

# **State Significant Development Application (SSD 18\_9772) Report for Stormwater Management Plan**

**Santa Sophia Catholic College**

**TSA Management / 15 May 2019 – Rev F**  
**181896 CAAA**

**Structural  
Civil  
Traffic  
Facade  
Consulting  
Engineers**

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## Revision Control

Revision	Date	Description		Prepared by	Approved by
A	04.03.2019	DRAFT ISSUE	Name	N. Biason	
			Signature		
B	29.03.2019	For SSDA Submission		N. Biason	
C	02.04.2019	For SSDA Submission		N. Biason	
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## 1.0 Introduction

This stormwater management plan has been prepared by TTW on behalf of the Catholic Education Diocese of Parramatta c/TSA Management Pty Ltd (the Applicant) in accordance with Best Practices and in accordance with relevant authorities' objectives and performance targets to support the proposed development of the new Santa Sophia Catholic College in Box Hill.

It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 18\_9772) for the new Santa Sophia Catholic College on the corner of Fontana Drive and the future road 'B', between Red Gables Road and Fontana Drive, in Box Hill North (the site).

The new school will cater for approximately 1,920 primary and secondary school students, inclusive of a 60 student Catholic Early Learning Centre. The school will have 130 full-time equivalent staff.

The proposal seeks consent for approximately 15,000sqm of floor space across a part five and part six storey building. The building will present as three main hubs connected by terraced courtyards and garden spaces.

The school will include:

- Catholic Early learning centre for 60 students;
- General Learning Spaces for years Kindergarten to 12;
- Community Hub – knowledge centre and cafe;
- Creative Hub – art and applied science;
- Performance Hub – multipurpose hall and music, dance and drama spaces;
- Professional Hub – administrative space;
- Research Hub – science and fitness;
- Associated site landscaping and open space including a fence and sporting facilities;
- Bus drop off from Fontana Drive;
- Pick-up and drop-off zone from future road 'B';
- Pedestrian access points from Red Gables Road north, Fontana Drive and future road 'B';
- Staff parking for 110 vehicles provided off site in an adjacent location;
- Short term parking for pick up and drop off for Catholic Early Learning Centre from Red Gables Road; and
- Digital and non-digital signage to the school.

The following information and documents were utilised in this investigation:

- Concept Civil Engineering Drawings by TTW;
- Concept Architectural Plans by BVN
- “Managing Urban Stormwater – Soils and Construction, 4th Edition (2004)” by Landcom;
- EPA – Pollution control manual for urban stormwater.
- NSW Office of Environment and Heritage (formerly Department of Environment, Climate Change and Water (DECCW)) Guideline
- Geotechnical Investigation by Douglas Partners Project 94526.00 dated January 2019.
- Box Hill North Main Detention Basins and Lake – Stormwater Management Strategy and Flood Assessment Report by J.Wyndham Prince for Celestino dated October, 2016.
- “Australian Rainfall and Runoff (2016);

The increases in impervious areas, disturbance of existing topography and alteration of the natural terrain associated with land development has a potential to increase surface run off and subsequently concentrate peak storm flow rates. Consequently, existing flow regimes are adversely affected resulting in excessive flows and velocities through the downstream drainage network which may cause erosion of the associated waterways.

To mitigate any negative impacts to the downstream drainage network, the site stormwater management system needs to be designed to safely convey flows through the site and within the capacity of the downstream receiving drainage systems whilst also managing post development pollutants on site and erosion via a water quality treatment train and energy dissipater system.

The result of this assessment is an ecological sustainable development that ensures the safe discharge of stormwater whilst maintaining the existing flow regimes in a healthy environmental state.



## 1.1 SEAR General Requirements

The purpose of this Stormwater management Plan report is to address the following relevant SEARs:

SEARs Item	Plans and Documents	Elements to be Addressed	Page
<b>15. Drainage</b>	Concept Stormwater Drainage Plans	Detail measures to minimise operational water quality impacts on surface waters and groundwater.	Section 4.0, pages 9-11
		Stormwater plans detailing the proposed methods of drainage without impacting on the downstream properties.	
		Relevant Policies and Guidelines: - Guidelines for development adjoining land and water managed by DECCW (OEH, 2013).	
<b>19. Sediment, Erosion and Dust Controls</b>	Sediment and Erosion Control Plan	Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.	Section 3.0, pages 6-8
		Relevant Policies and Guidelines: - Managing Urban Stormwater - Soils & Construction Volume 1 2004 (Landcom) - Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA) - Guidelines for development adjoining land and water managed by DECCW (OEH, 2013).	

## 2.0 Site Background

The proposed new school is located within a mixed-used development by Celestino, known as The Gables. The Gables Box Hill Development as a whole includes different precincts such as medium-high density residential, retail, local park, sports field, riparian corridor/drainage, lake as water quality measure, and town centre where the propose Santa Sophia College is located. An overview of the Overall Gables Box Hill Development is shown in figure 1.0 below.

