

Civil Engineering Review of Environmental Factors

Oxford Falls Grammar School - Library and Administration

Prepared for Oxford Falls Grammar School / 17 March 2020

191571 CAAA

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1.0 Introduction

1.1 Development Site

Oxford Fall Grammar School is located within the bounds of Northern Beaches Council in Oxford Falls at Deposited Plan 1240806 Lot 100. The development site covered under this Review of Environmental Factors (REF) is located in the southern portion of the School (refer to Figure 1.1). A first order stream flows through the school in a north-west direction.



Figure 1.1: Site Location

1.2 Reference Documents

This report has been prepared with reference to the following documents:

- Northern Beaches Council's On-Site Stormwater Detention Technical Specification
- Northern Beaches Council's WSUD and MUSIC Modelling Guidelines
- Warringah Council's Development Control Plan
- Australian Rainfall and Runoff 2016
- Relevant Australian Standards include AS3500.3

2.0 Proposed Works

The proposed development includes the construction of an at grade car park and two-storey building. The proposed REF works covers an area of approximately 3,550 m².



Figure 2.1: Proposed Ground Floor
Source: Ground Floor Plan prepared by AJC

2.1 Stormwater Quantity

The Northern Beaches Council On-Site Stormwater Detention (OSD) Technical Specification details requirements for stormwater outflows from proposed development sites. The specification requires the post-development permissible site discharge (PSD) to be equal to pre-development runoff for the 5 year, 20 year and 100 year ARI storm event.

Although the site is flood affected, the specification states that “OSD will not be required where the site of the development is located within a Council established 1 in 100 year ARI flood plain, and that it can be demonstrated that lesser storm events will also flood the site. Otherwise it will be necessary to provide OSD to control the runoff for the minor storm events.” While the development is partially located within the 1 in 100 year ARI flood plain, the site is not affected during the 5 year and 20 year storm events, therefore OSD has been provided to meet the PSD for lesser storms in accordance with Council’s policy.

The pre- and post-development flow from the site was modelled in DRAINS software to determine the required OSD and plate orifice size using the methodology of Australian Rainfall and Runoff 2016. It was calculated that a volume of 40m³ with an orifice size of 237mm would be required to detain the post-development flows to the pre-development flows. The DRAINS schematic and modelling results are detailed in Figure 2.2 and Table 2.1 respectively.

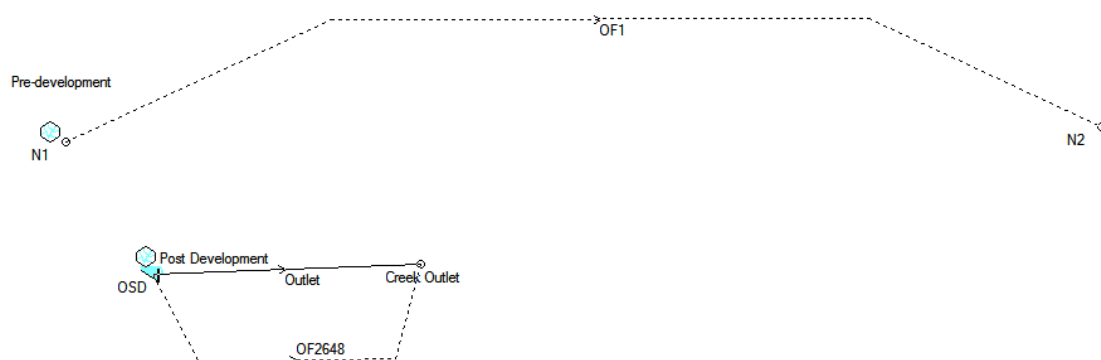


Figure 2.2: DRAINS Modelling Schematic

Table 2.1: DRAINS Modelling Results

	Pre-Development Flows	Post-Development Flows	Post-Development Flows with OSD
5 Year ARI	80 L/s	146 L/s	73 L/s
20 Year ARI	143 L/s	198 L/s	129 L/s

2.2 Stormwater Quality

Northern Beaches Council's WSUD and MUSIC Modelling Guidelines stipulate stormwater quality targets as shown in Table 2.2. The post-development site was modelled using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) with model inputs in accordance with Council's guidelines to determine the required stormwater treatment to meet quality requirements.

The proposed stormwater quality treatment train includes a 250kL Rainwater Tank (to provide irrigation to the sportsfield) and OceanProtect's OceanGuard and Stormfilter cartridges.

The MUSIC model schematic and results are summarised in Figure 2.3 and Figure 2.4 respectively.

Table 2.2: Water Quality Requirements

Pollutant	Performance Requirements
Total Phosphorus	65% reduction in the post development mean annual load
Total Nitrogen	45% reduction in the post development mean annual load
Total Suspended Solids	85% reduction in the post development mean annual load
Gross Pollutants	90% reduction in the post development mean annual load
pH	6.5 – 8.5
Hydrology	The post-development peak discharge must not exceed the pre-development peak discharge for flows up to the 2 year ARI

