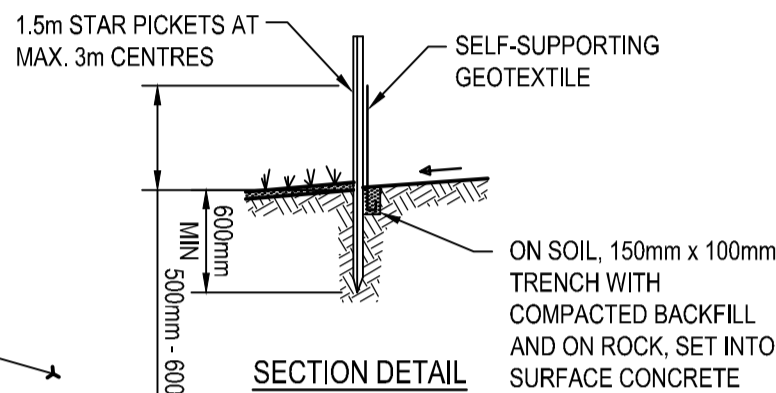
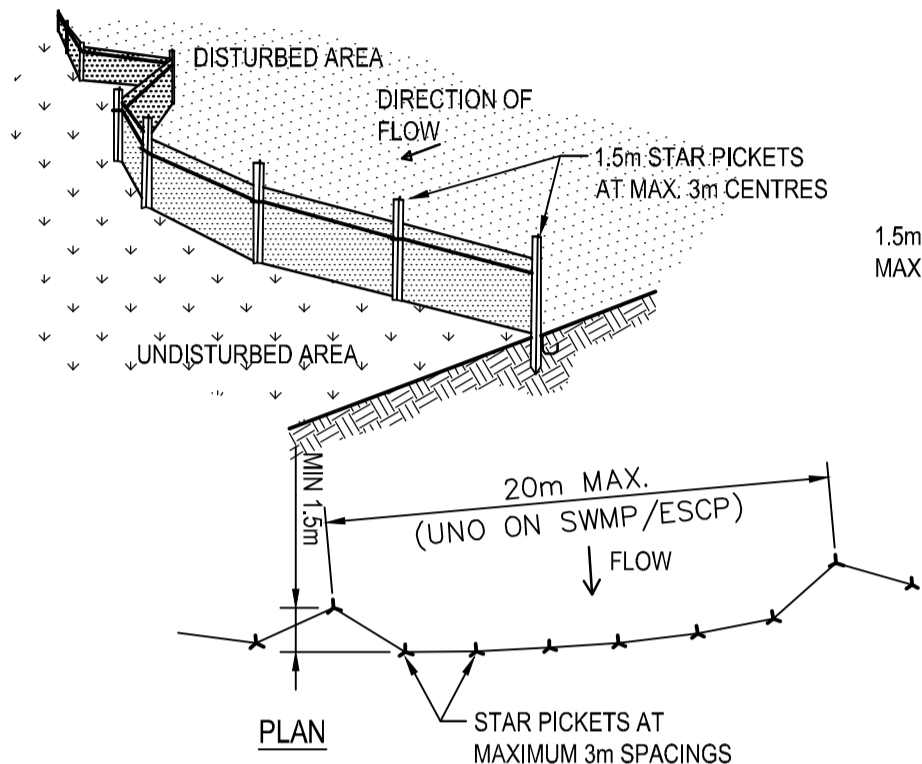


