

SMGS

HYDRAULIC, WET FIRE AND CIVIL SERVICES

Return Services Brief



Issue	Date	Purpose	By	Reviewed	Approved
P1	29/9/20	Preliminary Draft Issue	SH	JM	SH
P2	26/11/20	50% PSP	SH	JM	SH
P3	27/11/20	Incorporating Fire Hydrant servicing provision details	SH	JM	SH
P3	12/01/21	95% PSP	SH	JM	SH
P4	4/2/21	100% PSP	SH	JM	SH

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1 Executive Summary

Scott Harris and Associates P/L (SHA) are engaged to provide building Civil, Hydraulics and Wet Fire services engineering design for the proposed Senior School Learning hub development works at SMGs

The purpose of this document is to confirm the preliminary servicing provisions for the proposed development for building works and nominate the design strategies for the design and documentation of the hydraulic and wet fire services discipline.

2 Introduction

Scott Harris and Associates p/L (SHA) are engaged to provide building Civil, Hydraulics and Fire services engineering for the proposed development.

SHA 's scope will cover the following:

- Sewer / Sanitary plumbing, drainage, and venting
- Stormwater Drainage
- Potable cold-water reticulation
- Potable hot water reticulation (and assoc. HW generation plant)
- Fire hose reel system
- Fire hydrant system
- Gas services
- Civil Works

This Brief shall be read on conjunction with current design 100% PSP development drawings as listed below

- H1-01 - Site Services
- H2-01 Ground Floor drainage Services
- H2-02 Level 1 drainage Services
- H2-03 Roof Drainage Services
- H3-01 Ground Floor Water Services
- H3-03 Level 1 Water Services
- H4-01 Sedimentation Control Plan
- H4-02 Sedimentation Control Plan Specification and Details
- C-01 – Civil Services – Cover Sheet, Notes and drawing Index.
- C-02 – Standards and details
- C-03 – Bulk earthworks benching Plan.
- C-04 – Bulk earthworks cut and fill diagram.
- C-05 – Bulk earth works site sections.

3 Site Description

The subject site consists of an existing educational facility, the proposed works area currently contains an existing building as per photo 1 below



Photo 1

4 Exiting Supply Infrastructure Assessments

4.1 Sewerage Systems

Existing site sewer infrastructure is currently located within the proposed building area/zone as per Figure 1 below. (Magenta line)

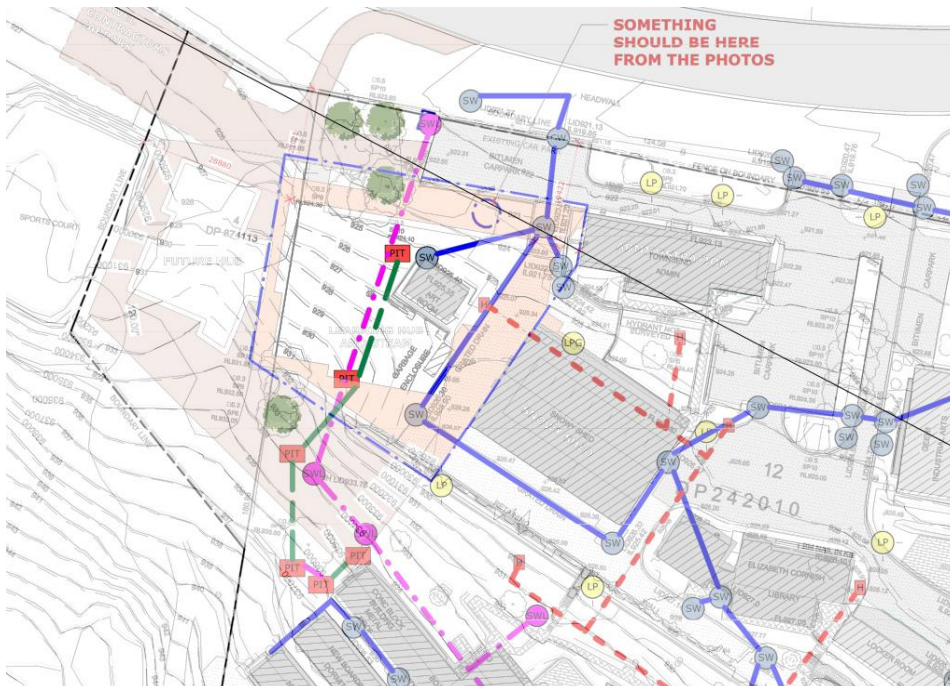


Figure 1 – Existing drainage provisions

Figure 5 – Existing Authority Water supply infrastructure

Water supply is currently available to the existing art building. Although the existing supply provision is inadequate for the proposed new development works. New water supply provision shall be extended from the existing site infrastructure.

4.4 Gas Supply services

Authority reticulated gas is currently unavailable to the existing site, LPG gas supply to existing buildings is via localised on-site storage cylinder provisions

4.5 Fire Hydrant services

The existing site Fire Hydrant service consists of a number of external single head Fire hydrant lading valve provisions located across the site as per figure 6 (red line) and photos 2, 3 and 4 below.

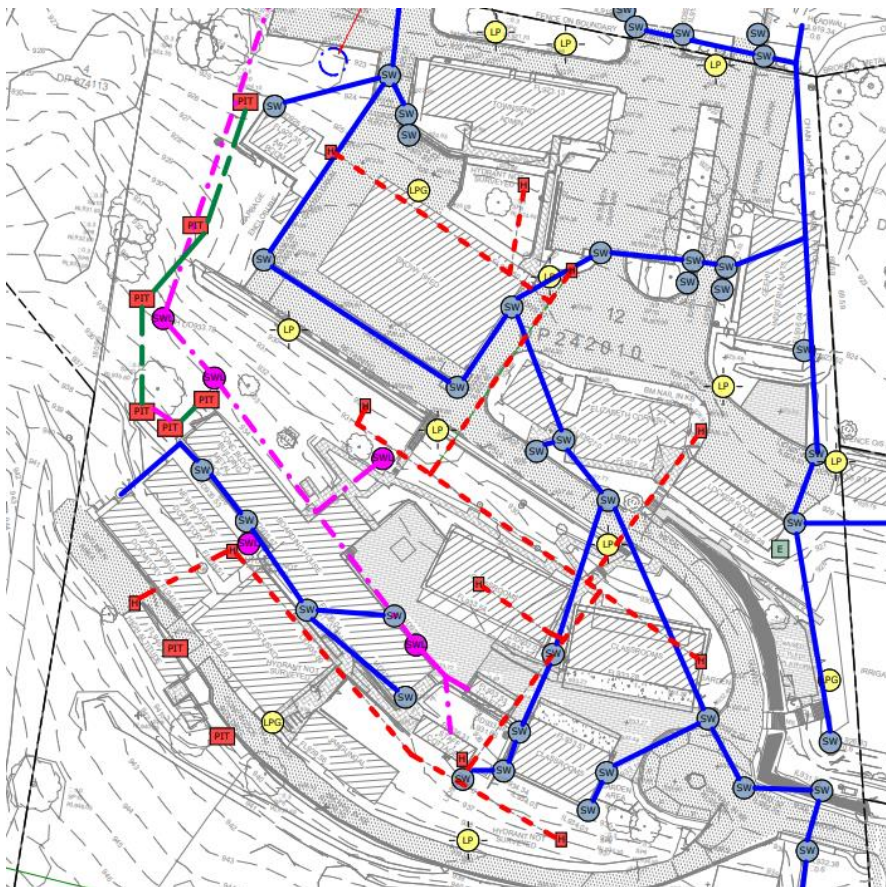


Figure 6 Existing fire hydrant provisions (Red Line)



Photo 2



Photo 3



Photo 4

Note: The existing Fire hydrant infrastructure does not meet the requirements of AS2419-2017 (Fire Hydrant installations). As per details with section 4.5.1 (below)

4.5.1 Details of non-compliance

AS 2419-2017 specific requirements	Current / existing site non-compliant provisions
External Fire hydrants shall consist of Dual Headed landing valves	Existing Hydrants consist of single head landing valves (as per photos 2.3 and 4
Sites incorporating more than 6 external Hydrants shall incorporate an onsite booster assembly	The existing site incorporates an estimated 11 external fire hydrant provisions (as per Figure 6) Booster valve required

5 Hydraulic / Wet Fire Protection Design Strategy

5.1 Design Standards

All hydraulic services will be designed in full compliance with the National Construction Code of Australia (prescriptive or performance-based requirements), relevant Australian Standards and Local Authority requirements as listed below (but not limited to):

- Locale Council / Authority requirements
- AS3500 National Plumbing and Drainage Code
- AS5601 Gas Installations
- AS2419 Fire Hydrant Protection Code
- Council requirements
- NSW Fire and Rescue
- National Construction Code of Australia
- Workcover Authority

5.2 Sanitary Plumbing and Drainage Systems

All Sanitary / Trade waste Plumbing and Drainage Systems shall be designed in accordance with the requirements of the AS3500 and be fully compliant.