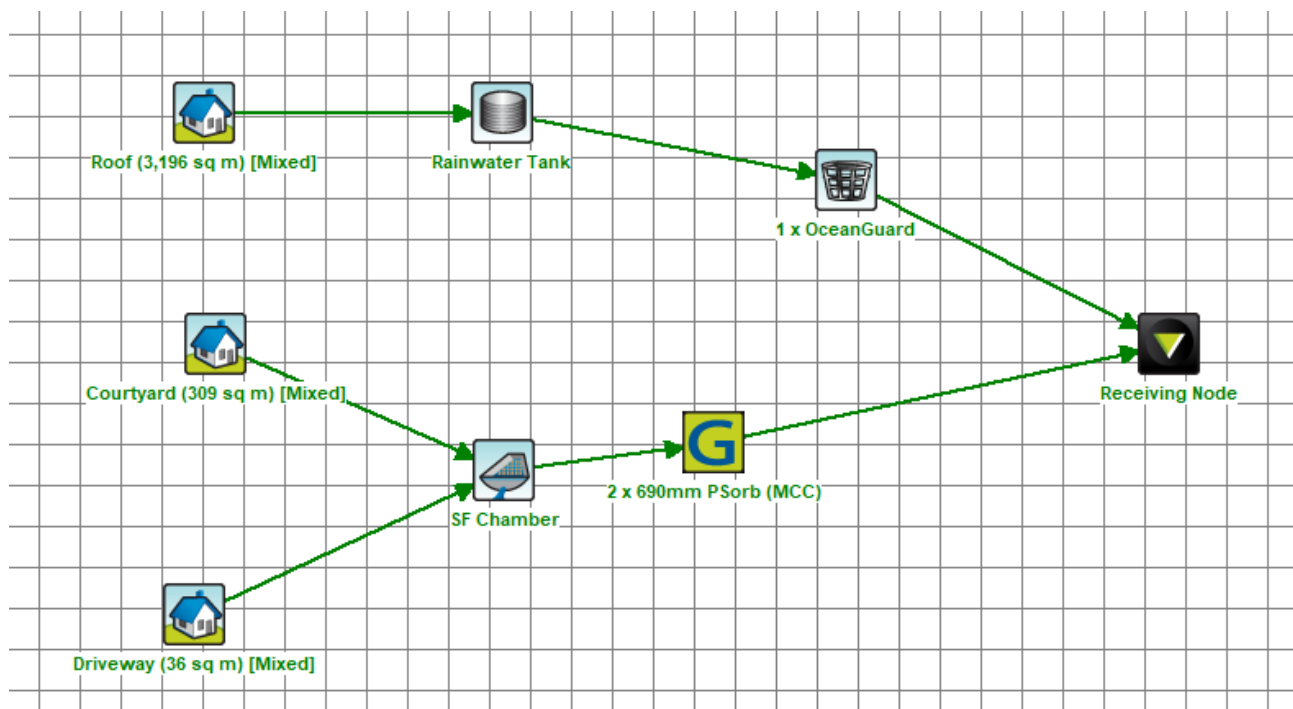
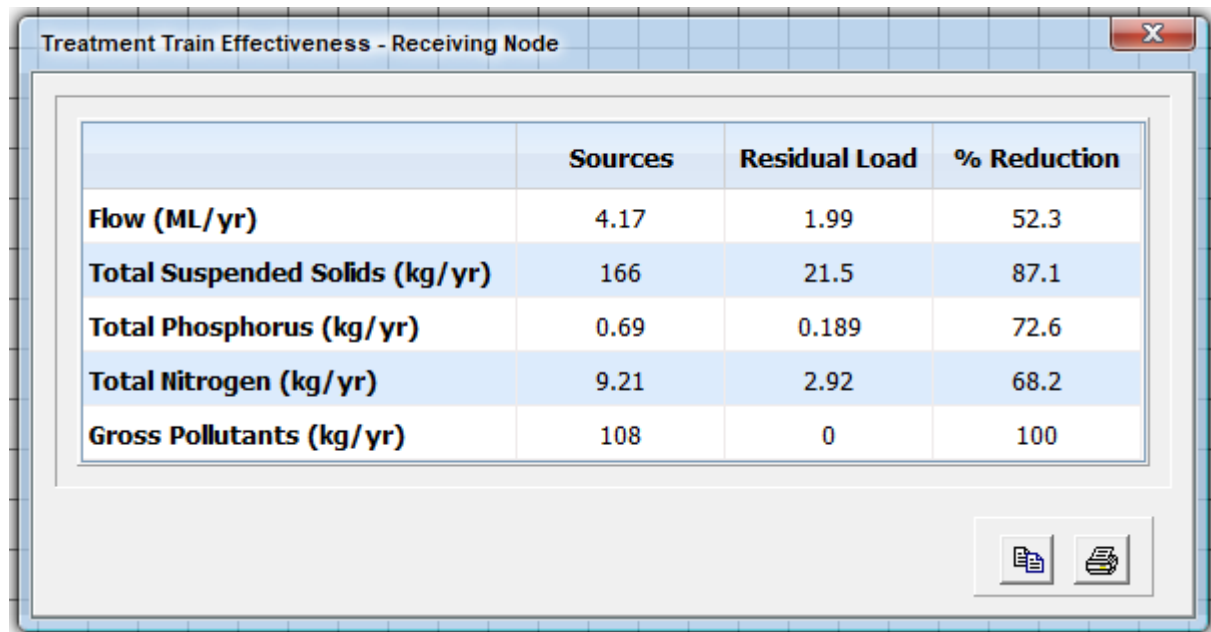


Figure 2.3: MUSIC Modelling Schematic



The screenshot shows a software window titled "Treatment Train Effectiveness - Receiving Node". Inside the window is a table with four columns: "Sources", "Residual Load", and "% Reduction". The table lists five rows of data: Flow (ML/yr), Total Suspended Solids (kg/yr), Total Phosphorus (kg/yr), Total Nitrogen (kg/yr), and Gross Pollutants (kg/yr). The values for each row are: Flow (4.17, 1.99, 52.3), Total Suspended Solids (166, 21.5, 87.1), Total Phosphorus (0.69, 0.189, 72.6), Total Nitrogen (9.21, 2.92, 68.2), and Gross Pollutants (108, 0, 100). At the bottom right of the window, there are icons for saving and printing.

	Sources	Residual Load	% Reduction
Flow (ML/yr)	4.17	1.99	52.3
Total Suspended Solids (kg/yr)	166	21.5	87.1
Total Phosphorus (kg/yr)	0.69	0.189	72.6
Total Nitrogen (kg/yr)	9.21	2.92	68.2
Gross Pollutants (kg/yr)	108	0	100

Figure 2.4: MUSIC Modelling Results

2.2.1 Stormwater Quality During Construction

During the construction stage of the project, an erosion and sediment control plan will be implemented to prevent sediment laden stormwater from flowing into adjoining properties, bushland, roadways or receiving water bodies. Stormwater controls onsite are detailed in an Erosion and Sediment Control Plan which is in accordance with relevant regulatory authority guidelines including Northern Beaches Council's Development Control Plan and Landcom NSW's Managing Urban Stormwater, Soils and Construction ("Blue Book"). Refer to the Civil Engineering drawings in Appendix A.