SANDBAG SEDIMENT TRAP - AT KERB SAG PIT



SEDIMENT CONTROL FENCE

NTS

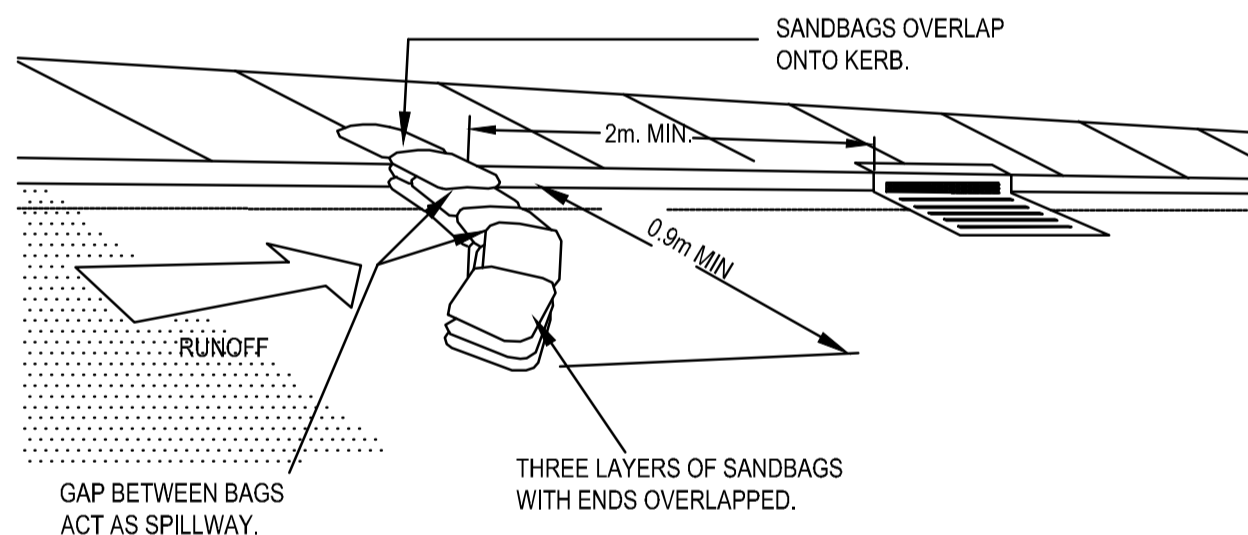


CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND, 3 METRES APART.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

SEDIMENT CONTROL FENCE

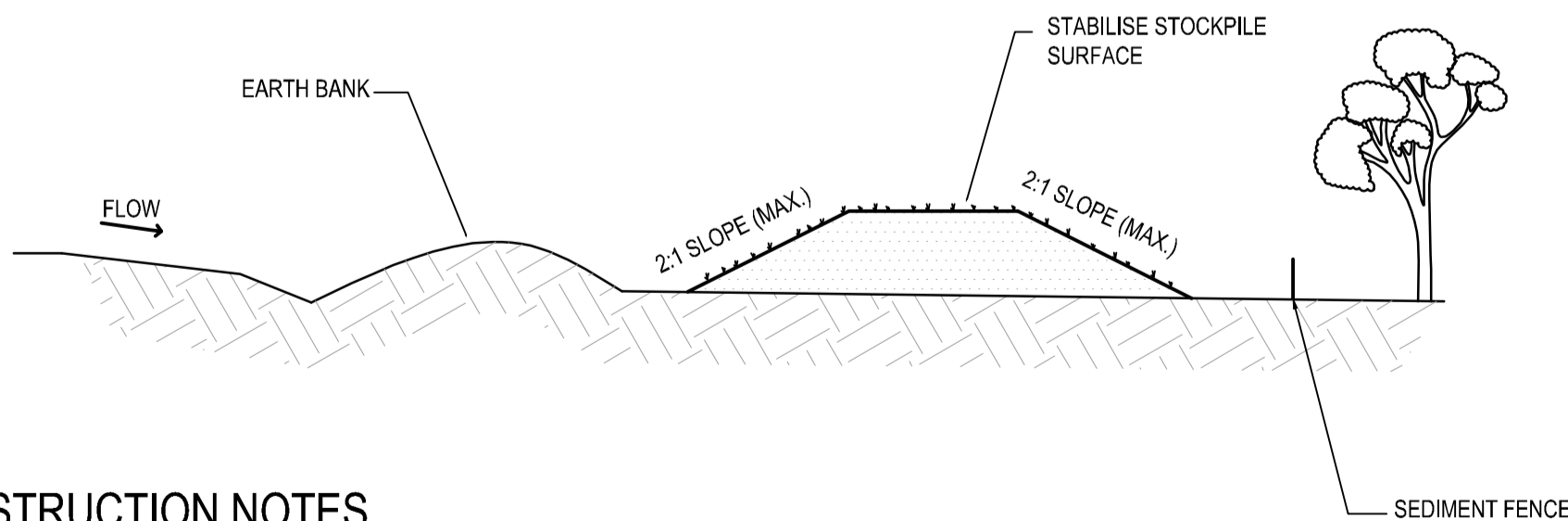
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SANDBAG KERB INLET SEDIMENT TRAP.