Project specific Sewer drainage is proposed as per current design documentation Drawings

- H1-01 - Site Services
- H2-01 Ground Floor drainage Services
- H2-02 Level 1 drainage Services

5.3 Roof Drainage

Rainwater collection systems shall be designed in accordance with AS3500 and Australian Rainfall and Runoff, and based on the following minimum criteria:

- Eaves Gutters 1 in 20-year event
- Box Gutters are not recommended

It is proposed that all roof drainage and downpipe provisions will have connection to inground drainage as modified to allow connection

Rainwater re-use is currently not incorporated into the current design.

Roof water drainage is proposed as per current design documentation Drawings

- H2-03 Roof drainage Services

5.4 Domestic Cold-Water Supply

Domestic cold water for the site will be designed in accordance with AS3500 to achieve the following criteria:

- Minimum Pressure of sanitary outlet– 50 kPa
- Minimum Pressure at equipment – To manufacturer's requirements
- Maximum Pressure of Outlet – 500 kPa
- Maximum Velocity in Pipework – 1.6 m/sec

Backflow prevention shall be provided as per NSW Health and AS3500

Due to the age and unknown condition of the existing site wide water supply infrastructure, The School has agreed to proceed with site wide infrastructure upgrade works of the potable water services reticulation, including new water supply connection to existing water meter provisions within Poly Cow Lane and site wide piping reticulation

Cold water supply and reticulation is proposed as per current design documentation Drawings

- H1-01 - Site Services
- H3-01 Ground Floor Water Services
- H3-02 Level 1 Water Services

5.5 Domestic Hot Water Supply

Domestic hot and warm water will be designed in accordance with AS3500 requirements.

Reticulation throughout the building will be via a combination of

- 1) A dedicated flow and return ring main with connection to a Hot water plant currently proposed to be located within the Ground floor mechanical plant room for supply to the Level 1 amenities.

And

- 2) Single point of use electric hot water units for the ground floor sink provisions and the level 1 Tea area sink provision

Water temperature shall be controlled via thermostatic mixing valves as per NSW health and AS3500

5.6 Liquid Petroleum Gas

LPG is currently unavailable, LPG supply to Science lab provisions to be provided by Bulk on site storage provisions located external to the building equal to 2 x 210kg Bulk LPG cylinders

Gas supply to the building shall be via a reticulated gas supply main at 2.75kPa – 5kPa operating pressures.

Gas supply shut off to each classroom shall be provided via a manual isolation valve located at each classroom teacher station.

Gas Services are proposed as per current design documentation Drawings

- H1-01 - Site Services
- H3-01 Ground Floor Water Services
- H3-02 Level 1 Water Services

5.7 Fire Hose Reels

Current (2019) NCC / BCA legislation (section E1.4 a (iv) nominates that Fire Hose Reel (FHR) provisions are not required for buildings consisting of “Classrooms and associated corridors in a primary or secondary school;”

5.8 Fire Hydrants

Current NCC /BCA and AS2419-2017 nominates that compliant Fire hydrant provisions shall be provided for buildings greater than 500m² (floor area) therefore, Fire Hydrant provisions are required for the proposed development works.

As nominated within section 4.5, The existing site hydrant provisions do not meet current code compliance as require to permit compliant coverage for the new works.

The School has agreed to proceed with site wide infrastructure upgrade works of the fire Hydrant services reticulation, including new water supply connection to existing authority point of connection, new Fire Hydrant booster valve provisions and site wide piping reticulation.

5.8.1 External Hydrant protection

AS2419 nominates that Fire Hydrants shall be located as required to provide either internal Fire Hydrants and or external Fire Hydrants to provide protection coverage.

The proposed access to the new building is considered to adequately address provisions of the code to permit the use of external Fire Hydrant provisions.

External hydrants will be positioned as required to permit fire brigade access. Appendix E of AS 2419.1:2017 provides informative guidance on the required locations of fire hydrants as shown in Figure 7. The hydrant system will be required to be extended from the existing system incorporating a booster assembly as per section 5.8.1 (above)

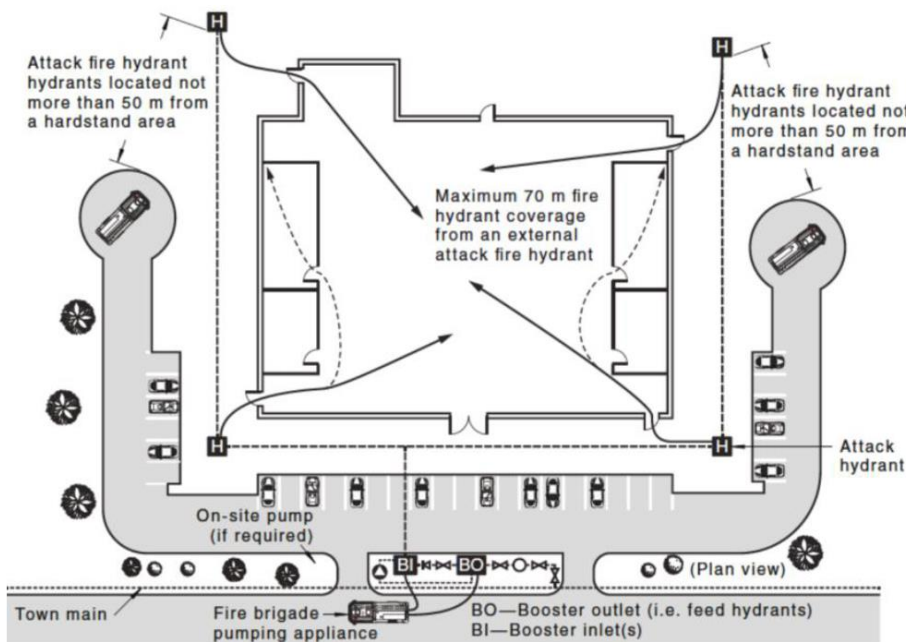


Figure 7 AS2419 -2017 Example of external attack hydrant coverage

Fire hydrant protection shall be provided via 4 x new external Fire hydrant provisions as required to provided compliant coverage with connection to the above-mentioned site water infrastructure upgrade works, providing the project with a fully compliant Fire Hydrant Installation in accordance with AS2419

Fire Hydrant Services are proposed as per current design documentation drawings

- H1-01 Site services
- H3-01 Ground Floor Water Services
- H3-03 Level 1 Water Services

5.9 Fixtures, Fittings and Tapware

Sanitary fixtures, fittings and tapware are to be nominated by the architectural team.

5.10 Construction Materials

Materials used for construction of hydraulic and fire protection services have been selected based on whole of life cost, ease of installation, durability, and ease of maintenance.