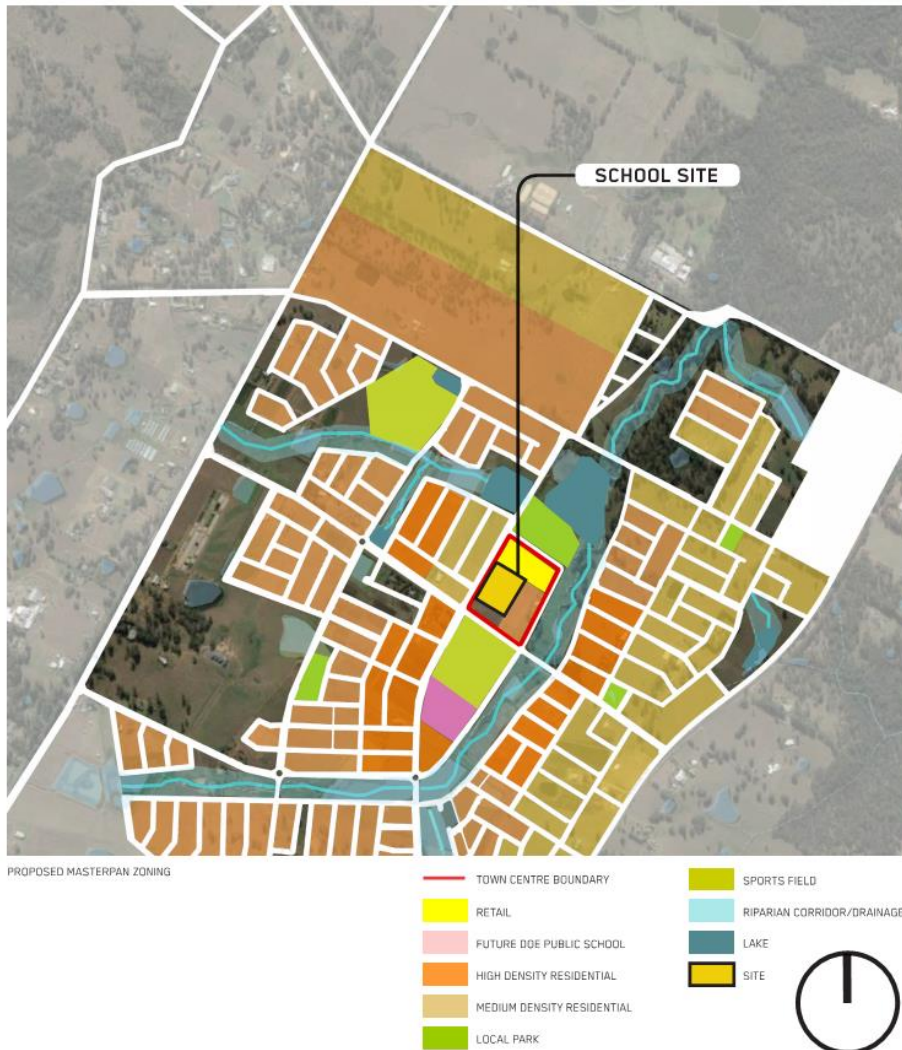


Figure 1.0 : Overall Gables Box Hill Development with the proposed School site

## 2.1 Key Issues

The key issues to be addressed in this report include:

- Sedimentation and erosion control
- Earthworks
- Construction sequencing
- Site maintenance
- Air quality and dust management
- Stormwater Quantity Control
- Stormwater Quality Control

## 3.0 Sedimentation and Erosion Control

### 3.1 Strategies

The proposed sedimentation and erosion control measures to manage runoff and ensure no detriment to the receiving environments have been divided into temporary and permanent strategies as summarised below.

STRATEGY	DESCRIPTION
<b>Temporary</b>	<p>Temporary strategies generally refer to the control of sediment erosion and water pollution during the construction phase. The primary risks occur when soil is excavated and exposed to the elements during construction works. It is at this stage that suspended solids and other construction activity associated pollutants can be washed into the receiving stormwater network and subsequently the downstream waterways.</p> <p>The strategies that are implemented to prevent potential soil degradation and pollution of waterways include the adequate provision of sedimentation and erosion control measures. Generally the measures outlined in this report form a minimum basis that should be considered and further documented by the contractor prior to commencement of the works through a Soil and Water Management Plan (SWMP).</p> <p>The temporary controls that are proposed in the concept plans by TTW will limit the displacement of sediment caused by runoff from disturbed areas, and are designed to remove sediment prior to discharging from site.</p>
<b>Permanent</b>	<p>For the permanent water quantity and quality measures refer to Section 5.3 of the report.</p>

*Table 1 - Temporary & Permanent Strategies*

### 3.2 Proposed Measures

A Soil and Water Management Plan attached to this report **Appendix A Drawing SKC03-P5**.

### 3.3 Installation of Measures

The measures are to be installed as per the requirements outlined below:

- Clearly visible barrier, site fencing and hoarding shall be installed at the discretion of the Superintendent to ensure site security, safety of the public, manage traffic control and prohibit any unnecessary site disturbance. Vehicular access to the site shall be limited to only what is essential for the construction activities and shall enter the site only through the stabilised access points.
- 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.

- Proprietary silt fencing shall be installed by the Contractor in accordance with the final approved Sedimentation and Erosion Control Plan and elsewhere at the discretion of the site superintendent to contain sedimentation to as near as possible to the original source.
- Sediment removed from any sediment trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.
- Stockpiles shall be located by the Contractor in accordance with the final approved Sedimentation and Erosion Control Plan and elsewhere at the discretion of the Project Manager and/or Superintendent. Where stockpiles are to be in place longer than 30 days they shall be stabilised.
- 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 Sedimentation and Erosion Control Plan.
- Temporary sediment traps located at pits shall be retained throughout the early works stage and until the appropriate replacement measures for the subsequent stages are installed.

### 3.4 Land Disturbance

Where practicable, the soil erosion hazard shall be kept as low as possible. Limitations to access are to be in accordance with the following table:

Land Use	Limitation
Access areas	Access is to be limited to the designated work zones via the stabilised site access.
Truck cleaning areas	Any truck exiting out of the site shall be thoroughly cleaned and limit the exportation of soil and sediment on public roads.
Remaining undisturbed areas.	Access to any undisturbed areas and remaining lands is only permitted with permission from the Project Manager and/or Superintendent.

*Table 2 - Limitations to Access*

- Any spilled material shall be immediately removed from areas subject to runoff or concentrated flow;
- Trapped sediment shall be removed where the capacity of the sedimentation trapping device falls below 60%;
- Sedimentation traps are to be inspected after each rainfall event and/or weekly to;
  - Ensure that all sediment is removed once the sediment storage zone is full;
  - Ensure that outlet and emergency spillway works are maintained in a fully operational condition at all times;
  - Ensure rehabilitated lands have effectively reduced the erosion hazard and initiate upgrading or repair as appropriate;
- Additional erosion or sediment control works may be required to be constructed as appropriate to ensure the protection of downslope lands and waterways;
- Erosion and sediment control measures are to be maintained in a fully functioning condition at all times until the site is rehabilitated or secondary stage measures are installed;
- Revegetation schemes are to be adhered to and that any grass coverings are kept healthy, including watering and mowing;
- The removal of the temporary soil conservation and sedimentation control structures is to be the last activity in the rehabilitation program.

### 3.5 Air Quality and Dust Management

Prior to construction, the Contractor shall prepare a Construction Environmental Management Plan (CEMP), which will include a section on Air Quality and/or Dust Management). The CEMP will include but not be limited to:

- Plant and equipment emissions shall be as per the relevant regulations and standards;
- Areas of exposed soil shall be minimised and long term stockpiles shall be stabilized with vegetation or covered;
- A water cart shall be available at all times for surface spraying exposed soil surfaces to reduce dust generation;
- The site compound and haul roads are to be covered with gravel or kept moist (by spraying with water cart) to reduce dust generation;
- Materials transported in open trucks shall be covered to prevent possible dust generation;
- Tailgates of all vehicles transporting soil materials to and from the construction site shall be securely fixed so as to prevent soil spilling which in turn could generate dust;
- The burning of materials is not permitted on site at any time



## 4.0 Stormwater Design

The objective is to provide stormwater controls that ensure that the proposed development does not adversely impact on the quantity or quality of stormwater flows within, adjacent and downstream of the site

In reference to the “*Box Hill North Main Detention Basins and Lake – Stormwater Management Strategy and Flood Assessment Report by J.Wyndham Prince for Celestino dated October, 2016*”.

