24 HUNTER STREET HORSESHOE BEND, NSW 2320 CIVIL ENGINEERING PACKAGE





LOCALITY PLAN

DRAWING LIST

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CC-C01.01 COVER SHEET, DRAWING LIST AND LOCALITY PLAN

CC-C01.11 CIVIL SPECIFICATIONS - SHEET 1

CC-C01.12 CIVIL SPECIFICATIONS - SHEET 2

CC-C01.21 GENERAL ARRANGEMENT PLAN

CC-C02.01 EROSION AND SEDIMENT CONTROL PLAN

CC-C02.11 EROSION AND SEDIMENT CONTROL DETAILS

CC-C04.01 CIVIL WORKS PLAN - GROUND FLOOR - SHEET 1 CC-C04.02 CIVIL WORKS PLAN - GROUND FLOOR - SHEET 2

CC-C04.11 CIVIL WORKS PLAN - BASEMENT

CC-C06.01 PAVEMENT JOINTING PLAN

CC-C09.01 CIVIL DETAILS - SHEET 1

CC-C09.02 CIVIL DETAILS - SHEET 2

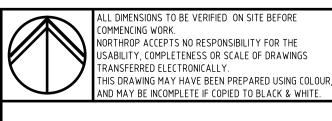
CC-C09.03 CIVIL DETAILS - SHEET 3

CC-C09.04 CIVIL DETAILS - SHEET 4

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
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В	ISSUED FOR 50% DETAILED DESIGN	BD		GW	19.01.24	
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ALL SAINTS COLLEGE MULTI PURPOSE CENTRE

> **COVER SHEET, DRAWING LIST AND LOCALITY PLAN**

CIVIL ENGINEERING PACKAGE

NL203354 DRAWING NUMBER

CC-C01.01 DRAWING SHEET SIZE = A1

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ACCESS AND SAFETY

- 1. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING (BUT NOT LIMITED TO) TRAFFIC CONTROL.
- 2. THE CONTRACTOR SHALL PROVIDE TRAFFIC MANAGEMENT PLANS FOR THE PROPOSED WORKS COMPLETED BY A SUITABLY QUALIFIED PERSON AND APPROVED BY COUNCIL / REGULATORY AUTHORITY. WORKS ARE NOT TO COMMENCE ON SITE PRIOR TO THE APPROVAL OF TRAFFIC MANAGEMENT SCHEMES.
- 3. THE CONTRACTOR SHALL ENSURE SAFE ACCESS TO ALL ADJACENT AND NEIGHBOURING BUSINESSES AND RESIDENCES AT ALL TIMES DURING AND AFTER WORK ACTIVITIES.
- WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND / OR PEDESTRIANS THROUGH OR BY THE SITE AT ALL TIMES.
- THE CONTRACTOR SHALL ENSURE PUBLIC ACCESS EXTERNAL TO THE SITE IS IN ACCORDANCE WITH COUNCILS REQUIREMENTS AT ALL TIMES.

EXISTING SERVICES

- ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES. AND THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. NOTE SERVICE AUTHORITY REQUIREMENTS FOR LOCATING OF SERVICES PRIOR TO COMMENCEMENT OF WORKS.
- 2. THE CONTRACTOR IS TO PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF WORKS. ANY AND ALL DAMAGES TO EXISTING SERVICES AS A RESULT OF PROPOSED WORKS (INCLUDING ANY ECONOMIC LOSS SUFFERED AS A RESULT OF DAMAGES) SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SUPERINTENDENT TO RECTIFY AND MADE GOOD AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.
- 3. CARE TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS AREA TO BE UNDERTAKEN OVER COMMUNICATION, GAS OR ELECTRICAL SERVICES. HAND EXCAVATION ONLY IN THESE AREAS.
- 4. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE ADJUSTMENT OF EXISTING SERVICE AND INFRASTRUCTURE AS REQUIRED TO FACILITATE PROPOSED WORKS AND CONSTRUCTION REQUIREMENTS.
- 5. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS UNLESS DIRECTED OTHERWISE ON THE DRAWINGS OR BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES, SERVICES TO ALL ADJACENT BUILDINGS NOT AFFECTED BY THE WORKS ARE PROTECTED AND NOT DISRUPTED.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF THE PROGRAM FOR THE RELOCATION AND/OR CONSTRUCTION OF TEMPORARY SERVICES AND FOR ANY ASSOCIATED INTERRUPTION OF SUPPLY FROM THE APPROPRIATE SERVICE AUTHORITY.
- 8. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.

HOLD POINTS

- THE CONTRACTOR SHALL PROVIDE MINIMUM 72 HOURS NOTICE TO CERTIFYING AUTHORITY FOR ALL CIVIL ENGINEERING INSPECTIONS AT ALL HOLD POINTS. THE STAGES FOR HOLD POINTS ARE:
- PRIOR TO BACK FILLING STORMWATER PIPES / TRENCHES.
- AT FINISHED SUBGRADE UNDER PAVEMENTS - PRIOR TO BACKFILLING RETAINING WALLS

REVISION DESCRIPTION

A ISSUED FOR 30% DETAILED DESIGN

B ISSUED FOR 50% DETAILED DESIGN

C ISSUED FOR 90% DETAILED DESIGN

ISSUED FOR 100% TENDER

D ISSUED FOR 100% TENDER

- PRIOR TO EXTERNAL CONCRETE POUR (INCLUDING
- STORMWATER PITS WHERE CAST INSITU)

BY CERTIFYING AUTHORITY FOR EACH HOLD POINT

FINAL INSPECTION PRIOR TO PRACTICAL COMPLETION. 2. CONSTRUCTION SHALL NOT PROCEED UNTIL APPROVAL IS GIVEN

SOIL AND WATER MANAGEMENT

- 1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE BLUE
- 2. THE CONTRACTOR MUST NOTIFY COUNCIL WITHIN 5 WORKING DAYS OF THE INITIAL EROSION CONTROL MEASURES BEING INSTALLED AND CHECK / MAINTAIN THE INSTALLED CONTROL MEASURES DAILY.
- 3. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE
- 4. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
- 5. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES / AREAS AS REQUIRED AND AS DIRECTED BY THE
- 6. ALL TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS
- 7. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED THROUGH THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE
- 8. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
- 9. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
- 10. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE). NOTABLY, ENSURE STOCKPILES DO NOT EXCEED 2.0M HIGH. IF MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS, THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC OR ORGANIC).
- 11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST. WHERE COUNCIL CONSIDERS THAT THE DUST IS NOT ADEQUATELY CONTROLLED, THE CONTRACTOR MUST INVESTIGATE OTHER DUST MITIGATION MEASURES SUCH AS DUST SUPPRESSANTS THE CONTRACTOR MUST ENSURE THE CHEMICAL BASED DUST SUPPRESSANT DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD.
- 12. SHOULD ANY SEDIMENT LADEN WATER LEAVE THE SITE. THE INCIDENT MUST BE REPORTED TO COUNCIL WITHIN 2 HOURS OF THE SITE MANAGER BECOMING AWARE OF THE INCIDENT.
- 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A WEEKLY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY / ALL MAINTENANCE, CLEANING & BREACHES, THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
- 14. MEASURES USED TO CONTROL WIND EROSION MUST BE APPROPRIATE FOR THE LOCATION AND PREVENT SOIL EROSION AT ALL TIMES, INCLUDING WORK HOURS, WEEKENDS, PUBLIC HOLIDAYS AND DURING ANY OTHER SHUTDOWN PERIODS.
- 15. ONCE CUT / FILL OPERATIONS HAVE BEEN FINALISED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
- 16. PRIORITY MUST BE GIVEN TO THE PREVENTION, OR AT LEAST MINIMISATION, OF SOIL EROSION, RATHER THAN THE TRAPPING OF DISPLACED SEDIMENT. SUCH A CLAUSE SHALL NOT REDUCE THE RESPONSIBILITY OF A CONTRACTOR TO APPLY AND MAINTAIN, AT ALL TIMES, ALL NECESSARY SEDIMENT CONTROL MEASURES.

TREE PROTECTION

- 1. REFER TO LANDSCAPE / ARCHITECTS PLAN FOR TREES TO BE RETAINED AND PROTECTED.
- 2. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
 - INSTALLING APPROPRIATE PROTECTION BARRIER FENCING OR SIMILAR MATERIALS INSTALLED IN ACCORDANCE WITH ARBORIST SPECIFICATIONS.
 - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY. COUNCILS AND / OR INDEPENDENT ARBORISTS TO BE CONSULTED WHERE TREE ROOTS ARE TO BE REMOVED AND /

GENERAL

- 1. ALL WORKS TO BE IN ACCORDANCE WITH RELEVANT LOCAL COUNCIL SPECIFICATIONS, REGULATORY AUTHORITIES SPECIFICATIONS, ENGINEERING DRAWINGS AND NOTES AUSTRALIAN STANDARDS, LANDCOM AND EPA SPECIFICATIONS AND THE LATEST VERSION OF NATSPEC SPECIFICATIONS. CONFLICTS BETWEEN THE ABOVE DOCUMENT SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.
- 2. ALL CIVIL ENGINEERING DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS AND SPECIFICATION DOCUMENTATION, NAMELY ARCHITECTURAL. STRUCTURAL, HYDRAULIC AND LANDSCAPE.
- 3. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES BEFORE AND DURING CONSTRUCTION IN ACCORDANCE WITH ALL REGULATORY AUTHORITIES, INCLUSIVE OF LOCAL COUNCILS AND STATE AUTHORITIES AS REQUIRED.
- 4. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
- 5. RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION OR AS DIRECTED BY THE SITE SUPERINTENDENT ON COMPLETION OF ALL AND ANY WORKS. WHERE PLANTING OF NEW GRASS IS NECESSARY REFER TO LANDSCAPE ARCHITECT AND / OR ARCHITECT DOCUMENTATION.
- 6. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR PRIOR TO COMMENCEMENT OF WORKS.
- 7. THE CONTRACTOR SHALL VERIEY ALL DIMENSIONS AND EXISTING LEVELS ONSITE PRIOR TO LODGMENT OF TENDER AND ONSITE WORKS. THE PRICE AS TENDERED SHALL BE INCLUSIVE OF ALL WORKS SHOWN ON THE TENDER PROJECT DRAWINGS. ADDITIONAL PAYMENTS FOR WORKS SHOWN ON THE TENDER PROJECT DRAWINGS WILL NOT BE APPROVED.
- 8. DO NOT OBTAIN DIMENSIONS BY SCALING DRAWINGS.
- 9. IN CASE OF DOUBT OR DISCREPANCY REFER TO SUPERINTENDENT FOR CLARIFICATION OR CONFIRMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- 10. WHERE NEW WORKS ABUT EXISTING SURFACES AND INFRASTRUCTURE, THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED. MAKE SMOOTH TRANSITION TO EXISTING FEATURES AND MAKE GOOD WHERE JOINED.
- 11. ALL CIVIL ENGINEERING DESIGN HAS BEEN DOCUMENTED UNDER THE ASSUMPTION THAT ALL NECESSARY SITE CONTAMINATION REMEDIATION WORKS HAVE BEEN SATISFACTORILY COMPLETED (IF APPLICABLE) AND THAT THE SITE IS NOT AFFECTED BY ANY SOIL STRATA OR GROUNDWATER TABLE CONTAMINATION.
- 12. ORIGIN OF LEVELS SHOWN ON THE FOLLOWING DRAWINGS ARE ASSUMED TO BE TO AUSTRALIAN HEIGHT DATUM (AHD) AS PROVIDED BY SURVEY DATA. THE CONTRACTOR IS TO CONFIRM ALL LEVELS AND HEIGHT DATA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- 13. ALL WORK SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS AND THE DIRECTIONS OF THE SUPERINTENDENT.
- 14. THE CONTRACTOR IS TO PROVIDE AND INSTALL 10mm MINIMUM WIDE COMPRESSIBLE FILLER JOINTS BETWEEN BUILDINGS AND CONCRETE PAVEMENTS.
- 15. THE CONTRACTOR IS TO PROVIDE TEMPORARY DIVERSION DRAINS AND MOUNDS AS REQUIRED TO ENSURE THAT AT ALL TIMES EXPOSED SURFACES ARE FREE DRAINING AND WHERE NECESSARY EXCAVATE SUMPS AND PROVIDE PUMPING EQUIPMENT TO DRAIN EXPOSED AREAS.
- 16. ANY AND ALL DAMAGE TO EXISTING INFRASTRUCTURE AND/OR PAVEMENTS SHALL BE REPORTED TO THE SUPERINTENDENT AND SHALL BE REPAIRED AND MADE GOOD BY THE CONTRACTOR TO MATCH NEATLY AND FLUSH TO EXISTING AT NO EXTRA COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.
- 17. THE CONTRACTOR IS TO REFER TO HYDRAULIC ENGINEERS DRAWINGS FOR STORMWATER DRAINAGE DETAILS IN ADDITION TO THOSE SHOWN ON THE CIVIL ENGINEERING DRAWINGS. ANY CONFLICTS IDENTIFIED ARE TO BE REFERRED TO THE SITE FORMAN OR SUPERINTENDENT PRIOR TO PROCEEDING WITH
- 18. THE CONTRACTOR IS TO ENSURE ALL FINISHED SURFACE LEVELS DRAIN TOWARDS THE PROPOSED STORMWATER SYSTEM AND NO AREAS POND / HOLD WATER.
- 19. THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGE TO COUNCIL ASSETS AND / OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.

