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STORMWATER PLAN OF MANAGEMENT

ST PAULS CATHOLIC PRIMARY SCHOOL 18 GARRETT ST, MOSS VALE

Prepared For:

Catholic Education Diocese of Wollongong
247-251 Tongarra Road Albion Park
Albion Park, NSW 2527

Prepared by:

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Rev:A

1. DOCUMENT VERIFICATION

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	Name	Signature
Prepared by	Grishmi Khanal	

Document History

Date	Revision	Reason for Issue	No. Copies
19/07/2024	A	DA Submission	PDF

2. TABLE OF CONTENTS

3. INTRODUCTION

Birzulis Associates Pty Ltd has been engaged by DTA Architects on behalf of CEDW (Catholic Education Diocese of Wollongong) to prepare this Stormwater Plan of Management in support of a proposed development at St. Paul Catholic Primary School located at 18 Garrett Street, Moss Vale NSW 2577. The proposed works involved extension and the refurbishment of existing buildings and other external works including demolition of existing structures. The school is in the Wingecarribee Shire Council Area.

This report provides a summary of the stormwater management design principles and planning objectives for the management of stormwater quality and quantity. The objectives for the development are to provide an appropriate and economical stormwater management system which incorporates best practice in Water Sensitive Urban Design consistent with the requirements of Wingecarribee Shire water quality and quantity objectives.

A set of drawings has been prepared to show that the proposed stormwater quantity and quality requirements for the development can be met. These drawings cover stormwater management elements which cover surface levels and drainage layouts. The consent authority is Wingecarribee Shire Council. The latest revision of the drawings shall be read in conjunction with this report. The engineering and policy requirements of Wingecarribee Shire Council have also been considered in the design. The stormwater management design will use pits and pipe sizes as per in accordance with Wingecarribee Shire Council stormwater management policy.

4. SITE CHARACTERISTICS

Site Description

The proposed development is bounded by Innes Road to the South, Garrett Street to the East, and other residential developments on the North and West.

The site consists of several buildings and covered walkways linking those buildings. A large grassed playing field is located at the western end of the site. Refer to the locality plan in **Figure 4.1** below for more details.

Figure 4.1 Site Locality Plan

Proposed Development

The proposed development is for the refurbishment of a building, construction of an extension to an existing building and external works including ramps and stairs. New playground requires demolishion of a building.

A civil works overall plan can be seen in **Figure 4.2**.

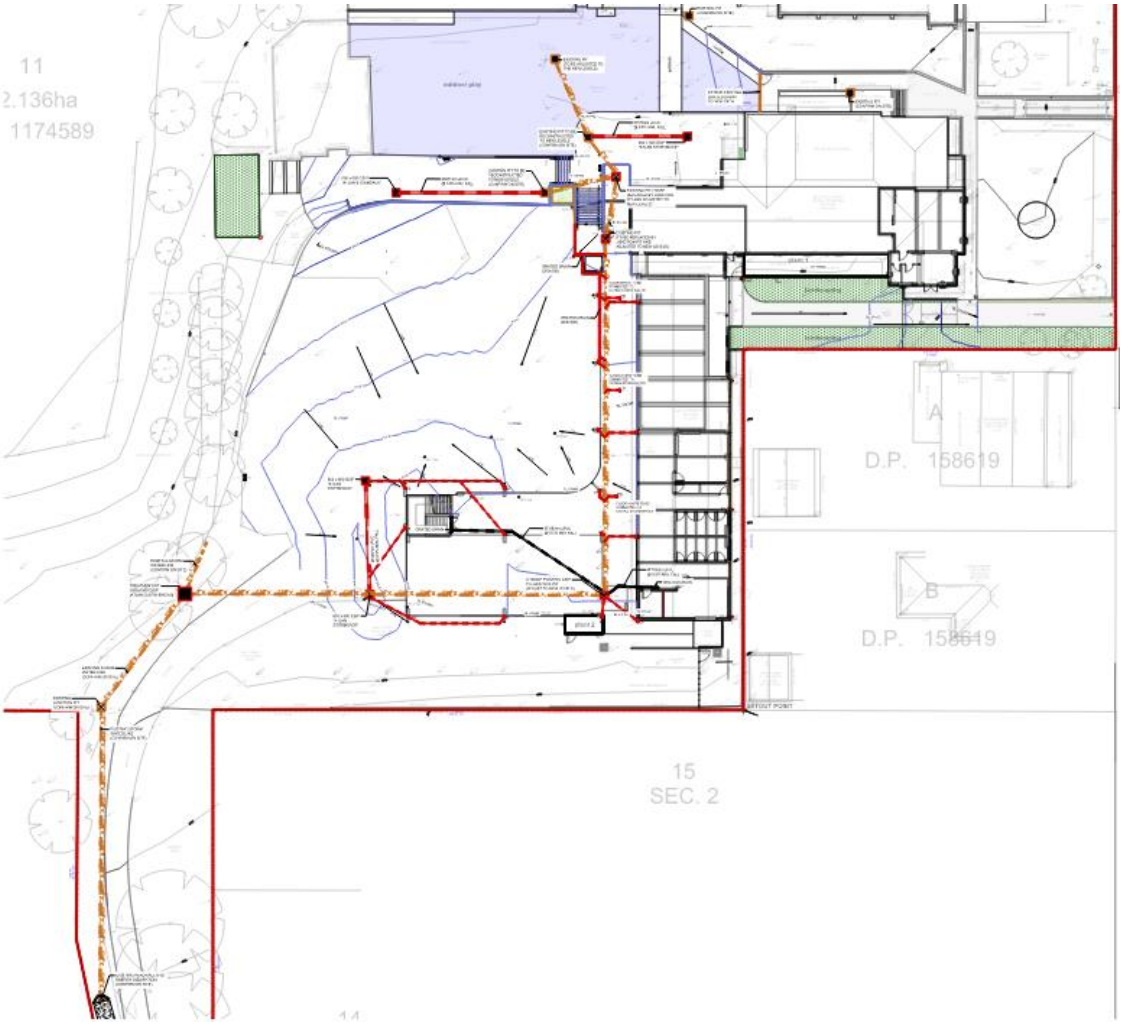

Figure 4.2 Stormwater Concept Overall Plan

5. STORMWATER DRAINAGE

5.1 Existing Site Drainage

The existing property is currently developed as an educational site with an established stormwater system. Total discharge from the entire site gets collected via pit and pipe connection leading to a headwall (**Figure 5.1.1**) which then discharges water to a 30-meter-long swale which gets collected by a pit, which then discharges all the water to the street (**Figure 5.1.2**).

The current system is a pit and pipe system and based on our visual inspection, the existing stormwater pits and pipes are generally in good condition. All current overland flows travel towards the southern end of the site.

Figure 5.1.1: Existing Headwall (Site Visit, 2023)

Figure 5.1.2: Southern discharge point (Google map, 2023)

5.2 Proposed Site Drainage

The proposed stormwater system has new pits and pipe proposed to suit new buildings layout. This proposed system is connected to the existing system from where the water flows following the same route as existing. Stormwater drawing set has been prepared to demonstrate the proposed system in detail (Refer to appendix A).

6. WSUD (Water Sensitive Urban Design) Strategy

6.1 Water Quality

6.1.1 Council's Requirement

As per council's Engineering Design Specification D09 Stormwater Drainage (Design) Section 3.6.2 there should be 90% reduction on gross pollutants (material>0.125mm).

6.1.2 Sydney Water's Requirement

Additionally, the proposed development site is located in the Sydney Drinking Water Catchment. Therefore, the development must have a neutral or beneficial effect (NorBE) on water quality. Proposed stormwater system has been designed taking this into consideration.

6.1.3 Treatment Train Overview

The proposed strategy to treat the site for water quality includes the following:

Pit Filter Baskets: New pits proposed in the additional new development area are designed to be fitted with pit inserts to intercept Gross Pollutants and some total suspended solids, prior to tertiary treatment by the storm filters. The pit filter basket section is shown below in **Figure 6.1.3.1**.

Figure 6.1.3.1: Storm Sack (Atlan)

Filter Cartridges: Two 874 mm Storm filter will be in a 1500x1500 treatment pit situated on the northern side of the existing headwall.

The stormwater network collecting runoff from the playground area, proposed buildings and external works will be connected to the treatment pit to undergo tertiary treatment (targeting nutrient removal) prior to being discharged into council's stormwater network. The storm filter cartridge shown in **Figure 6.1.3.2**.

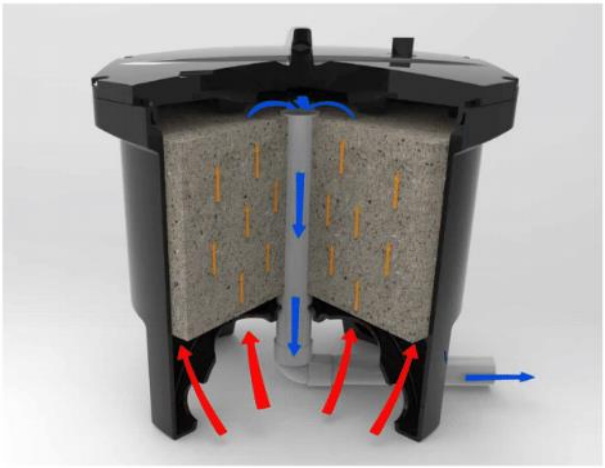

Figure 6.1.3.2: Storm filter cartridge Section (Atlan)

Swale: Swales are used to treat stormwater runoff by conveying it and screening and removing gross pollutants such as litter and coarse sediment. The development has an existing swale running all the way from the north-western side of the site to the southern side of the site collecting water from the embankment and headwall.

Figure 6.1.3.3: Existing Swale (Nearmap 2023)

6.1.4 Rainfall Data

A custom meteorological template file for rainfall and evapotranspiration data was created using the Moss Vale TOROKINA (Station No: 068195) data due this being the closest to the site. As shown in **Figure 6.1.4.1.**

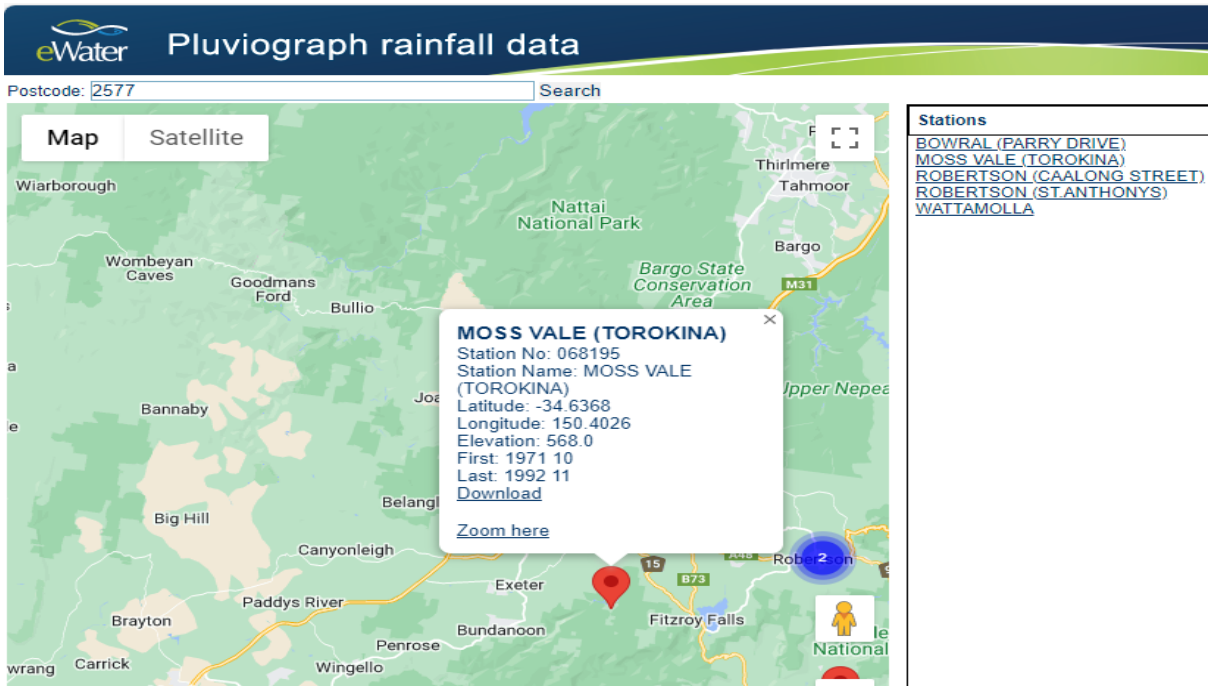

Figure 6.1.4.1: Rainfall Station

6.1.5 MUSIC Modelling

6.1.5.1 Method

The treatment train described above was modelled in MUSICX version 1.10.0 using the rainfall data in the nearest station to ensure the quality of stormwater runoff from the proposed development meets objectives prior to leaving the site.

