ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS
CIVIL DOCUMENTATION

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LOCALITY PLAN

CIVIL DRAWING SCHEDULE

DWG No.	DRAWING TITLE
C01.01	COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN
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C01.21	GENERAL ARRANGEMENT PLAN
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PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN

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NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW.
IF CONFLICT ARISE, BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE.

ACCESS AND SAFETY

1. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING 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. WORK IS NOT TO COMMENCE ON SITE PRIOR TO APPROVAL OF TRAFFIC MANAGEMENT SCHEME.
3. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.
4. WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.
5. THE CONTRACTOR SHALL ENSURE PUBLIC ACCESS EXTERNAL TO THE SITE IS IN ACCORDANCE WITH COUNCILS REQUIREMENTS.

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;
   - 2.1. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE.
   - 2.2. ENSURING THAT NOTHING IS NAILED TO ANY PART OF THE TREE.
   - 2.3. CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY. COUNCILS AND/OR INDEPENDENT ARBORISTS TO BE CONSULTED WHERE TREE ROOTS ARE TO BE REMOVED AND/OR CUT.

SEDIMENT AND SOIL EROSION

1. THE SEDIMENT & EROSION CONTROL PLAN PRESENTS CONCEPTS ONLY. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR THE ESTABLISHMENT & MANAGEMENT OF A DETAILED SCHEME MEETING COUNCILS DESIGN, OTHER REGULATORY AUTHORITY REQUIREMENTS AND MAKE GOOD PAYMENT OF ALL FEES.
2. THE CONTRACTOR SHALL INSTIGATE ALL SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH STATUTORY REQUIREMENTS AND IN PARTICULAR THE 'BLUE BOOK' (MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION), PRODUCED BY THE DEPARTMENT OF HOUSING AND COUNCILS POLICIES. THESE MEASURES ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS.
3. THE SITE SUPERINTENDENT SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THE DRAWINGS AND ADHERE TO ALL REGULATORY AUTHORITY REQUIREMENTS.
4. THE CONTRACTOR SHALL INFORM ALL SUB CONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.
5. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHALL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE;
   - 5.1 CONSTRUCT TEMPORARY STABILISED SITE ACCESS INCLUSIVE OF SHAKE DOWN / WASH PAD.
   - 5.2 INSTALL ALL TEMPORARY SEDIMENT FENCES AND BARRIER FENCES. WHERE FENCES ADJACENT EACH OTHER, THE SEDIMENT FENCE CAN BE INCORPORATED INTO THE BARRIER FENCE.
   - 5.3 INSTALL SEDIMENT CONTROL MEASURES AS OUTLINED ON THE APPROVED PLANS.
6. UNDERTAKE SITE DEVELOPMENT WORKS SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF MINIMUM WORKABLE SIZE.
7. AT ALL TIMES AND IN PARTICULAR DURING WINDY AND DRY WEATHER, LARGE UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL ENSURING CONFORMITY TO REGULATORY AUTHORITY REQUIREMENTS.
8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) SHALL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
9. WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN STABILISED AND/OR ANY LIKELY SEDIMENT BEEN FILTERED OUT.
10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED / REHABILITATED.
11. ALLOW FOR GRASS STABILISATION OF EXPOSED AREAS, OPEN CHANNELS AND ROCK BATTERS DURING ALL PHASES OF CONSTRUCTION.
12. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIRS AND/OR MAINTENANCE SHALL BE UNDERTAKEN REGULARLY AND AS REQUIRED, PARTICULARLY FOLLOWING RAIN EVENTS.
13. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER SHALL BE DISPOSED OF IN ACCORDANCE WITH REGULATORY AUTHORITY REQUIREMENTS. CONTRACTOR TO PAY ALL FEES AND PROVIDE EVIDENCE OF SAFE DISPOSAL.
14. IF A TEMPORARY SEDIMENT BASIN IS REQUIRED, ENSURE SAFE BATTER SLOPES IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. MAINTAIN ADEQUATE STORAGE VOLUME IN ACCORDANCE WITH PLANS. TEMPORARY PUMP 'CLEAN FLOCCULATED' WATER TO COUNCILS STORMWATER SYSTEM . ENSURE WHOLE SITE RUN-OFF IS DIRECTED TO TEMPORARY SEDIMENT BASIN.

EXISTING SERVICES

1. ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, 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. 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.
3. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE ADJUSTMENT (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
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.
6. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED AND MAINTAINED.
7. 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.
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.