EARTHWORKS

- PRIOR TO THE COMMENCEMENT OF EARTHWORKS THE CONTRACTOR IS TO REVIEW THE HAZARDOUS MATERIALS ASSESSMENT / ENVIRONMENTAL REPORT IN ORDER TO ASCERTAIN ANY ONSITE CONTAMINATION AND MANAGE ACCORDINGLY. ALL SURPLUS EXCAVATED MATERIAL SHALL REQUIRE A WASTE CLASSIFICATION ASSESSMENT PRIOR TO ITS REMOVAL FROM SITE.
- 1. THE CONTRACTOR SHALL REVIEW THE SITE SPECIFIC GEOTECHNICAL REPORT WHEN PROVIDED, REMOVE ALL TOPSOIL. ORGANIC MATTER, RUBBLE, UNCONTROLLED FILL, UNSUITABLE MATERIAL AND THE LIKE AND UNDERTAKE ALL REQUIRED SUBGRADE / BASE LAYER TESTING (PROOF ROLLING ETC) UNDER THE GUIDANCE OF A SUITABLE QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO BACK FILLING WITH CONTROLLED SPECIFIED MATERIAL
- 2. THE CONTRACTOR SHALL ALLOW TO EXCAVATE IN ALL MATERIALS UNLESS NOTED OTHERWISE
- 3. THE CONTRACTOR SHALL STRIP AND STOCKPILE SUFFICIENT TOPSOIL AS REQUIRED FOR LATER REUSE AND SITE REHABILITATION. EXCESS TOPSOIL MAY BE SPREAD ON SITE ONLY IF AUTHORISED AND INSTRUCTED BY THE SUPERINTENDENT. ALL MATERIAL STOCKPILES AND UNVEGETATED AREAS SHALL HAVE SEDIMENT AND EROSION CONTROL MEASURES INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION, PRODUCED BY LANDCOM). ANY SURPLUS EXCAVATED MATERIAL (INCLUDING TOPSOIL) SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES. LIMIT STOCKPILE TO A MAXIMUM HEIGHT OF 2.0m UNLESS APPROVED OTHERWISE BY THE SUPERINTENDENT.
- 5. THE CONTRACTOR IS TO ALLOW FOR A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO PROVIDE ADVICE AND CERTIFICATION OF ANY WORKS ASSOCIATED WITH TREATING OR MANAGING UNSUITABLE GROUND CONDITIONS THROUGHOUT THE CONTRACT (E.G. STABILITY OF EXCAVATIONS, POOR SUBGRADE
- 6. THE CONTRACTOR SHALL PROOF ROLL ALL EXPOSED NATURAL SUBGRADE FOR BUILDING PLATFORMS, PAVED AREAS, AREAS TO BE FILLED, OR CUT BATTERS IN THE PRESENCE OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER WHO WILL CERTIFY THE WORKS AND CONFIRM FILLING METHODOLOGY. ALL SOFT, WET OR UNSUITABLE MATERIAL ENCOUNTERED SHALL BE ADVISED TO THE PRINCIPAL'S AGENT FOR INSTRUCTION REMOVE & REPLACE OR REMEDIATE ALL AREAS AS DIRECTED BY THE PRINCIPAL'S AGENT.
- 7. THE CONTRACTOR AND GEOTECHNICAL ENGINEER ARE TO ENSURE CONTINUITY IN COMPACTION BETWEEN CUT / FILL AREAS LOCATED IN BUILDING PLATFORMS AND ROAD SUBGRADES
- 8. THE CONTRACTOR IS TO OBTAIN AND PROVIDE CERTIFICATES VERIFYING THE QUALITY OF IMPORTED MATERIAL FOR THE SUPERINTENDENTS APPROVAL.
- 9. TESTING OF SITE MATERIAL, SUBGRADES AND PAVEMENT LAYERS SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY AND IN ACCORDANCE WITH THE LATEST VERSION OF AS3798. WHERE THE FILL IS TO PROVIDE SUPPORT TO BUILDING FLOOR SLAB, <u>LEVEL 1</u> TESTING PROCEDURES (IN ACCORDANCE WITH AS3798) SHALL BE FOLLOWED, OTHERWISE LEVEL 2 TESTING SHALL BE UNDERTAKEN. THE TESTING AUTHORITY SHALL BE ENGAGED BY THE BUILDER.
- 10. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS (LOOSE) AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) USING SUITABLE COMPACTION <u>EQUIPMENT TO ACHIEVE A DRY DENSITY DETERMINED IN</u> ACCORDANCE WITH AS1289.2.1.1, AS1289.5.7.1 AND AS1289.5.8.8 OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY

LOCATION COMPACTION REQUIREMENT

95% SMDD

100% SMDD

 SERVICE TRENCHES (NOT UNDER PAVEMENTS)

(40) LINEAL METRES OF TRENCH.

- SERVICE TRENCHES (UNDER PAVEMENTS)
- TOP 600mm TO SUBGRADE LEVEL UNDER PAVED AREAS
- 100% SMDD
- LANDSCAPED & GENERAL AREAS 95% SMDD
- PAVEMENT SUB-BASE LAYERS 100% SMDD (U.N.O.) PAVEMENT BASE LAYERS 100% SMDD (U.N.O.)

11. FREQUENCY OF TESTING SHALL BE IN ACCORDANCE WITH TABLE

- 8.1 OF AS3798 FOR TYPE 1 EARTHWORKS 12. DENSITY TESTING SHALL BE UNDERTAKEN WITHIN TRENCHES AT A RATE OF ONE (1) TEST PER TWO (2) LAYERS PER FORTY
- 13. WHERE TEST RESULTS ARE BELOW THE SPECIFIED COMPACTION, RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION STANDARDS ARE ACHIEVED, OTHERWISE SUBGRADE REPLACEMENT IS REQUIRED IF COMPACTION STANDARDS ARE NOT ACHIEVED.

EARTHWORKS (cont)

- 14. IF SUBGRADE OR FILL IS TOO WET TOO ACHIEVE COMPACTION, UNDERTAKE ONE OR MORE OF THE FOLLOWING:
- SCARIFY AND WORK TO ACCELERATE DRYING.
- STABILIZE BY MIXING WITH LIME.
- REPLACE WITH SUITABLE MATERIAL. RE-COMPACT WHEN MOISTURE CONTENT APPROACHES OPTIMUM.
- 15. THE CONTRACTOR CAN REUSE CUT MATERIAL AS DIRECTED BY THE SITE SPECIFIC GEOTECHNICAL AUTHORITY OR PRINCIPALS AGENT, WHERE THERE IS INSUFFICIENT OUT MATERIAL SUITABLE FOR FILLING OR SUBGRADE REPLACEMENT, THE CONTRACTOR IS TO ALLOW TO IMPORT FILL. IMPORTED FILL SHALL COMPLY WITH THE FOLLOWING:
 - APPROVED AND CERTIFIED BY THE SITE GEOTECHNICAL ENGINEER.
 - MAXIMUM PARTICLE SIZE OF 50mm
 - PASSING 37.5mm SIEVE (NOT LESS THAN 80%)
 - PASSING 75 MICRON SIEVE (NOT GREATER THAN 15%)
 - PLASTICITY INDEX BETWEEN 2-15%
 - MINIMUM CBR VALUE OF 8%
- 16. THE CONTRACTOR IS TO ALLOW FOR THE REPLACEMENT OF UNSUITABLE AND/OR SENSITIVE GROUND (I.E. SILTS, ORGANIC MATTER ETC) WITH SELECTED MATERIAL FROM EXCAVATIONS IF AVAILABLE OR SELECT IMPORTED FILL
- 17. THE CONTRACTOR IS TO PROGRAM EXCAVATIONS TO ENSURE THAT BULK EARTHWORKS AND EXPOSED SURFACES ARE ADEQUATELY DRAINED DURING CONSTRUCTION. ALL EXPOSED SURFACES SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS ROLLERS MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.
- 18. THE CONTRACTOR IS TO PROVIDE AND INSTALL TEMPORARY DRAINAGE OR SUMP PUMPING AS REQUIRED UNTIL SUFFICIENT SITE STORMWATER DRAINAGE HAS BEEN INSTALLED. ENSURE THAT ALL SEDIMENT AND EROSION CONTROL PROVISIONS ARE ADHERED TO FOR TEMPORARY DRAINAGE MEASURES (REFER TO THE ENGINEERING SEDIMENT AND EROSION CONTROL DRAWINGS)
- 19. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE AND MAINTAIN THE INTEGRITY OF ALL SERVICES, CONDUITS AND PIPES DURING CONSTRUCTION, SPECIFICALLY DURING THE BACKFILLING AND COMPACTION PROCEDURE. ANY AND ALL DAMAGE TO NEW OR EXISTING SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST. 20. ALLOWABLE EXCAVATION TOLERANCE IS -25mm (BELOW
- DOCUMENTED LEVELS) AND +0mm (ABOVE DOCUMENTED LEVELS). NOTE THAT BULK EARTHWORKS LEVELS MAY NOT ALLOW FOR A SAND LEVELING LAYER. ANY SAND THAT IS REQUIRED DUE TO OVER-EXCAVATION SHALL BE PROVIDED, AT NO EXTRA COST TO THE PRINCIPAL OR NORTHROP CONSULTING
- 21. REFER TO STRUCTURAL AND / OR ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF STEPS IN BUILDING FLOOR LEVELS FOR DETAILED SET-DOWN PREPARATIONS.
- 22. THE CONTRACTOR IS TO INSTALL CUT-OFF DRAINAGE SWALES (AT MIN. 1% LONGITUDINAL GRADE AND MIN. 500mm WIDE) TO THE HIGH SIDE OF ALL BUILDING PLATFORMS TO PROTECT THE PLATFORMS DURING CONSTRUCTION. ALL TEMPORARY DRAINAGE SWALES ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF "THE BLUE BOOK"
- 23. ALL EARTH BATTERS SHALL BE CUT/FILLED TO A MAXIMUM 1 (VERTICAL) IN 4 (HORIZONTAL) SLOPE UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- 24. ANY CONTAMINATED MATERIAL FOUND ON SITE DURING CONSTRUCTION AND EARTHWORKS ACTIVITIES SHALL BE ADVISED TO THE PRINCIPAL'S AGENT FOR DIRECTION.