Generally, the materials proposed for hydraulic service piping shall be as follows. Other material selection options will be per AS3500 requirements:

Sanitary Systems	PVC-U DWV
Stormwater Drainage	PVC-U DWV & Reinforced Concrete
Domestic Cold-Water	Copper Type B
Domestic Hot Water	Copper Type B (Thermally insulated)
Gas supply	Copper Type B

5.11 Environmentally Sustainable Design

The design and installation of the hydraulic and fire protection services will be designed to ensure:

- Effective use of energy and resources
 - Water consumption efficiency
 - Waste minimization
 - Recyclable construction materials with low embodied energy and environmentally friendly manufacture
- Reduction in ongoing life cycle costs

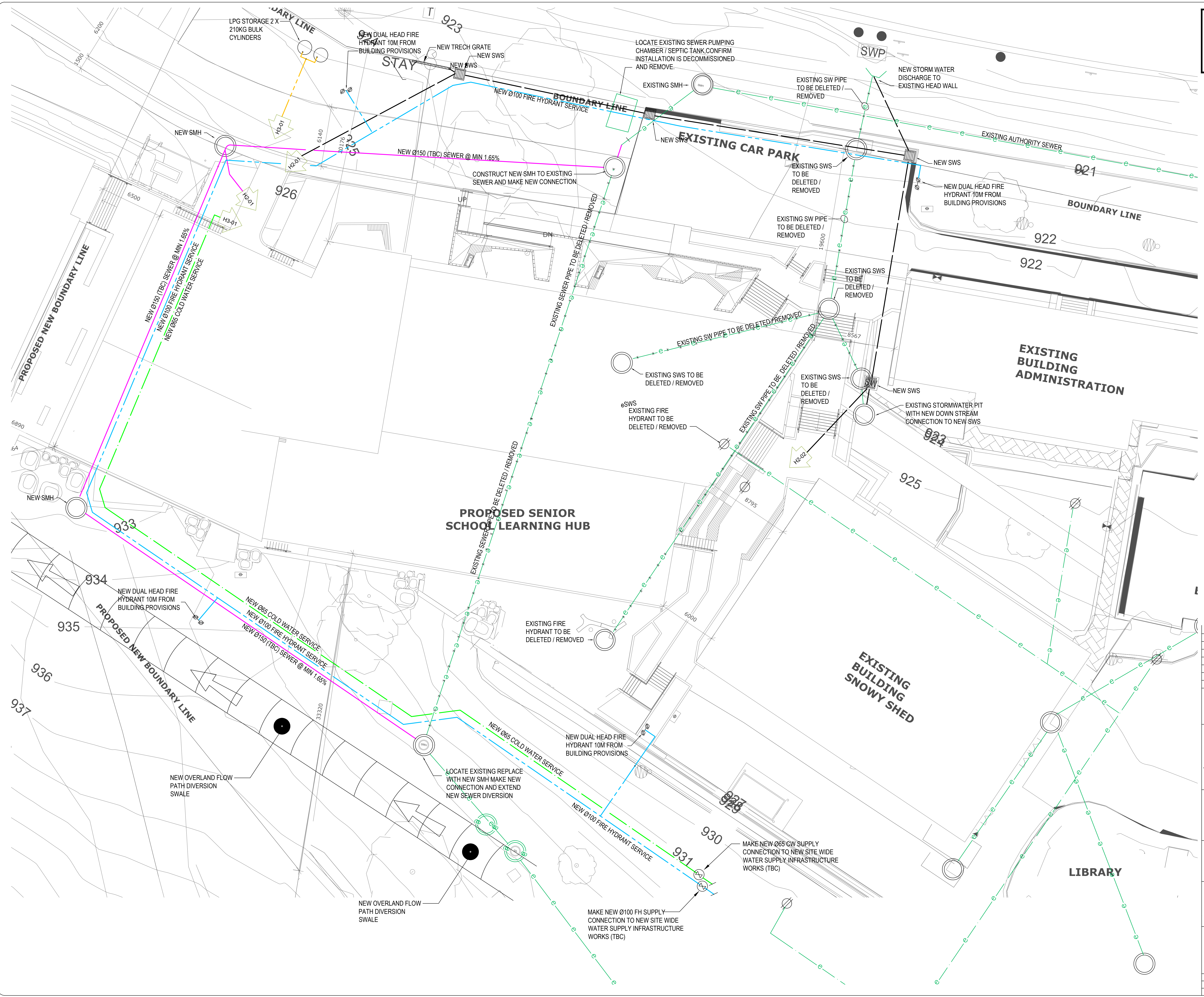
6 Civil Bulk Earth Works Breif

- The Learning Lab building has been divided into pad areas based on the levels shown on the architectural plans received.
- Based on advice given by the Structural Engineer (nom 120mm slab thickness + footings) we have provided a bulk earthworks pad level (bottom of building slab) nominally at 150mm below the FFL's nominated on the architectural plans
- The apron area surrounding the learning lab has been treated in the same way, currently as flat pads extending to garden beds and stair top and bottoms.
- We have allowed for 1:1 (45 degree slope) interface between the pad levels.
- Off the edge of the surrounding area modelled, we have interfaced to the existing levels again at 1:1 slope.
- A comparison has been run between the existing surface and the proposed pad level surface on drawing C-01. The red area is to be cut, and the green is to be filled, to re-shape the land to suit the pad model as described above.
- Using approximate test pit locations provided in the site geotech report, we have created a surface (only for the area tested) which represents the rock levels in ground. A comparison between the rock surface and the pad design surface has been run on C-02 in the same fashion as C-01
- As noted in the Geotech report, the subsurface on site generally comprises of silty / clayey sand (average nominal depth 0.6m), over highly weathered tonalite which increases in density and strength with depth. The 14T excavator used for testing refused at an average nominal depth of 2.1m. Generally, it would be safe to assume larger machinery would be able to cut to greater depth before experiencing refusal. An experienced contractor who has worked in the area previously may also have a reasonable understanding of the subsurface material on site.
- As outlined in both the Geotech and Geophys reports, there are a number of floaters / boulders on site. Some of these boulders are visible on the surface, and may extend far beneath the surface also. There are also subsurface boulders which were struck on 2 of 8 test pits at an average of 1.3-1.6m depth, with an inferred size varying 2.2-3.5m in width.
- These floating boulders throughout the site are unknown in size and frequency, and will need to be removed wholly in cut areas to provide a suitable compacted pad for building construction. Method to remove boulders is subject to superintendent approval, with a suggestion being chemical splitting.

Refer to current design documentation drawings.

- C-01 – Civil Services – Cover Sheet, Notes and drawing Index.
- C-02 – Standards and details
- C-03 – Bulk earthworks benching Plan.
- C-04 – Bulk earthworks cut and fill diagram.
- C-05 – Bulk earth works site sections.