The proposed school is part of the 380ha Box Hill North (BHN) Project and is located within The Hills Shire Council Local Government area. The BHN Project includes:

- Two (2) Main Detention Basins
- Lake with permanent volume of 97,500cu.m.
- Bio-Retention Systems

The proposed school is located within the catchment of these catchment-wide water quantity (Detention Basins) and water quality (Lake and Bio-Retention Systems). The Stage 1 of the BHN Project involves the construction of the Lake and Detention Basin systems which will prevent the need to construct multiple temporary detention basins as development proceeds. throughout the BHN Project. Refer to Figure 2.0 for the locations of water quantity and quality systems.

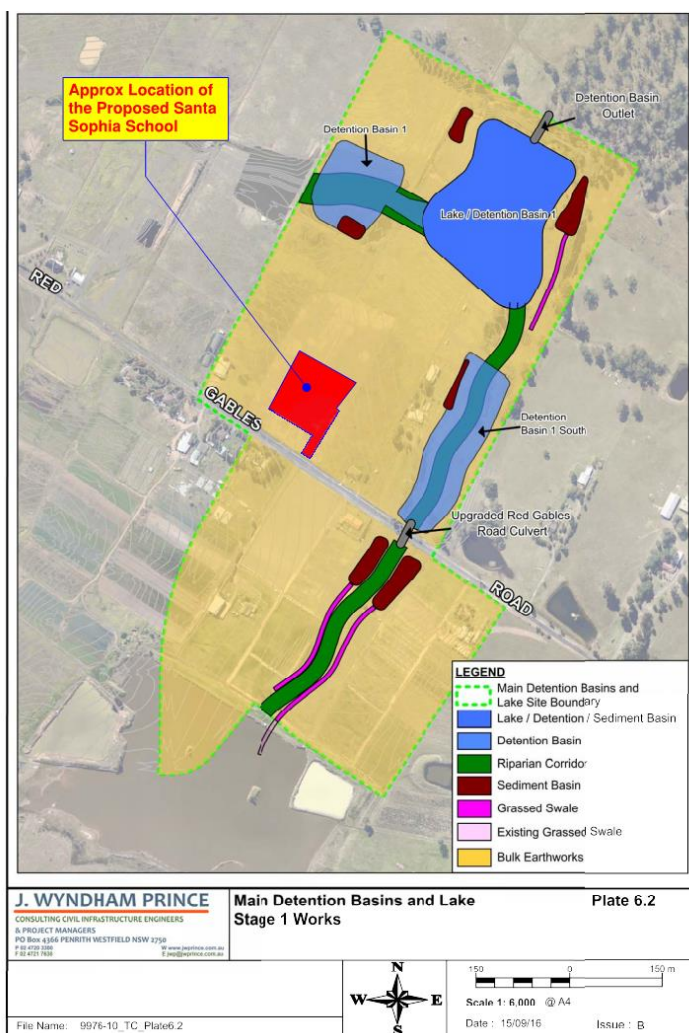


Figure 2.0 : BHN' Project's Location of Main Detention Basins and Lake

## 4.1 Proposed Drainage System

The site stormwater system for the development has been designed to capture concentrated flows from impermeable surfaces including building roofs, on-grade pavements and courtyards open to the sky. The proposed stormwater management system for the development includes:

- Pit and pipe drainage network to collect runoff from areas;
- Stormwater flows up to the 5% annual exceedance probability (AEP) event are conveyed by a minor drainage system; and
- Stormwater flows above the 5% annual exceedance probability event are conveyed by a major drainage system;

It is to be noted that the flowrates generated to size the internal pit and pipe network are based off Australian Rainfall and Runoff – A Guide to Flood Estimation 2016.

A reduced set of the concept stormwater management plans are included in **Appendix B**.

## 4.2 Stormwater Water Quantity Control

The main goal for the stormwater quantity control measures is to ensure that the post-developed peak storm flows do not exacerbate flow regimes within relevant Authority's receiving drainage network and cause detriment to the downstream waterways.

As mentioned under Section 4.0, the proposed school is part of the subdivision catchment of the BHN Project. The construction of the BHN's Main Detention Basins will provide the detention storage required for the upstream catchment including the proposed Santa Sophia College/School ("The Site"). As such, **no on-site detention (OSD) is required for the site**.

## 4.3 Stormwater Water Quality Control

Increases to impervious areas often results in the increase of gross pollutants, total suspended solids, and phosphorus and nitrogen nutrients. These pollutants are washed away into the stormwater network during rainfall events, transported from their site of origin into downstream waterways. To limit the impact of on the receiving water body, quality control measures need to be designed in the form of a treatment train that reduces pollutant loads prior to discharging into the drainage network.

The quality of site stormwater runoff depends upon a number of factors including land use, degree of imperviousness, population size, sanitation and waste collection methods, topography, geotechnical characteristics of the soil and the amount of rainfall based on climate. Litter, garbage, sediment, soils, nutrients, oils, hydrocarbons, grease, and heavy metals are all examples of pollutants that are typically transported off site by runoff. Whilst these pollutants have an adverse impact on the overall quality of the receiving water body it is gross pollutants, suspended solids and the nutrients phosphorus/nitrogen which are the most detrimental to the environment. Litter, garbage, oils, hydrocarbons and other pollutants that typically float on the surface generally have a bigger aesthetic impact to water quality.