DEEP EXCAVATIONS

- 25. PRIOR TO THE COMMENCEMENT OF EXCAVATION WORKS <u>GREATER THAN 1.5m IN DEPTH, THE CONTRACTOR SHALL</u> OBTAIN THE SERVICES OF A SUITABLY QUALIFIED <u>GEOTECHNICAL ENGINEER TO DETERMINE THE STABILITY OF A</u> NATURAL MATERIAL AND BENCHING REQUIREMENTS.
- 26. THE CONTRACTOR MUST PROVIDE THE SUPERINTENDENT AND <u>OR THE DESIGN ENGINEER WITH A COPY OF THE GEOTECHNICAL</u> ENGINEERS REPORT.
- 27. THE CONTRACTOR IS TO PROVIDE SAFETY BARRIERS / FENCING IN ACCORDANCE WITH OH&S AND REGULATORY AUTHORITY REQUIREMENTS.

SIGNAGE AND LINEMARKING

- 1. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AUSTRALIAN STANDARDS 1742 / RMS STANDARDS AND SPECIFICATIONS.
- 2. LINE MARKING AND PAINT SHALL BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS 1742 / RMS STANDARDS AND
- 3. DEDICATED SPACES FOR PEOPLE WITH DISABILITIES AND ADJACENT SHARED AREA SHALL BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS 2890.6
- 4. PAINT SHALL BE TYPE 3 CLASS 'A' AND THE COLOUR SHALL BE WHITE AND NOT SUBJECT TO DISCOLOURATION BY BITUMEN FROM ROAD SURFACE. ALL PAINT TO BE APPLIED BY MECHANICAL SPRAYER.
- 5. LINE MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.
- 6. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm AND 0.40mm.
- 7. CARPARK LINEMARKING TO BE 80mm WIDE.

SPECIFICATIONS.

NOT FOR CONSTRUCTION

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ABN 81 094 433 100

MULTI PURPOSE CENTRE

24 HUNTER STREET

HORSESHOE BEND, NSW 2320

ALL SAINTS COLLEGE

CIVIL SPECIFICATIONS SHEET 1

- Ø100mm OR LESS TO BE CLASS 'SN10'

Ø150mm AND ABOVE TO BE CLASS 'SN8'.

- 2. uPVC STORMWATER LINES PASSING UNDER FLOOR SLABS TO BE CONCRETE ENCASED.
- FRC PIPES EQUAL TO THAT OF THE STEEL REINFORCED CONCRETE PIPE CLASS SPECIFIED ON THE DRAWINGS MAY BE USED SUBJECT TO APPROVAL FROM THE SUPERINTENDENT.
- 4. ALL PIPE ARE TO BE LAID AT 1.0% MIN GRADE U.N.O.ALL
- 5. ALL STORMWATER INLET PITS SHOWN ON THE CIVIL ENGINEERING DRAWINGS SHALL BE CAST IN-SITU REINFORCED CONCRETE PITS (U.N.O.). THE USE OF PRE-CAST CONCRETE STORMWATER DRAINAGE PITS ARE TO BE CONFIRMED AND APPROVED BY THE SUPERINTENDENT AND NORTHROP CONSULTING ENGINEERS PRIOR TO THEIR PURCHASE AND INSTALLMENT ON SITE (U.N.O.)

6. PIT COVERS

- USE HOT DIPPED GALVANISED COVERS AND GRATES COMPLYING WITH RELEVANT COUNCIL AND AUSTRALIAN STANDARDS U.N.O.
- ALL COVERS AND GRATES TO BE POSITION IN A FRAME AND MANUFACTURED AS A UNIT TO THE MINIMUM LOAD CLASS SPECIFIED.
- ALL COVERS AND GRATES TO BE FITTING WITH POSITIVE COVER LIFTING KEYS
- OBTAIN SUPERINTENDENTS APPROVAL FOR THE USE OF CAST IRON SOLID COVERS AND GRATES (U.N.O.). CAST IRON SOLID COVERS (IF APPROVED) TO CONSIST OF CROSS-WEBBED, CELLULAR CONSTRUCTION WITH THE RIBS UPPERMOST TO ALLOW INFILLING WITH CONCRETE. INSTALL POSITIVE COVER LIFTING KEYS AND PLASTIC PLUGS.
- UNLESS DETAILED OR SPECIFIED OTHERWISE, COVERS AND GRATES TO BE CLASS 'D' IN VEHICULAR PAVEMENTS AND CLASS 'B' ELSEWHERE.
- ALL GRATED TRENCH DRAINS SHOULD BE 'CLASS D' CAST IRON WITHIN VEHICULAR PAVEMENTS AND CLASS 'B' HEEL SAFE WITHIN PEDESTRIAN PAVEMENTS.
- THE CONTRACTOR IS TO ENSURE A SMOOTH TRANSITION BETWEEN ADJACENT PAVEMENT SURFACES AND STORMWATER PIT COVERS/GRATES
- 8. ALL PIPE BENDS, JUNCTIONS, ETC ARE TO BE PROVIDED USING PURPOSE MADE FITTINGS OR STORMWATER PITS.
- 9. ALL CONNECTIONS TO EXISTING DRAINAGE STRUCTURES SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND CEMENT RENDERED TO ENSURE A SMOOTH, WATER TIGHT FINISH.
- 10. STORMWATER PIPEWORK TO FINISH FLUSH WITH INTERNAL PIT WALLS AND MUST NOT PROTRUDE. CONNECTION TO BE NEATLY RENDER AND MADE NEAT.
- 11. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
- 12. U.N.O. MATERIAL USED FOR BEDDING OF PIPES SHALL BE APPROVED NON-COHESIVE GRANULAR MATERIAL HAVING HIGH PERMEABILITY AND HIGH STABILITY WHEN SATURATED AND FREE OF ORGANIC AND CLAY MATERIAL
- 13. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN 50mm CONCRETE BED (OR 75mm THICK BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK.
- 14. MATERIAL USED FOR ALL PIPE BEDDING AND BACK FILL SHALL BE APPROVED NON-COHESIVE GRANULAR MATERIAL HAVING A HIGH PERMEABILITY AND HIGH STABILITY WHEN SATURATED. BE FREE FROM ORGANIC AND CLAY MATERIAL AND COMPLY WITH THE CURRENT VERSION OF AS3725. PIPE BEDDING SHALL BE TYPE HS2 U.N.O. UNDER ROADS AND H2 UNDER GENERAL AREAS U.N.O. AND BE IN ACCORDANCE WITH THE CURRENT VERSION OF AS3725.
- 15. THE CONTRACTOR SHALL ENSURE AND PROTECT THE INTEGRITY OF ALL STORMWATER PIPES DURING CONSTRUCTION. ANY AND ALL DAMAGE TO THESE PIPES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT AND AT NO EXTRA COST
- 16. NOTE THAT THE PIT COVER LEVEL NOMINATED IN GUTTERS ARE TO THE INVERT OF THE GUTTER WHICH ARE 40mm LOWER THAN THE PAVEMENT LEVEL AT LIP OF GUTTER. REFER KERB DETAILS FOR CONFIRMATION.

STORMWATER DRAINAGE (cont)

SUBSOIL DRAINAGE

- 17. ALL SUBSOIL DRAINAGE LINES ARE TO BE Ø100mm WITH NON-WOVEN GEOTEXTILE FILTER SOCK SURROUND SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT (AT MIN 1% LONGITUDINAL GRADE) AND PROVIDED IN THE FOLLOWING LOCATIONS:
 - THE HIGH SIDE OF PROPOSED TRAFFICKED PAVEMENT AREAS.
 - ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS.
 - BEHIND RETAINING WALLS (IN ACCORDANCE WITH RETAINING WALL DETAILS).
 - ALL OTHER AREAS SHOWN ON DRAWINGS.
 - CONTRACTOR IS TO MAKE ALLOWANCE IN BOTH TENDER AND CONSTRUCTION COSTING TO ALLOW FOR SUBSURFACE DRAINAGE BEHIND ALL RETAINING WALLS / ABOVE LOCATIONS AND TO MAKE CONNECTION TO STORMWATER
- 18. WHERE SUBSOIL DRAINAGE PASSES BENEATH BUILDINGS / PAVED AREAS AND / OR PAVEMENTS. CONTRACTOR TO ENSURE \$\phi100mm CLASS 'SN10' uPVC DRAINAGE LINE IS USED AND THAT PROPRIETARY FITTINGS ARE USED TO RECONNECT SUBSOIL DRAINAGE LINE.
- 19. THE CONTRACTOR SHALL INSTALL INSPECTION OPENINGS / CLEAROUTS TO ALL SUBSOIL DRAINAGE LINES AND DOWNPIPE LINES AS SPECIFIED ON DRAWINGS AND IN ACCORDANCE WITH COUNCIL SPECIFICATIONS AT MAXIMUM 30m CENTRE AND AT ALL UPSTREAM ENDPOINTS.
- 20. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE LINE WRAPPED IN NON-WOVEN GEOTEXTILE FILTER FABRIC TO THE UPSTREAM SIDE OF STORMWATER PITS, LAID IN STORMWATER PIPE TRENCHES AND CONNECTED TO DRAINAGE PIT.
- 21. IN AREAS WHERE DUMPED / HAND PLACED ROCK IS USED AS A MEANS OF SCOUR PROTECTION, CONTRACTOR IS TO EXCAVATE A MINIMUM OF 100mm FROM PROPOSED SURFACE, LEVEL AND COMPACT SUBGRADE AS SPECIFIED. ROCK TO THEN BE PLACED ON GEOTEXTILE FILTER FABRIC.

CONCRETE SEALING

- 1. THE CURING PROCESS FOR NEW CONCRETE IS TO INCORPORATE THE FOLLOWING ASPECTS, GENERALLY AS ORDERED;
 - SPRAY CURING COMPOUND
- SAWCUT JOINTS AS LOCATED AND SPECIFIED AS SOON AS CURING PERMITS.
- COVER NEW PAVING WITH HESSIAN AND BLACK PLASTIC SHEETS TAPED AT JOINTS ON COMPLETION OF SAWCUTTING. NOTE COVERING IS TO EXTENT MIN 5m BEYOND PAVEMENT BEING CURED. OVER ADJOINING (EXISTING) PAVEMENT AREAS, MAINTAIN CURING AS SPECIFIED.

CONCRETE-ELAPSED DELIVERY TIMES

1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW

CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C)	MAXIMUM ELAPSED TIME (HOURS)
<24	2
24 TO 27	1
27 TO 30	1
30 TO 32	0
32 TO 35	0

IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE. OR THE TEMPERATURE IS GREATER THAN 35°C, EITHER NORTHROP CONSULTING ENGINEERS OR THE CONCRETE MIX DESIGN ENGINEER ARE TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED. IF THE POUR IS STOPPED, PRIOR TO ANY FURTHER CONCRETE PLACEMENT NORTHROP CONSULTING ENGINEERS ARE TO BE CONTACTED TO INSPECT THE WORKS AND DETERMINE WHAT, IF ANY, RECTIFICATION WORKS ARE REQUIRED.