NTS

SOURCE: MANAGING URBAN STORMWATER  
SOILS AND CONSTRUCTION  
THIRD EDITION, AUGUST 1998  
PRODUCED BY THE DEPARTMENT OF HOUSING



CONSTRUCTION NOTES

1. LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-2) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-7) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

STOCKPILES

EROSION AND SEDIMENT CONTROL

GENERAL INSTRUCTIONS

1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.
2. THE SITE SUPERINTENDENT WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THIS SPECIFICATION.
3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED, HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE :
  - a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
  - b. CONSTRUCT SEDIMENT CONTROL BASINS
  - c. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

7. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

8. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

9. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

10. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
11. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.

SITE INSPECTION & MAINTENANCE

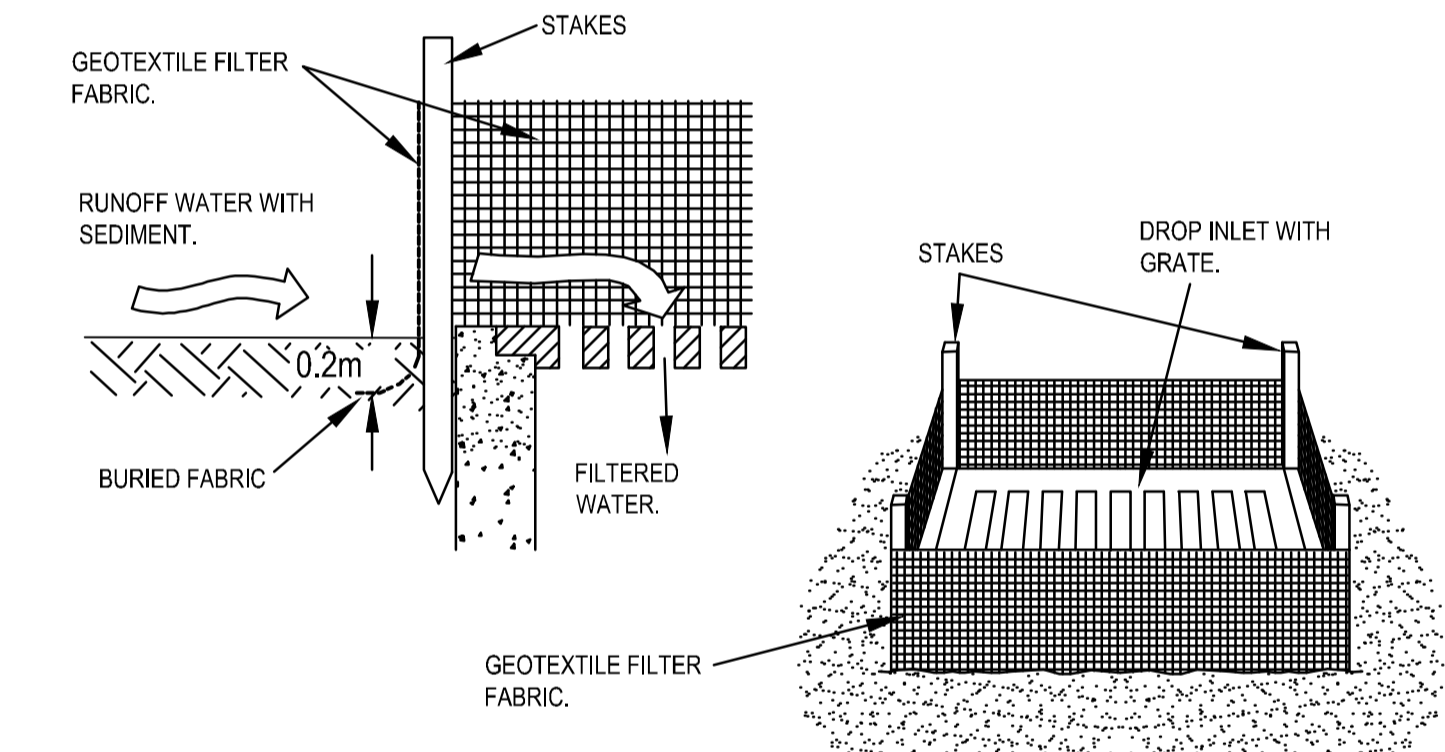
12. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