The modelling was done for both pre-development and post-development condition.

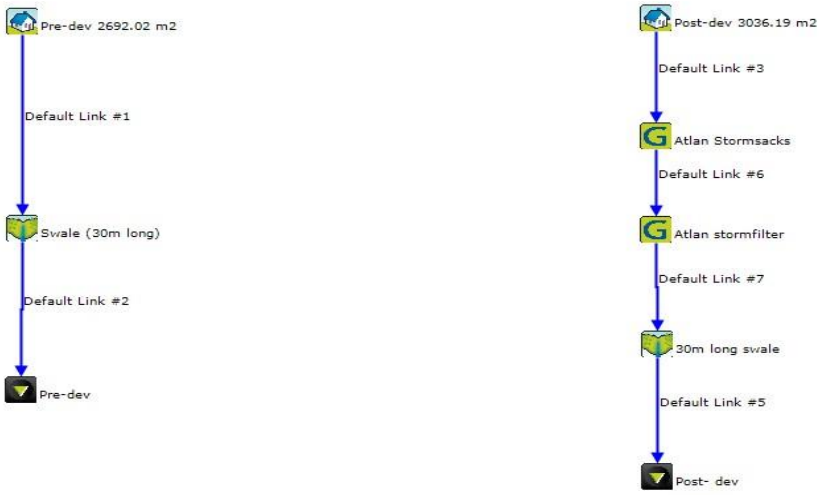

Figure 6.1.5.1.1 : MUSIC model

6.1.5.2 Results

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.199	2.199	-0.0002011
Total Suspended Solids (kg/yr)	455.2	69.49	84.73
Total Phosphorus (kg/yr)	0.9188	0.3599	60.83
Total Nitrogen (kg/yr)	6.321	5.133	18.79
Gross Pollutants (kg/yr)	60.6	0	100

Figure 6.1.5.2.1 : Pre-development

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.451	2.451	-0.0007685
Total Suspended Solids (kg/yr)	504.6	42.57	91.56
Total Phosphorus (kg/yr)	1.02	0.3122	69.39
Total Nitrogen (kg/yr)	7.04	3.081	56.24
Gross Pollutants (kg/yr)	67.54	0	100

Figure 6.1.5.2.2 : Post-development

6.2 Water Quantity (Water Conservation)

6.2.1 Council's Requirements

Pits and pipe:

As per council's Engineering Design Specification D09 Stormwater Drainage

(Design) Section 3.5. Pits and pipe (drainage system) should be designed for 0.2EY events.

Detention System:

As per council's Engineering Design Specification D09 Stormwater Drainage

(Design) Section 3.4.4. Detention is not required for demolition and rebuild if an increase in impervious area is less than 10%.

PROPOSED DEVELOPMENT PERCENTAGE INCREASE IN IMPEVIOUS AREA CALCULATION:

PRE-DEVELOPED CONDITION:

IMPERVIOUS AREA (m^2)= 6488

POST-DEVELOPED CONDITION:

IMPERVIOUS AREA (m^2)= 6848.1

INCREASE IN IMPERVIOUS AREA ($m2$)= 6848.1 – 6488 = 360.1 $m2$
PERCENTAGE INCREASE IN IMPERVIOUS AREA (%) = (360.1/6488)*100% = 5.6 %

From the above calculation, an increase in impervious area after development is less than 10%. Therefore, a detention system not required for this development.

6.2.2 DRAINS Modelling:

DRAINS modelling done to see the impact in both pre-development (**Figure 6.2.2.1**) and post-development (**Figure 6.2.2.2**) phase. This analysis was done for 0.2 EY event.

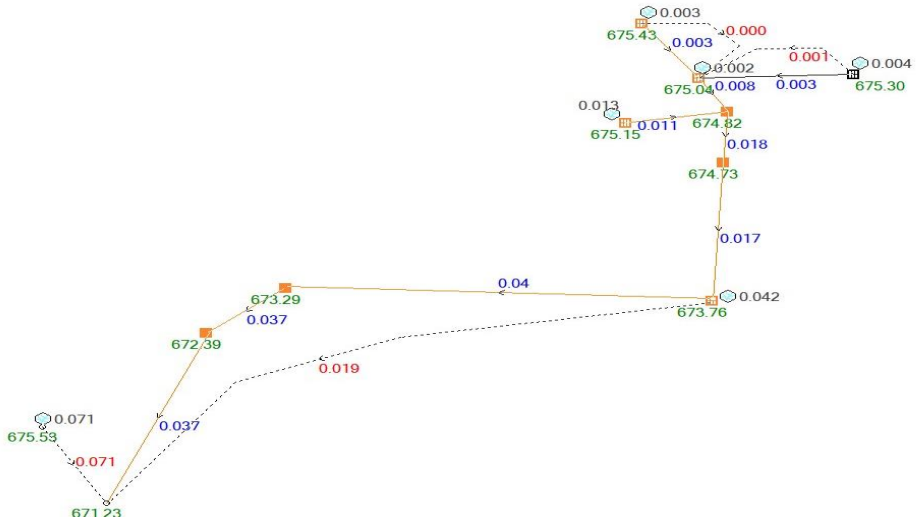

Figure 6.2.2.1 : Pre-development Result

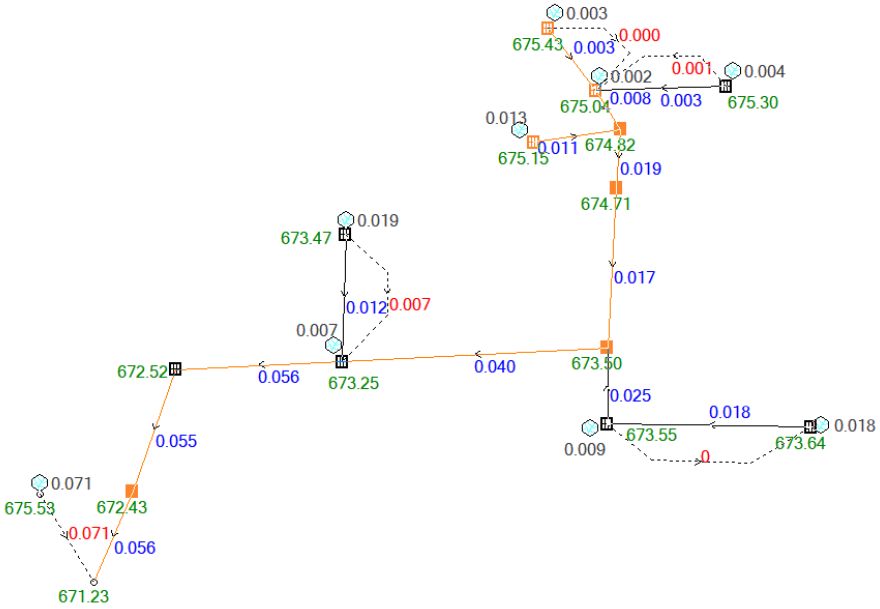

Figure 6.2.2.2 : Post-development Result

7 Conclusion

To conclude, the proposed stormwater system has been designed considering both the aspects of WSUD (Water Quality and Water Quantity). Requirements in the design has been satisfied as per the council's and Sydney Water guidelines.

During the operational phase of the development, a treatment train incorporating the use Stormwater Treatment Measures (STM's) comprising a proprietary treatment train of Atlan pit inserts and Atlan storm filters been proposed to mitigate the increase in stormwater pollutant loads generated by the development. Best management practices have been applied to the development to ensure that the quality and quantity of stormwater runoff is not detrimental to the receiving environment.

8 Appendix

8.1 Appendix A

ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT STREET, MOSS VALE NSW 2577
STORMWATER CONCEPT PLAN

LOCALITY MAP. (COURTESY OF SIX MAPS)

DRAWING REGISTER	
NO.	TITLE
C.00	COVER SHEET
C.01	CONSTRUCTION NOTES - SHEET 1
C.02	SOIL EROSION & SEDIMENT CONTROL PLAN
C.03	SOIL EROSION & SEDIMENT CONTROL DETAILS
C.04	STORMWATER CONCEPT PLAN - OVERALL
C.05	STORMWATER CONCEPT PLAN - SHEET 01
C.06	STORMWATER CONCEPT PLAN - SHEET 02
C.07	STORMWATER CONCEPT PLAN - SHEET 03
C.08	DETAILS SHEET 1
C.09	DETAILS SHEET 2
C.10	DRAINS MODEL PLAN
C.11	MUSIC MODEL PLAN
C.100	CATCHMENT PLAN - PRE-DEVELOPMENT
C.101	CATCHMENT PLAN - POST DEVELOPMENT

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

CLIENT
CATHOLIC EDUCATION
DIOCESE OF WOLLONGONG

ARCHITECT
DTA ARCHITECTS

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PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
COVER SHEET

SCALES	DATE
as noted @ A1	SEPT' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.00

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT CONSULTANTS DRAWINGS, THE ARCHITECTURAL DRAWINGS "ISSUED FOR CONSTRUCTION", AND ALL OTHER SPECIFICATIONS SUCH AS WRITTEN INSTRUCTIONS ISSUED DURING CONSTRUCTION, CHECKLISTS AND APPROVING AUTHORITY SPECIFICATIONS. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE RELEVANT PARTIES AND NOT LESS THAN THE PROJECT MANAGER, THE ENGINEER AND THE SUPERINTENDENT FOR A DECISION PRIOR TO CONTINUING WITH THE WORKS.

2. ALL EXISTING DRAINAGE SHOWN ON THE PLANS THAT IS PROPOSED TO BE RE-USED IS TO BE INSPECTED BY A LICENCED PLUMBER AND CERTIFIED THAT IT IS IN GOOD WORKING CONDITION, OTHERWISE ALLOW TO RECTIFY AND OR REPLACE.

3. PROVIDE HEELGUARD OR EQUIVALENT TO ALL PIT LIDS AND GRATED DRAINS IN PEDESTRIAN AREAS.

4. THE CONTRACTOR OR PRINCIPLE CONTRACTOR SHALL CHECK ALL DIMENSIONS ONSITE FOR CORRECTNESS. WHERE RELEVANT THIS CAN BE FOR NCC (BCA) COMPLIANCE, EFSG COMPLIANCE, TfNSW COMPLIANCE, LEPs, DCPs, AND SEPPs. ANY DISCREPANCY SHALL BE REPORTED TO THE SUPERINTENDENT AND ALSO NOT LESS THAN THE PROJECT MANAGER AS SOON AS PRACTICABLE. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.

5. IT IS THE RESPONSIBILITY OF THE BUILDER AND CONTRACTOR TO ENSURE THAT DURING WORKS THE STABILITY OF EXISTING STRUCTURES SHALL BE MAINTAINED WITHOUT UNDUE DISTURBANCE. DURING THE PROCESSES OF DISTURBANCE SUCH AS EXCAVATION, SERVICE MODIFICATION, UNDERPINNING, PILING, COMPACTION, VIBRATION, DEMOLITION, DUST, EXCESSIVE NOISE, REWORKING STORMWATER, PARKING OF HEAVY MACHINERY OR STOCKPILING OF MATERIALS, NO PART OF AN EXISTING STRUCTURE OR BUILDING SHALL BE OVERSTRESSED.