CONCRETE PAVEMENTS

- 1. THIS SECTION REFERS TO CIVIL CONCRETE WORKS AND DOES NOT INCLUDE STRUCTURAL ELEMENTS SUCH AS BUILDINGS. BELOW GROUND STRUCTURES OR RETAINING WALLS.
- 2. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- 3. NO CONCRETE IS TO BE POURED ON DAYS FORECAST TO BE GREATER THAN 30 DEGREES CENTIGRADE
- 4. CONCRETE POURS IN CONDITIONS OF HIGH TEMPERATURE, HIGH WIND OR MODERATE COMBINATIONS OF EACH WILL LEAD TO EXCESSIVE CRACKING. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF SUCH CONCRETE FINISHES AND SHALL UNDERTAKE REMEDIATION WORK AS DIRECTED BY THE SUPERINTENDENT AND AT NO EXTRA COST
- 5. <u>CONCRETE QUALITY AND REINFORCING COVER</u>

ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK. REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

ELEMENT	KERB AND PATHS	PITS AND VEHICULAR PAVEMENTS	
CONCRETE STRENGTH f'c (MPa)	25	32	
SPECIFIED SLUMP	60	80	
NOMINAL AGGREGATE SIZE	20	20	
MAX. 56 DAY DRYING SHRINKAGE	650 microns	650 microns	
COVER (mm)	TOP 40	TOP 40	

- 6. CONCRETE PROPERTIES SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS:
 - MINIMUM CEMENT CONTENT 250 ka/m³
 - MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE
- PRIOR TO COMMENCEMENT CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN BE ACHIEVED USING NORMAL MIX DESIGN.
- 7. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS. PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
- 8. CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL.
- 9. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379. TEST CYLINDERS ARE TO BE KEPT
- 10. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO THE CIVIL ENGINEER FOR REVIEW.
- 11. ALL CONCRETE IS TO BE CONTINUOUSLY CURED FOR A MINIMUM PERIOD OF 10 DAYS AFTER PLACING . CURING TO COMMENCE IMMEDIATELY AFTER FINISHING. SPRAY ON CURING COMPOUNDS TO COMPLY WITH AS3799.
- 12. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM NORTHROP CONSULTING ENGINEERS.
- 13. FALLS IN SLAB AS SHOWN ON PLAN MAINTAIN MINIMUM SLAB THICKNESS AS SHOWN.
- 14. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE DESIGN ENGINEER.
- 15. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY
- EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. 16. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:

FOLLOWING THE FABRIC SYMBOL SL IS THE REFERENCE NUMBER FOR FABRIC TO AS1304

- 17. POLYETHYLENE SHEET SHALL BE PLACED BELOW ALL CONCRETE PAVEMENTS.
- 18. ALL PENETRATIONS TO HAVE 2/N12 TRIMMER BARS TOP AND BOTTOM TO EACH FACE U.N.O. EXTEND TRIMMERS 700 BEYOND PENETRATION. MAINTAIN 40mm COVER TOP AND BOTTOM.
- 19. FORMWORK CLASS SHALL BE IN ACCORDANCE WITH AS3600.
- 20. SURFACE FINISHES:

ELEMENT FORMWORK CLASS OFF FORM STORMWATER PIT PAVEMENTS

MACHINE FLOAT / BROOM FINISH KERBS STEEL FLOAT / TROWEL

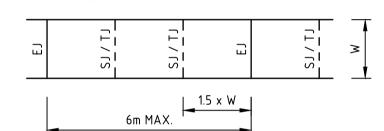
CONCRETE PAVEMENTS

- 21. REINFORCEMENT SYMBOLS:
- N DENOTES GRADE 500 N BARS TO AS1302 GRADE N
- R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS1302 SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC
- TO AS1304

NUMBER OF BARS IN GROUP -NOMINAL BAR SIZE IN mm 17 N20-250 └ SPACING IN mm THE FIGURE BAR GRADE AND TYPE—

PAVEMENT JOINTS

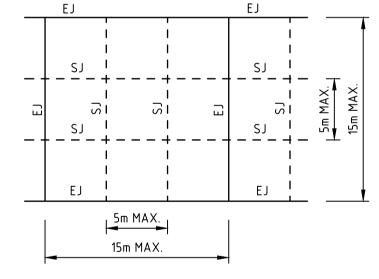
- PROVIDE 10mm ABLEFLEX BETWEEN NEW CONCRETE WORKS AND EXISTING STRUCTURES.
- 2. LOCAL AUTHORITY REQUIREMENTS SHALL TAKE PRECEDENCE WITHIN THE PUBLIC ROAD RESERVE
- 3. DOWELS TO BE PLACED ON PROPRIETARY CRADLES TO ENSURE
- CORRECT SPACING AND ALIGNMENT. 4. PEDESTRIAN PAVEMENTS
- ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.
- EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m
- WEAKENED PLANE JOINTS (SAWN OR TOOL JOINTS) ARE TO BE LOCATED AT A MAX. SPACING OF 1.5m x WIDTH OF THE
- PAVEMENT. 7. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH
- KERBING AND OR ADJACENT PAVEMENT JOINTS. 8. TYPICAL PEDESTRIAN PAVEMENT JOINT DETAIL



9. <u>VEHICULAR PAVEMENTS</u>

ALL VEHICULAR PAVEMENTS TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.

- 10. TIED KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED LONGITUDINALLY AT A MAX. OF 5.0m CENTRES.
- 11. SAWN JOINTS SHOULD GENERALLY BE LOCATED LATERALLY AT A MAX. OF 5.0m CENTRES WITH DOWELED EXPANSION JOINTS AT MAX. 15.0m CENTRES.
- 12. TYPICAL VEHICULAR PAVEMENT JOINT DETAIL.



- 13. KERB EXPANSION JOINTS SHALL BE FORMED FROM 10mm ABLEFLEX FOR FULL DEPTH OF SECTION.
- 14. KERB EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS. TANGENT POINTS OF CURVES / CORNERS AND AT 12m MAX
- 15. KERB TOOLED JOINTS TO BE MIN 3mm WIDE AND LOCATED AT MAX 3m CENTRES.
- 16. INTEGRAL KERB JOINTS SHALL MATCH THE LOCATION OF PAVEMENT JOINTS.

CONCRETE

- 1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600 AND NATSPEC CONCRETE STANDARDS.
- 2. CONCRETE PROPERTIES AND COVER TO REINFORCING:

ELEMENT	CONCRETE STRENGTH f'c (MPa)	MAX. 56 DAY DRYING SHRINKAGE	COVER (mm)		
SLABS ON GROUND (NON TRAFFICABLE)	25	650microns	TOP 40	BTM 40	
SLABS ON GROUND (TRAFFICABLE)	32	650microns	TOP 40	BTM 40	
TANK LID	40	700microns	TOP 40	BTM 40	

MAXIMUM AGGREGATE SIZE = 20mm U.N.O. SLUMP DURING PLACING = 75mm EXPOSURE CLASSIFICATION

NO ADMIXTURES SHALL BE USED IN CONCRETE MIX UNLESS APPROVED BY STRUCTURAL ENGINEER IN WRITING.

B. CONCRETE PROPERTIES FOR SLABS AND PAVEMENTS SHALL BE

- VARIED FROM NORMAL CLASS AS FOLLOWS: - MINIMUM CEMENT CONTENT 250kg/cu.m.
- MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED
- PRIOR TO COMMENCEMENT, CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN BE ACHIEVED USING NORMAL MIX
- 4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEERS
- CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED) STRIPPING PROCEDURE
- DETAILS AND LOCATION OF CAST IN SERVICES

CONSULTING ENGINEERS.

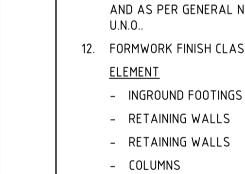
- CONDUITS, PENETRATIONS AND CONSTRUCTION JOINT LOCATIONS
- 5. COMPACT ALL CONCRETE USING MECHANICAL VIBRATORS.
- 6. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE
- APPROVAL FROM NORTHROP CONSULTING ENGINEERS. 7. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB AND SUBMITTED FOR REVIEW BY NORTHROP
- 8. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO NORTHROP CONSULTING ENGINEERS FOR REVIEW.
- 9. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN ACCORDANCE WITH AS1379. TEST CYLINDERS ARE TO BE KEPT ON SITE.
- 10. ALL CONCRETE IS TO BE CONTINUOUSLY CURED FOR A MINIMUM PERIOD OF 10 DAYS AFTER PLACING. CURING TO COMMENCE IMMEDIATELY AFTER FINISHING. SPRAY ON CURING COMPOUNDS TO COMPLY WITH AS3799.
- 11. FOR TENDER PURPOSES ASSUME MINIMUM STRIPPING TIMES AND EXTENT OF BACK PROPPING AS PER AS3610-1995 SECTION 5.0 AND AS PER GENERAL NOTES FOR FORMWORK AND PROPPING

5

5 EARTH FACE

3 EXPOSED FACE

12. FORMWORK FINISH CLASSIFICATION TO AS3600:



- 11. SURFACE FINISHES:
 - COLUMNS AND WALLS OFF FORM 12. COMPACT ALL CONCRETE INCLUDING FOOTINGS AND SLABS, USING MECHANICAL VIBRATORS.
 - 13. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM NORTHROP CONSULTING ENGINEERS.
 - 14. CONCRETE PROFILES:

BEAMS AND SLABS

- BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB
- SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN

SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN

CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER. PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES.

ARCHITECTS DETAILS.

CHAMFERS, DRIP GROOVES, REGLETS ETC TO BE TO

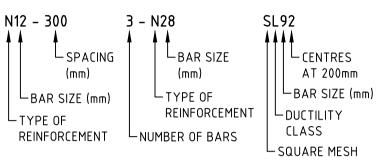
CONCRETE (cont)

- 15. ALL PENETRATIONS TO HAVE 2-N16 TRIMMER BARS TOP AND BOTTOM TO EACH FACE U.N.O. EXTEND TRIMMERS 600 BEYOND PENETRATION.
- 16. SETDOWNS OR FALLS IN FLOOR SURFACES ARE NOT PERMITTED UNLESS SHOWN ON DRAWINGS. MAINTAIN MINIMUM SLAB THICKNESS SHOWN ON PLAN WHERE FALLS OCCUR.
- 17. REINFORCEMENT GRADE AND NOTATION:

SYM -BOL	BAR SHAPE	STRE- NGTH GRADE (MPa)	DUCT- ILITY CLASS	TO COMPLY WITH AUST. STANDARD
N	DEFORMED RIB BAR	500	NORMAL	AS4671
R	PLAIN ROUND BAR	250	NORMAL	AS4671
RL	RECTANGULAR MESH OF DEFORMED RIB BAR	500	LOW	AS4671
SL	SQUARE MESH OF DEFORMED RIB BAR	500	LOW	AS4671
L-TM	TRENCH MESH	500	LOW	AS4671

ALL REINFORCING BARS SHALL BE GRADE D500N TO AS4671 AND ALL MESH SHALL BE GRADE 500L TO AS4671 U.N.O. CLASS L REINFORCEMENT SHALL NOT BE USED U.N.O.

REINFORCEMENT LABELS:



- 18. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
- 19. USE ONLY ALL PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
- 20. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2001.
- 21. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. LAPS SHALL BE IN ACCORDANCE WITH AS3600 SECTION 13 AND NOT LESS THAN THE DEVELOPMENT LENGTH
- FOR EACH BAR. 22. LAPS IN MESH SHALL BE IN ACCORDANCE WITH AS3600-2009 SECTION 13.
- 23. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER
- 24. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE WIRE ARE TO BE PLACED IN THE COVER ZONE.
- INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY THE STRUCTURAL ENGINEER PRIOR TO PLACING CONCRETE.

25. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE

26. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED U.N.O. 27. U.N.O. ALL MASONRY ANCHORS INTO CONCRETE SHALL BE RAMSET TRUBOLTS (LONGEST VERSION) OR APPROVED EQUIVALENT. BOLTS SHALL BE GALVANISED WHERE THEY ARE ADJOINING NON FERROUS OR PREPAINTED MEMBERS. PROVIDE STAINLESS STEEL BOLTS FOR ALL EXTERNAL CONDITIONS, OR

WHERE EXPOSED TO THE WEATHER.