TEMPORARY WORKS

1. THE BUILDER/CONTRACTOR SHALL ALLOW FOR THE DESIGN, SUPPLY, INSTALLATION AND REMOVAL OF ALL TEMPORARY BACK PROPPING, SAFETY SCREENS, SCAFFOLDING AND OTHER REQUIREMENTS OF THE CONSTRUCTION PROCESS. THE BUILDER/CONTRACTOR SHALL ENGAGE A SUITABLE QUALIFIED ENGINEER REFERRED TO AS 'BUILDER/CONTRACTORS ENGINEER', TO DESIGN INSPECT AND CERTIFY ALL TEMPORARY WORKS, AND DEMOLITION WORKS ARE FIT FOR PURPOSE.
2. THE BUILDER/CONTRACTOR WILL BE RESPONSIBLE FOR THE PREPARATION AND CERTIFICATION OF ENGINEERING DESIGN FOR TEMPORARY WORKS.
3. IT IS THE BUILDER/CONTRACTOR'S RESPONSIBILITY TO ENSURE THE OVERALL STABILITY OF ALL STRUCTURES AT ALL TIMES WHILST UNDER CONSTRUCTION.
4. THE BUILDER/CONTRACTOR IS TO HAVE CONSTRUCTION METHODOLOGY STATEMENTS PREPARED AND SUBMITTED FOR REVIEW BY THE PRINCIPAL. THE BUILDER/CONTRACTOR WILL AT ALL TIMES BE RESPONSIBLE FOR CONSTRUCTION METHODOLOGY.

EXISTING SERVICES AND FEATURES

1. THE BUILDER/CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL OF ALL EXISTING SERVICES DEEMED TO BE REDUNDANT IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA UNLESS DIRECTED OTHERWISE BY THE PROJECT MANAGER.
2. THE BUILDER/CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE TO REMAIN OPERATIONAL.
3. PRIOR TO COMMENCEMENT OF ANY WORKS THE BUILDER/CONTRACTOR SHALL GAIN WRITTEN APPROVAL FROM THE PROJECT MANAGER OF HIS PROGRAMME FOR THE PROVISION OF TEMPORARY SERVICES.
4. EXISTING BUILDINGS, EXTERNAL STRUCTURES, AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.
5. BUILDER/CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE PROJECT MANAGER. TEMPORARY SERVICES SHALL BE REMOVED OR CAPPED OFF AS DIRECTED BY THE PROJECT MANAGER.
6. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE OPERATIONS OF THE PRINCIPAL. BUILDER/CONTRACTOR TO GAIN APPROVAL OF PROJECT MANAGER FOR TIME OF INTERRUPTION.



GEOTEXTILE FILTER FABRIC DROP INLET  
SEDIMENT TRAP.

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NOTE:  
ENSURE THAT ALL COUNCIL AND PUBLIC UTILITY  
ASSETS ARE MAINTAINED AND PROTECTED AT ALL  
TIMES IN THE VICINITY OF THE TEMPORARY  
CONSTRUCTION EXIT

GEOTEXTILE FABRIC DESIGNED TO PREVENT  
INTERMIXING OF SUBGRADE AND BASE  
MATERIALS AND TO MAINTAIN GOOD  
PROPERTIES OF THE SUB-BASE LAYERS.  
GEOTEXTILE MAY BE WOVEN OR NEEDLE  
PUNCHED PRODUCT WITH A MINIMUM CBR  
BURST STRENGTH (AS3706.4-90) OF 2500N.

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200MM THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30MM AGGREGATE.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP WHERE THE SEDIMENT IS COLLECTED AND REMOVED.