6. WORKS SHALL NOT BEGIN WITHOUT THE WRITTEN APPROVAL OF THE RELEVANT CERTIFYING AUTHORITY.

7. INSPECTIONS ARE REQUIRED TO CONFIRM AND CERTIFY THE STANDARD OF CONSTRUCTION BY BIRZULIS ASSOCIATES. WE ARE REQUIRED TO BE PROVIDED WITH 48 HOURS NOTICE PRIOR TO ALL STORMWATER ELEMENTS BEING BACKFILLED OR CONCEALED TO INSPECT. THIS DOES NOT REMOVE THE NEED FOR OTHER AUTHORITIES SUCH AS CERTIFIERS TO CONDUCT INSPECTIONS. ADDITIONAL INSPECTIONS OF PAVEMENT MATERIALS AND LAYERS MAY ALSO BE REQUIRED. REFER TO PAVEMENT OR SUB-GRADE SPECIFIC NOTES AND RELEVANT SPECIFICATIONS.

8. WHERE SHOWN, EXISTING SERVICES ARE BASED ON INFORMATION PROVIDED TO BIRZULIS ASSOCIATES AND ARE NOT A SUBSTITUTE FOR ONSITE TESTING AND CONFIRMATION. IT IS THE RESPONSIBILITY OF CONTRACTORS WORKING IN VICINITY OF THESE SERVICES TO CONFIRM THEIR LOCATION.

9. ALL SERVICE TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARD CORRESPONDING TO THE TYPE OF PIPING IN THE TRENCH OR TFNSW STANDARDS IF WORKING ON A TFNSW MANAGED ROAD.

10. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LEGAL OR RELEVANT REQUIREMENTS OF CURRENT AUSTRALIAN STANDARDS, NATIONAL CONSTRUCTION CODES, SAA CODES, REQUIREMENTS OR STIPULATIONS OF RELEVANT CERTIFYING AUTHORITY, AND RELEVANT SPECIFICATIONS. IF IN DOUBT ALL RFIS (REQUESTS FOR INFORMATION) SHALL BE SUBMITTED IN WRITING AND RFIS SHALL BE IN ACCORDANCE WITH BEST PRACTICE AND STANDARDS.

11. NO CHANGES TO THE WORKS AS REFLECTED ON THE DESIGN ENGINEERING DRAWINGS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

12. UNO OR U.N.O DENOTES “UNLESS NOTED OTHERWISE” ON THESE DRAWINGS.

13. ALL PROPRIETARY PRODUCTS SHALL BE CHECKED FOR BUILDING CODE COMPLIANCE WITH THE CERTIFYING AUTHORITY AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IF REQUIRED BY AN APPROVED CONTRACTOR ENDORSED BY THE MANUFACTURER.

14. IT IS THE RESPONSIBILITY OF THE PRINCIPLE CONTRACTOR OR EQUIVALENT TO OBTAIN ALL PERMITS AND AUTHORITY APPROVALS.

15. IT IS RECOMMENDED A DILAPIDATION REPORT OF ELEMENTS IN VICINITY OF THE DEVELOPMENT BE UNDERTAKEN PRIOR TO WORKS COMMENCING.

16. EXISTING DOWNPIPES WHICH ARE BEING RECONFIGURED SHOULD BE CONNECTED TO FLEXIBLE HOSING AND DISCHARGED IN A SAFE LOCATION IN ACCORDANCE WITH REQUIREMENTS OF SEDIMENT AND EROSION CONTROL.THE TOP OF EXCAVATIONS SHALL BE PROTECTED FROM OVERLAND FLOW AND IF NECESSARY OVERLAND FLOW PATHS SHOULD BE REDIRECTED DURING PHASES IN THE CONSTRUCTION PARTICULARLY BULK EXCAVATION AND SITE WORKS.

17. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING LIGHTS, TEMPORARY BARRIERS AROUND EXCAVATIONS/TRENCHES, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION .ALL WORKS TO COMPLY WITH WORK COVER AND OH&S REGULATIONS, AND ALL OTHER RELEVANT SAFETY REQUIREMENTS.

18. NO TREES SHALL BE REMOVED/DESTABILISED/CUT BACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.

STORMWATER DRAINAGE NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3500.3 AND OTHER RELEVANT CODES WHERE OTHER MATERIALS ARE USED.

2. FOR DOWNPIPE LOCATIONS REFER ARCHITECTURAL DRAWINGS AND THE HYDRAULIC ENGINEERS DRAWINGS. USE OF DOWNPIPE CHAINS SHALL BE SPECIFICALLY CHECKED WITH THE CERTIFYING AUTHORITY AND A DETERMINATION MADE IF COMPLIANT WITH CURRENT CODES IN THE APPLICATION.

3. ESTABLISH AND LOCATE EXISTING INVERT LEVELS OF EXISTING SERVICES PRIOR TO COMMENCING WORKS AND CONFIRM WITH THE ENGINEER IF THE DESIGN IS BASED ON AN ASSUMPTION IN THE LEVELS.

4. PIPES SHALL HAVE A MINIMUM FALL OF 1% UNLESS NOTED OTHERWISE. A MINIMUM OF 1:60 FALL SHALL BE PROVIDED FOR DOWNPIPES CONNECTING TO DRAINAGE LINES.

5. RESPONSIBILITY OF ROOF DRAINAGE IS BY OTHERS UNLESS SPECIFICALLY NOTED OTHERWISE.

6. ALL uPVC STORMWATER DRAINAGE LINES SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF AS1254 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST VERSION OF AS 3500.3, AS 2032 & AS 2566 UNLESS NOTED OTHERWISE.

7. ALL REINFORCED CONCRETE STORMWATER DRAINAGE PIPE WORK (RCP) SHALL BE IN ACCORDANCE WITH AS1342, TfNSW STANDARDS REQUIREMENTS AND SPECIFICATIONS AND SHALL BE INSTALLED IN ACCORDANCE WITH AS 3725 OR THE PREVIOUS RELEVANT STANDARD/SPECIFICATION WHICHEVER IS THE GREATER OR MORE APPROPRIATE. THE PIPES SHALL BE OF THE FOLLOWING MINIMUM CLASSES IN ACCORDANCE WITH AS 1342 UNLESS NOTED OTHERWISE:
   a. CLASS 4 UNDER FLEXIBLE PAVEMENTS WITH MIN 600MM COVER
   b. CLASS 2 IN OTHER AREAS WITH NO FLEXIBLE PAVEMENT OVER AND HEAVY MACHINERY/TRUCKS DO NOT NEED TO PASS OVER AND NOT SURCHARGED BY VEHICLES LOADS OR GREATER.

8. SUBSOIL DRAINAGE FOR RIGID AND FLEXIBLE TRAFFICABLE PAVEMENTS SHALL BE IN ACCORDANCE WITH TfNSW REQUIREMENTS.

9. SUBSOIL DRAINAGE (MINIMUM 100mm DIAMETER WRAPPED IN A GEOTEXTILE SOCK SHALL BE PROVIDED BEHIND AND AT THE BASE OF ALL RETAINING WALLS, UPTURN WALLS (WITH THE EXCEPTION OF UNDERPINNING AND CONTIGUOUS/SOLDIER PILING) AND SHALL BE BACKFILLED WITH CRUSHED ROCK WITH 10% CEMENT. THE WALL SHALL ALSO BE WATERPROOFED AND A LAYER OF CORFLUTE APPLIED BETWEEN THE WATERPROOFING AND THE BACKFILL. THE BACKFILL SHALL BE WRAPPED IN A GEOFABRIC.
   ALL SUBSOIL DRAINAGE WHETHER OR NOT SHOWN ON THE PLAN SHALL CONNECTED TO THE DOWNSTREAM STORMWATER SYSTEM AND HAVE SUFFICIENT CLEAN OUT POINTS TO BE ADEQUATELY MAINTAINED.

10. SUBSOIL DRAINAGE SHALL BE PROVIDED IN POORLY DRAINED LAWN STYLE AREAS IN ACCORDANCE WITH BEST PRACTICE.

11. STEP DOWNS IN FLOORING FROM INTERNAL TO EXTERNAL SHALL BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE UNLESS NOTED OTHERWISE.

12. FALLS IN PAVEMENTS SHALL BE MINIMUM 1% FOR EXTERNAL AREAS AND 0.5% FOR EXTERNAL AREAS PROTECTED BY A ROOF OR UNDERCOVER. SUFFICIENT SURFACE DRAINAGE SHALL BE PROVIDED TO FACILITATE THESE FALLS.

13. ALL DRAINAGE TRENCHES SHALL NOT UNDERMINE EXISTING STRUCTURES AND SHALL BE IN SOUND MATERIAL. IF SOFT SPOTS EXIST THEY SHOULD BE REMOVED AND BACKFILLED WITH A COMPACTED ROADBASE DGB20 OR 40 AND COMPACTED TO MINIMUM 98% STANDARD DRY DENSITY AT PLUS OR MINUS 2% OPTIMUM MOISTURE CONTENT.

14. ALL STORMWATER PITS OR ACCESS TO STORMWATER TANKS SHALL HAVE:

   14.1. HAVE STEP IRONS INSTALLED (WHERE DEEPER THAN 900mm). UNO, STEP IRONS SHALL BE IN ACCORDANCE WITH TFNSW STANDARD DRAWINGS.
   14.2. HAVE A LID AS PER SPECIFICATION OR A PIT SCHEDULE
   14.3. HAVE BEDDING AS REQUIRED
   14.4. HAVE ANY PROOF LOCKS OR BETTER CHILD PROTECTION AS REQUIRED BY COUNCIL OR OTHER CONSULTANT SPECIFICATIONS
   14.5. HAVE BENCHING AS REQUIRED

15. COVER FOR STORMWATER PIPES SHALL BE:

   a. RCP: 600mm UNDER FLEXIBLE PAVEMENTS OR AREAS OF VEHICULAR LOADING
   b. RCP: 300mm UNDER LANDSCAPE AREAS OR RIGID PAVEMENTS.
   c. uPVC: 300mm NOT SUBJECT TO VEHICULAR LOADING
   d. uPVC: 600mm SUBJECT TO VEHICULAR LOADING WITH SEALED FLEXIBLE CARRIAGEWAYS.
   e. IF NOT NOTED IN THE ABOVE THE MINIMUM COVERS SHALL BE OBTAINED FROM THE RELEVANT AUSTRALIAN STANDARD:

      I. AS 1762 FOR CORRUGATED METAL STORMWATER PIPES
      II. AS 2032 FOR PVC STORMWATER PIPES
      III. AS.NZS 2566.1 FOR FLEXIBLE STORMWATER PIPES
      IV. AS 3725 FOR REINFORCED CONCRETE STORMWATER PIPES
      V. AS 2033 FOR POLYETHYLENE STORMWATER PIPES.

16. LIDS OF STORMWATER PITS SHALL HAVE THE FOLLOWING CLASS LIDS UNLESS NOTED OTHERWISE:

   a. CLASS 'A' FOR AREAS ACCESSED STRICTLY BY ONLY PEDESTRIANS
   b. CLASS 'C' FOR AREAS OF RESIDENTIAL ROADS AND CAR PARKS AND AREAS SUBJECT TO VEHICLE LOADS BUT NOT HEAVY VEHICLE LOADS.
   c. CLASS 'D' FOR AREAS WHERE HEAVY VEHICLES CAN ACCESS AND USE

17. MINIMUM PIT SIZES REGARDLESS OF WHAT IS SHOWN ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH TABLE 7.5.2.1 OF AS/NZS 3500.3

18. SITE THAT HAVE A HIGH WATER TABLE A MINIMUM OF 1.5 TIMES THE DIAMETER OVER uPVC OR LIGHTWEIGHT PIPES SHALL BE PROVIDED AS COVER TO PREVENT BUOYANCY.

19. ALL SET OUT IS TO THE FACE OF THE KERB, CENTRELINE OF FENCE/BOLLARD/PIPE.

20. SMOOTH ALL TRANSITIONS BETWEEN NEW AND EXISTING STORMWATER DRAINAGE WORKS IN LEVEL AND ALIGNMENT.

21. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL SET OUT AND LEVEL PRIOR TO COMMENCEMENT OF WORKS AND TO REPORT ANY DISCREPANCIES FOUND TO THE SUPERINTENDENT.

22. THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTIONS AND PAVEMENT THICKNESS FROM A N.A.T.A. REGISTERED TESTING AUTHORITY AT THE RATE OF A MINIMUM THREE TESTS PER LAYER AS FOLLOWS:

PIPE BACKFILL	DENSITY INDEX 75
SELECT FILL	95% STANDARD
SELECT FILL (LESS THAN 300mm BELOW BASE COURSE)	98% MODIFIED
BASE COURSE	100% MODIFIED

23. THE AUS-SPEC SPECIFICATION SHALL BE THE SPECIFICATION FOR THESE WORKS.

SURVEY NOTES

1. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE PROJECT SURVEYOR.

2. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. BIRZULIS ASSOCIATES DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

3. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT BIRZULIS ASSOCIATES.

DESIGN NOTES

THE SITE IS LOCATED IN WINGECARRIBEE SHIRE COUNCIL.
AS PER THE COUNCIL'S ENGINEERING DESIGN SPECIFICATION D09, DETENTION TANK IS NOT REQUIRED FOR DEMOLITION AND REBUILD NOT INCREASING THE IMPERVIOUS AREA OVER 10%.

PROPOSED DEVELOPMENT PERCENTAGE INCREASE IN IMPERVIOUS AREA CALCULATION:

-PRE-DEVELOPED CONDITION:
IMPERVIOUS AREA (m²) = 6488

-POST-DEVELOPED CONDITION:
IMPERVIOUS AREA (m²) = 6848.10

INCREASE IN IMPERVIOUS AREA (m²):
6848.1 - 6488 = 360.1 m²

PERCENTAGE INCREASE IN IMPERVIOUS AREA (%):
(360.1/6488)*100% = 5.6%

FROM THE ABOVE CALCULATION, INCREASE IN IMPERVIOUS AREA AFTER DEVELOPMENT IS LESS THAN 10%. THEREFORE, DETENTION SYSTEM IS NOT REQUIRED FOR THIS DEVELOPMENT.

PITS AND PIPES HAS BEEN DESIGNED FOR 0.20 EY EVENT.

DRAINS SOFTWARE USED TO DO THE ANALYSIS AS PER COUNCIL'S ENGINEERING SPECIFICATION D09.

MUSIC MODELING DONE TO SATISFY NorBE.

ABBREVIATIONS

Ø OR DIA	DIAMETER
@ 1 %	AT 1 PERCENT
AHD	AUSTRALIAN HEIGHT DATUM
CBR	CALIFORNIA BEARING RATIO
CH	CHAINAGE
CL	CENTRE LINE
CO	CLEAR OUT
DD	DISH CROSSING
DDO	DISH DRAIN OUTLET
DEJ	DOWELLED EXPANSION JOINT
DGB	DENSE GRADED BASECOURSE
DGS	DENSE GRADED SUB-BASE
DN	DIAMETER NOMINAL
DP	DOWNPIPE
ex	EXISTING
FFL	FINISHED FLOOR LEVEL
FW	FLOOR WASTE
GTD	GRATED TRENCH DRAIN
GSIP	GRATED SURFACE INLET PIT
HDG	HOT DIP GALVANISED
HYD	HYDRANT
IJ	ISOLATING JOINT
IK	INTEGRAL KERB
IL	INVERT LEVEL
IP	INTERSECTION POINT
KIP	KERB INLET PIT
KO	KERB ONLY
K&G	KERB & GUTTER
KR	KERB RETURN
LS	LONGITUDINAL SECTION
m	METER
mm	MILLIMETER
MIN	MINIMUM
NGL	NATURAL GROUND LEVEL
NO.	NUMBER
NOM.	NOMINAL
OFP	OVERLAND FLOW PATH
OSD	ON-SITE DETENTION
r	RADIUS
RCP	REINFORCED CONCRETE PIPE
RHS	RECTANGULAR HOLLOW SECTION
RK	ROLL KERB & GUTTER
RL	REDUCED LEVEL
RW	RETAINING WALL
RWO	RAINWATER OUTLET
RWT	RAINWATER TANK
SJ	SAWN CONTROL JOINT
SMH	SEWER MAN HOLE
SW	STORMWATER
SWP	STORMWATER PIT
SWRM	STORMWATER RISING MAIN
SWS	STORMWATER SUMP
SV	STOP VALVE
TOK	TOP OF KERB
TOW	TOP OF WALL
TP	TANGENT POINT
TYP.	TYPICAL
uPVC	UNPLASTICISED POLYVINYL CHRLORIDE
UNO	UNLESS NOTED OTHERWISE
WPJ	WEAKENED PLANE JOINT

LEGEND

AAPT LINE — AAPT — AAPT —
COMMS LINE — C — C —
ELECTRICAL LINE — E — E — E —
FIRE LINE — F — F —
GAS LINE — GAS — GAS —
WATER LINE — W — W — W —
NBN LINE — NBN — NBN —
OPTUS LINE — OP — OP —
TPG LINE — TPG — TPG —
TELECOMMUNICATION LINE — T — T — T —
OVERFLOW LINE — OFP — OFP — OFP —
SEWER LINE — S — S —
SEWER EXISTING LINE — EX.S — EX.S —
SUBSOIL DRAINAGE LINE — SSD — SSD — SSD —
SITE BOUNDARY
DEMOLISHED
STORMWATER LINE
EXISTING STORMWATER LINE — EX. SW — EX. SW —
PROPOSED CONTOUR
SWALE DRAIN INVERT AND DIRECTION OF FLOW
GRATED STORMWATER PIT — EXISTING STORMWATER PIT
KERB INLET PIT
TELEPHONE PIT
DOWN PIPE — DP — EXISTING DOWN PIPE — Ex. DP.
FLOOR WASTE — FW — NEW GRATED DRAIN
K&G — KO — VEE DRAIN

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

CLIENT
CATHOLIC EDUCATION DIOCESE OF WOLLONGONG

ARCHITECT
DTA ARCHITECTS

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PROJECT
ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
CONSTRUCTION NOTES - SHEET 1

SCALES	DATE
as noted @ A1	SEP' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

All levels and dimensions are to be checked and verified on site prior to the commencement of any work, making of shop drawings or fabrication of components. Do not scale drawings. Use figured Dimensions.

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.01

GENERAL NOTES:

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

EROSION & SEDIMENTATION CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
2. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
3. NO PARKING OR STOCKPILING OF MATERIAL IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
4. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
5. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.
6. MAINTENANCE AND AUDITING OF SEDIMENT AND EROSION CONTROL SHALL BE IN ACCORDANCE WITH THE BLUE BOOK AND ANY RELEVANT CONSENT CONDITIONS.
7. LOW POINTS OF EXCAVATION SHALL BE PUMPED TO THE SEDIMENT BASIN WHERE PROVIDED.
8. PROVIDE WIND, AND DUST CONTROL IN ACCORDANCE WITH THE BLUE BOOK.
9. PROVIDE BUNDS AND CATCH DRAINS AT THE TOP OF ALL BATTERS SO BATTERS ARE NOT ERODED WITH OVERLAND FLOW STORMWATER RUNOFF.

SOIL EROSION AND SEDIMENT CONTROL LEGEND

- DENOTES SEDIMENT CONTROL FENCE
- DENOTES GEOTEXTILE INLET FILTER
- DENOTES TEMPORARY CONSTRUCTION STABILISED SITE ACCESS POINT. SHAKEDOWN CATTLE GRID AT ACCESS POINT NOT SHOWN FOR CLARITY
- DENOTES STOCKPILE SHOWN INDICATIVE, MANAGED AND CONSTRUCTED.
- SITE BOUNDARY
- DENOTES PROPOSED BUILDING EXTENT
- EXISTING TO BE DEMOLISHED
- DENOTES DIRTY WATER SWALE 2m WIDE x 0.3m DEEP
- DENOTES CLEAN WATER SWALE 2m WIDE x 0.3m DEEP
- PROPOSED HAYBALE FILTER
- PROPOSED SANDBAG OR GEOTEXTILE SOCK FILLED WITH GRAVEL AT INVERT OF GUTTER
- DENOTES CATCH DRAIN — CD — CD
- DENOTES TEMPORARY STABALISED ROADBASE ROAD — TM — TM

DENOTES STOCKPILE SHOWN INDICATIVE, MANAGED AND CONSTRUCTED.

GEOTEXTILE INLET FILTER. REFER TO TYPICAL DETAILS.

GEOTEXTILE INLET FILTER. REFER TO TYPICAL DETAILS.

GEOTEXTILE INLET FILTER. REFER TO TYPICAL DETAILS.

DENOTES SEDIMENT CONTROL FENCE

DENOTES SEDIMENT CONTROL FENCE

DENOTES SEDIMENT CONTROL FENCE

DENOTES TEMPORARY CONSTRUCTION STABILISED SITE ACCESS POINT. SHAKEDOWN CATTLE GRID AT ACCESS POINT NOT SHOWN FOR CLARITY

REMOVE EXISTING CONCRETE AS SHOWN HATCHED

D.P. 158619

D.P. 158619

SEDIMENT CONTROL PLAN

SCALE 1:200

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

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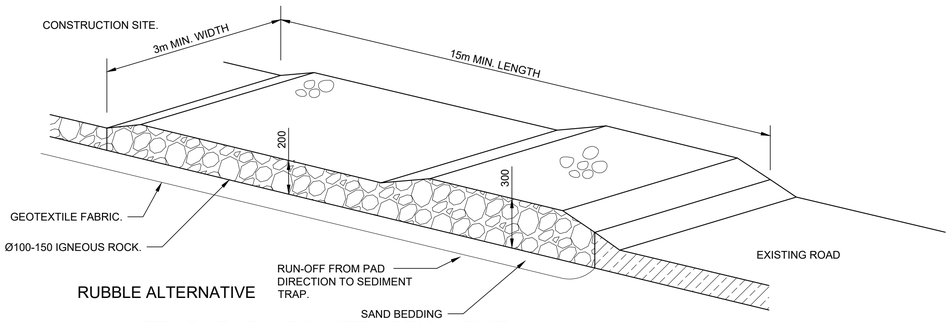
PROJECT
ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALES	DATE
as noted @ A1	AUG' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

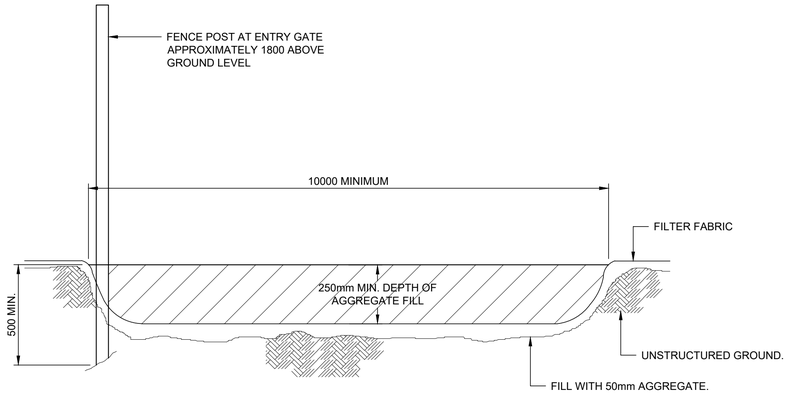
ISSUE	PROJECT No.	DRAWING No.
A	9009	C.02