CIVIL ENGINEERING PACKAGE NL203354 DRAWING NUMBER

NOT FOR CONSTRUCTION

CIVIL SPECIFICATIONS

DRAWING SHEET SIZE = A1

REVISION

CC-C01.12

REVISION DESCRIPTION

A ISSUED FOR 30% DETAILED DESIGN

B ISSUED FOR 50% DETAILED DESIGN

C ISSUED FOR 90% DETAILED DESIGN

RE-ISSUED FOR 100% TENDER

D ISSUED FOR 100% TENDER

BD

JK

JS

|ISSUED| VER'D | APP'D | DATE

GW 10.11.23

GW 19.01.24

GW | 14.06.24

GW 22.08.24

GW 02.10.24

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

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SHAC

ARCHITECT

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MMENCING WORK

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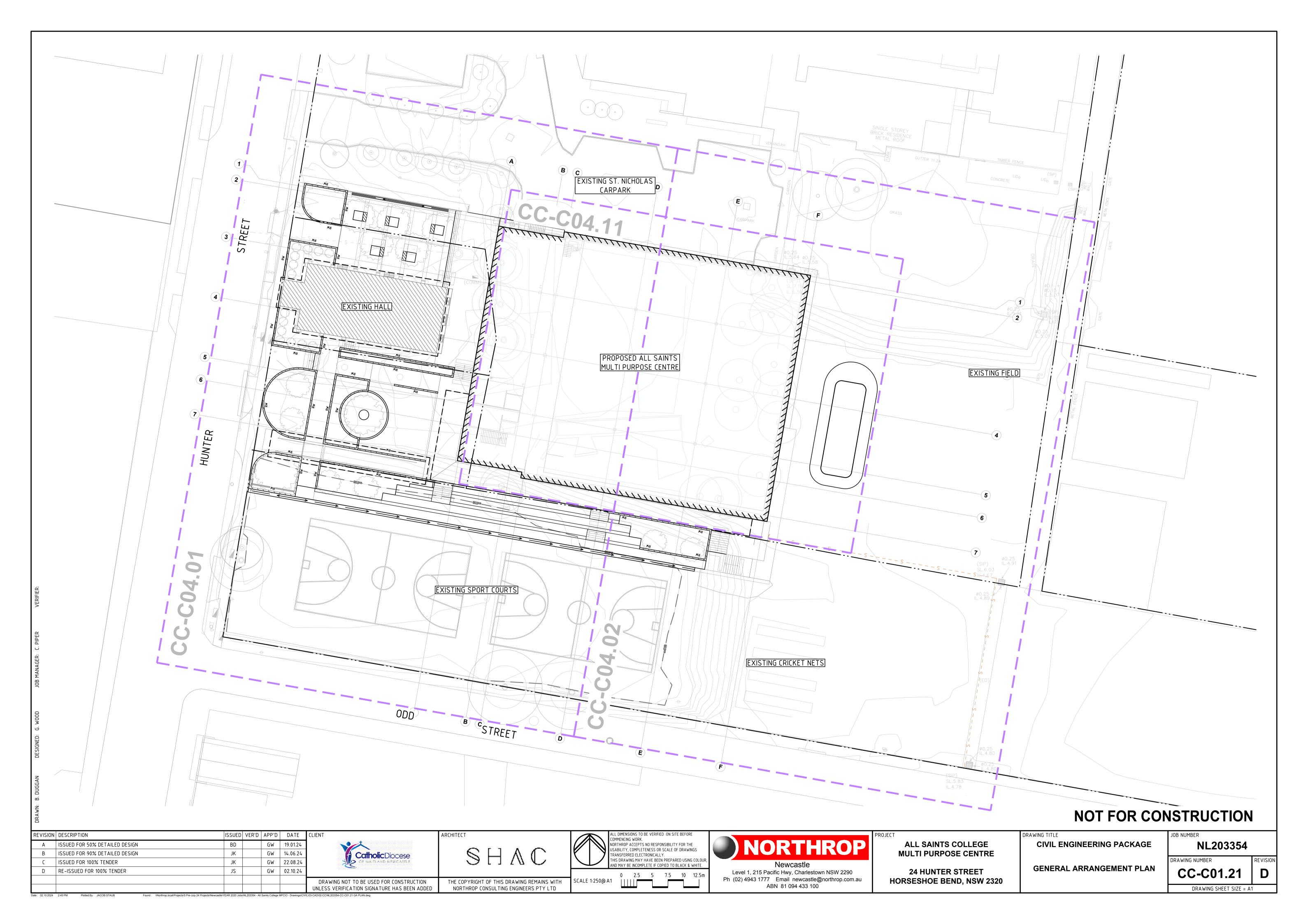
MULTI PURPOSE CENTRE

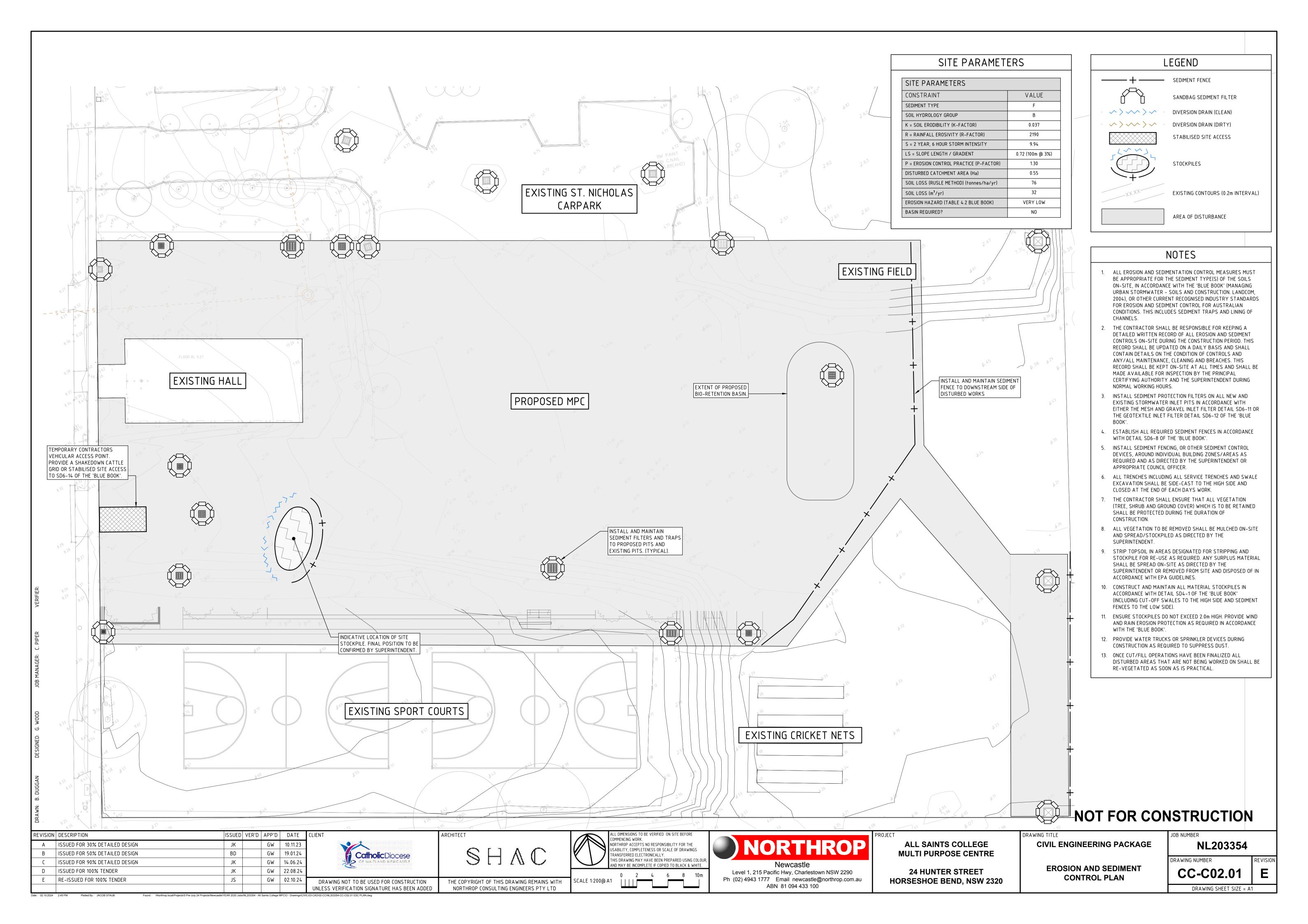
24 HUNTER STREET

HORSESHOE BEND, NSW 2320

ALL SAINTS COLLEGE

SHEET 2

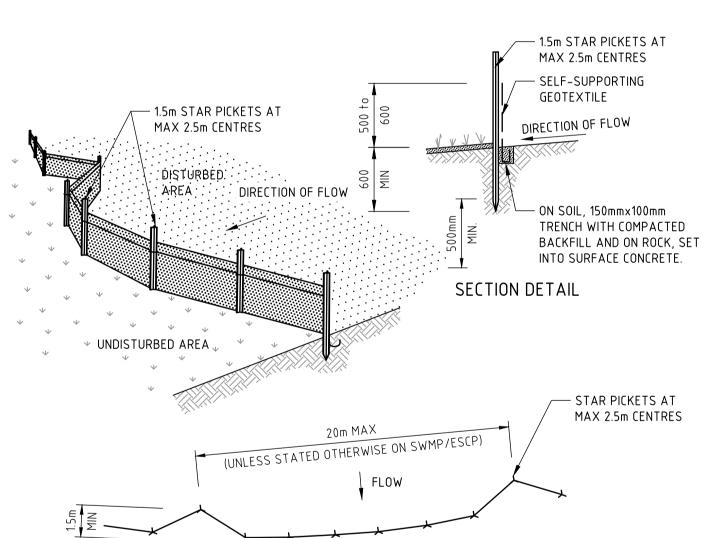




CONSTRUCTION NOTES

- 1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
- 2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- 3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
- 4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
- 5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

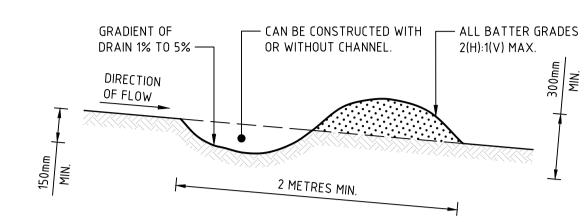
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

- 1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE
- 2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- 3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- 4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- 5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- 6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

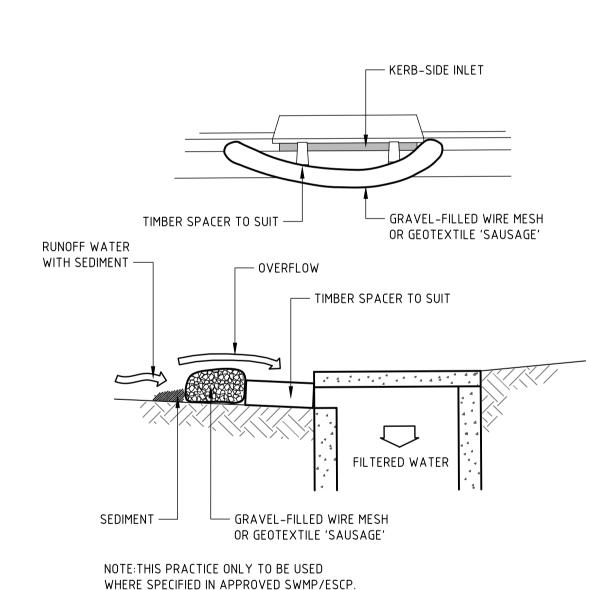


NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

CONSTRUCTION NOTES

- 1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
- 2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE WORK AROUND THEM.
- 3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
- 4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
- 5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
- 6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

EARTH BANK - LOW FLOW (SD 5-5)

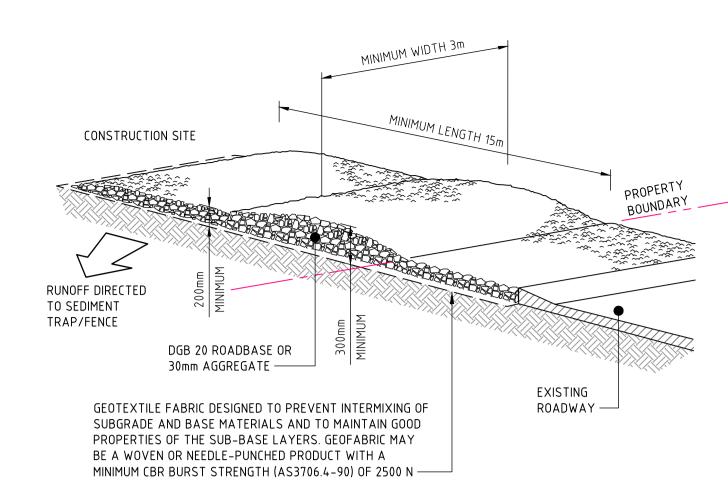


CONSTRUCTION NOTES

- 1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
- 2. 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.
- 3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
- 4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB
- INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
- 5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.