2.3 Riparian Zone

There is a Riparian Zone located to the east of the proposed development. A separate Controlled Activity Approval will be obtained for works undertaken within waterfront land and the identified Riparian Zone in accordance with Department of Primary Industries Guidelines.

3.0 Summary

Key aspects of the proposed civil engineering for the Oxford Falls Library and Administration Project include:

- Provision of 40m³ of OSD to limit stormwater flows from the site to the pre-development scenario up to the 1 in 20 year ARI;
- Installation of a 250m³ rainwater tank and stormwater treatment measures including OceanProtect's OceanGuard and Stormfilters to treat stormwater prior to discharge to the natural watercourse within the site;
- Erosion and sediment controls proposed during construction works to prevent sediment laden stormwater from leaving the site; and
- Minor works within the Riparian Zone to be submitted to and approved by Department of Primary Industries.

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TIM MOORE
Associate

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Appendix A

Concept Civil Engineering Drawings

OXFORD FALLS GRAMMAR SCHOOL

LIBRARY AND ADMINISTRATION

CONCEPT CIVIL WORKS

GENERAL NOTES

- Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Engineer.
- Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
- Make smooth connection with all existing works.
- Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority, the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
- For all temporary batters refer to geotechnical recommendations.

REFERENCE DRAWINGS

- These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev	Date
A+H+C	GROUND FLOOR PLAN	SK191118	-	
Rygiate Surveyors	OXFORD GRAMMAR SCHOOL 78166		E	20.06.17

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels : FM 53311
Datum of levels : AHD, AUSTRALIAN HEIGHT DATUM
Coordinate system : MGA
Survey prepared by : RYGIATE
Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING

The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities' use and may not necessarily be updated or accurate. The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Supintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to: State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.
Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawings have been based from information received from : **No boundary information received.**

Refer architect for boundary information and locations
Taylor Thomson Whitting makes no guarantees that the boundary or easement information shown is correct.
Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.

SAFETY IN DESIGN

Contractor to refer to Appendix B of the Civil Specification for the Civil Risk and Solutions Register.

EXISTING SERVICES

Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.

EXISTING STRUCTURES

Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practicable possible from existing structure(s).

EXISTING TREES

Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel, site works to be carried out as far as practicable possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.

GROUNDWATER

Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.

EXCAVATIONS

Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and batters adequately supported to approval of Geotechnical Engineer.

GROUND CONDITIONS

Contractor to be aware of the site geotechnical conditions. Refer to geotechnical report by JK Geotechnics Ref:308075rpt 23.Oct 2017 for details.

HAZARDOUS MATERIALS

Existing asbestos products & contaminated material may be present on site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practices as per relevant authority to be adopted and appropriate PPE to be used when handling of hazardous materials. Refer to geotechnical/environmental report by JK Geotechnics Ref:308075rpt 23.Oct 2017 for details.

CONFINED SPACES

Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.

MANUAL HANDLING

Contractor to be aware manual handling may be required during construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing works.

WATER POLLUTION

Contractor to ensure appropriate measures are taken to prevent pollutants from construction works contaminating the surrounding environment.

SITE ACCESS/ERESS

Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.

VEHICLE MOVEMENT

Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshal to supervise vehicle movements where necessary.

RETAINING WALLS

- Drainage shall be provided as shown on the drainage drawings.
- Backfilling shall be carried out after gravel or concrete has reached a minimum strength of 0.85 C_g. Backfilling shall be approved granular material compacted in layers not exceeding 200mm to 98% Standard compaction unless noted otherwise.
- Provide waterprooing to back of walls as specified or noted.
- Where retaining walls rely on connecting structural elements for stability, do not backfill against the wall unless it is adequately propped or the elements have been constructed and have sufficient strength to withstand the loads.
- For all temporary batters obtain geotechnical engineers recommendations.

SITEWORKS NOTES

- All basecourse material to comply with RMS specification No. 3051 and compacted to minimum 98% modified standard dry density in accordance with AS 1289 5.2.1.
- All trench backfill material shall be compacted to the same density as the adjacent material.
- All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1

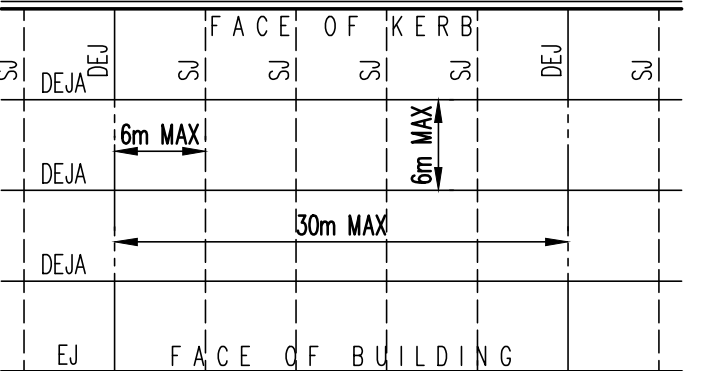
STORMWATER DRAINAGE NOTES

- Stormwater Design Criteria
(A) Average exceedance probability = 1% AEP for roof drainage to first external pit
1% AEP = mm/hr
(B) Rainfall intensities =
Time of concentration: 5 minutes
1% AEP = mm/hr
2% AEP = mm/hr
(C) Rainfall losses =
Impervious areas: L = 1.5 mm, CL = 0 mm/hr
Pervious areas: L = mm, CL = mm/hr
- Pipes 300 dia and larger to be reinforced concrete Class *2* approved upstap and socket with rubber ring joints U.N.O.
- Pipes up to 300 dia may be sewer grade uPVC with solvent welded joints, subject to approval by the engineer.
- Equivalent strength VCP or FRP pipes may be used subject to approval by engineer.
- Precast pits may be used external to the building subject to approval by engineer.
- Entrages, connections and junctions to be manufactured in things where pipes are less than 300 dia.
- Where subsoil drains pass under floor slabs and vehicular pavements, uncoated uPVC sewer grade pipe is to be used.
- Grates and covers shall conform with AS 3996-2006, and AS 1428.1 for access requirements.
- Pipes are to be installed in accordance with AS 3725. All bedding to be type 12 U.N.O.
- Core is to be taken with invert levels of stormwater lines. Grades shown are not to be reduced without approval.
- All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.
- Subsoil drains to be drilled flexible uPVC U.N.O.
- Adopt invert levels for pipe installation (grades shown are only nominal).