RUBBLE ALTERNATIVE

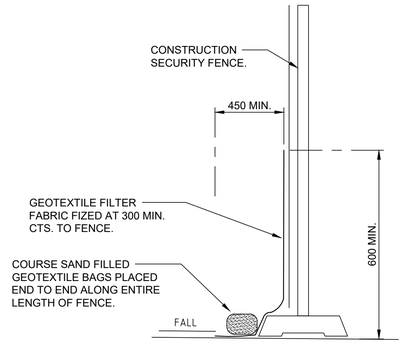
TEMPORARY CONSTRUCTION EXIT

NOT TO SCALE



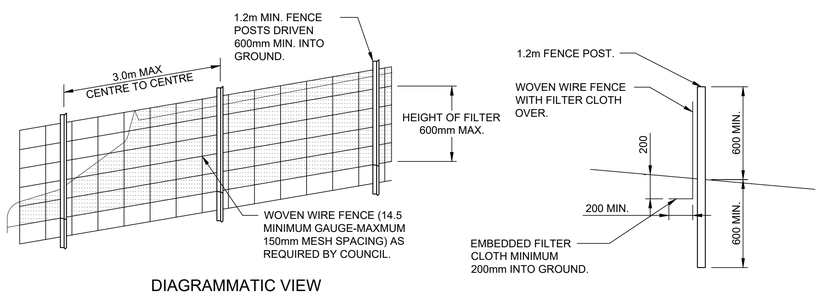
CROSS-SECTION OF CONSTRUCTION ENTRY/EXIT DETAIL

NOT TO SCALE



SEDIMENT FENCE ON PAVED SURFACE

NOT TO SCALE

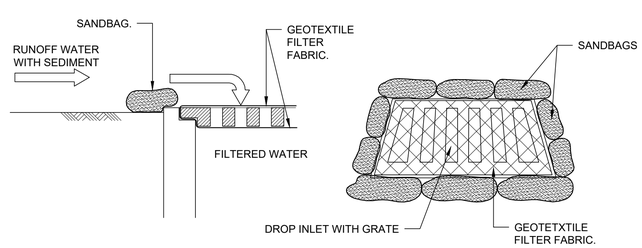


DIAGRAMMATIC VIEW

TYPICAL SECTION

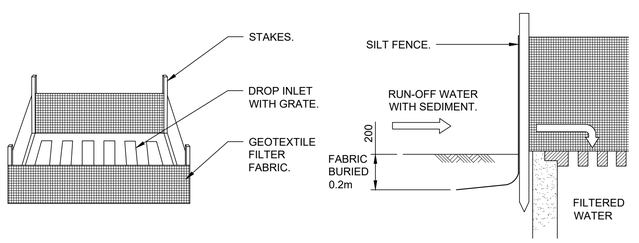
SEDIMENT FENCE DETAIL

NOT TO SCALE



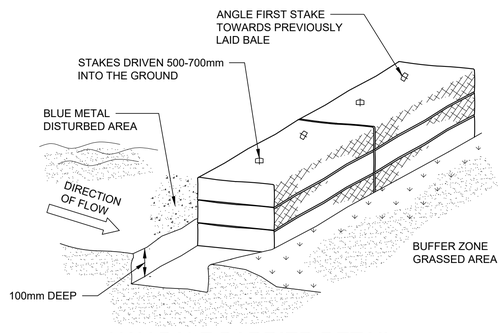
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

NOT TO SCALE



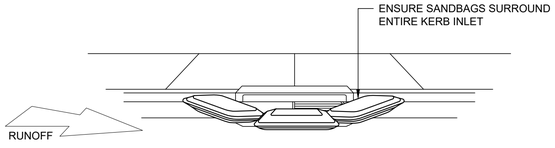
SUMP SEDIMENT TRAP DETAIL

NOT TO SCALE



HAY BALE BARRIER DETAIL

NOT TO SCALE

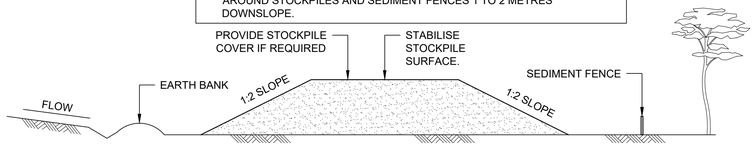


SANDBAG KERB INLET SEDIMENT TRAP DETAIL

(NOT TO SCALE)

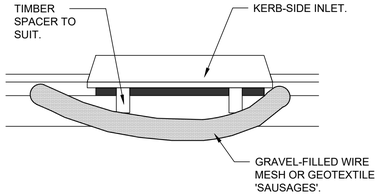
STOCKPILE CONSTRUCTION NOTES:

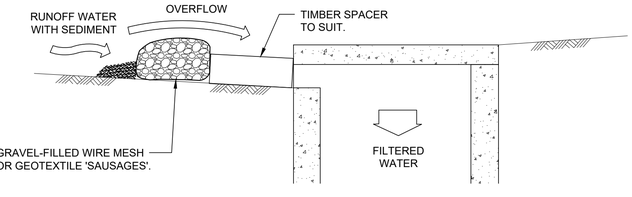
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIANT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



STOCKPILES DETAIL

NOT TO SCALE





MESH AND GRAVEL INLET FILTER

SCALE 1:20

NOTES:

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

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

CLIENT
CATHOLIC EDUCATION
DIOCESE OF WOLLONGONG

ARCHITECT
DTA ARCHITECTS

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PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
SOIL EROSION AND SEDIMENT
CONTROL DETAILS

SCALES	DATE
as noted @ A1	AUG' 2023

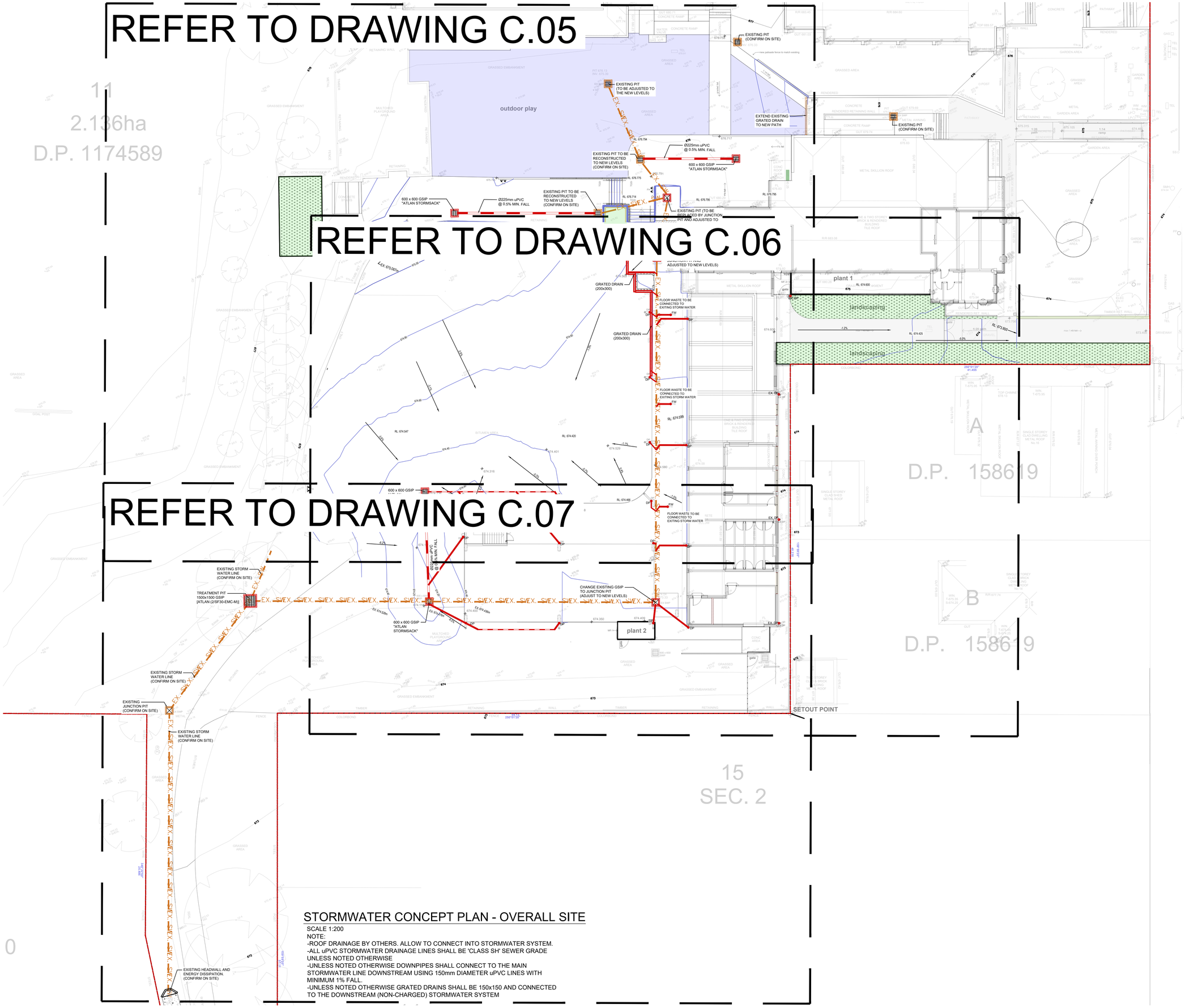
DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.03

REFER TO DRAWING C.05

REFER TO DRAWING C.06

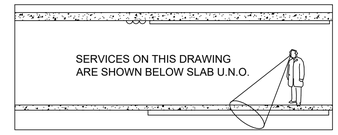
REFER TO DRAWING C.07



STORMWATER CONCEPT PLAN - OVERALL SITE

SCALE 1:200

NOTE:
-ROOF DRAINAGE BY OTHERS. ALLOW TO CONNECT INTO STORMWATER SYSTEM.
-ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
-UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.
-UNLESS NOTED OTHERWISE GRATED DRAINS SHALL BE 150x150 AND CONNECTED TO THE DOWNSTREAM (NON-CHARGED) STORMWATER SYSTEM



LEGEND

- AAPT LINE
- COMMS LINE
- ELECTRICAL LINE
- FIRE LINE
- GAS LINE
- WATER LINE
- NBN LINE
- OPTUS LINE
- TPG LINE
- TELECOMMUNICATION LINE
- OVERFLOW LINE
- SEWER LINE
- SEWER EXISTING LINE
- SUBSOIL DRAINAGE LINE
- SITE BOUNDARY
- DEMOLISHED
- STORMWATER LINE
- EXISTING STORMWATER LINE
- PROPOSED CONTOUR
- SWALE DRAIN INVERT AND DIRECTION OF FLOW
- GRATED STORMWATER PIT
- EXISTING STORMWATER PIT
- KERB INLET PIT
- TELEPHONE PIT
- DOWN PIPE (DP)
- EXISTING DOWN PIPE (Ex. DP.)
- FLOOR WASTE (FW)
- NEW GRATED DRAIN
- FLUSHING POINT (FP)
- INTERMITTENT RISER (IR)

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

DENOTES GARDEN OR LANDSCAPE

DENOTES ARTIFICIAL TURF AREA

DENOTES NATURAL TURF AREA

PRELIMINARY ISSUE
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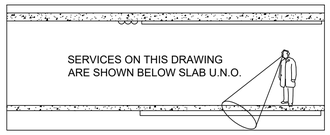
PROJECT
ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
STORMWATER CONCEPT PLAN - OVERALL

SCALES	DATE
as noted @ A1	SEPT' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.04



LEGEND

AAPT LINE	AAPT AAPT
COMMS LINE	C C
ELECTRICAL LINE	E E E
FIRE LINE	F F
GAS LINE	GAS GAS
WATER LINE	W W W
NBN LINE	NBN NBN
OPTUS LINE	OP OP
TPG LINE	TPG TPG
TELECOMMUNICATION LINE	T T T
OVERFLOW LINE	OFP OFP OFP
SEWER LINE	S S
SEWER EXISTING LINE	EX.S EX.S
SUBSOIL DRAINAGE LINE	SSD SSD
SITE BOUNDARY	
DEMOLISHED	
STORMWATER LINE	
EXISTING STORMWATER LINE	EX. SW EX. SW
PROPOSED CONTOUR	
SWALE DRAIN INVERT AND DIRECTION OF FLOW	> > > >

GRATED STORMWATER PIT — EXISTING STORMWATER PIT

KERB INLET PIT

TELEPHONE PIT

DOWN PIPE DP — EXISTING DOWN PIPE Ex. DP.