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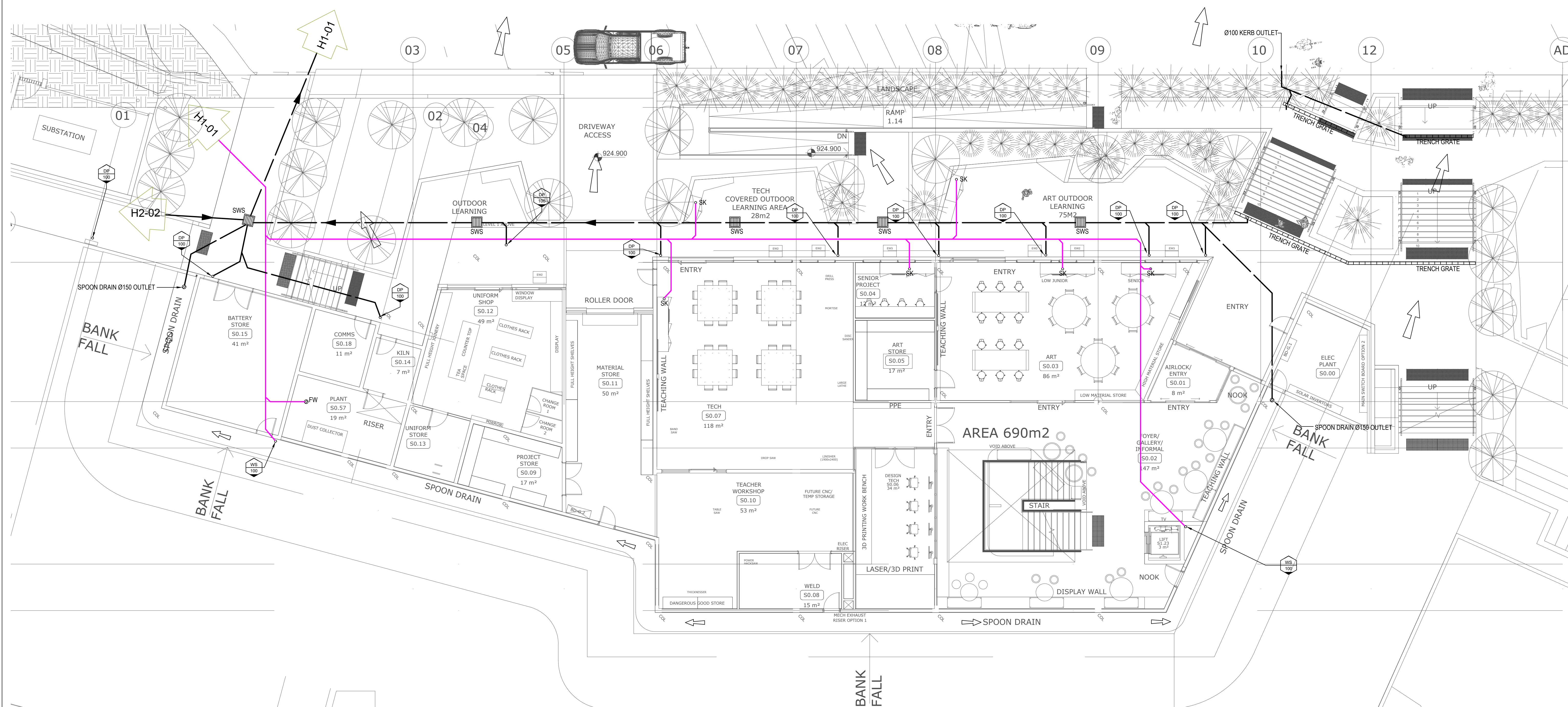
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DRAWING
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Project No.	Drawing No.	Revision
20012	H1-01	P6
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☐ STRUCTURAL BLOCKWORK

LEVEL 1 FOOTPRINT ABOVE

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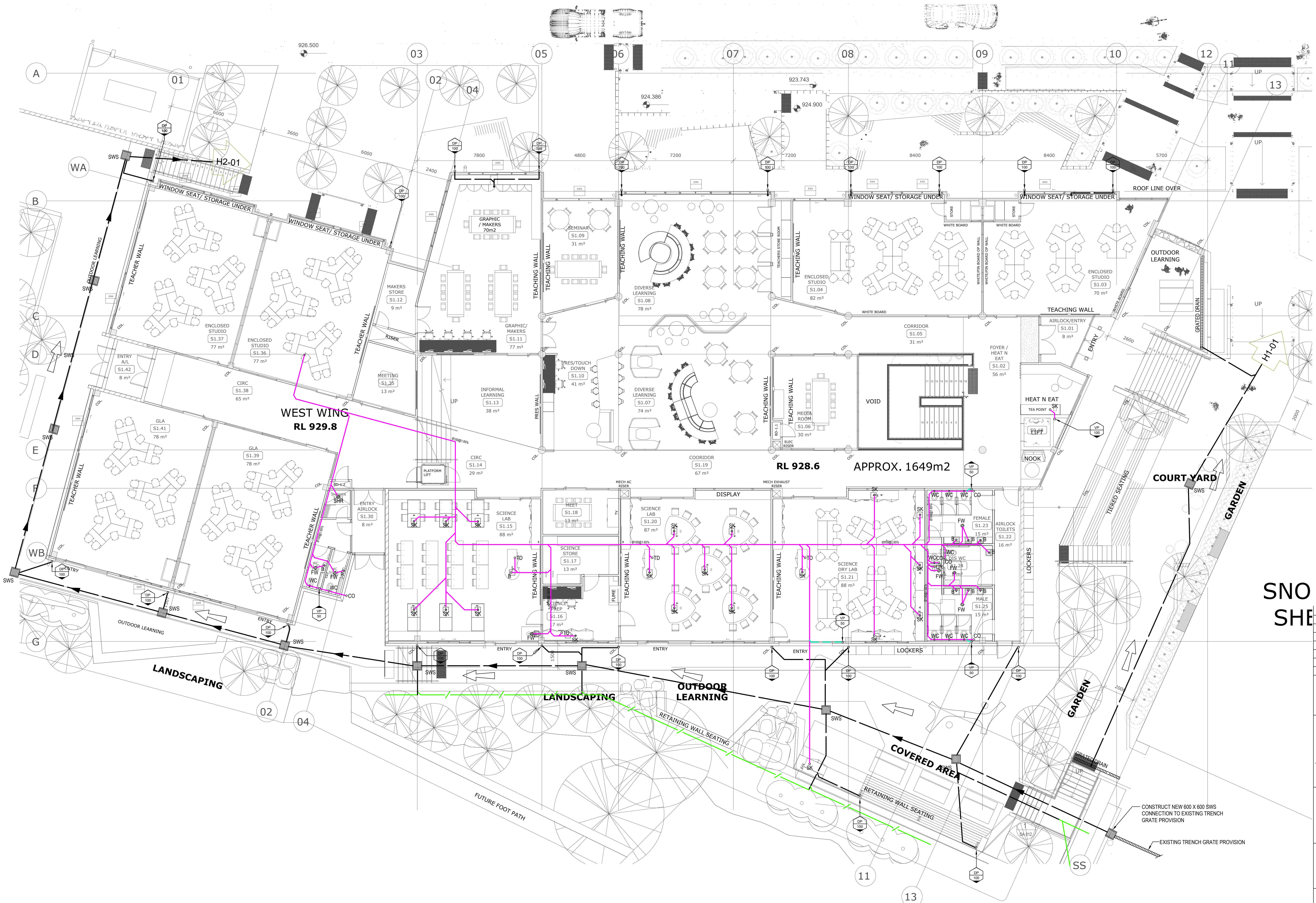
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GROUND LEVEL
DRAINAGE SERVICES