As mentioned under Section 4.0, the proposed school is part of the subdivision catchment of the BHN Project which includes provision for water sensitive urban design (WSUD) treatment train for all upstream developed catchments including the proposed Santa Sophia



College/School site. The WSUD treatment terrain includes a Lake with a permanent water volume of 97,500cu.m, gross pollutant traps, grassed swales and bio-retention systems. As per the *“Box Hill North Main Detention Basins and Lake – Stormwater Management Strategy and Flood Assessment Report by J.Wyndham Prince for Celestino dated October, 2016”* report, the performance of the proposed water quality management strategy for the BHN subdivision. According to their MUSIC modelling results, the proposed strategy achieves the reduction targets specified by the Office of Environment and Heritage. Main Detention Basins will provide the detention storage required for the upstream catchment including the proposed Santa Sophia College/School (“The Site”). As such, **no further permanent water quality management system is required for the School site.**

## 5.0 Recommendations

The key strategies to be adopted for this development include the following:

1. A pit and pipe network to collect all stormwater runoff up to the 5% AEP event with overflows up to the 1% AEP to be directed to the roads as shown in the Stormwater Concept Plan SKC104-P4 and SKC105-P4 in **Appendix B.**
2. Prior to construction, the Contractor shall prepare a Construction Environmental Management Plan (CEMP), which will include a section on Air Quality and/or Dust Management)
3. For the temporary measures and short term effects (i.e. during the early works phase) water quality is managed by implementing the measures covered in the Soil and Water Management Plan as documented on our drawing SKC03-P5 in **Appendix A.**

Prepared by  
**TAYLOR THOMSON WHITTING  
(NSW) PTY LTD**

**Nemesio Biason  
Associate**

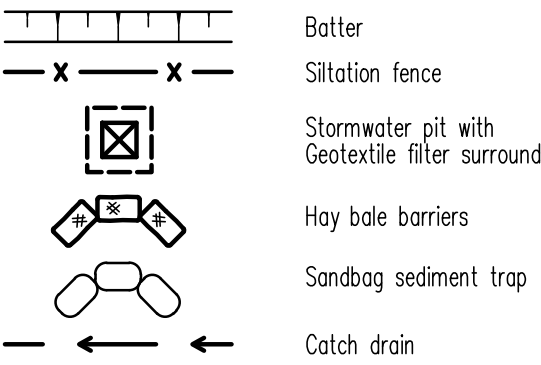
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## Appendix A

# Sedimentation and Erosion Control Plan



#### EROSION AND SEDIMENT CONTROL LEGEND



#### 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.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- 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.

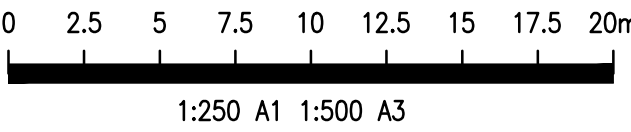
#### Sequence Of Works

- Prior to commencement of excavation the following soil management devices must be installed.
  - Construct silt fences below 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/basin including outlet control and overflow.
  - Construct turf 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 pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

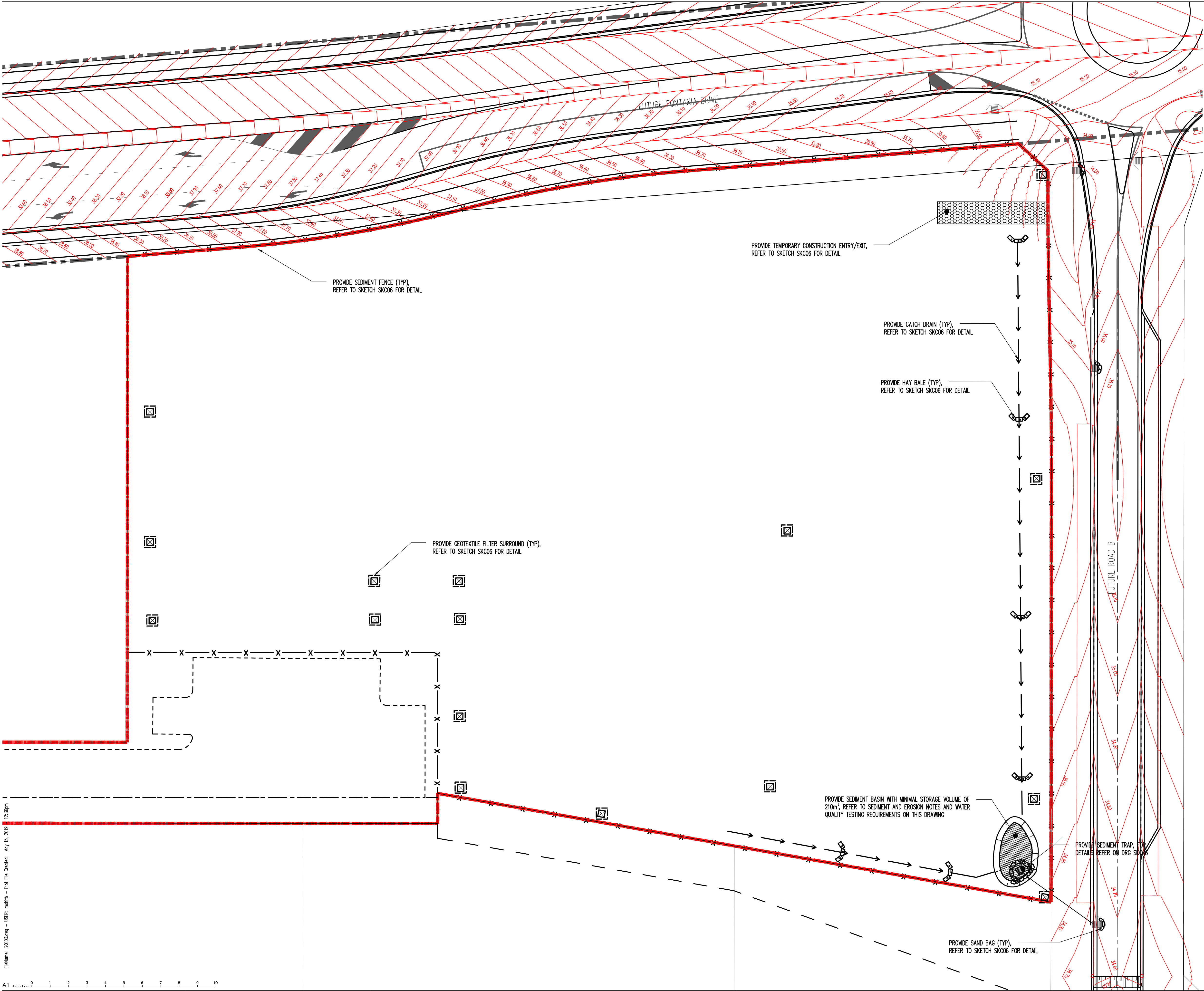
#### WATER QUALITY TESTING REQUIREMENTS

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 Councils 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 Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually 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.