FLOOR WASTE FW — NEW GRATED DRAIN

FLUSHING POINT FP — INTERMITTENT RISER IR

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

DENOTES GARDEN OR LANDSCAPE

DENOTES ARTIFICIAL TURF AREA

DENOTES NATURAL TURF AREA

outdoor play

SINGLE STOREY BRICK BUILDING METAL ROOF

METAL AWNING OVER CONCRETE AREA

CONCRETE RAMP

STAIRS

CONCRETE AREA

GRASSED EMBANKMENT

GRASSED AREA

MULTCHED PLAYGROUND AREA

RETAINING WALL

TIMBER RETAINING WALL

RENDERED RETAINING WALL

FENCE

CONCRETE PATHWAY

CONCRETE STAIRS

GARDEN AREA

BRICK RETAINING WALL

CONC AREA

TIMB RET KERB

SWALE

BANK

KERB

EXISTING PIT
(CONFIRM ON SITE)
INV. 676.33

new palisade fence to match existing

1:14 fall

gate

EXTEND EXISTING GRATED DRAIN TO NEW PATH

EXISTING PIT
(TO BE ADJUSTED TO THE NEW LEVELS)

PIT 676.13
INV. 675.39

RL: 676.794

Ø225mm uPVC
@ 0.5% MIN. FALL

600 x 600 GSIP
"ATLAN STORMSACK"

EXISTING PIT TO BE RECONSTRUCTED TO NEW LEVELS (CONFIRM ON SITE)

RL: 676.775

RL: 676.714

600 x 600 GSIP
"ATLAN STORMSACK"

Ø225mm uPVC
@ 0.5% MIN. FALL

EXISTING PIT TO BE RECONSTRUCTED TO NEW LEVELS (CONFIRM ON SITE)

EXISTING PIT (TO BE REPLACED BY JUNCTION PIT AND ADJUSTED TO NEW LEVELS)

RL: 676.795

RL: 674.600

EXISTING PIT
(TO BE REPLACED BY JUNCTION PIT AND ADJUSTED TO NEW LEVELS)

EX: 675.067m

675.00

674.80

674.60

-2.8%

-3.1%

-1.0%

GRATED DRAIN
(200x300)

GRATED DRAIN
(200x300)

FLOOR WASTE TO BE CONNECTED TO EXITING STORM WATER

FLOOR WASTE TO BE CONNECTED TO EXITING STORM WATER

676.717

676.791

674.725

674.595

674.565

1% fall

graded fall

CONC ROOF OVER PORCH

GUT 680.29

GUT 681.03

R/R 682.29

R/R 682.31

R/R 683.45

R/R 683.89

STORMWATER CONCEPT PLAN - SHEET 01

SCALE 1:100

NOTE:

-ROOF DRAINAGE BY OTHERS. ALLOW TO CONNECT INTO STORMWATER SYSTEM.

-ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE

-UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.

-UNLESS NOTED OTHERWISE GRATED DRAINS SHALL BE 150x150 AND CONNECTED TO THE DOWNSTREAM (NON-CHARGED) STORMWATER SYSTEM

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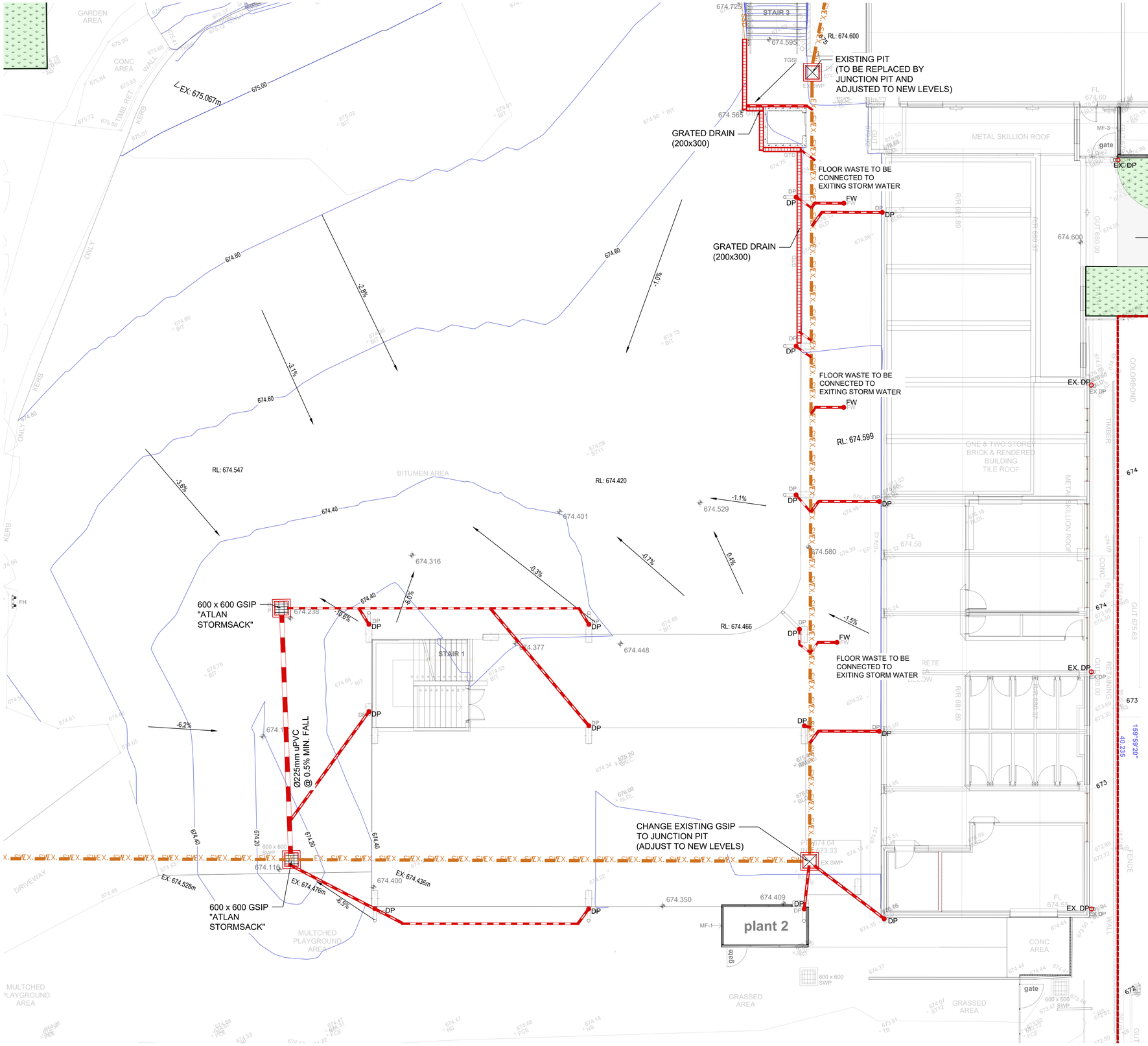
PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
STORMWATER CONCEPT
PLAN - SHEET 01

SCALES	DATE
as noted @ A1	SEPT' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.05



SERVICES ON THIS DRAWING
ARE SHOWN BELOW SLAB U.N.O.

LEGEND

AAPT LINE	AAPT — AAPT
COMMS LINE	C — C
ELECTRICAL LINE	E — E — E
FIRE LINE	F — F
GAS LINE	GAS — GAS
WATER LINE	W — W — W
NBN LINE	NBN — NBN
OPTUS LINE	OP — OP
TPG LINE	TPG — TPG
TELECOMMUNICATION LINE	T — T — T
OVERFLOW LINE	OFP — OFP — OFP
SEWER LINE	S — S
SEWER EXISTING LINE	EX.S — EX.S
SUBSOIL DRAINAGE LINE	SSD — SSD
SITE BOUNDARY	
DEMOLISHED	
STORMWATER LINE	
EXISTING STORMWATER LINE	EX. SW — EX. SW
PROPOSED CONTOUR	
SWALE DRAIN INVERT AND DIRECTION OF FLOW	

GRATED STORMWATER PIT — EXISTING STORMWATER PIT

KERB INLET PIT

TELEPHONE PIT

DOWN PIPE	DP	EXISTING DOWN PIPE	Ex. DP.
FLOOR WASTE	FW	NEW GRATED DRAIN	
FLUSHING POINT	FP	INTERMITTENT RISER	IR

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

DENOTES GARDEN OR LANDSCAPE

DENOTES ARTIFICIAL TURF AREA

DENOTES NATURAL TURF AREA

STORMWATER CONCEPT PLAN - SHEET 02

SCALE 1:100

NOTE:
-ROOF DRAINAGE BY OTHERS. ALLOW TO CONNECT INTO STORMWATER SYSTEM.
-ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
-UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.
-UNLESS NOTED OTHERWISE GRATED DRAINS SHALL BE 150x150 AND CONNECTED TO THE DOWNSTREAM (NON-CHARGED) STORMWATER SYSTEM

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

CLIENT
CATHOLIC EDUCATION
DIOCESE OF WOLLONGONG

ARCHITECT
DTA ARCHITECTS

BIRZULIS ASSOCIATES
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www.birzulisassociates.com

PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
STORMWATER CONCEPT
PLAN - SHEET 02

SCALES	DATE
as noted @ A1	SEPT' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.06

EXISTING STORM WATER LINE (CONFIRM ON SITE)

TREATMENT PIT 1500x1500 GSIP [ATLAN (2/SF30-EMC-M)]

EXISTING STORM WATER LINE (CONFIRM ON SITE)

EXISTING JUNCTION PIT (CONFIRM ON SITE)

EXISTING STORM WATER LINE (CONFIRM ON SITE)

EXISTING HEADWALL AND ENERGY DISSIPATION. (CONFIRM ON SITE)

Ø225mm uPVC @ 0.5% MIN. FALL

600 x 600 GSIP "ATLAN STORMSACK"

CHANGE EXISTING GSIP TO JUNCTION PIT (ADJUST TO NEW LEVELS)

plant 2

STORMWATER CONCEPT PLAN - SHEET 03

SCALE 1:100

NOTE:
-ROOF DRAINAGE BY OTHERS. ALLOW TO CONNECT INTO STORMWATER SYSTEM.
-ALL uPVC STORMWATER DRAINAGE LINES SHALL BE 'CLASS SH' SEWER GRADE UNLESS NOTED OTHERWISE
-UNLESS NOTED OTHERWISE DOWNPIPES SHALL CONNECT TO THE MAIN STORMWATER LINE DOWNSTREAM USING 150mm DIAMETER uPVC LINES WITH MINIMUM 1% FALL.
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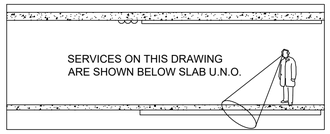

LEGEND

AAPT LINE	AAPT AAPT
COMMS LINE	C C
ELECTRICAL LINE	E E E
FIRE LINE	F F
GAS LINE	GAS GAS
WATER LINE	W W W
NBN LINE	NBN NBN
OPTUS LINE	OP OP
TPG LINE	TPG TPG
TELECOMMUNICATION LINE	T T T
OVERFLOW LINE	OFP OFP OFP
SEWER LINE	S S
SEWER EXISTING LINE	EX.S EX.S
SUBSOIL DRAINAGE LINE	SSD SSD
SITE BOUNDARY	
DEMOLISHED	
STORMWATER LINE	
EXISTING STORMWATER LINE	EX. SW EX. SW
PROPOSED CONTOUR	
SWALE DRAIN INVERT AND DIRECTION OF FLOW	
GRATED STORMWATER PIT	EXISTING STORMWATER PIT
KERB INLET PIT	
TELEPHONE PIT	
DOWN PIPE	DP
EXISTING DOWN PIPE	Ex. DP.
FLOOR WASTE	FW
NEW GRATED DRAIN	
FLUSHING POINT	FP
INTERMITTENT RISER	IR