JOINTING NOTES

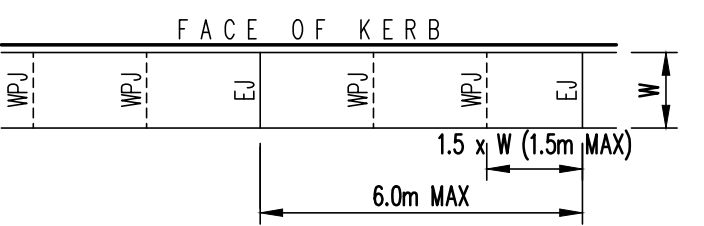
Vehicular Pavement Jointing

- All vehicular pavements to be jointed as shown on drawings.
- Keyed construction joints should generally be located at a maximum of 6m centres.
- Sawn joints should generally be located at a maximum of 6m centres or 1.5 x the spacing of keyed joints, where key joint spacing is less than 4m, with dowelled expansion joints at maximum of 30m centres.
- Provide 10mm wide full depth expansion joints between buildings and all concrete or unit pavers.
- The timing of the saw cut is to be confirmed by the contractor on site. Site conditions will determine how many hours after the concrete pour before the saw cuts are commenced. Refer to the specification for weather conditions and temperatures required.
- Vehicular pavement jointing as follows.



Pedestrian Footpath Jointing

- Expansion joints are to be located where possible at tangent points of curves and elsewhere at max 6.0m centres.
- Weakened plane joints are to be located at a max 1.5 x width of the pavement.
- Where possible joints should be located to match kerbing and / or adjacent pavement joints.
- All pedestrian footpath jointings as follows (uno).



KERBING NOTES

Includes all kerbs, gutters, dish drains, crossings and edges.

- All kerbs, gutters, dish drains and crossings to be constructed on minimum 75mm granular basecourse compacted to minimum 98% modified maximum dry density in accordance with AS 1289 5.2.1.
- Expansion joints (EJ) to be formed from 10mm compressible cork filler board for the full depth of the section and out to profile. Expansion joints to be located at drainage pits, on tangent points of curves and elsewhere at 12m centres except for integral kerbs where the expansion joints are to match the joint locations in slabs.
- Weakened plane joints to be min. 30mm wide and located at 3m centres except for integral kerbs where weakened plane joints are to match the joint locations in slabs.
- Broomed finished to all ramped and vehicular crossings, all other kerbing or dish drains to be steel float finished.
- In the replacement of kerbs -
Existing road pavement is to be sawcut 900mm from lip of gutter. Upon completion of new kerbs, new basecourse and surface is to be laid 900mm wide to match existing materials and thicknesses.
Existing allotment drainage pipes are to be built into the new kerbs with a 100mm dia hole.
Existing kerbs are to be completely removed where new kerbs are shown.

SURVEY LEGEND

- +16.48
- 19
- Kerb line
- Batter
- Retaining wall
- Stormwater drainage line
- Telecommunications line
- Gas line
- Water main
- Sewer line
- Electrical line
- Easement
- Fence
- Tree to be removed/be retained
- Boundary
- Sip
- Hydrant
- Manhole
- Gas
- Stop Valve
- Water
- Telecommunications
- Trap
- Gully
- Grate
- Sewer Manhole
- Electricity
- Electric Light Pole
- Traffic Light
- Traffic Light Lid
- Traffic Light Box
- Telephone Box
- Parking Meter
- Permanent Mark
- Bench Mark
- Borehole
- Test Pit

EXISTING SERVICES LEGEND

- S - - - S - - - Existing sewer
- W - - - W - - - Existing water
- EA - - - EA - - - Existing underground electrical
- EA - - - EA - - - Existing aerial electrical
- T - - - T - - - Existing telecommunications
- G - - - G - - - Existing gas
- SW - - - SW - - - Existing stormwater

CONCRETE FINISHING NOTES

- All exposed concrete pavements are to be broomed finished.
- All edges of the concrete pavement including keyed and dowelled joints are to be finished with an edging tool.
- Concrete pavements with grades greater than 10 % shall be heavily broomed finished.
- Carburendum to be added to all stair treads and ramped crossings U.N.O.



SITE LOCALITY PLAN
NOT TO SCALE - IMAGE COURTESY OF NSW SPATIAL INFORMATION EXCHANGE

DRAWING SCHEDULE

Drawing No.	Drawing Title
C200	NOTES AND LEGENDS SHEET
C201	CONCEPT EROSION & SEDIMENT CONTROL PLAN AND DETAILS
C210	CONCEPT BULK EARTHWORKS CUT AND FILL PLAN
C220	CONCEPT SITEWORKS & STORMWATER MANAGEMENT PLAN
C230	CONCEPT DETAILS SHEET 1
C231	CONCEPT DETAILS SHEET 2

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P3	FOR APPROVAL	OC	JH	16.03.20					
P2	FOR APPROVAL	OC	DM	12.03.20					
P1	FOR APPROVAL	OC	DM	20.12.19					