 6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDIN
- 6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

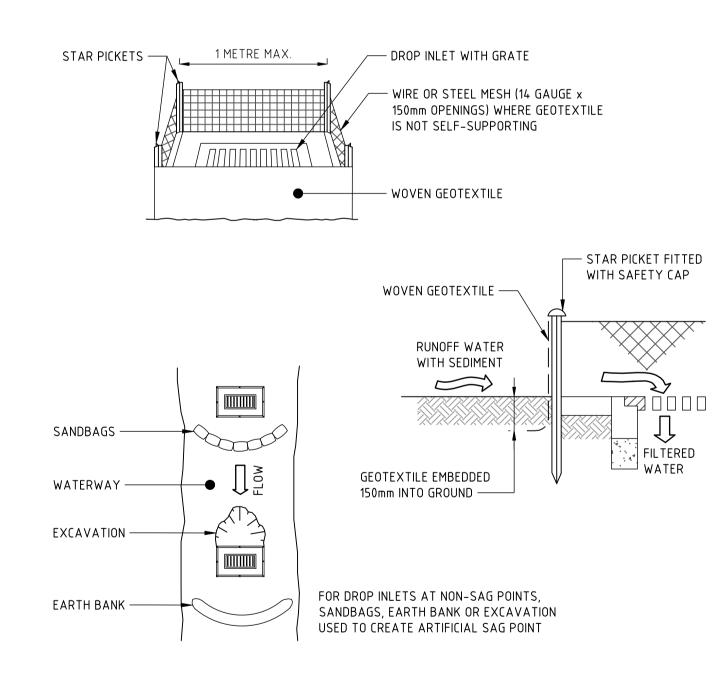
MESH AND GRAVEL INLET FILTER (SD 6-11)



CONSTRUCTION NOTES

- 1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
- 2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- 3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
- 4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
- 5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

WATERS TO BYPASS IT.

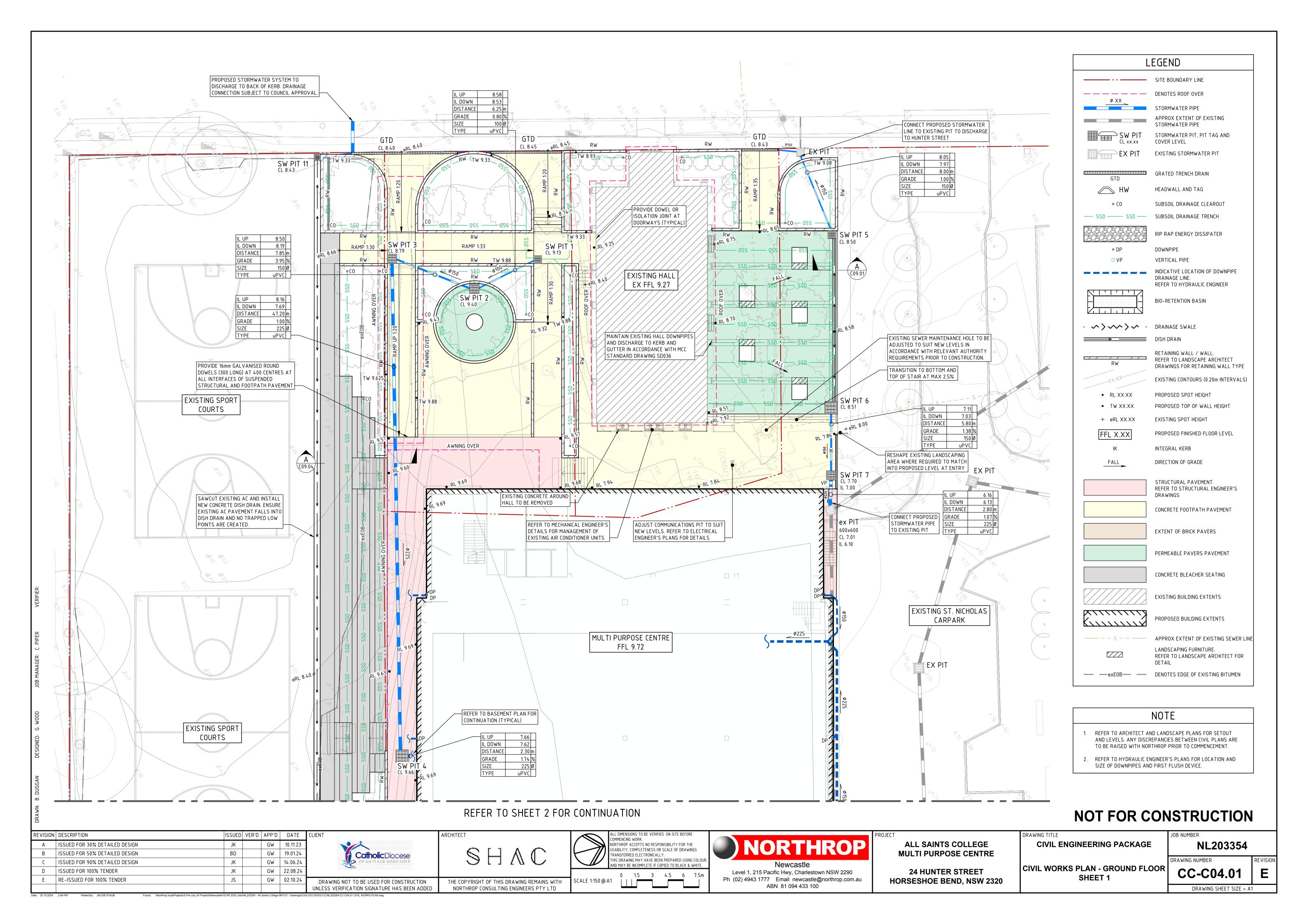
- 1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- 2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.

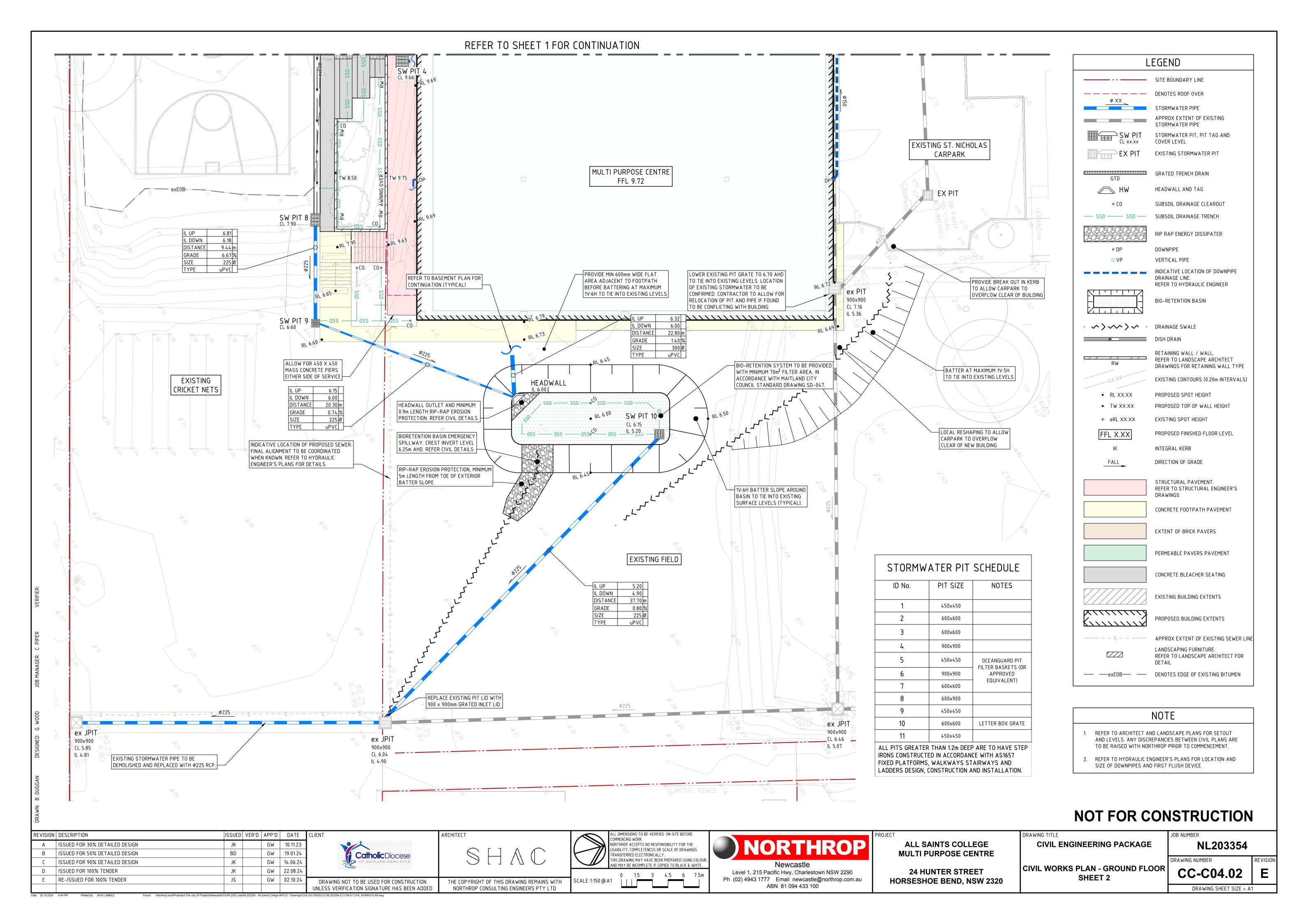
GEOTEXTILE INLET FILTER (SD 6-12)