**FOR APPROVAL**



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Architect  
**BVN DONOVAN HILL**  
255 PITT STREET SYDNEY  
PO BOX N646 GROSVENOR PLACE NSW 1220  
TEL: +61 2 8297 7200  
FAX: +61 2 8297 7299  
SYDNEY@BVN.COM.AU

Civil Engineer  
**TTW** Taylor Thomson Whitting  
612 9439 7288 | 48 Chandos Street St Leonards NSW 2065

Project  
**SANTA SOPHIA CATHOLIC COLLEGE**  
**THE GABLES TOWN CENTRE**

Sheet Subject  
**SOIL AND WATER MANAGEMENT PLAN**

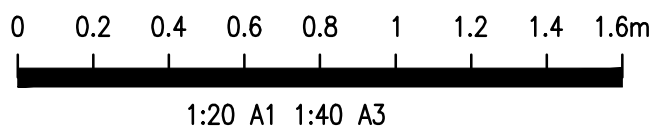
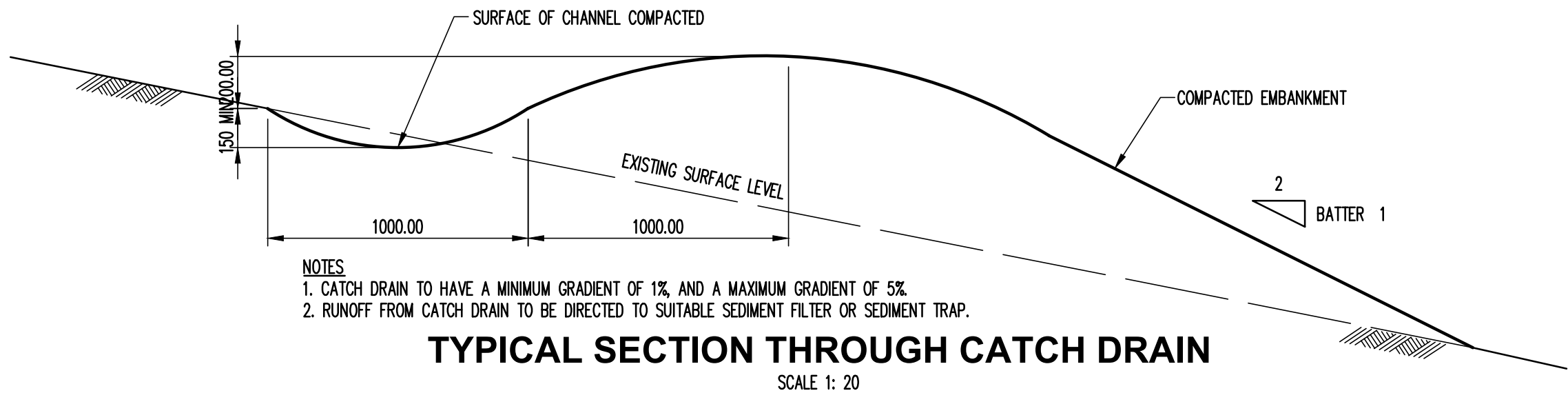
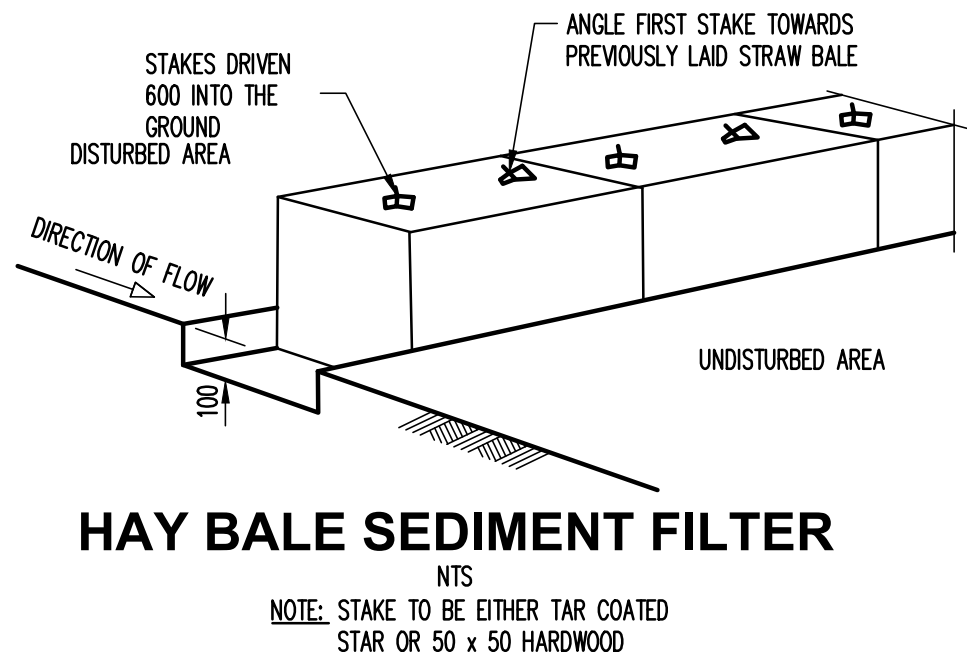
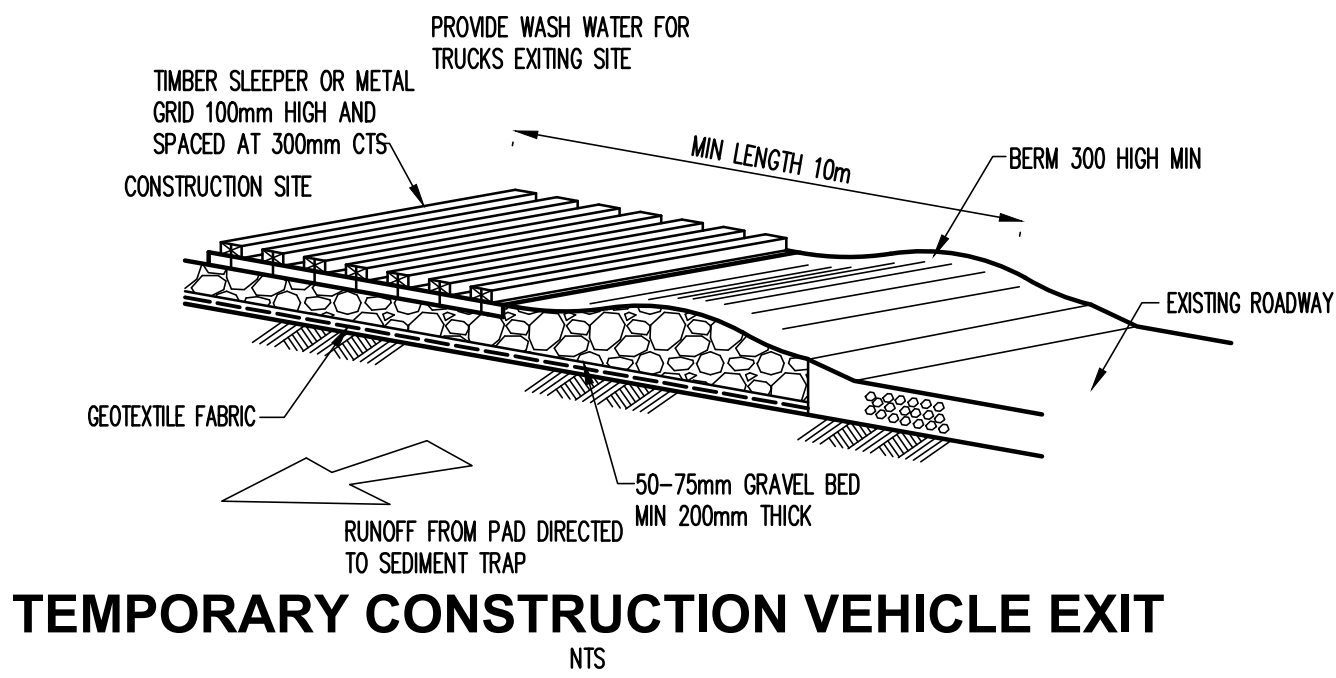
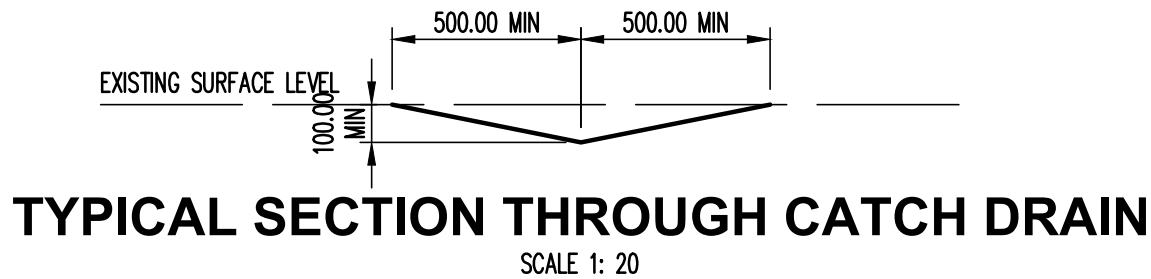
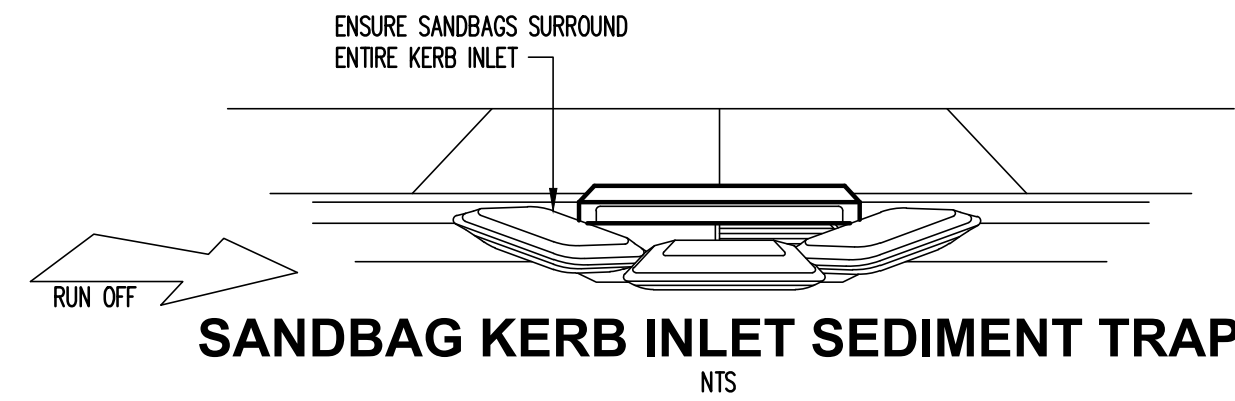