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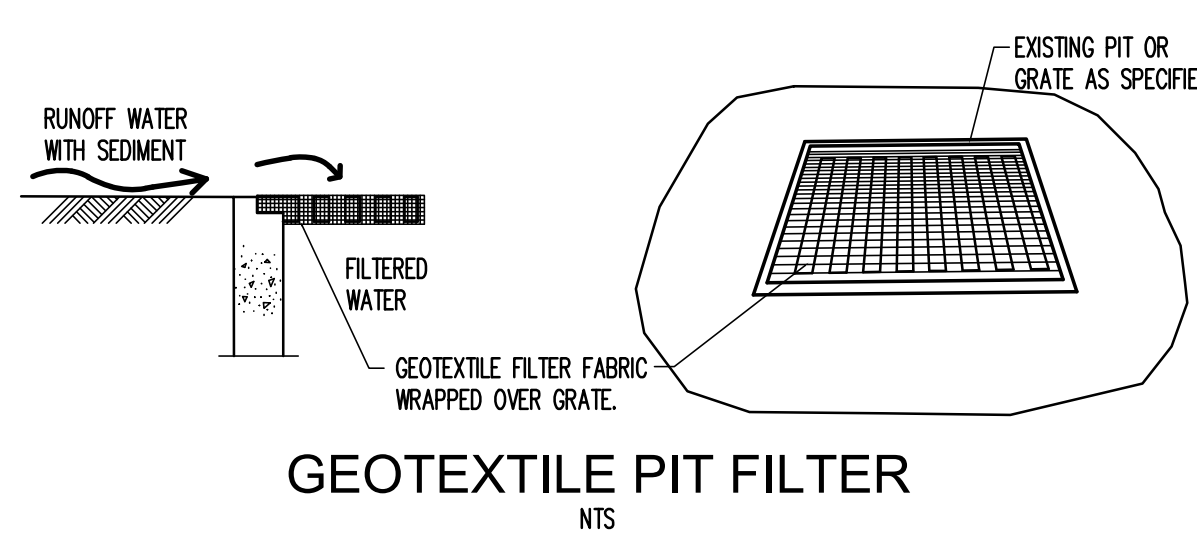
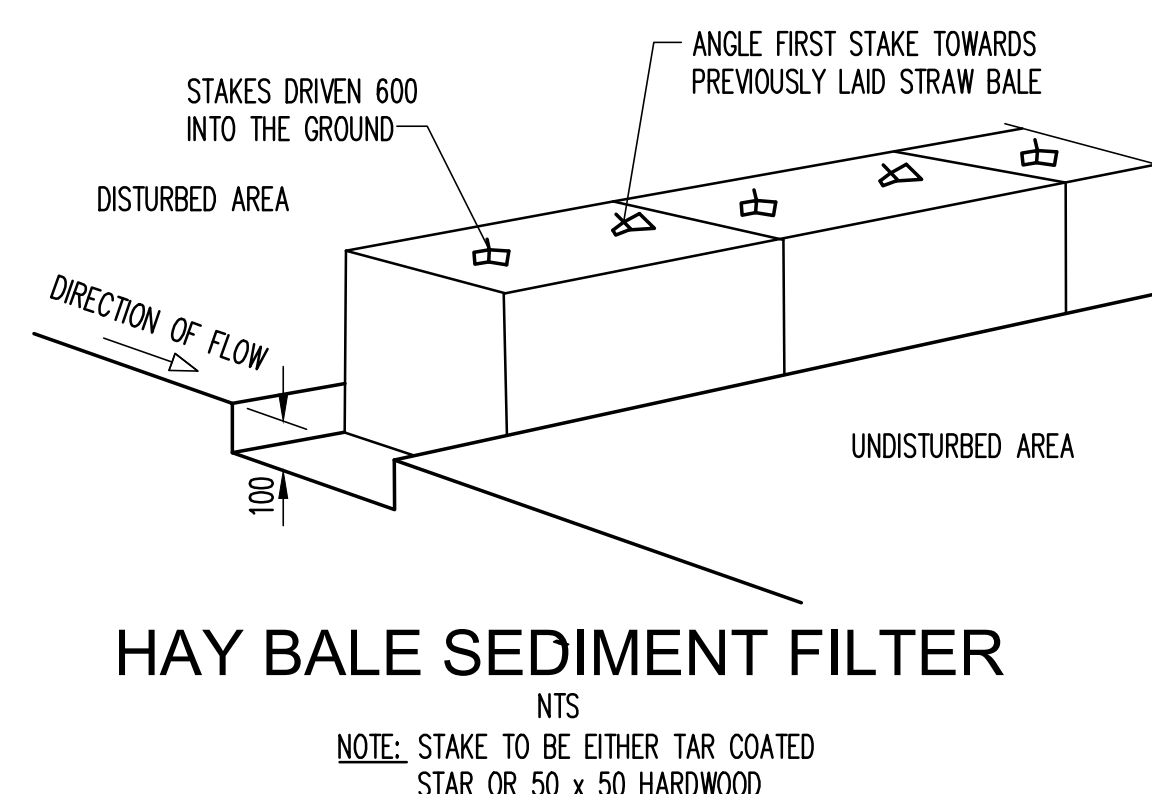
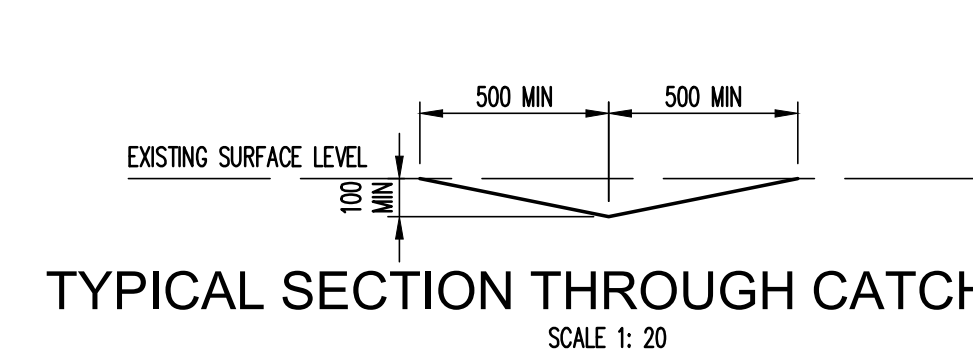
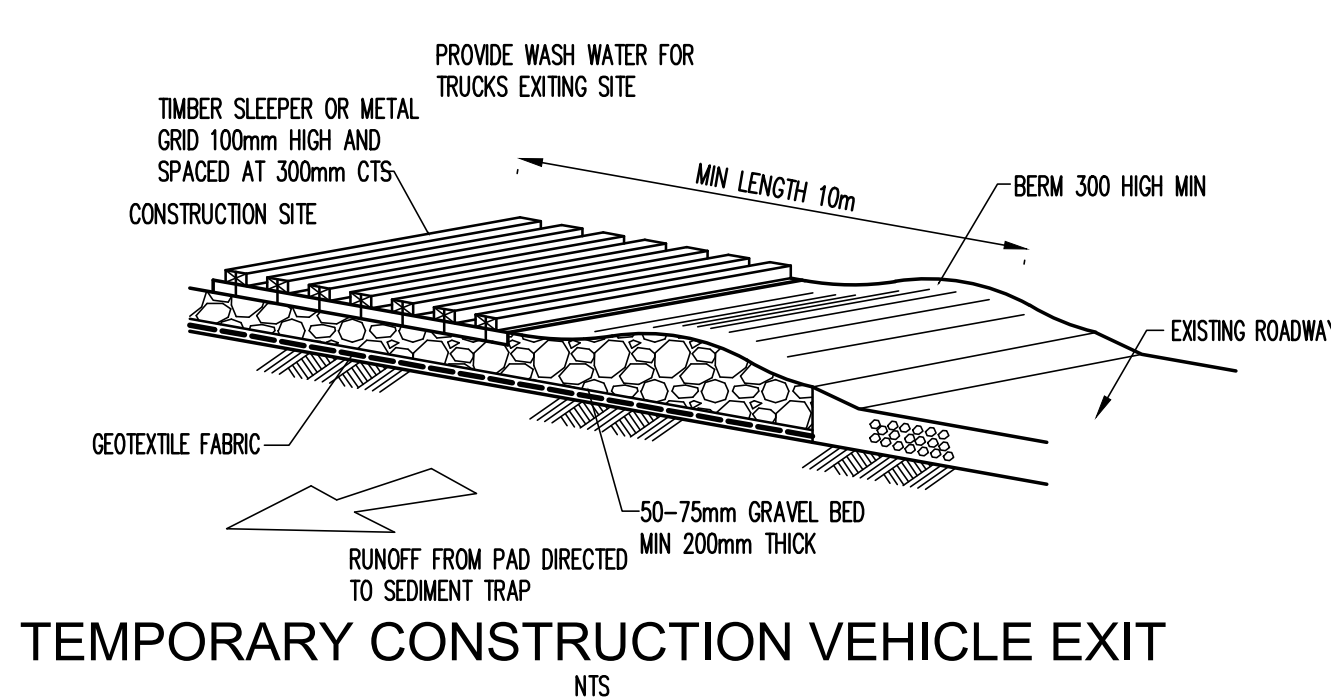