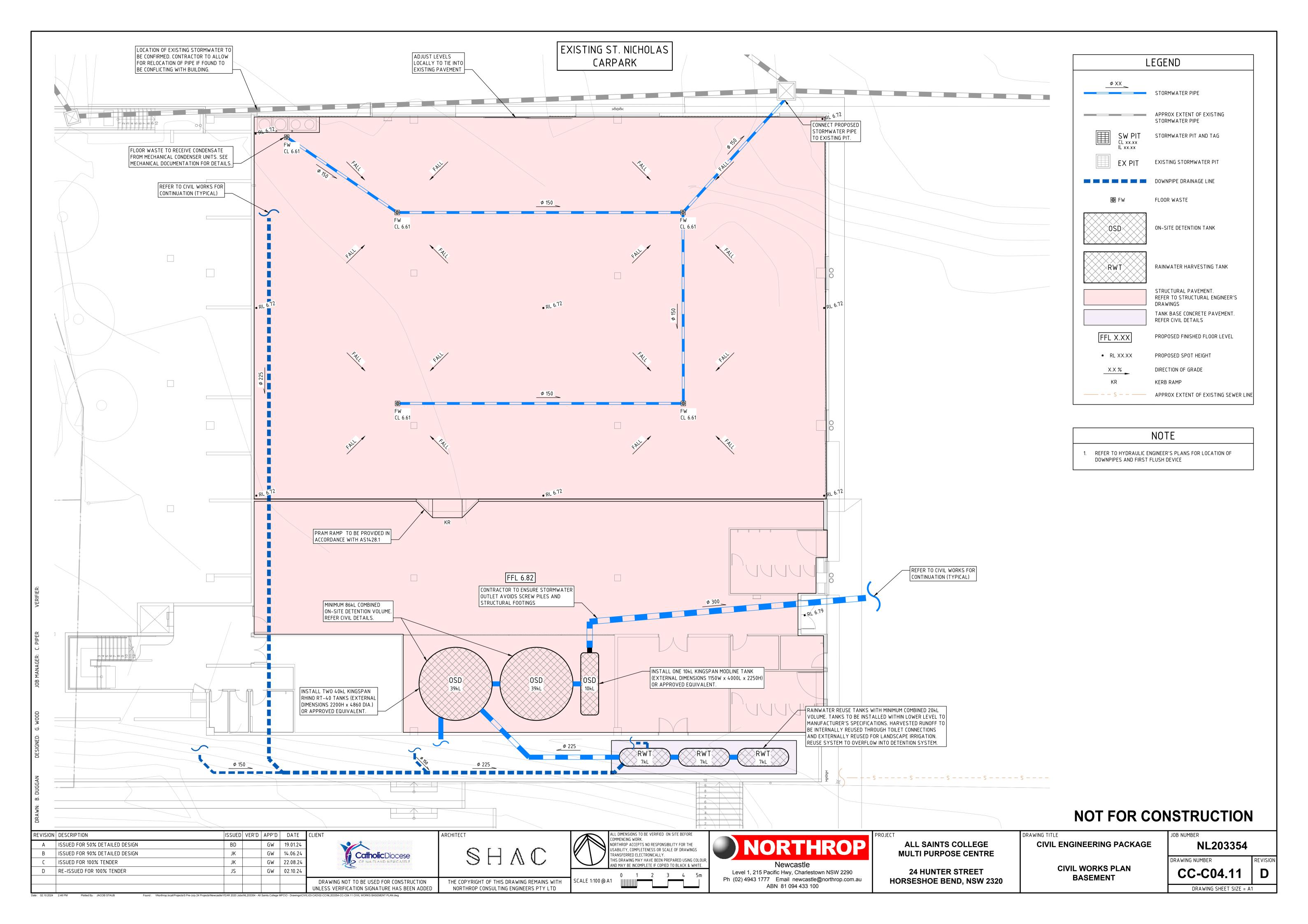
- 3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- 4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL

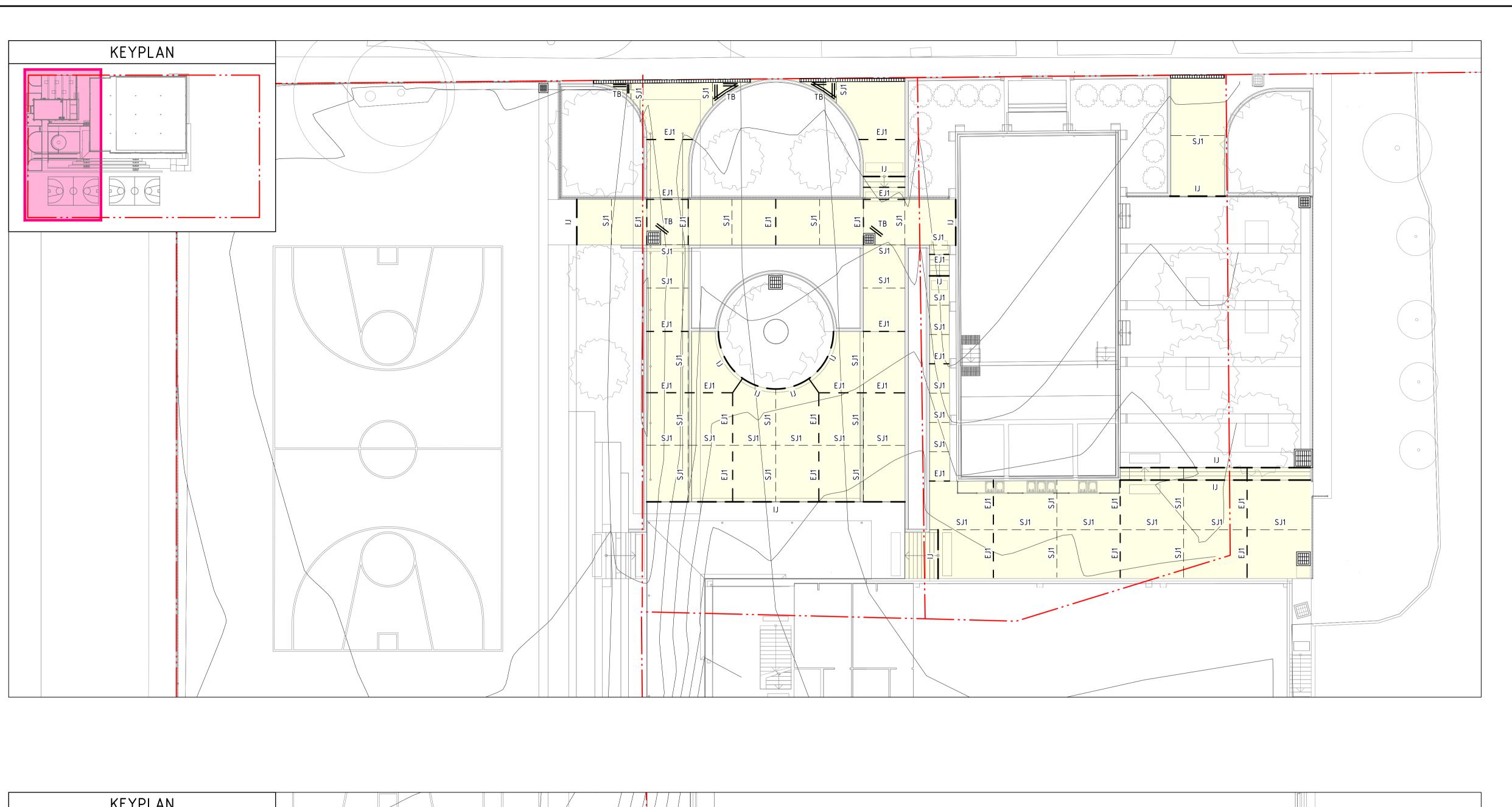
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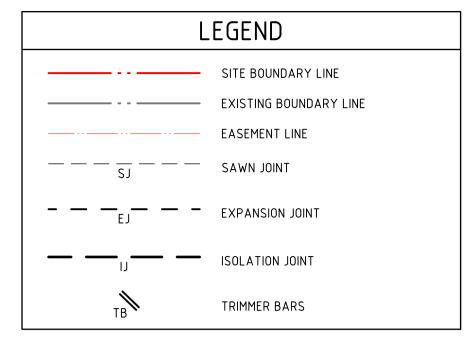
REVISION DESCRIPTION |ISSUED| VER'D | APP'D | DATE MMENCING WORK **ALL SAINTS COLLEGE** NL203354 CIVIL ENGINEERING PACKAGE A ISSUED FOR 30% DETAILED DESIGN GW 10.11.23 NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE SHAC SABILITY, COMPLETENESS OR SCALE OF DRAWINGS **MULTI PURPOSE CENTRE** B ISSUED FOR 50% DETAILED DESIGN BD GW 19.01.24 **Catholic**Diocese TRANSFERRED ELECTRONICALLY THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUF DRAWING NUMBER C ISSUED FOR 90% DETAILED DESIGN GW 14.06.24 AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE. Newcastle **EROSION AND SEDIMENT** D ISSUED FOR 100% TENDER GW 22.08.24 24 HUNTER STREET CC-C02.11 Level 1, 215 Pacific Hwy, Charlestown NSW 2290 **CONTROL DETAILS** Ph (02) 4943 1777 Email newcastle@northrop.com.au RE-ISSUED FOR 100% TENDER GW 02.10.24 NOT TO SCALE JS **HORSESHOE BEND, NSW 2320** DRAWING NOT TO BE USED FOR CONSTRUCTION THE COPYRIGHT OF THIS DRAWING REMAINS WITH ABN 81 094 433 100 NORTHROP CONSULTING ENGINEERS PTY LTD UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED DRAWING SHEET SIZE = A1