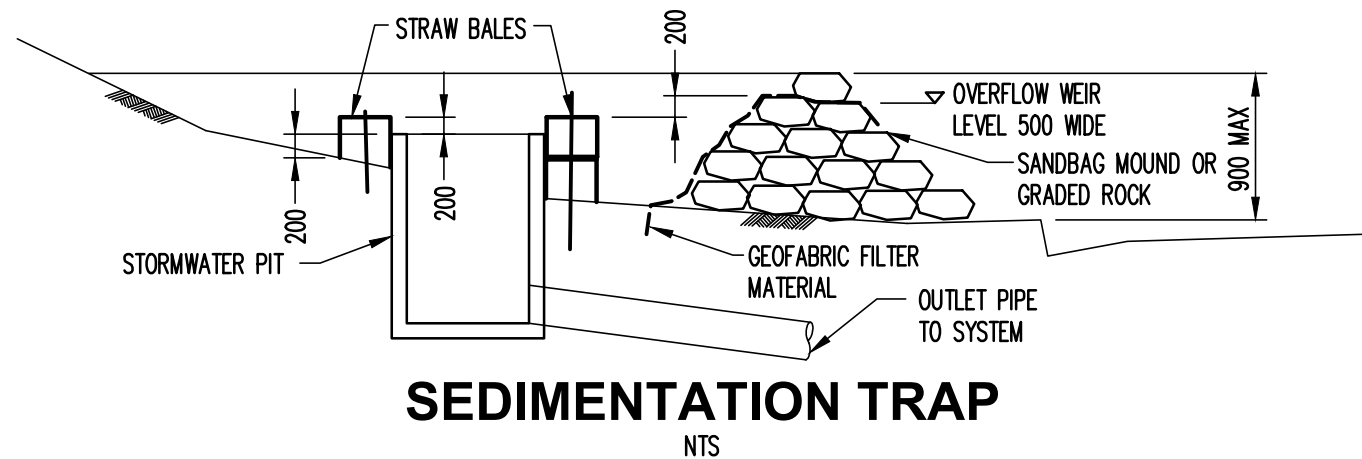
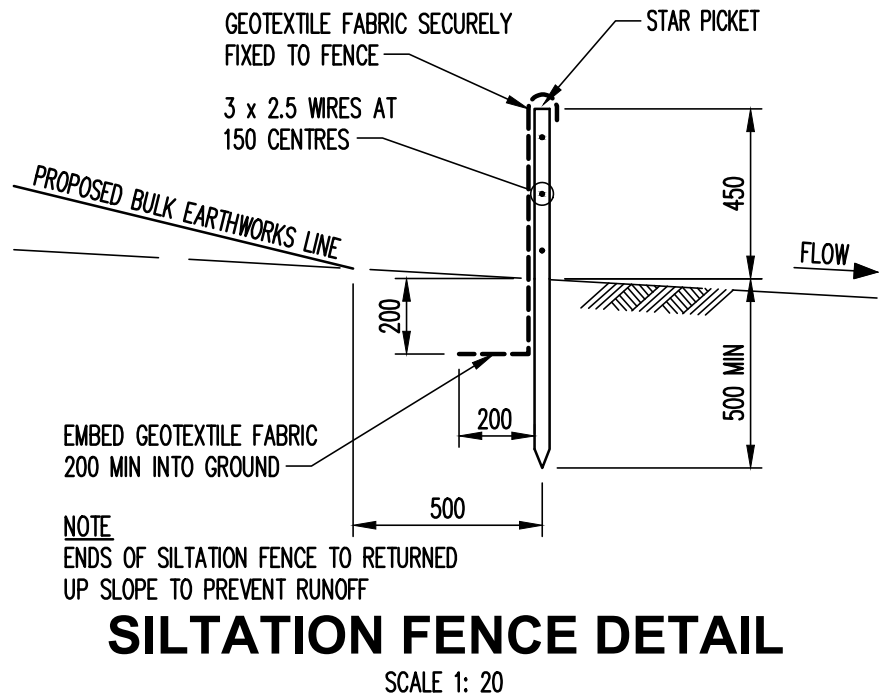
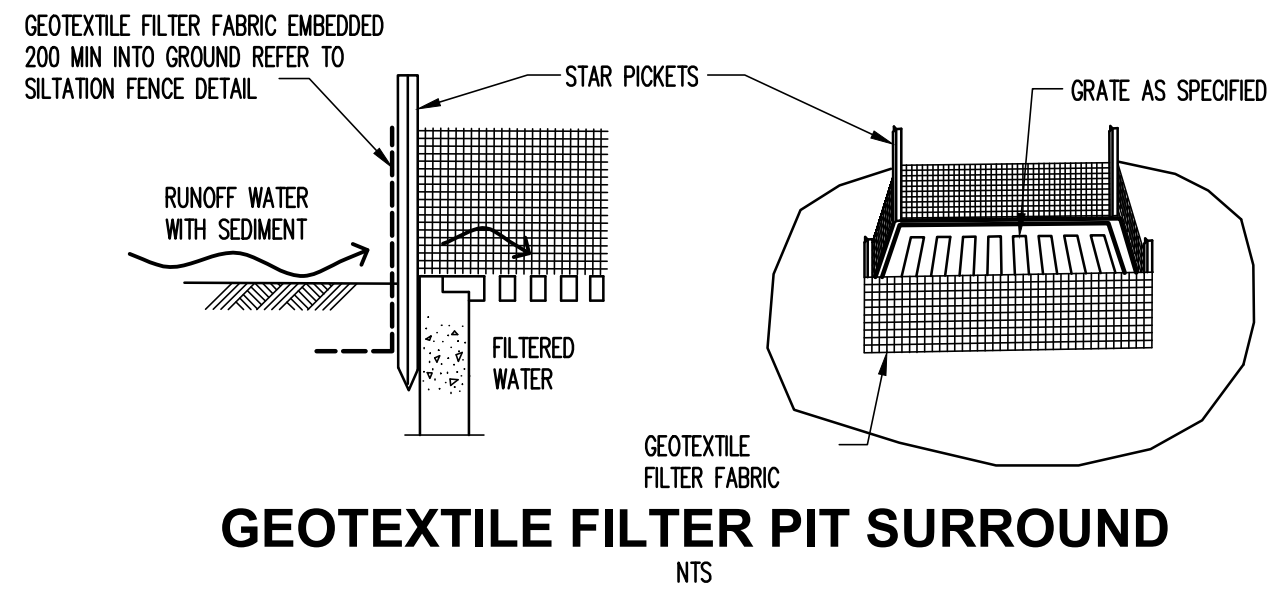
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Architect  
BVN DONOVAN HILL  
255 PITT STREET SYDNEY  
PO BOX N646 GROSVENOR PLACE NSW 1220  
TEL: +61 2 8297 7200  
FAX: +61 2 8297 7299  
SYDNEY@BVN.COM.AU