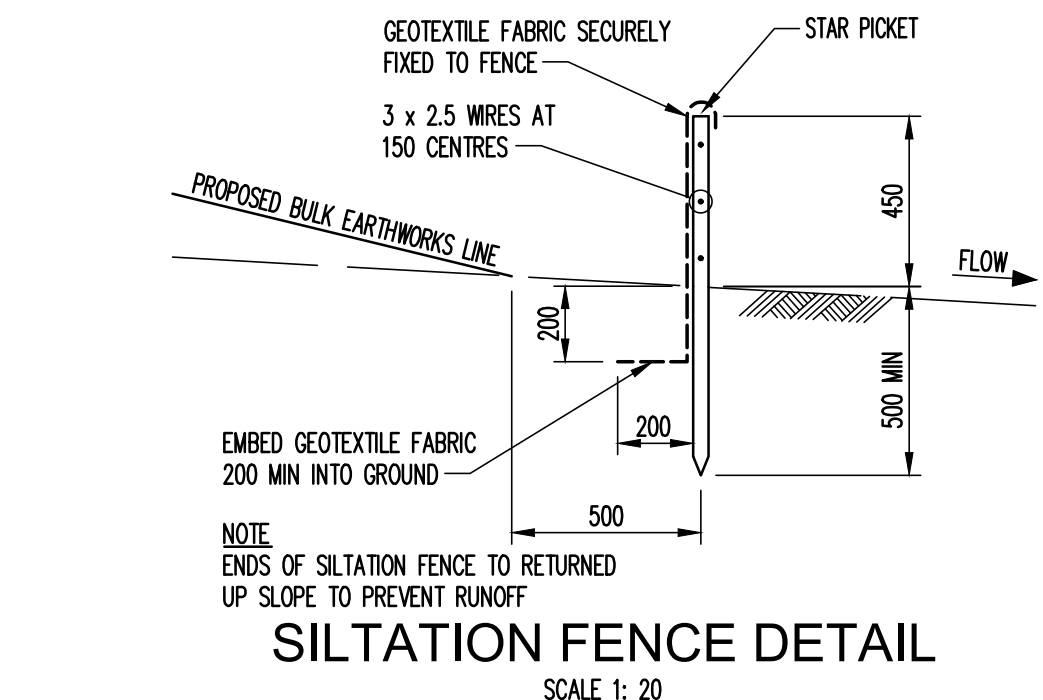
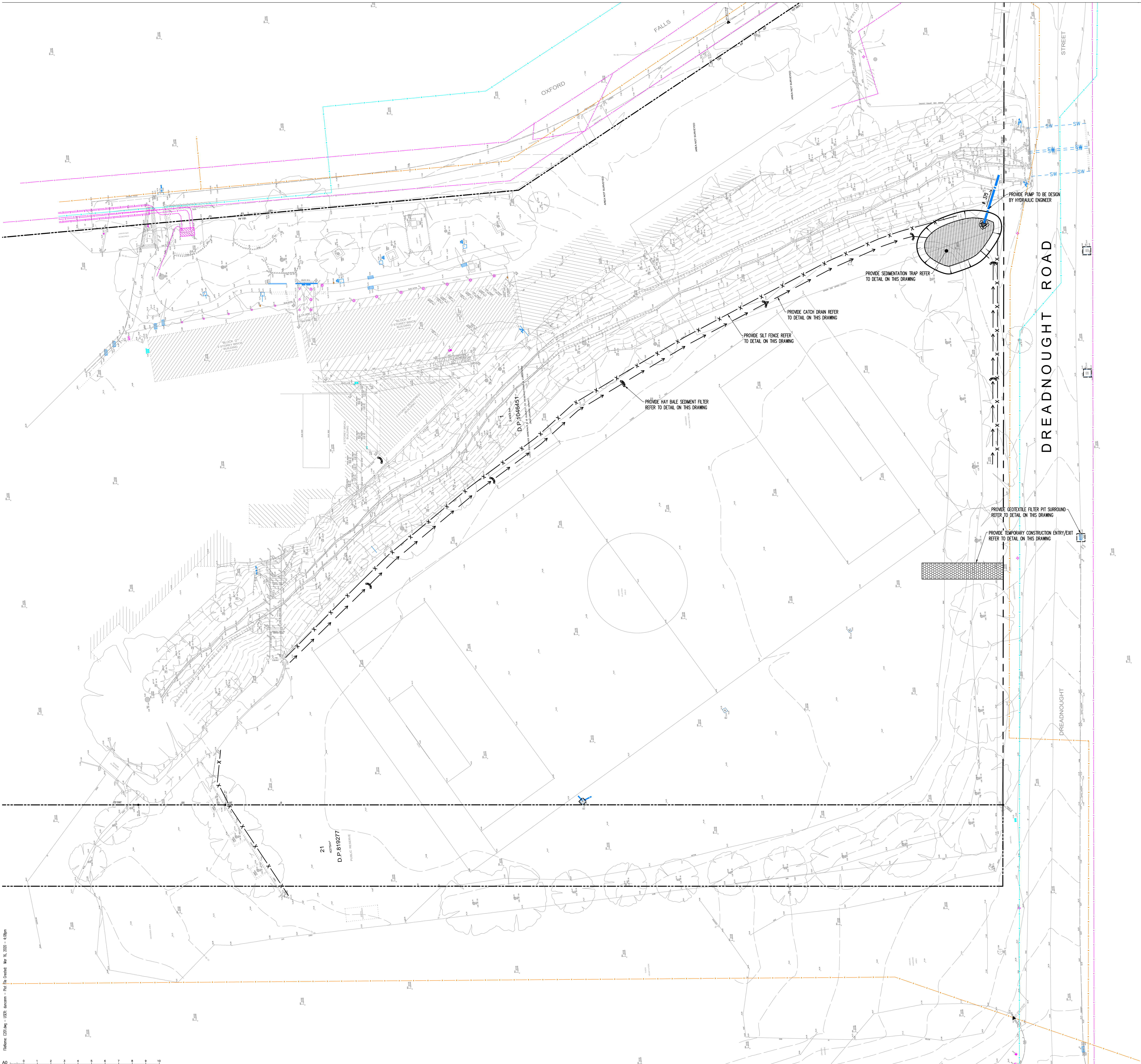
Engineer
TTW **Structural**
Civil
Traffic
Façade
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Project
OXFORD FALLS GRAMMAR SCHOOL - LIBRARY AND ADMINISTRATION