MAINTENANCE NOTES

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT OFF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED OFF THE CONSTRUCTION SITE MUST BE REMOVED IMMEDIATELY.

TEMPORARY STABILISED CONSTRUCTION EXIT

NOTE: ALTERNATE SITE STABILISED ENTRY DETAIL PERMITTED UPON APPROVAL FROM CIVIL ENGINEER



01	ISSUE FOR SSDA MODIFICATION	07/04/2020
Rev	Revision Description	Date



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Client **RICHARD CROOKES**

**CONSTRUCTIONS**

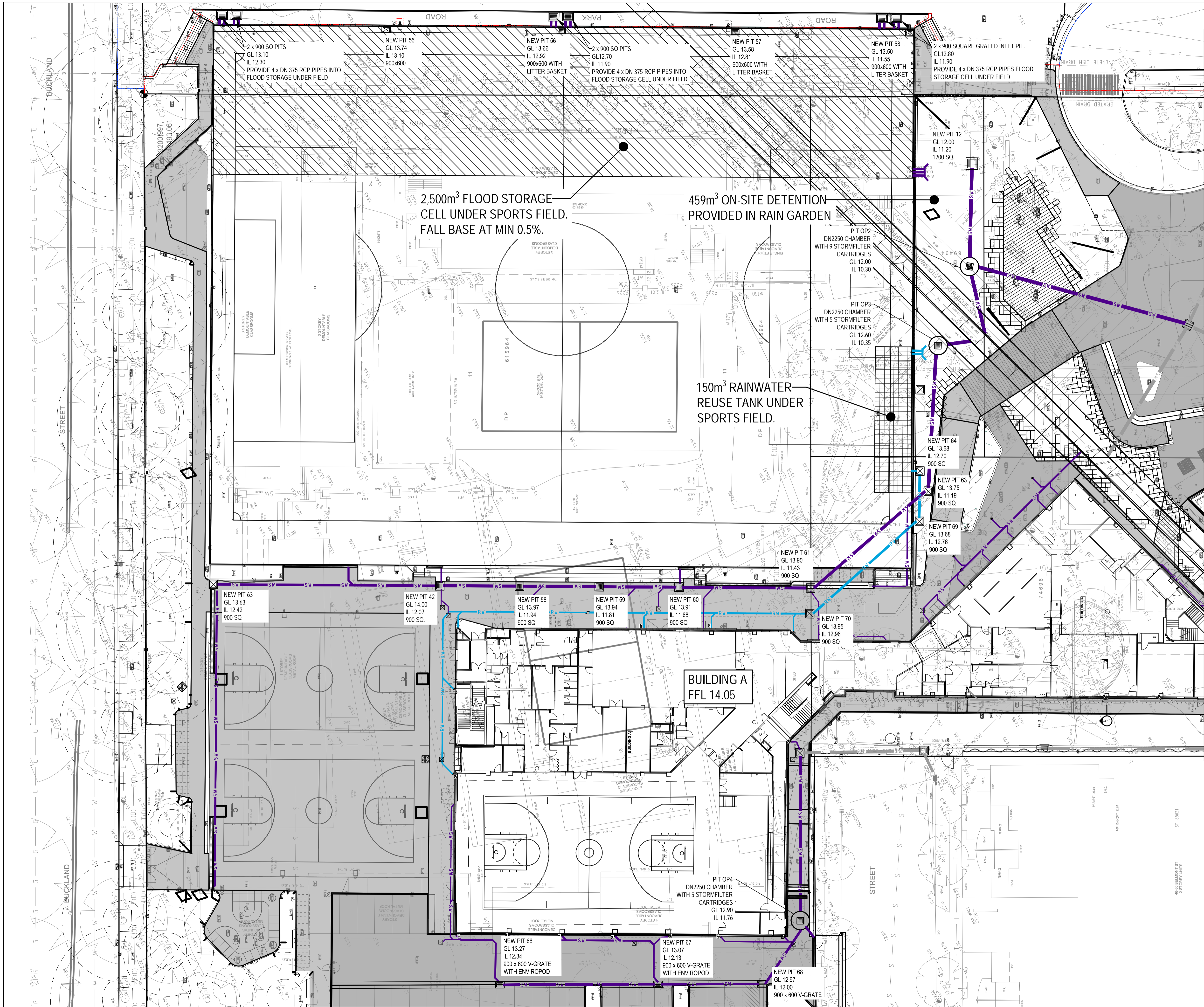
**NSW Education**  
School Infrastructure