Civil Engineer  
**TTW** Taylor Thomson Whitting  
812 9439 7288 | 48 Chandos Street St Leonards NSW 2065

Project  
SANTA SOPHIA CATHOLIC COLLEGE  
THE GABLES TOWN CENTRE

Sheet Subject  
SOIL AND WATER MANAGEMENT DETAILS

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## Appendix B

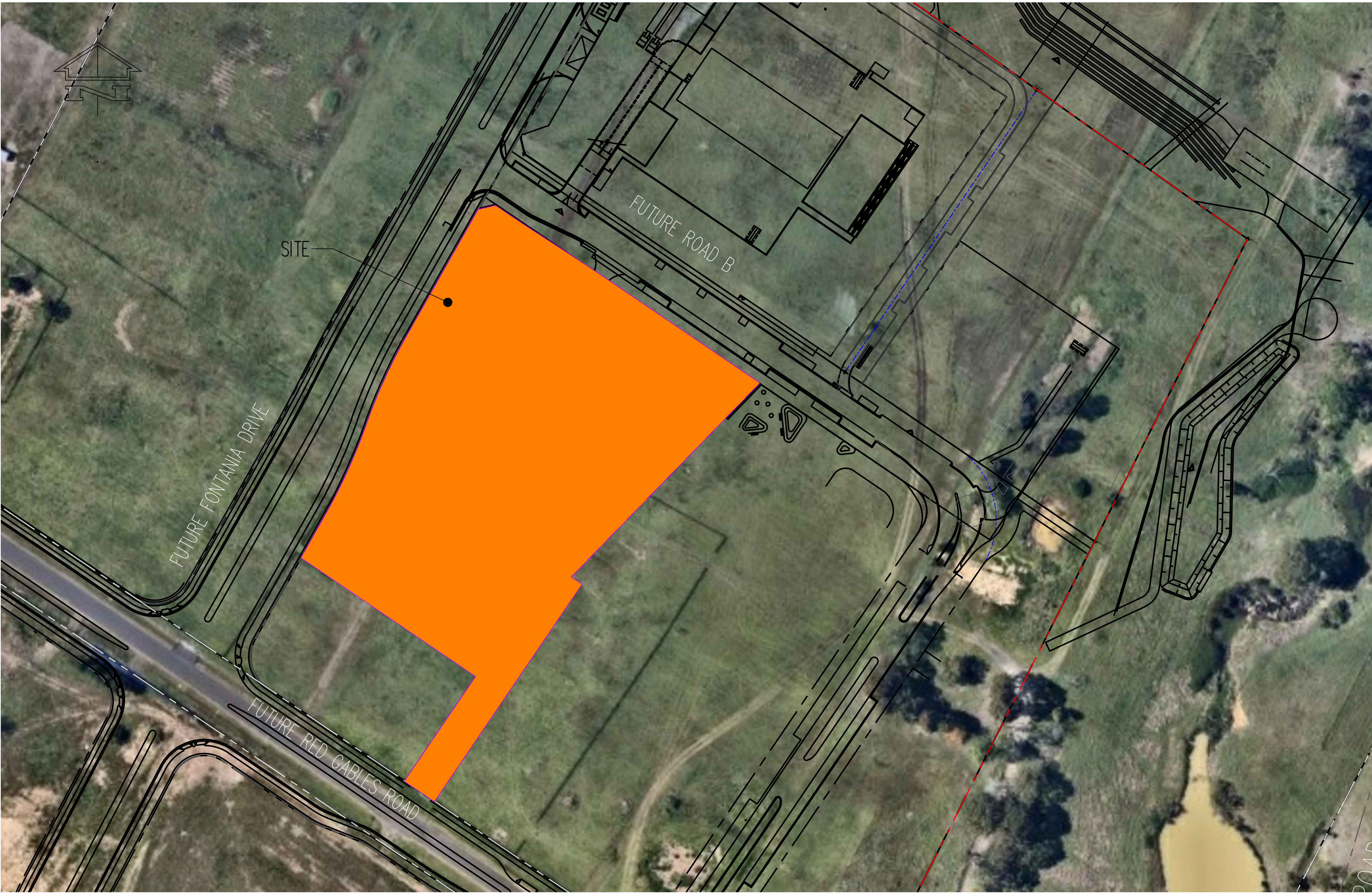
# Concept Stormwater Management Plan



# SANTA SOPHIA CATHOLIC COLLEGE, PARRAMATTA

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DRAWING LIST	
Drawing Number	Drawing Title
SKC01	COVER SHEET AND DRAWING LIST
SKC02	GENERAL NOTES
SKC03	SOIL AND WATER MANAGEMENT PLAN
SKC05	STORMWATER DETAILS
SKC06	SOIL AND WATER MANAGEMENT DETAILS
SKC104	SITEWORKS & STORMWATER PLAN LEVEL 0
SKC105	SITEWORKS & STORMWATER PLAN LEVEL 1

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FOR APPROVAL



GENERAL NOTES

- Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the
- 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.

Dwg Title	Dwg No	Rev	Date
BVN OVERALL SITE PLAN	SS-A10-00-01	3	05.04.19
BVN OVERALL PLAN-LEVEL 00	SS-B10-00-01	1	04.04.19
BVN OVERALL PLAN-LEVEL 01	SS-B10-01-01	1	04.04.19

BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from: PROUST & GARDNER CONSULTING PTY LTD SURVEYORS AND PLANNERS

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.

CIVIL SAFETY IN DESIGN

Taylor Thomson Whitting (NSW) Pty Ltd operates under Safe Work Australia's Code of Conduct for the Safe Design of Structures. These drawings shall be read in conjunction with the Taylor Thomson Whitting Transfer of Information Letter and Civil Risk and Solutions Register.  
Under the Code of Conduct it is the Client's responsibility to provide a copy of the Civil Risk and Solutions Register to the Principal Contractor.  
It is the Principal Contractor's responsibility to review the hazards and risks identified during the design process to ensure a safe workplace is maintained for the construction, maintenance and eventual demolition of the civil infrastructure.

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

SAFETY IN DESIGN

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 practicably 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 practicably 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 DOUGLAS PARTNERS, refer to document 94526.00.R.001.Drift 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 all hazardous materials. Refer to geotechnical/environmental report by DOUGLAS PARTNERS, refer to document 94526.00.R.001.Drift 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/EGRESS

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.

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels :SSM 17233, RL 39.003  
Datum of levels : AHD  
Coordinate system : MGA  
Survey prepared by :PROUST&GARDNER CONSULTING PTY LTD, SURVEYORS & PLANNERS  
Setout Points : E:304761.994  
N:6277403.778

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 own 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/Superintendent.

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.

STORMWATER DRAINAGE NOTES

- Stormwater Design Criteria :
  - Average recurrence interval –  
1:100 years for roof drainage to first external pit  
1:20 years for paved and landscaped areas
  - Rainfall intensities –  
Time of concentration: 6 minutes  
1:100 years = - mm/hr  
1:20 years = - mm/hr
  - Runoff coefficients –  
Roof areas: C<sub>ro</sub> = -  
Roads and paved areas: C<sub>a</sub> = -  
Landscaped areas: C<sub>n</sub> = -
- Pipes 300 dia and larger to be reinforced concrete Class " 2 " approved spigot 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.
- Precast pits may be used external to the building subject to approval by –
- Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia.
- Where subsal drains pass under floor slabs and vehicular pavements, unslotted 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 H2 U.N.O.
- Care 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 slotted flexible uPVC U.N.O.
- Adapt invert levels for pipe installation (grades shown are only nominal).

SITEWORKS LEGEND

- F22.20 Finished surface level
- 22.00 --- Finished contour
- ||||| 60 ||||| Grated drain
- < - <--- <--- --- Overland flow path
- ➔ ||| ➔ Stormwater pit, flow direction
- ➔ --- ➔ Stormwater connection from building
- ➔ --- ➔ Rising main connection

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								BVN DONOVAN HILL								SANTA SOPHIA CATHOLIC COLLEGE				GENERAL NOTES				Job No				Drawing No				Revision			
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