Sheet Subject
NOTES AND LEGENDS SHEET

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191571 C200 P3
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EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with:
(A) Local authority requirements,
(B) EPA - Pollution control manual for urban stormwater,
(C) LANDCOM NSW - Managing Urban Stormwater: Soils and Construction ("Blue Book").
 - Erosion and sediment control **drawings and notes** are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control **plan** shall be implemented and adapted to meet the varying situations as work on site progresses.
 - When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
 - Minimise the area of site being disturbed at any one time.
 - Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
 - All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
 - Control water from upstream of the site such that it does not enter the disturbed site.
 - All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
 - All vehicles leaving the site shall be cleaned and inspected before leaving.
 - Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
 - Clean out all erosion and sediment control devices after each storm event.
- Sequence Of Works
- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct all fences before the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basins including outlet control and overflow.
 - Construct turl lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
 - Construct geotextile filter pit surround around all proposed pits as they are constructed.
 - On completion of placement provide sand bag kerb inlet sediment traps around pits.
 - Provide and maintain a strip of turl on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000).
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Council's storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Council's storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continuously monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

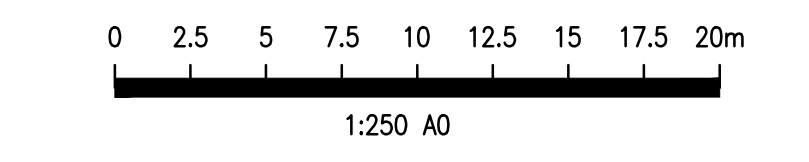
EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole ball sediment filter in a way that does not pick up sediment that has dropped to the bottom.

Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.

EROSION AND SEDIMENT CONTROL LEGEND

- Siltation fence
- Stormwater pit with Geotextile filter surround
- Hay bale barriers
- Sandbag sediment trap
- Catch drain
- Overland flow path



PRELIMINARY
NOT TO BE USED
FOR CONSTRUCTION

Tel: 02 9311 1000 Fax: 02 9311 1001 Mar 16, 2020 - 4:08pm

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	FOR APPROVAL	OC	JA	12.03.20										
P1	FOR APPROVAL	OC	JA	20.12.19										