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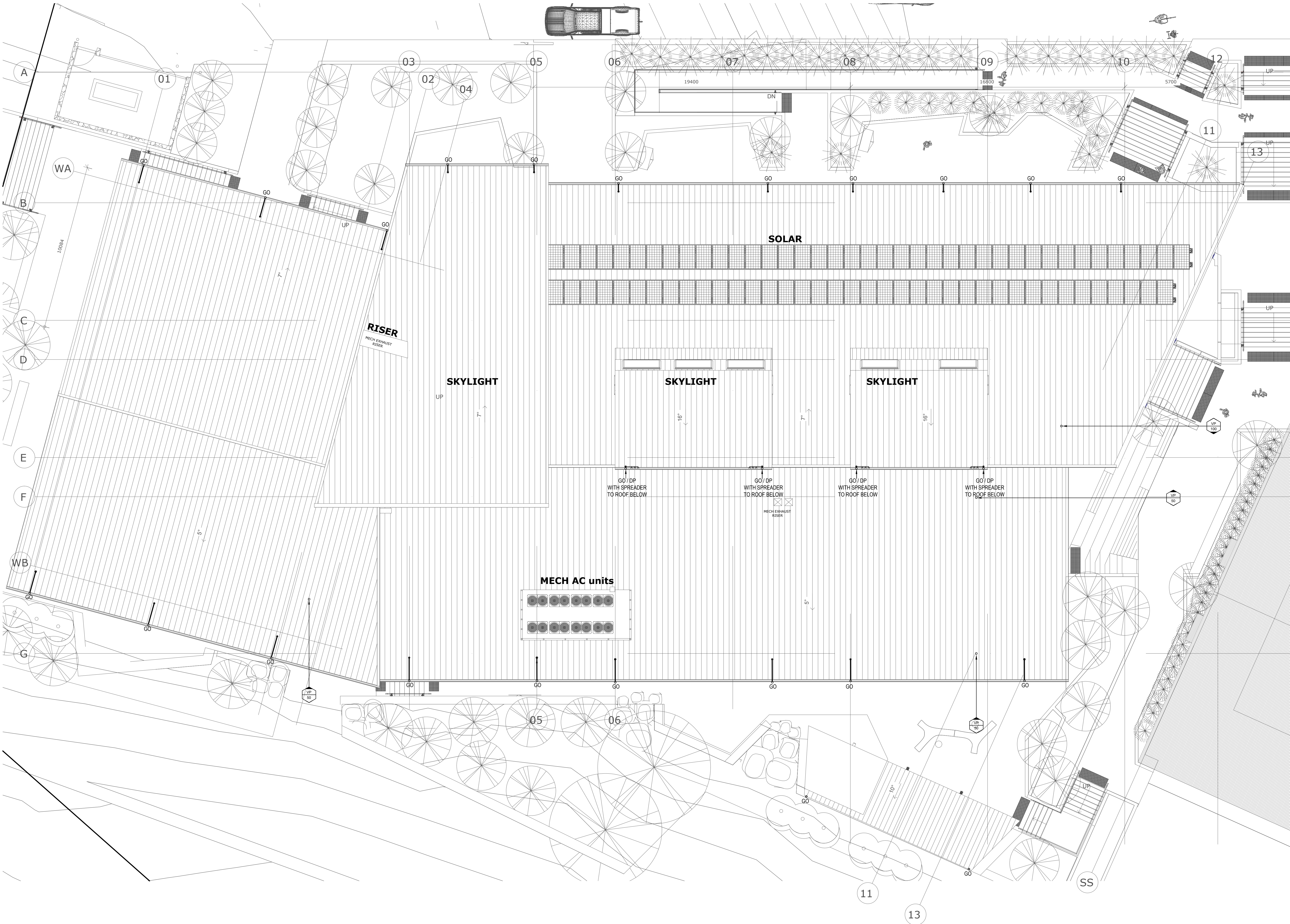
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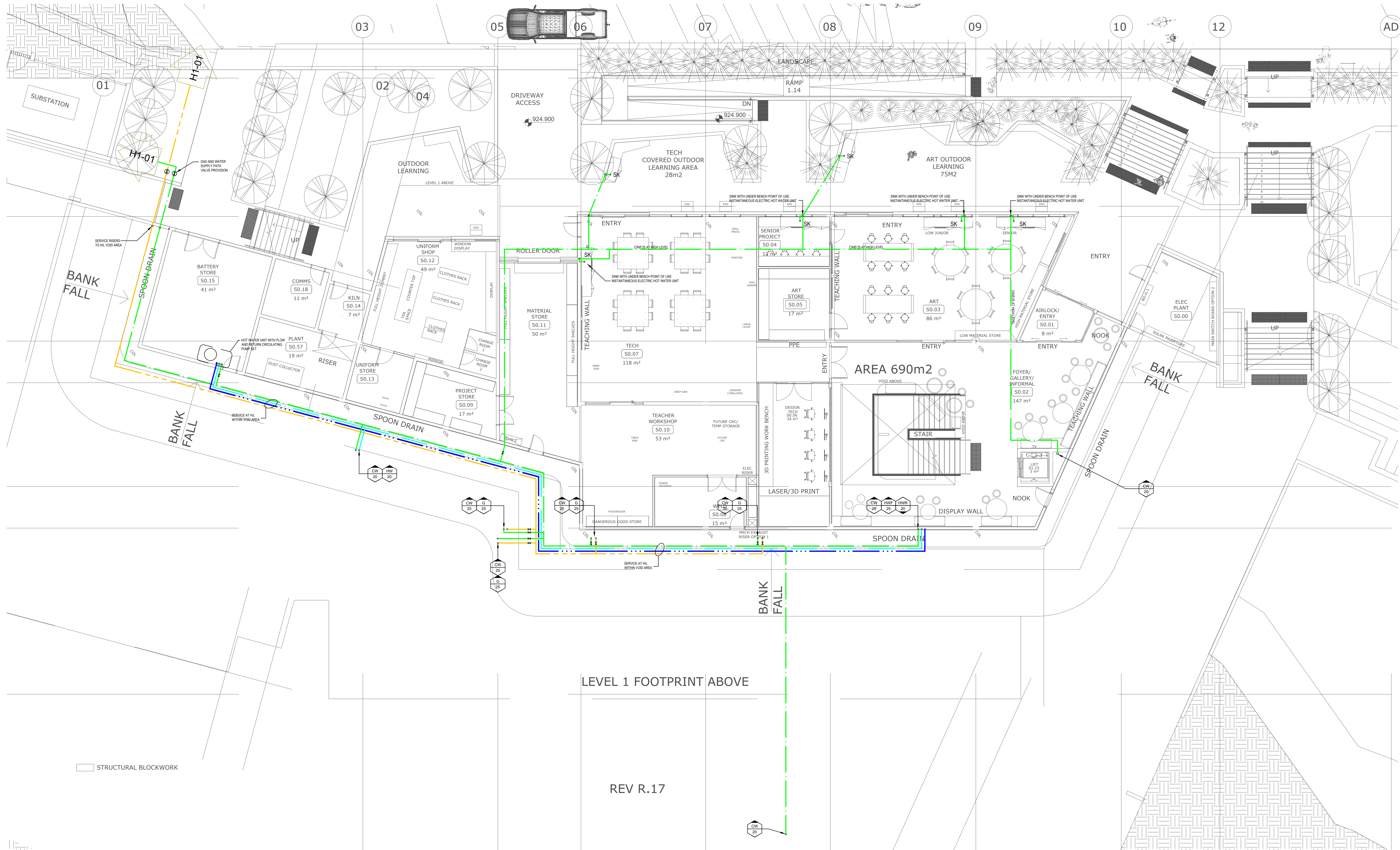
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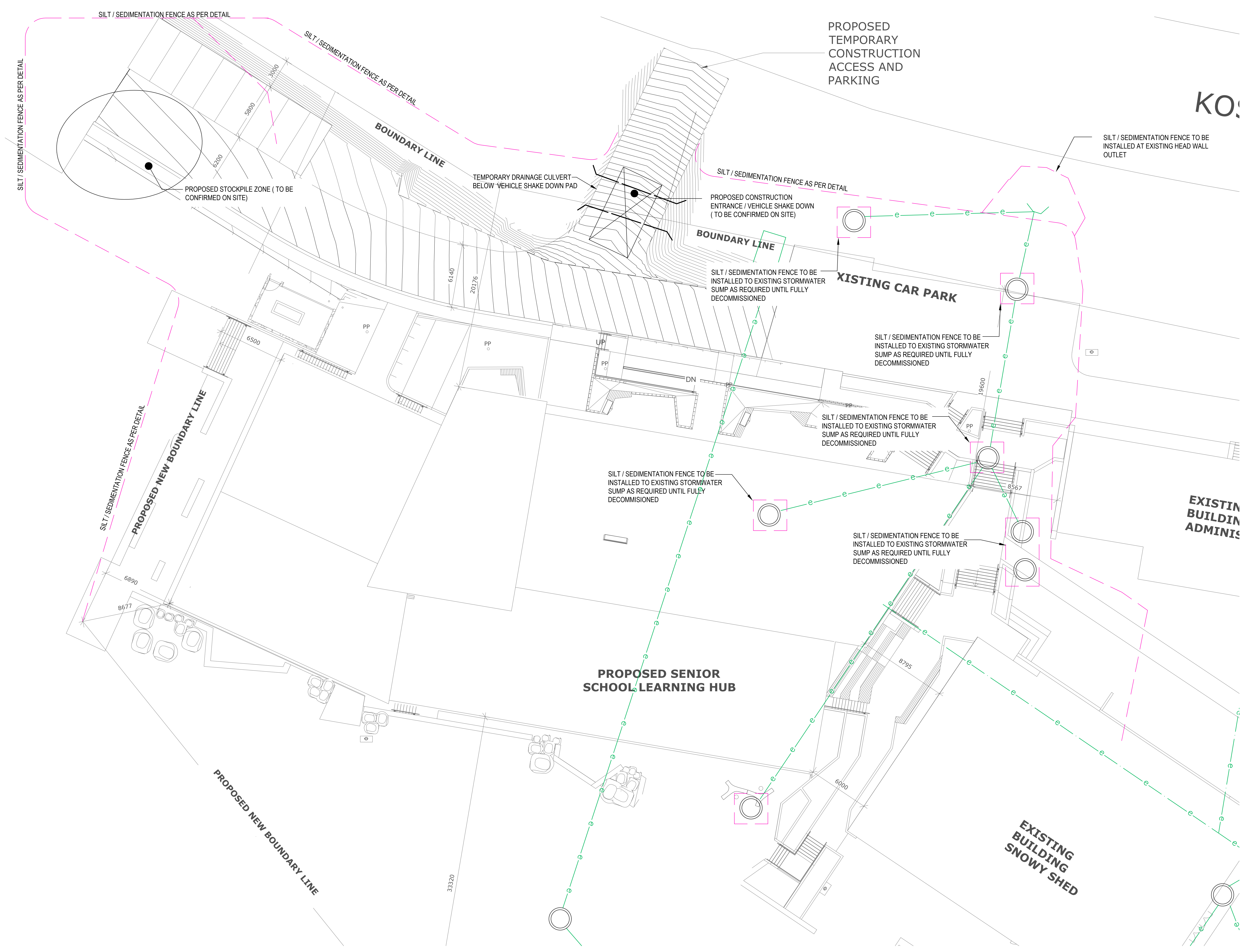
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P1	25/11/20	50% PSP
No.	Date	Details