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

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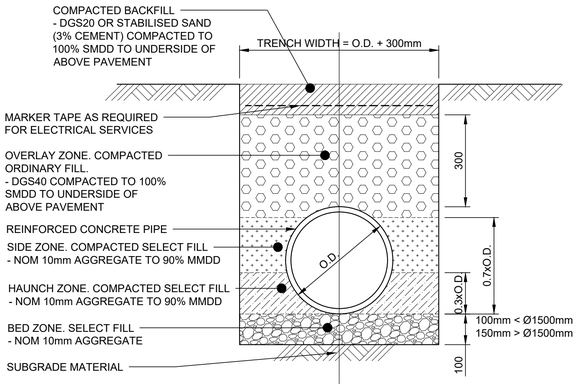
PROJECT
ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
STORMWATER CONCEPT PLAN - SHEET 03

SCALES	DATE
as noted @ A1	SEPT' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

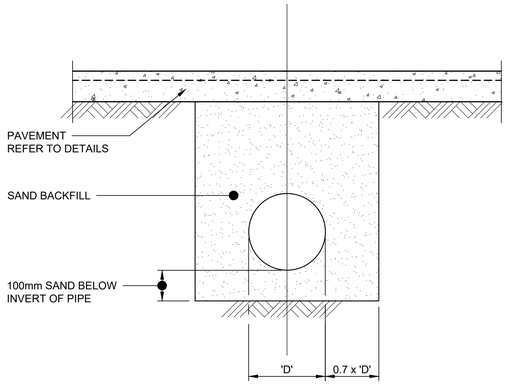
ISSUE	PROJECT No.	DRAWING No.
A	9009	C.07



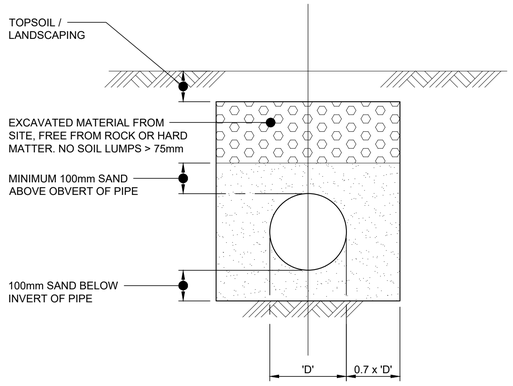
TYPICAL PIPE TRENCH - UNDER ROADS

NOT TO SCALE

1. TRENCH WIDTH MAY NEED TO BE INCREASED SUBJECT TO ACHIEVING COMPACTION ENSURE MINIMUM 300mm CLEARANCE BETWEEN. WHEN USING MULTIPLE PIPES TO ACHIEVE ADEQUATE COMPACTION.
2. MINIMUM PIPE COVER UNDER ROADS TO BE 600mm U.N.O. FOR CLASS '2' PIPES.
3. THE CONTRACTOR SHALL ENSURE THAT SHORING OF TRENCHES IS INSTALLED AS REQUIRED BY STATUTORY REQUIREMENTS.
4. ENSURE BACKFILLING COMPACTION MEETS THE FOLLOWING STANDARDS.
   4.1. TRENCHES UNDER PAVED AREAS / BUILDING - 100% SMDD.



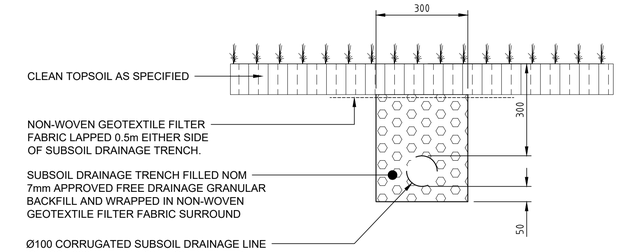
NON-TRAFFICABLE PAVED AREAS



LANDSCAPED AREAS

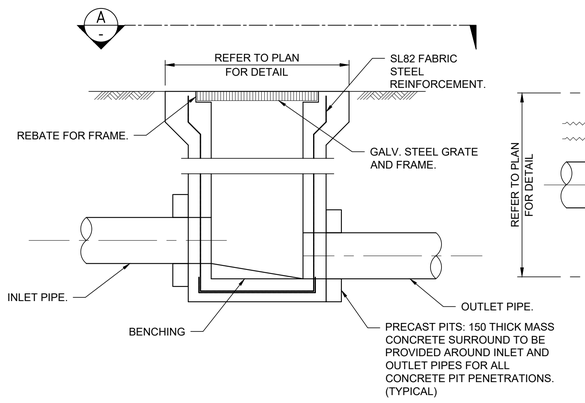
PIPE BACKFILLING DETAIL

NOT TO SCALE



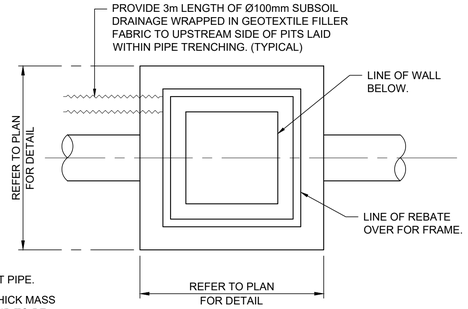
SUBSOIL DRAINAGE TRENCH - LANDSCAPING 'SSD'

CLEAROUT TO BE INSTALLED @ MAX. 30m CENTRES AND
DISCHARGING TO DRAINAGE STRUCTURES @ MAX. 60m CENTRES.



STORMWATER PIT DETAIL

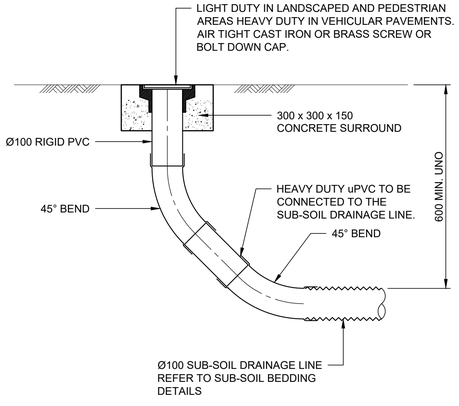
SCALE 1:10



SECTION WITHOUT GRATE

SECTION A

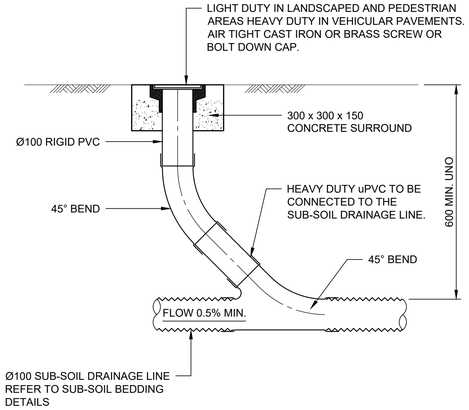
SCALE 1:10



SUBSOIL DRAINAGE FLUSHING POINT (FP)

SCALE 1:10

- NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED
- UNO INSTALL AT UPSTREAM POINTS ALONG SUBSOIL DRAINAGE LINES



SUBSOIL DRAINAGE INTERMEDIATE RISER (IR)

SCALE 1:10

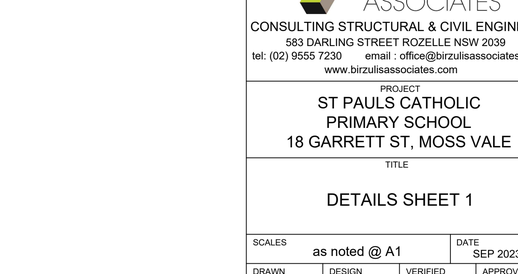
- NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED
- UNO, INSTALL AT UPSTREAM POINTS ALONG SUBSOIL DRAINAGE LINES
- UNO, INSTALL AT MAXIMUM 30m CENTRES ALONG SUBSOIL LINES AND PRIOR TO DISCHARGING TO DRAINAGE STRUCTURES

TRAFFICABLE PAVEMENT SUBSOIL DRAINAGE DETAIL

N.T.S.

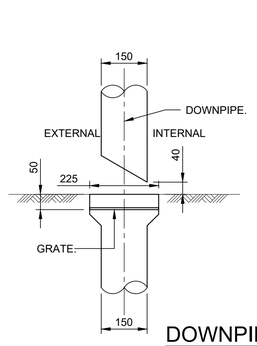
RAINWATER OUTLET DETAIL

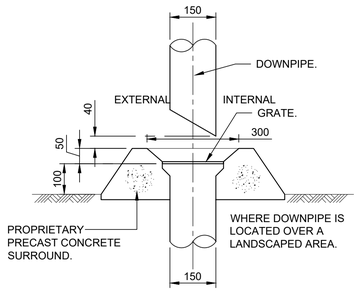
NOT TO SCALE



TYPICAL SUBSOIL DRAINAGE DETAIL

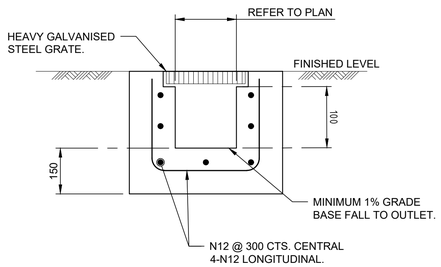
SCALE 1:20





DOWNPIPE CONNECTION DETAILS

SCALE 1:10



TYPICAL GRATED DRAIN DETAIL

NOT TO SCALE

SCALE 0 2 4 6 8 10 METRES

SCALE 1:20 @ A1

SCALE 0 1 2 3 4 5 METRES

SCALE 1:10 @ A1

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

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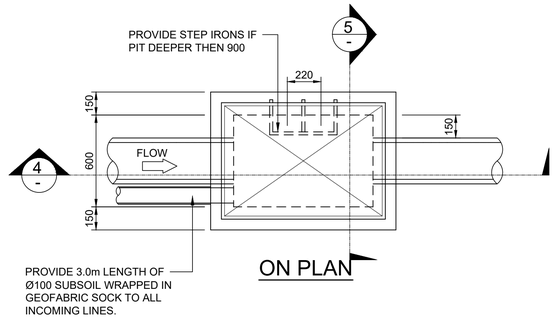
PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
DETAILS SHEET 1

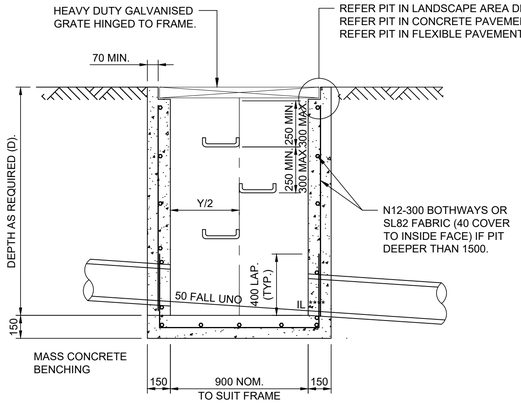
SCALES	DATE
as noted @ A1	SEP 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.08



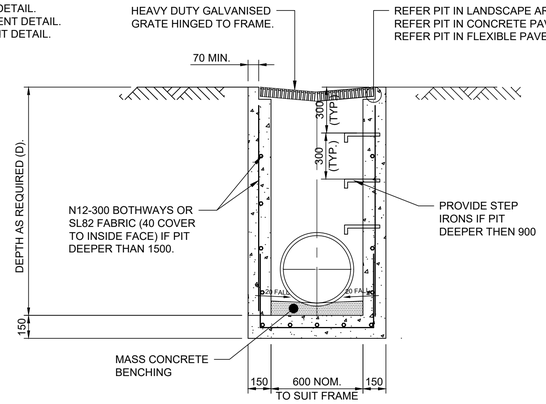
ON PLAN



SECTION 4

GRATED INLET/JUNCTION PIT DETAIL

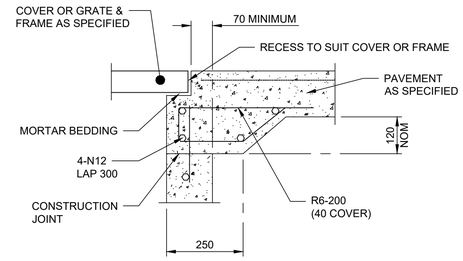
N.T.S.



SECTION 5

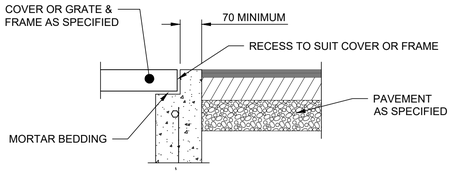
GRATED INLET/JUNCTION PIT DETAIL

N.T.S.