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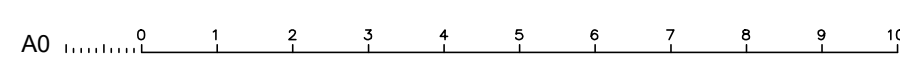
Engineer
TTW Structural
Civil
Façade
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Project
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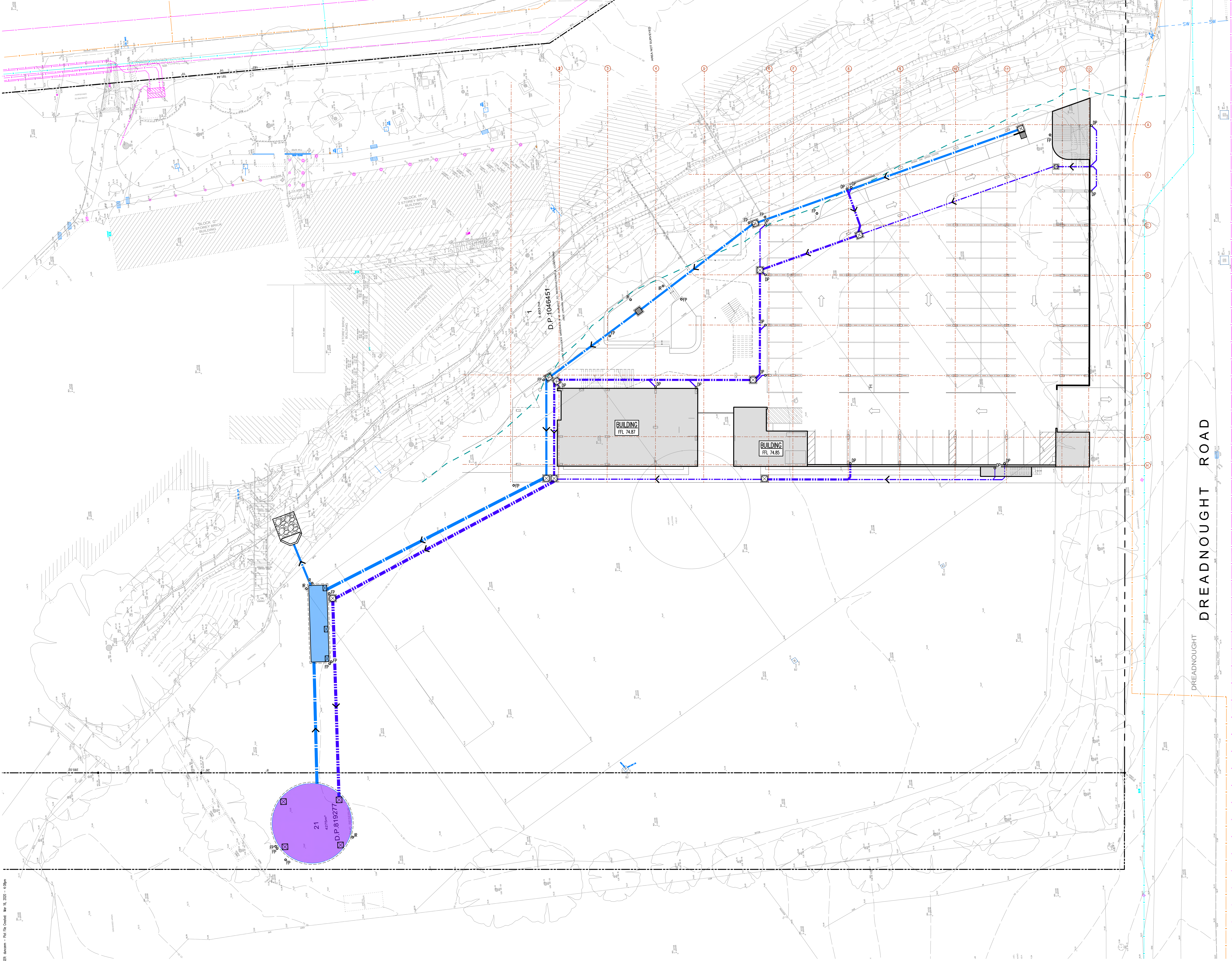
Sheet Subject
CONCEPT EROSION & SEDIMENT CONTROL PLAN AND DETAILS

Scale: A0 1:250	Drawn JH	Authorised -
Job No 191571	Drawing No C201	Revision P3

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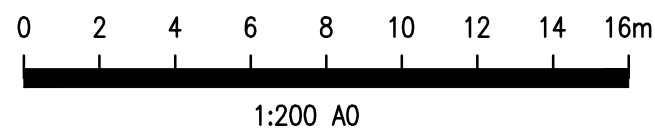
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Job No	Drawing No	Revision
191571	C210	P3
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SITeworks LEGEND

- F22.20 Finished surface level
- F22.00 Finished contour
- K&G Kerb & gutter
- KO Kerb only
- FK Flush kerb
- DD Dish drain
- Stormwater pit, flow direction and line with:
 - Invert level upstream
 - Pipe size and class
 - Pipe grade
 - Flow (Litres per second)
 - Invert level downstream
- Grated drain
- Subsoil drainage line (100 dia) - refer detail sheets
- Intermediate riser with subsoil drainage line (100 dia)
- Flushing point with subsoil drainage line (100 dia)
- Down pipe
- Blockwork retaining wall
- Brickwork retaining wall



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P3 FOR APPROVAL					P2 FOR APPROVAL					P1 FOR APPROVAL				
OC					OC					OC				
JH					DM					DM				
16.03.20					12.03.20					20.12.19				
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

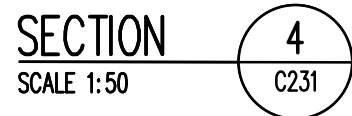
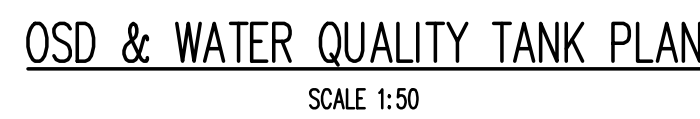
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Project
OXFORD FALLS GRAMMAR
SCHOOL - LIBRARY AND
ADMINISTRATION

Sheet Subject
CONCEPT SITeworks &
STORMWATER MANAGEMENT
PLAN

Scale: A0	Drawn	Authorised
1:200	DM	-
Job No	Drawing No	Revision
191571	C220	P3
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Job No	Drawing No	Revision
191571	C231	P2
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