Project **ALEXANDRIA PARK COMMUNITY SCHOOL**

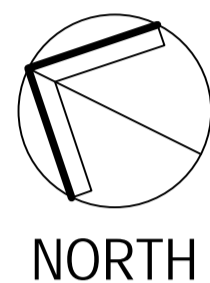
Title **EROSION AND SEDIMENT CONTROL DETAILS SHEET**

Scale **AS SHOWN AT A1**

Drawn BH	Checked JB	Approved ---	Project Number 180168	Drawing Number ES2	Revision 01
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FOR CONTINUATION REFER TO DRAWING SW1



01	ISSUE FOR SSDA MODIFICATION	07/04/2020
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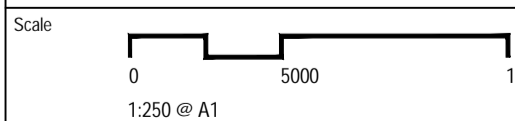
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CONSTRUCTIONS



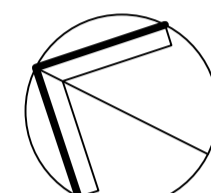
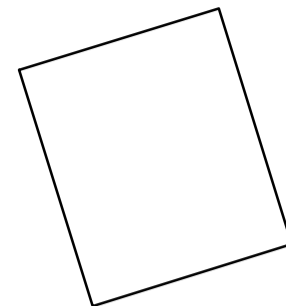
Project  
**ALEXANDRIA PARK COMMUNITY SCHOOL**

Title  
**STORMWATER DRAINAGE PLAN  
STAGE 2**



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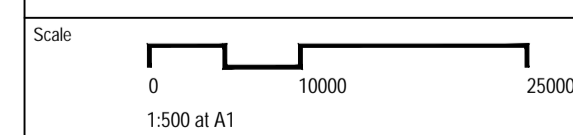