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PROJECT
**SNOWY MOUNTAINS
GRAMMAR SCHOOL
SENIOR SCHOOL**

DRAWING
**HYDRAULIC SERVICES
SEDIMENTATION CONTROL PLAN**

Project No.	Drawing No.	Revision
20012	H4-01	P4

Scale 1:150	Date 25/11/20
Drawn S.H.	Sheet 8 of 9 B1
Designed S.H.	Dip Engineering Plumbing Services m.HCAA

ATTENTION: THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF INDICATING THE DIAGRAMMATIC DESIGN INTENT AND SCOPE OF WORKS REQUIRED FOR THE INSTALLATION OF SERVICES AS DETAILED AND SHOULD NOT BE INTERPRETED AS BEING FINAL. THIS DOCUMENT SHOULD BE READ IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS. ASSOCIATED SPECIFICATIONS CODES AND STANDARDS, ALL LEVELS AND EXISTING SERVICES SHALL BE INVESTIGATED AND CONFIRMED ON SITE BY THE SUBCONTRACTOR AND/OR BUILDER PRIOR TO THE COMMENCEMENT OF ANY WORKS. THIS DOCUMENT IS SUBJECT TO COPYRIGHT AND IS NOT TO BE REPRODUCED WITHOUT THE CONSENT OF SCOTT HARRIS & ASSOCIATES. PH 0411 512 887

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

- THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
- CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 1998 (BLUE BOOK).
- ALL SUBCONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN REDUCING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.

LAND DISTURBANCE INSTRUCTIONS

- DISTURBANCE TO BE NO FURTHER THAN 5 (PREFERABLY 2) METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
- WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
 - INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
 - CONSTRUCT THE STABILISED SITE ACCESS.
 - CONSTRUCT DIVERSION DRAINS AS REQUIRED.
 - INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
 - INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
 - CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
 - UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
 - GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
 - REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING. 6. ON COMPLETION OF MAJOR WORKS LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.
- CONTRACTOR TO MANAGE THE ALIGNMENT OF CATCH DRAINS ON SITE AND TO ENSURE THAT CATCH DRAINS INTERCEPT THE SITE SURFACE RUNOFF AND DIRECT THE RUNOFF TOWARDS THE SEDIMENTATION BASINS.

SITE INSPECTION AND MAINTENANCE INSTRUCTIONS

- THE SITE SUPERINTENDENT WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
 - ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
 - REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
 - REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED.
 - ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
 - CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
 - MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
- THE SITE SUPERINTENDENT WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
 - THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
 - THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
 - THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
 - THE NEED FOR DUST PREVENTION STRATEGIES.
 - ANY REMEDIAL WORKS TO BE UNDERTAKEN. THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.

EROSION AND SEDIMENT CONTROL NOTES

SEDIMENT CONTROL INSTRUCTIONS

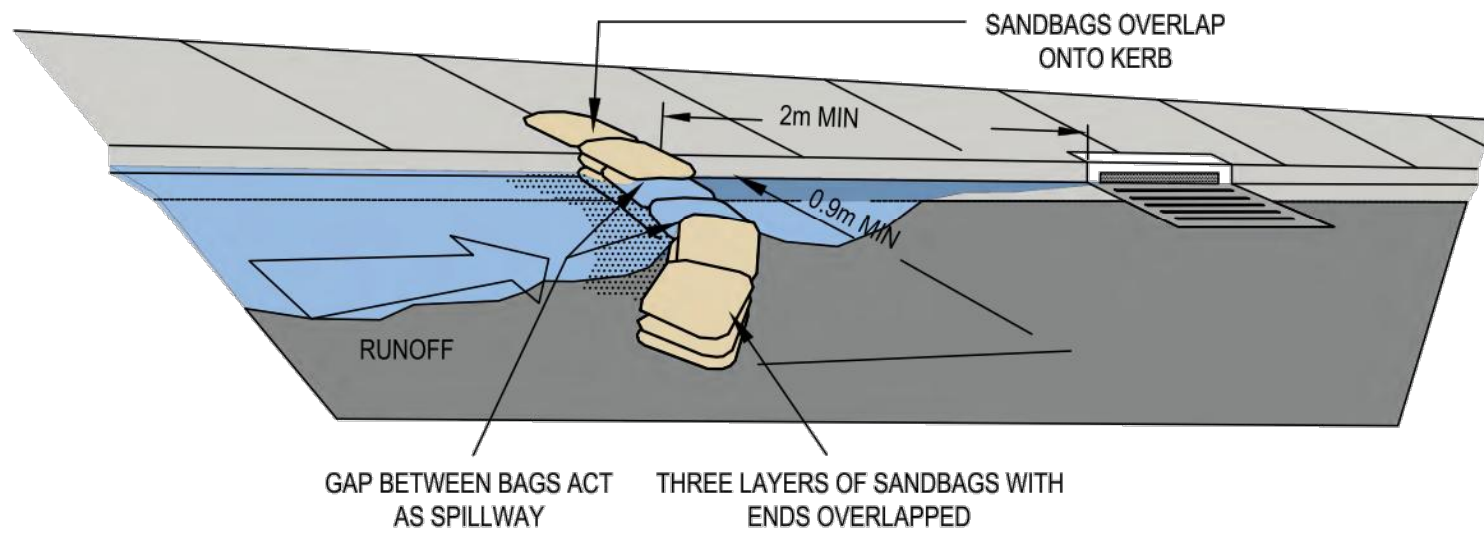
- SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
- STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
- WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE. 6. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
- ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