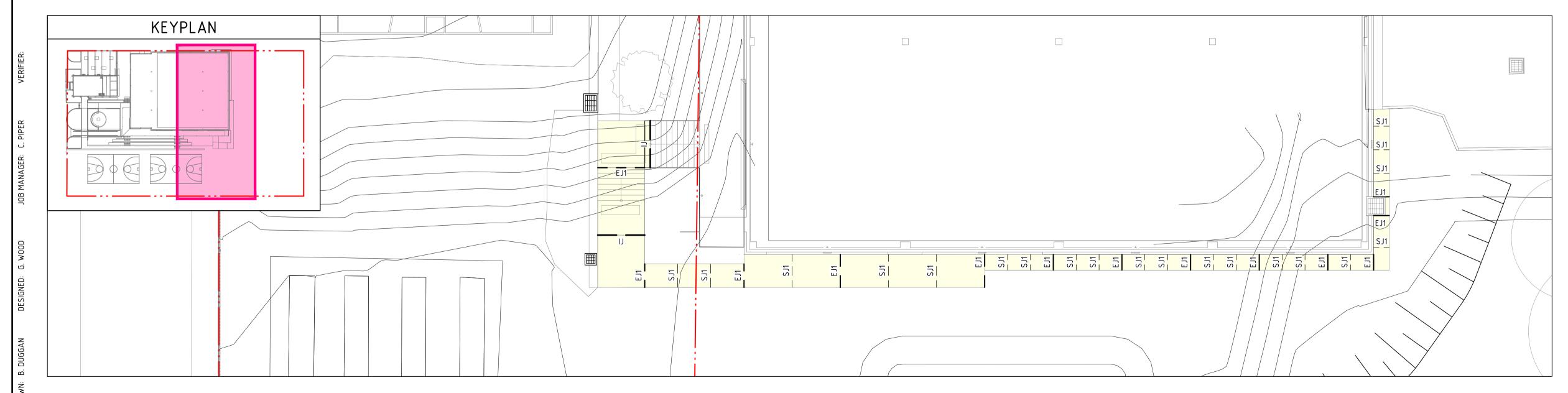








TO BE READ IN CONJUNCTION WITH CIVIL DETAILS

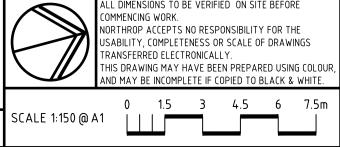


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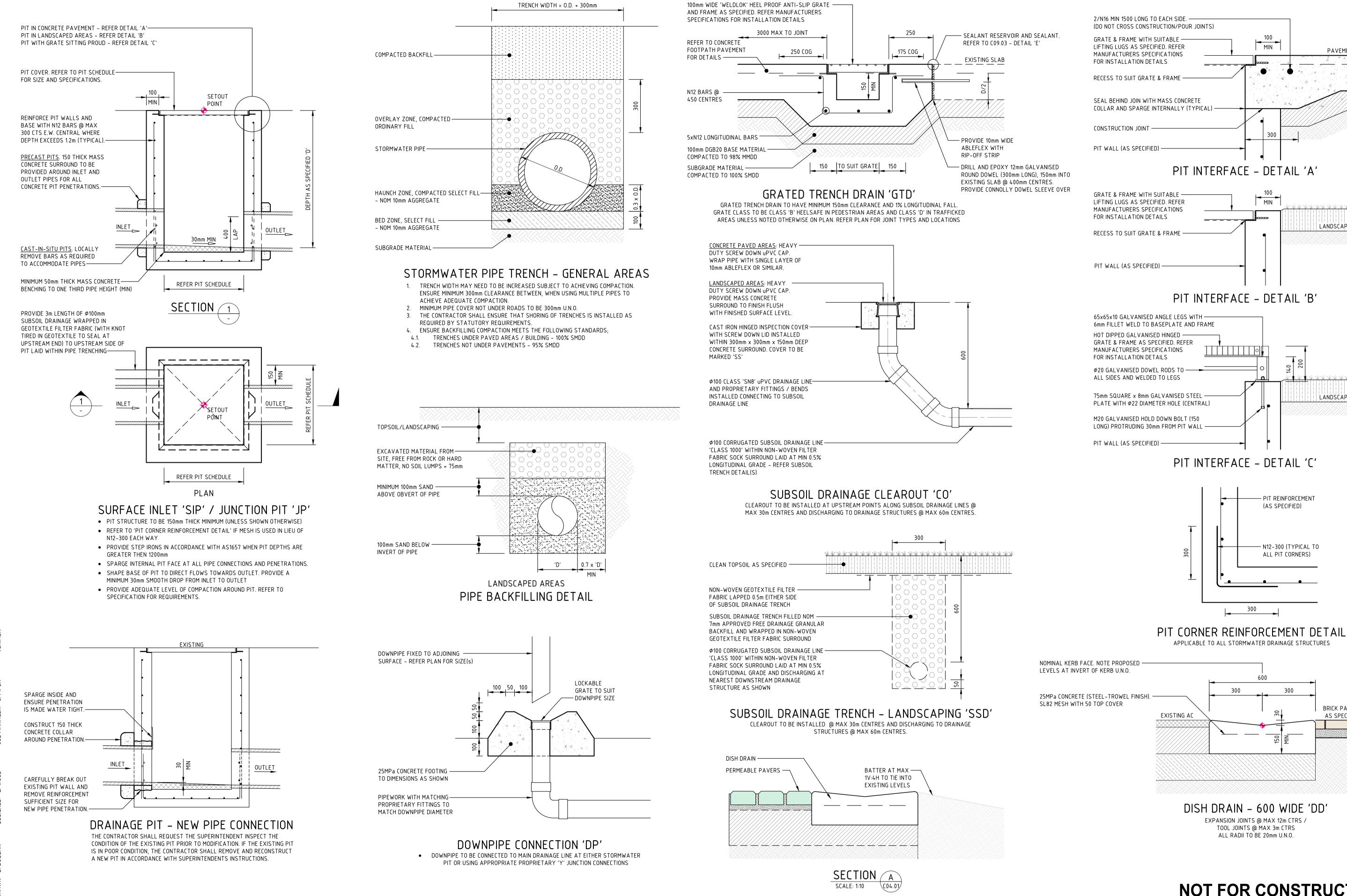
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ALL SAINTS COLLEGE MULTI PURPOSE CENTRE

24 HUNTER STREET HORSESHOE BEND, NSW 2320 CIVIL ENGINEERING PACKAGE PAVEMENT JOINTING PLAN

NL203354 DRAWING NUMBER CC-C06.01 D

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BRICK PAVERS

AS SPECIFIED

MULTI PURPOSE CENTRE CIVIL DETAILS 24 HUNTER STREET SHEET 1 **HORSESHOE BEND. NSW 2320**

ALL SAINTS COLLEGE

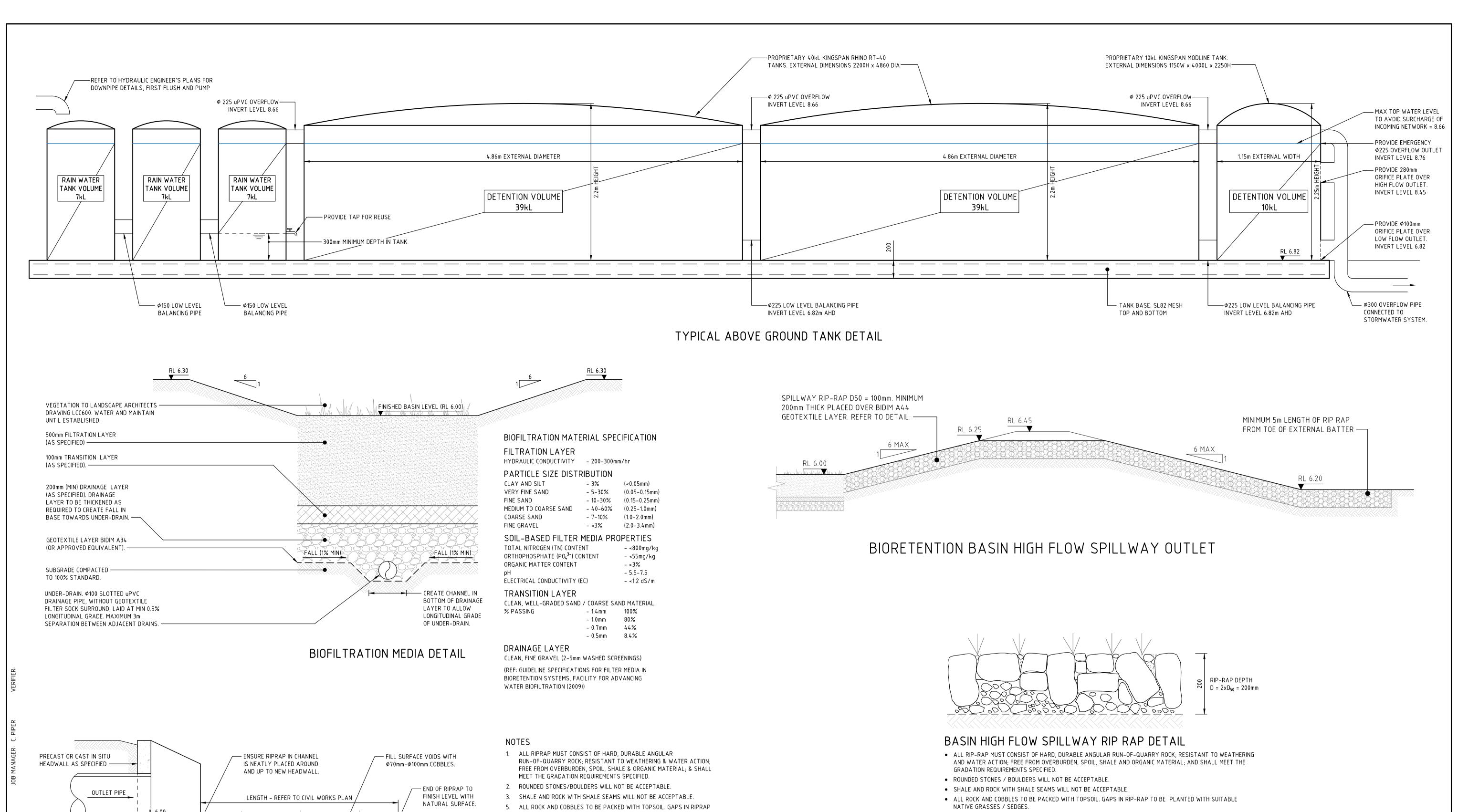
CIVIL ENGINEERING PACKAGE NL203354 DRAWING NUMBER

REVISION CC-C09.01 DRAWING SHEET SIZE = A1

PAVEMENT (AS SPECIFIED)

LANDSCAPING (AS SPECIFIED)

LANDSCAPING (AS SPECIFIED)



- TO BE PLANTED WITH SUITABLE NATIVE GRASSES/SEDGES.
- 6. RIPRAP SHALL BE PLACED ON THE PREPARED SLOPE IN A MANNER THAT WILL PRODUCE A REASONABLY WELL GRADED MASS OF STONE WITH THE MINIMUM PRACTICAL PERCENTAGE OF VOIDS.
- 7. LARGER STONES SHALL BE WELL DISTRIBUTED & THE ENTIRE MASS OF STONE SHALL CONFORM TO THE GRADATION SPECIFIED BY THE
- ENGINEERING PLANS. 8. THE MINIMUM THICKNESS OF THE RIPRAP LAYER IS TO BE 2 TIMES THE
- D₅₀ ROCK SIZE & NOT BE LESS THAN 200mm FOR PRACTICAL PLACEMENT. 9. THE MINIMUM DENSITY OF STONE USED SHALL NOT BE LESS THAN 2200 kg/cu.m. TYPICAL ROCK WEIGHT RANGES FOR RIPRAP ARE: M50 - 60kg (NOM 300MD)

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Newcastle Level 1, 215 Pacific Hwy, Charlestown NSW 2290 Ph (02) 4943 1777 Email newcastle@northrop.com.au ABN 81 094 433 100

ALL SAINTS COLLEGE MULTI PURPOSE CENTRE

GRADED MASS OF STONE WITH THE MINIMUM PRACTICAL PERCENTAGE OF VOIDS.

GRADATION SPECIFIED BY THE ENGINEERING PLANS.

200mm FOR PRACTICAL PLACEMENT.

- 60kg (NOM 300MD)

FOR RIP-RAP ARE:

– 25kg

– 120kg

M50

M15

M100

24 HUNTER STREET **HORSESHOE BEND, NSW 2320** CIVIL ENGINEERING PACKAGE

CIVIL DETAILS

NL203354 DRAWING NUMBER REVISION

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BIDIM A34 GEOTEXTILE LAYER

OR APPROVED EQUIVALENT.

OUTLET HEADWALL RIP RAP SECTION

MASS CONCRETE EROSION KEY.

KEY GEOTEXTILE LAYER

UNDER HEADWALL

REVISION DESCRIPTION

500mm DEEP x 200mm THICK (MINIMUM).

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- END OF RIPRAP TO BE

 \square RIP RAP D₅₀ = 100mm MINIMUM 0.2m THICK.

BIDIM A34 UNDER RIP-RAP (TYPICAL)

MINIMUM 0.9m WIDE AT HEADWALL AND 0.9m

WIDE AT TERMINATION FOR MINIMUM LENGTH

AS SHOWN ON CIVIL WORKS PLAN. PROVIDE

LARGER ROCKS 2 x D₅₀

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M15 – 25kg M100 – 120kg

ARCHITECT

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MMENCING WORK

RIP-RAP SHALL BE PLACED ON THE PREPARED SLOPE IN A MANNER THAT WILL PRODUCE A REASONABLY WELL

• THE MINIMUM THICKNESS OF THE RIP-RAP LAYER IS TO BE 2 TIMES THE D/50 ROCK SIZE AND NOT BE LESS THAN

• THE MINIMUM DENSITY OF STONE USED SHALL NOT BE LESS THAN 2200 kg/CU.M. TYPICAL ROCK WEIGHT RANGES

LARGER STONES SHALL BE WELL DISTRIBUTED AND THE ENTIRE MASS OF STONE SHALL CONFORM TO THE

SHEET 2

CC-C09.02 DRAWING SHEET SIZE = A1