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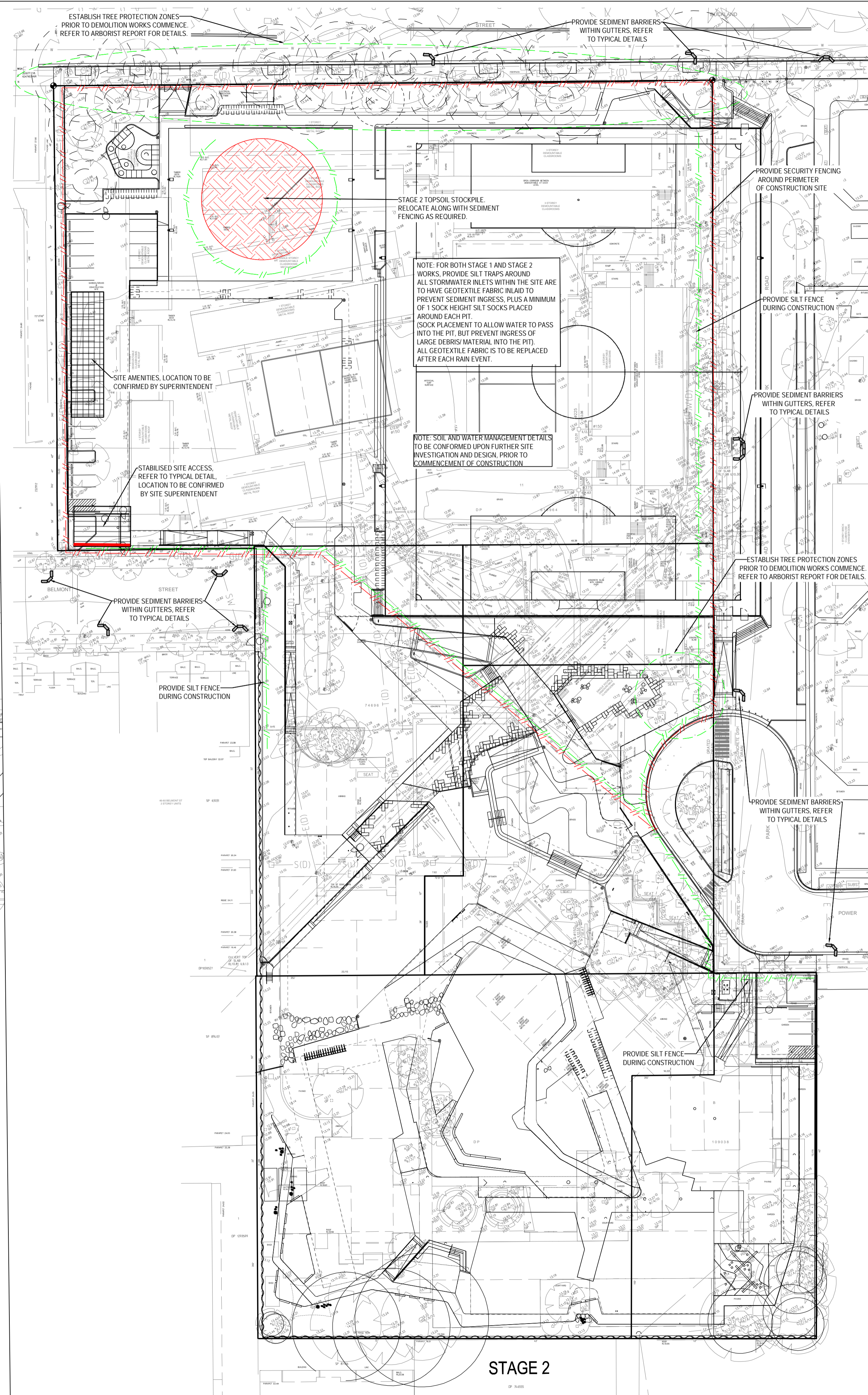
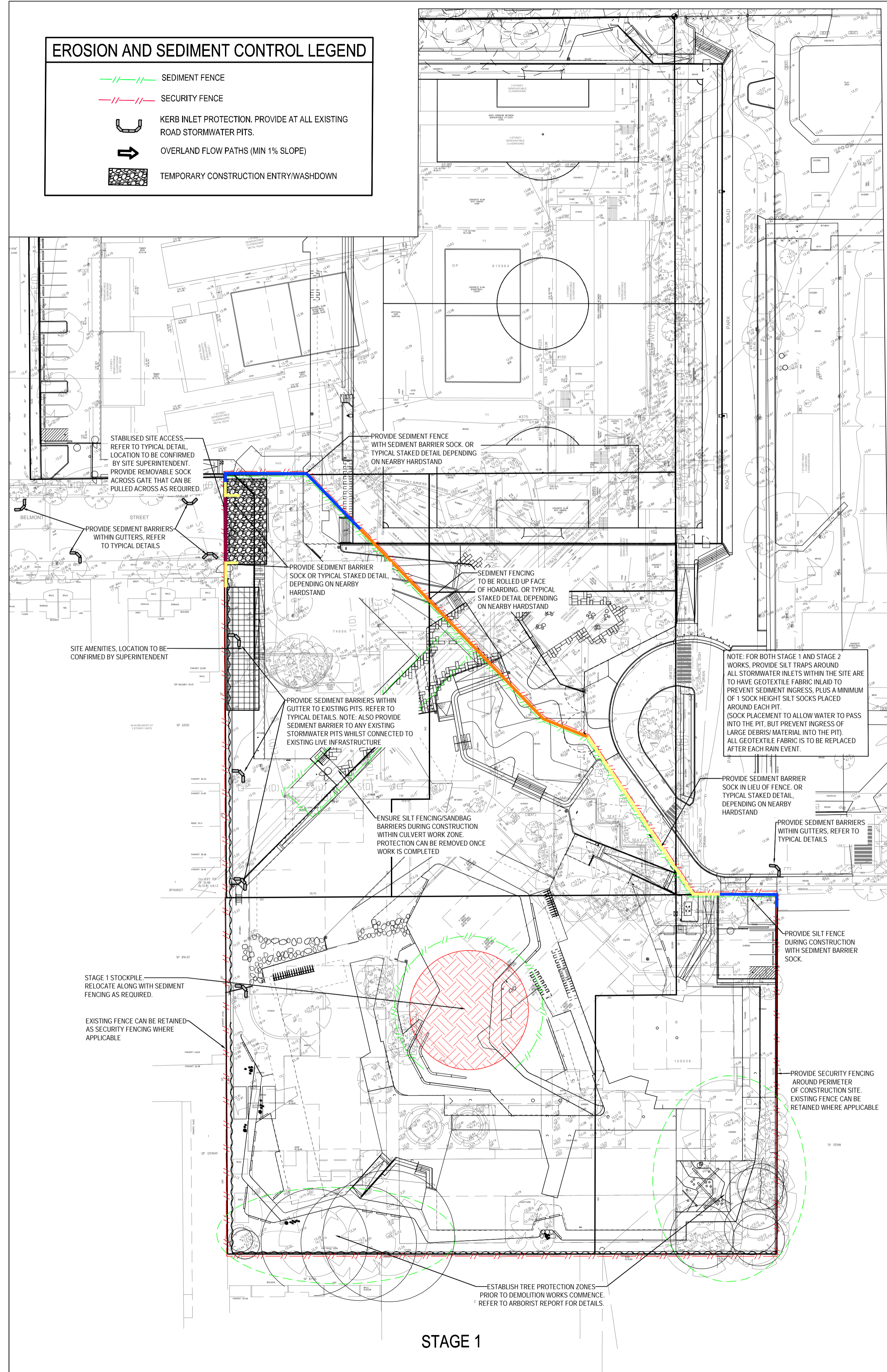
STORMWATER DRAINAGE PLAN  
STAGE 1