SOIL EROSION CONTROL INSTRUCTIONS

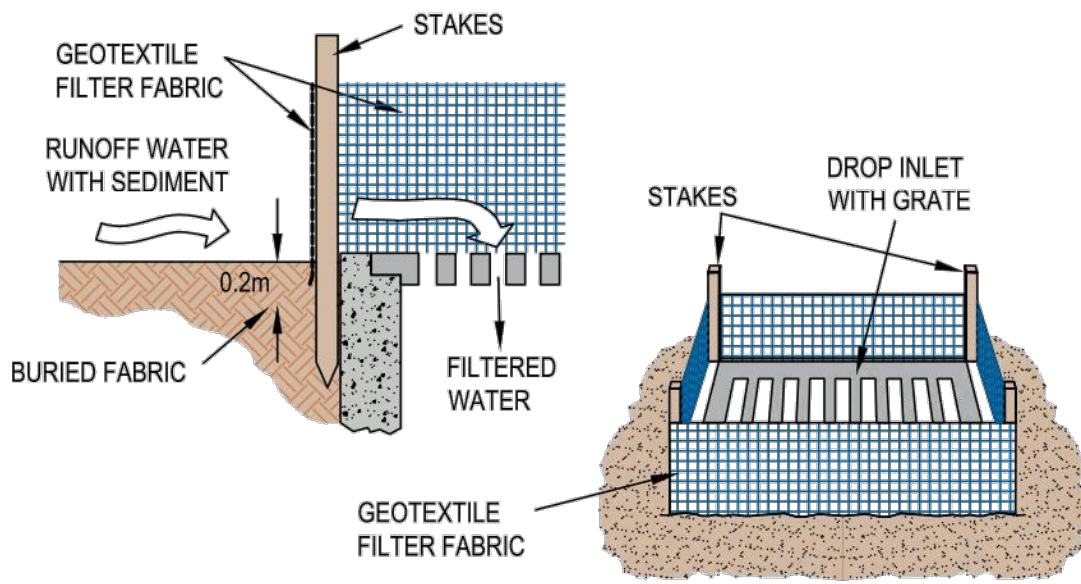
- EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTED, THAN:
 - 2(H):1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
 - 2.5(H):1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
 - 3(H):1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
 - 4(H):1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
- ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
- WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 1998 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
- STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.1 (60% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
- ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
- FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER: JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
- PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
- RE-VEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

WASTE CONTROL INSTRUCTIONS

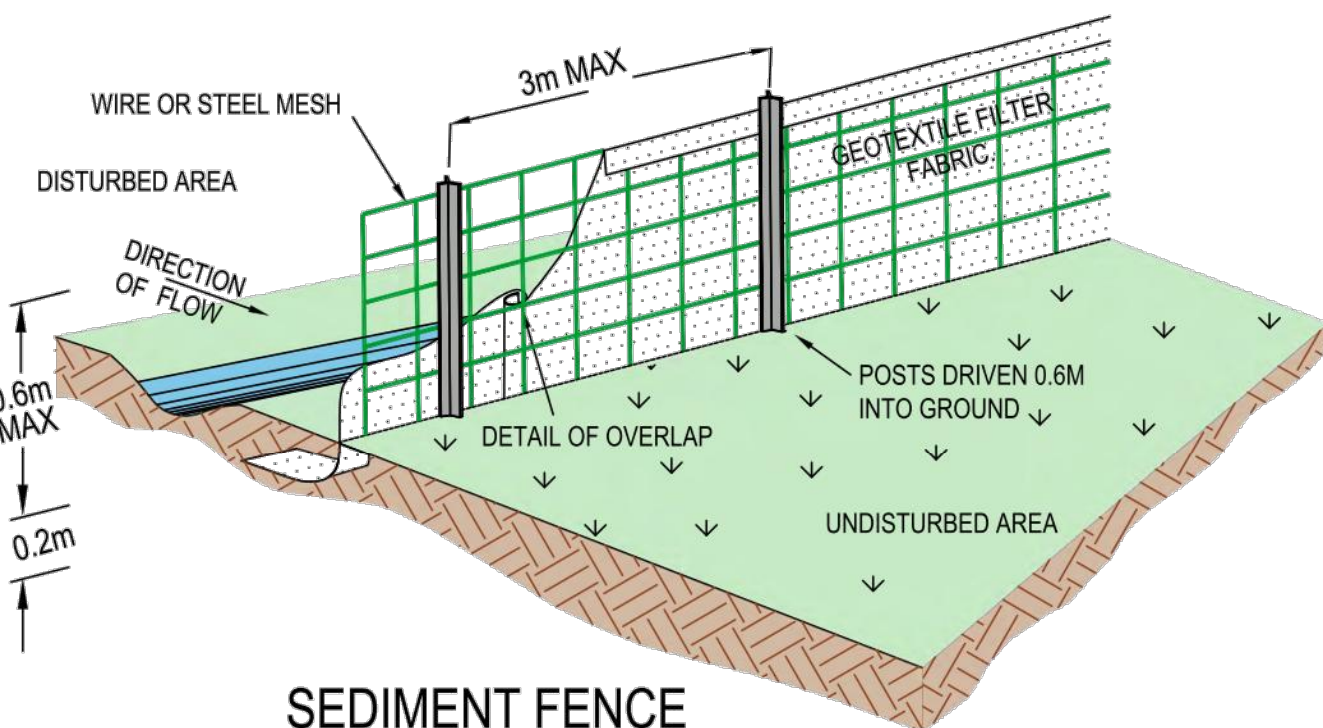
- ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
- ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
- ALL SITE STAFF AND SUB-CONTACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
- ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
- PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.