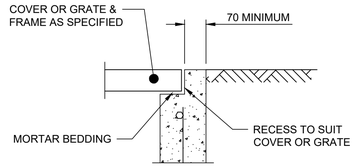
PIT IN CONCRETE PAVEMENT DETAIL

N.T.S.



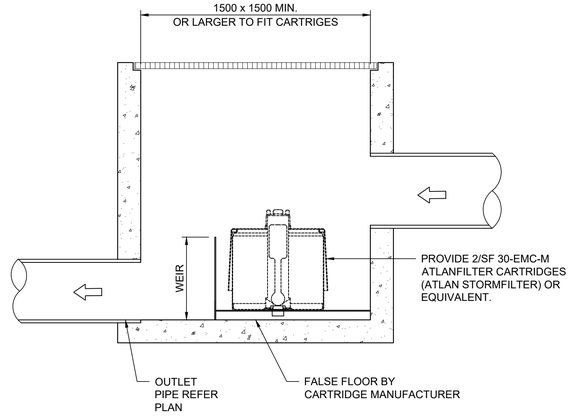
PIT IN FLEXIBLE PAVEMENT DETAIL

N.T.S.



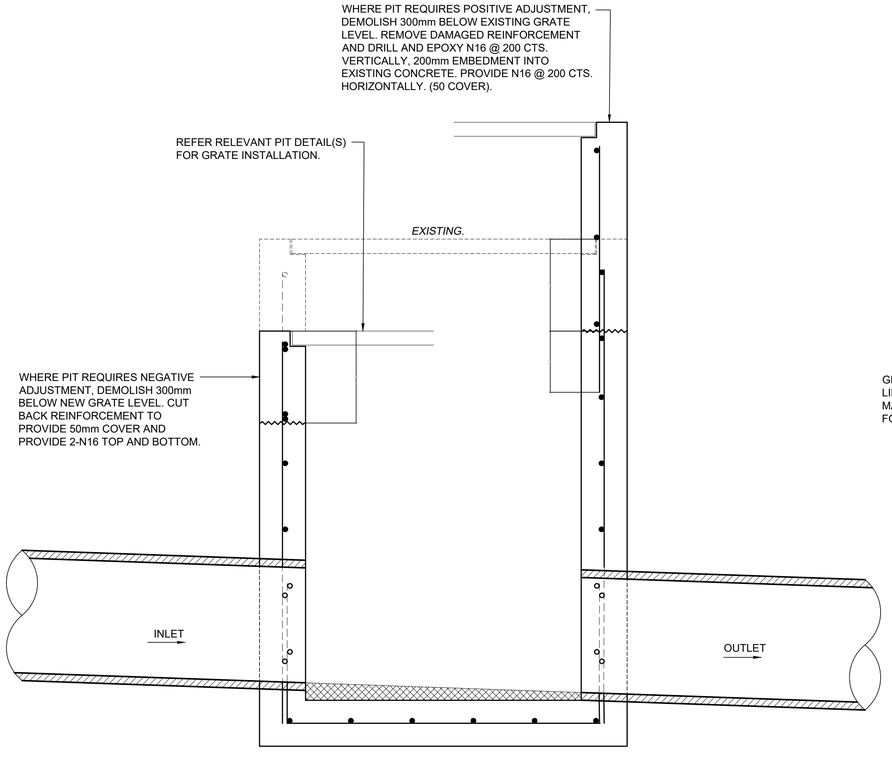
PIT IN LANDSCAPE AREA DETAIL

N.T.S.



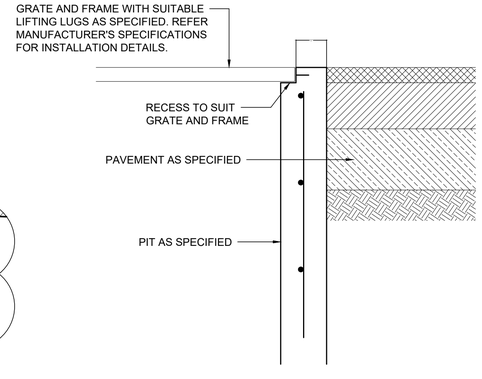
STORMWATER TREATMENT PIT DETAIL

N.T.S.

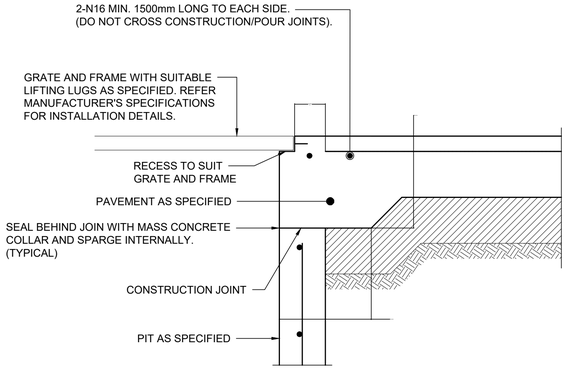


DRAINAGE PIT - LEVELS ADJUSTMENTS

ENSURE NEAT FINISH IS ACHIEVE AT INTERFACE WITH EXISTING.
REFER RELEVANT PIT DETAIL(S) FOR GRATE INSTALLATION.



PIT INTERFACE - DETAIL 'A'



PIT INTERFACE - DETAIL 'B'

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
A	FOR DA	-	19/07/2024

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PROJECT
ST PAULS CATHOLIC PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

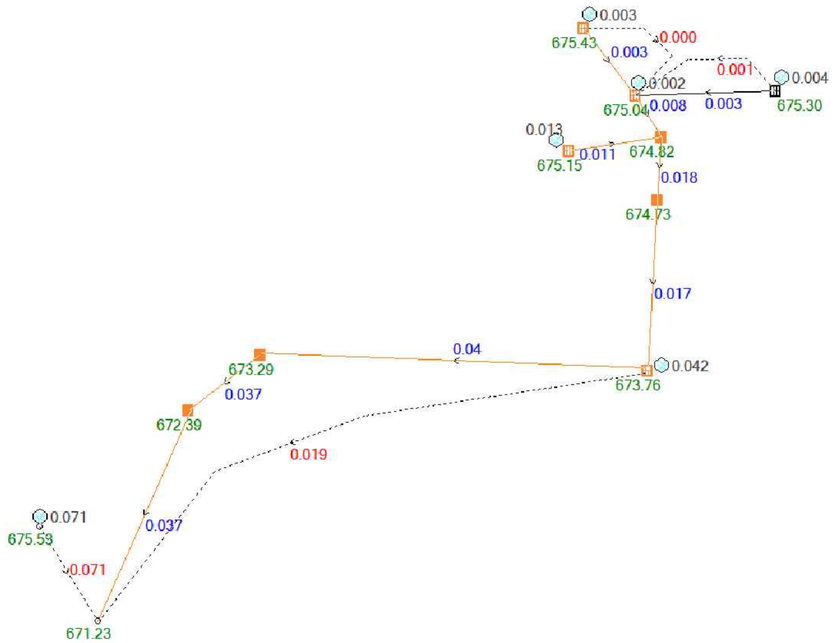
TITLE
DETAILS SHEET 2

SCALES	DATE
as noted @ A1	SEP 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

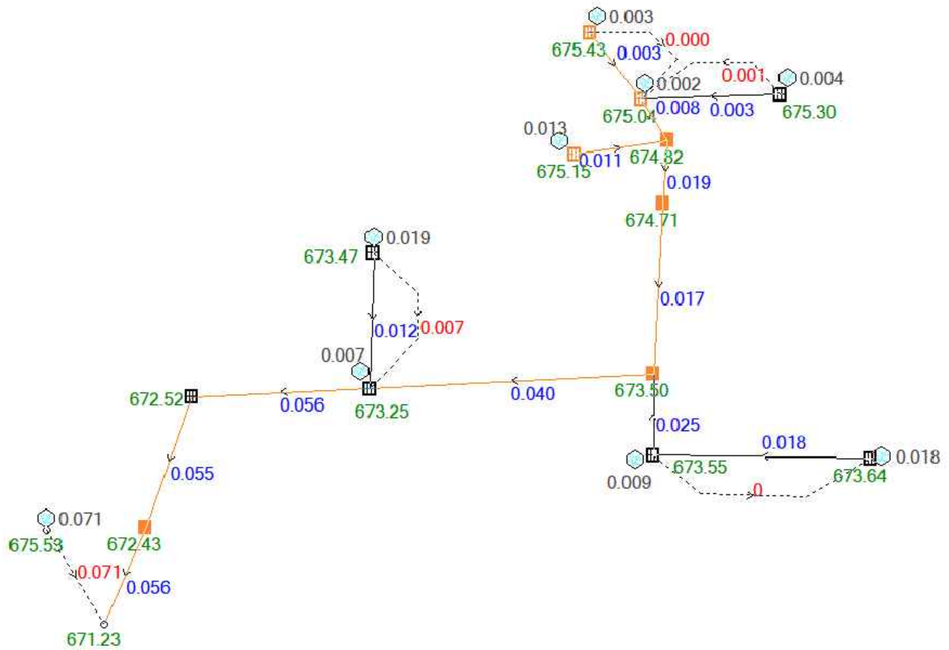
ISSUE	PROJECT No.	DRAWING No.
A	9009	C.09

RESULT FOR 0.20 EY



DRAINS MODEL PRE-DEVELOPMENT

SCALE N.T.S.



DRAINS MODEL POST-DEVELOPMENT

SCALE N.T.S.

PRELIMINARY ISSUE

NOT FOR CONSTRUCTION

ISSUE	DESCRIPTION	APPROVED	DATE
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PROJECT

ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

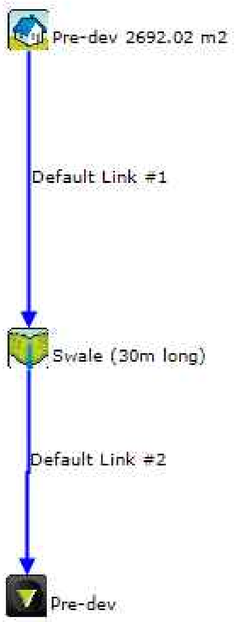
TITLE

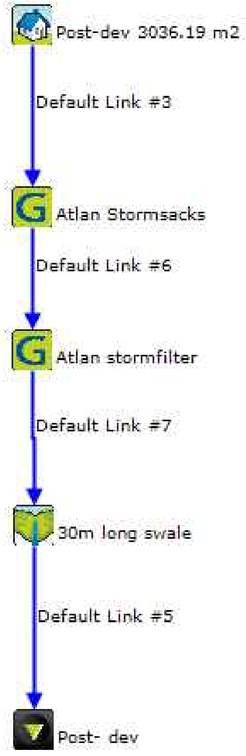
DRAINS MODEL

SCALES	DATE
as noted @ A1	AUG' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.10





PRE - DEVELOPMENT RESULTS

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.199	2.199	-0.0002011
Total Suspended Solids (kg/yr)	455.2	69.49	84.73
Total Phosphorus (kg/yr)	0.9188	0.3599	60.83
Total Nitrogen (kg/yr)	6.321	5.133	18.79
Gross Pollutants (kg/yr)	60.6	0	100

POST - DEVELOPMENT RESULTS

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.451	2.451	-0.0007685
Total Suspended Solids (kg/yr)	504.6	42.57	91.56
Total Phosphorus (kg/yr)	1.02	0.3122	69.39
Total Nitrogen (kg/yr)	7.04	3.081	56.24
Gross Pollutants (kg/yr)	67.54	0	100

MUSIC MODEL PLAN

SCALE N.T.S.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

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PROJECT
ST PAULS CATHOLIC
PRIMARY SCHOOL
18 GARRETT ST, MOSS VALE

TITLE
MUSIC MODEL PLAN

SCALES	DATE
as noted @ A1	AUG' 2023

DRAWN	DESIGN	VERIFIED	APPROVED
LDC	GK		

ISSUE	PROJECT No.	DRAWING No.
A	9009	C.11

N