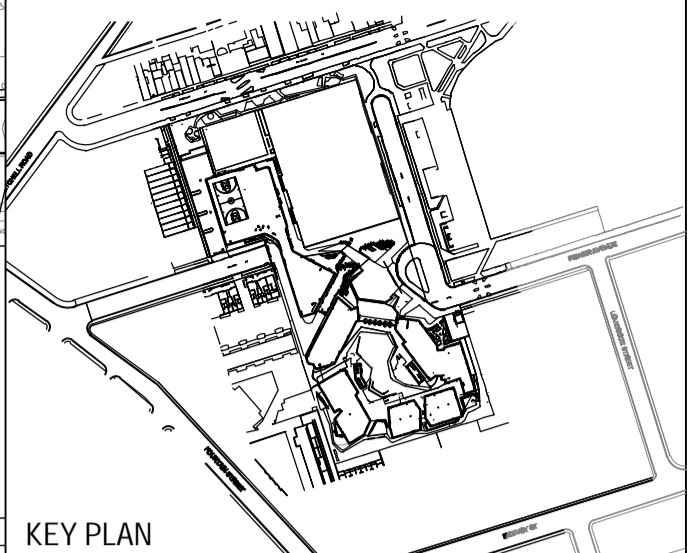
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Project Number	Drawing Number	Revision
180168	SW1	01

	SEDIMENT FENCE
	SECURITY FENCE
	KERB INLET PROTECTION. PROVIDE AT ALL EXISTING ROAD STORMWATER PITS.
	OVERLAND FLOW PATHS (MIN 1% SLOPE)
	TEMPORARY CONSTRUCTION ENTRY/WASHDOWN



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NORTH

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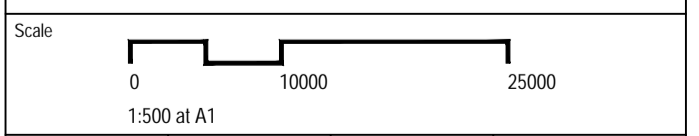
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Project	ALEXANDRIA PARK COMMUNITY SCHOOL
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Title	EROSION AND SEDIMENT CONTROL PLAN
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