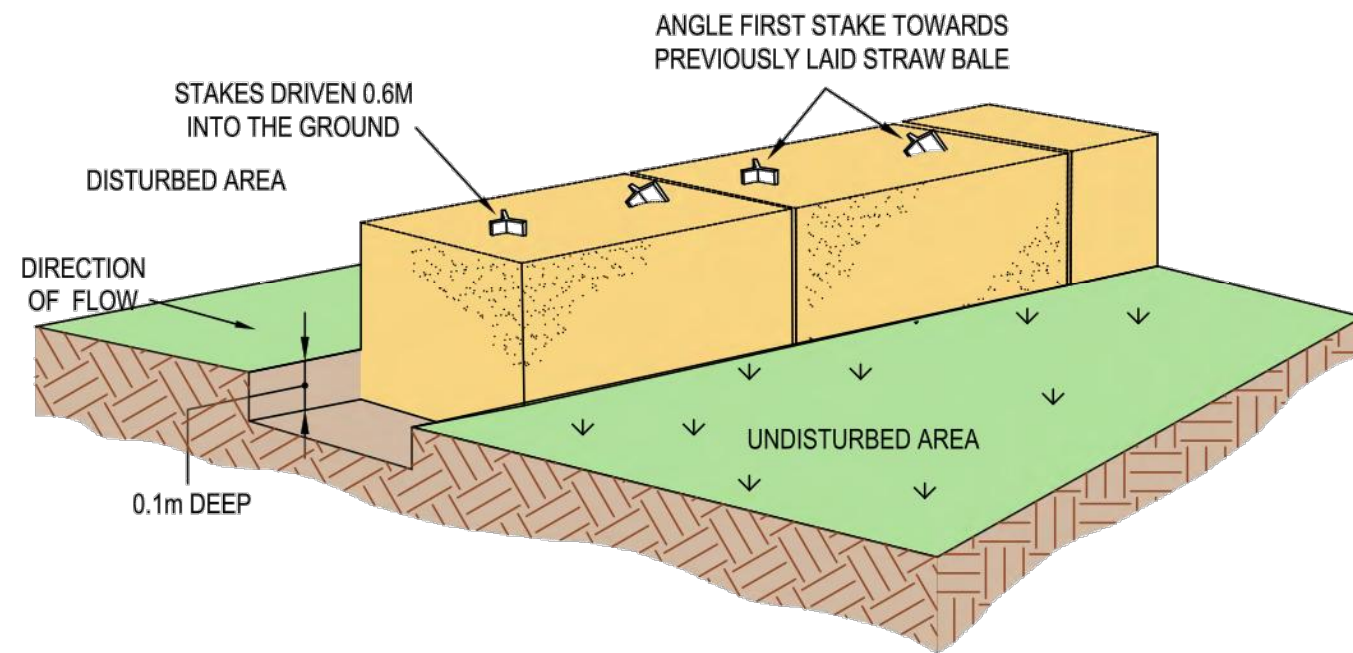
SANDBAG KERB INLET SEDIMENT TRAP



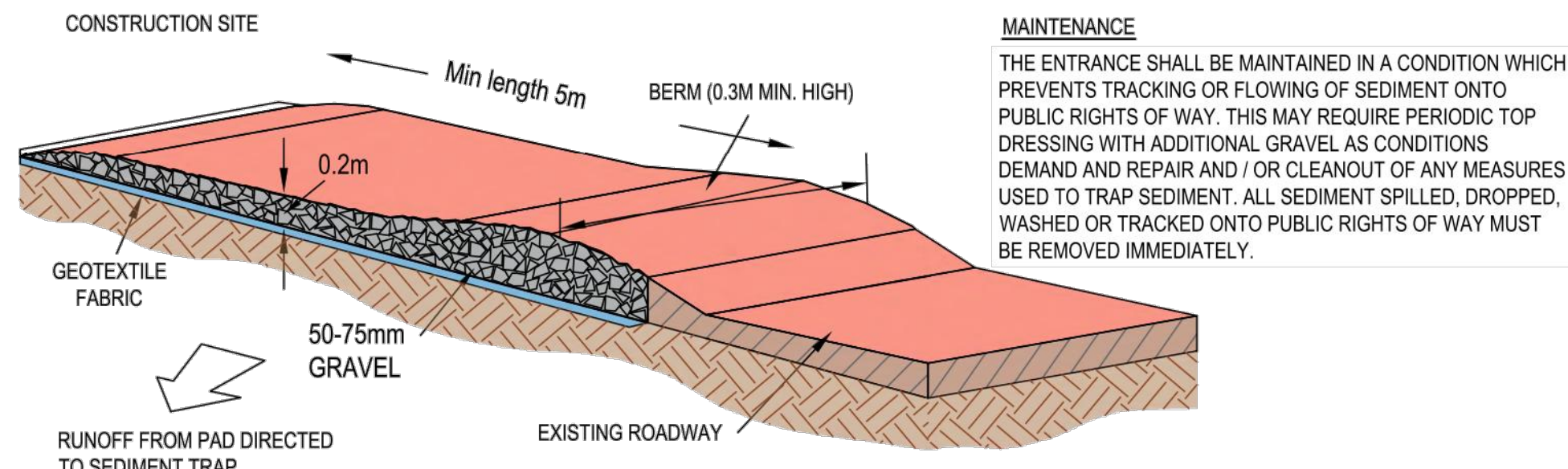
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP



SEDIMENT FENCE

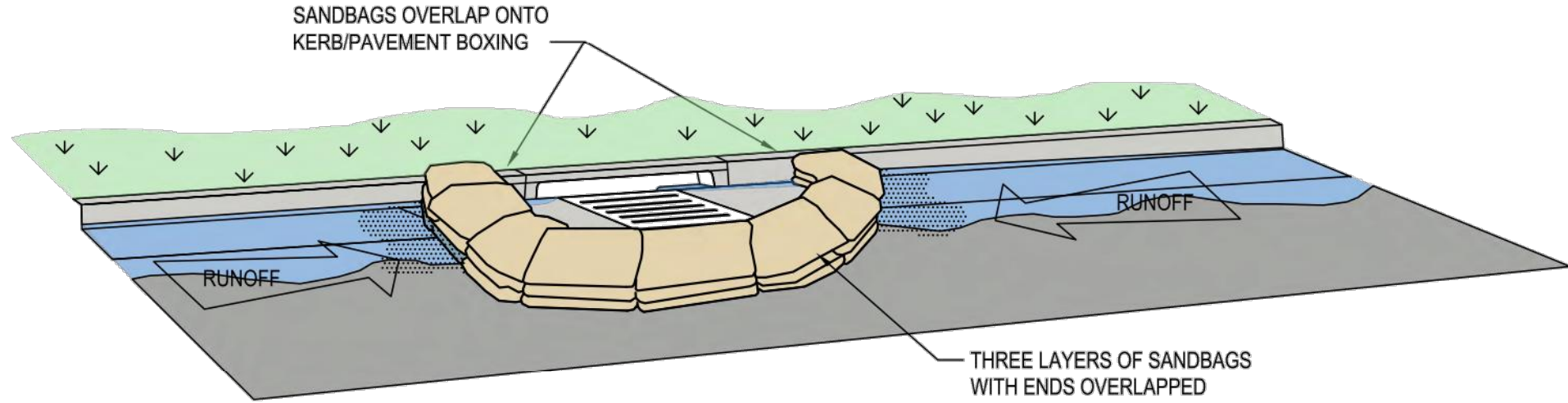


STRAW BALE SEDIMENT FILTER (ALTERNATE)

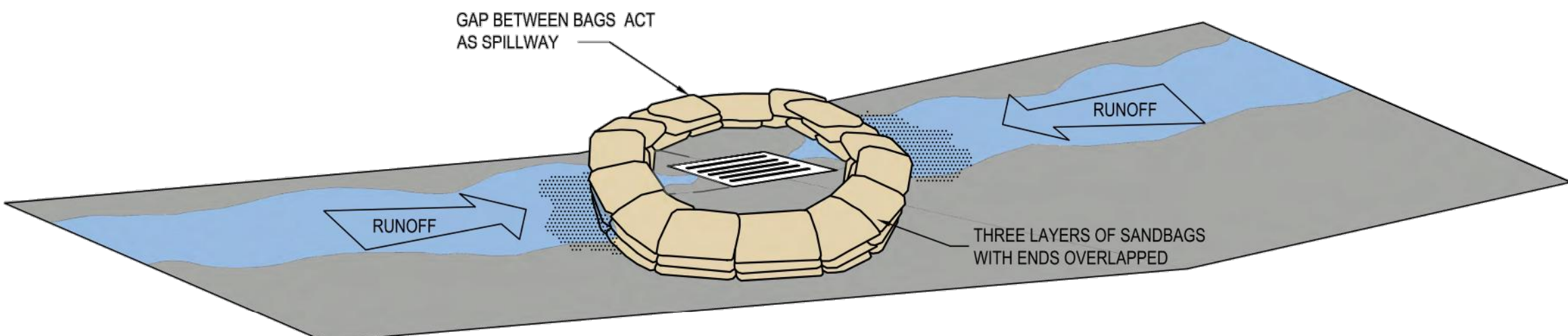


MAINTENANCE
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND / OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED,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

TEMPORARY CONSTRUCTION EXIT



SANDBAG SEDIMENT TRAP - AT KERB SAG PIT



SANDBAG SEDIMENT TRAP - AT OTHER THAN KERB SAG PIT

SANDBAG SEDIMENT TRAP DETAILS
NTS

EROSION AND SEDIMENT CONTROL NOTES

IMPORTANT NOTES:

- THIS DRAWINGS IS FOR GUIDANCE PURPOSES ONLY - THE SOIL AND EROSION CONTROLS ARE INDICATIVE AND REMAIN SUBJECT TO CONSTRUCTION METHODOLOGY - THE CONTRACTOR SHALL AT ALL TIMES REMAIN RESPONSIBLE FOR COMPLIANCE WITH ALL LAWS AND REGULATIONS PERTAINING TO SAFETY AND PROTECTION OF ENVIRONMENT
- ALL SOIL AND EROSION CONTROLS TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH COUNCIL GUIDELINES AND CONDITIONS AND THE CURRENT NSW DEPT OF CONSERVATION AND LAND MANAGEMENT "URBAN EROSION AND SEDIMENT CONTROL" HANDBOOK
- CONTRACTOR TO ENSURE THAT SEDIMENT IS NOT ALLOWED TO ENTER ADJACENT LOTS TO DOWNSTREAM STOMRWATER SYSTEMS. ANY DAMAGE WHATSOEVER CAUSED THROUGH BREACH OF THIS CONDITION BY THE CONTRACTOR SHALL BE RECTIFIED SOLELY AT THE CONTRACTORS COST

P4	4/2/21	100% PSP
P3	21/01/21	85% PSP
P2	26/11/20	50% PSP REVISION
P1	25/11/20	50% PSP

No.	Date	Details
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PROJECT

**SNOWY MOUNTAINS
GRAMMAR SCHOOL
SENIOR SCHOOL**

DRAWING:
**HYDRAULIC SERVICES
SEDIMENTATION CONTROL
SPECIFICATION AND DETAILS**

Project No.	Drawing No.	Revision
20012	H4-02	P4
Scale	N:T:S	Date 25/11/20
Drawn	S.H	Sheet 9 of 9 B1
Designed	S.H.	Dip Engineering Plumbing Services m.HCAA