EARTHWORKS

1. AT THE COMMENCEMENT OF FILLING OPERATIONS FOR BULK EARTHWORKS A GEOTECHNICAL ENGINEER IS TO VISIT THE SITE & CONFIRM THE SUITABILITY OF THE METHODOLOGY OF ACHIEVING THE REQUIRED COMPACTION REQUIREMENTS.
2. STRIP TOPSOIL, VEGETABLE MATTER AND RUBBLE TO EXPOSE NATURALLY OCCURRING MATERIAL AND STOCKPILE ON SITE AS DIRECTED BY THE SUPERINTENDENT.
3. WHERE FILLING IS REQUIRED TO ACHIEVE DESIGN SUBGRADE, PROOF ROLL EXPOSED NATURAL SURFACE WITH A MINIMUM OF TEN PASSES OF A VIBRATING ROLLER (MINIMUM STATIC WEIGHT OF 10 TONNES) IN THE PRESENCE OF THE SUPERINTENDENT.
4. 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, etc).
5. ALL SOFT, WET OR UNSUITABLE MATERIAL IS TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS BELOW.
6. PROVIDE CERTIFICATES VERIFYING THE QUALITY OF IMPORTED MATERIAL FOR THE SUPERINTENDENTS APPROVAL.
7. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS (LOOSE) AND COMPACTED AT OPTIMUM MOISTURE CONTENT [+ OR - 2%] TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289.2.1.1, AS1289.5.7.1 AND AS1289.5.8.8 OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY;

LOCATION	COMPACTION REQUIREMENT
LANDSCAPED AREAS	98% SMDD
ROADS	100% SMDD (IN ACCORDANCE WITH COUNCIL SPECIFICATIONS)
PAVED AREAS	100% SMDD (IN ACCORDANCE WITH COUNCIL SPECIFICATIONS)

8. TESTING OF THE SUBGRADE FOR BUILDINGS SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY.
9. ALLOW THE FOLLOWING COMPACTION TESTING BY N.A.T.A. REGISTERED LABORATORY FOR PLATFORMS AND FILL LAYERS IN ACCORDANCE WITH THE LATEST VERSION OF AS3798. (MINIMUM 3 TESTS PER LAYER) OR 1 TEST PER MATERIAL TYPE PER 2500sq.m OR 1 TEST.
10. 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.
11. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND U.N.O. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXCAVATION IN WET OR HARD GROUND.
12. WHERE THERE IS INSUFFICIENT EXCAVATED MATERIAL SUITABLE FOR FILLING OR SUBGRADE REPLACEMENT, THE CONTRACTOR IS TO ALLOW TO IMPORT FILL. IMPORTED FILL SHALL COMPLY WITH THE FOLLOWING;
   - 12.1. BE OF VIRGIN EXCAVATED NATURAL MATERIAL OR
   - 12.2. CONTRACTOR TO PROVIDE EVIDENCE IMPORT IS SUITABLE USE
   - 12.3. PLASTICITY INDEX BETWEEN 2-15% AND CBR > 8
   - 12.4. FREE FROM ORGANIC AND PERISHABLE MATTER
   - 12.5. MAXIMUM SIZE 50mm, PASSING 75 MICRON SIEVE (<25%)

EARTHWORKS (cont)

13. THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE 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 THEIR COST.
14. 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.
15. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY AT THE CONTRACTORS EXPENSE.

DEEP EXCAVATIONS

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

SERVICE TRENCHES

19. SAWCUT EXISTING SURFACES PRIOR TO EXCAVATION. BACKFILL ALL TRENCHES UNDER EXISTING ROADS, PAVEMENTS AND PATHS WITH STABILISED SAND 5% CEMENT OR DGS40 MATERIAL (5% CEMENT) COMPACTED IN 200mm THICK LAYERS TO 98% MMDD TO UNDERSIDE OF PAVEMENT.
20. BACKFILL ALL TRENCHES NOT UNDER ROADS, PAVEMENTS, PATHS AND BUILDINGS WITH APPROVED EXCAVATED OR IMPORTED MATERIAL COMPACTED TO 95% SMDD.

SITEWORKS

1. ALL WORKS TO BE IN ACCORDANCE WITH RELEVANT LOCAL COUNCIL / REGULATORY AUTHORITIES REQUIREMENTS, ALL SPECIFICATIONS AND AUSTRALIAN STANDARDS. CONFLICTS BETWEEN SAID DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.
2. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES DURING CONSTRUCTION IN ACCORDANCE WITH ALL REGULATORY AUTHORITIES, INCLUSIVE OF LOCAL COUNCIL REGULATIONS AND REQUIREMENTS.
3. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
4. RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION OR AS DIRECTED BY THE SITE SUPERINTENDENT ON COMPLETION OF WORKS. WHERE PLANTING OF NEW GRASS IS NECESSARY REFER TO LANDSCAPE ARCHITECT AND / OR ARCHITECT DOCUMENTATION.
5. ON COMPLETION OF ANY TRENCHING WORKS, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR AS DIRECTED BY THE SITE SUPERINTENDENT, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL, GRASSED AREAS AND ROAD PAVEMENTS.
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 VERIFY 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 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. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
12. 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.

STORMWATER DRAINAGE

1. ALL PIPES SHALL BE CLASS 2 RUBBER-RING JOINTED U.N.O. WHERE uPVC PIPES HAVE BEEN SPECIFIED, THE FOLLOWING CLASS PIPEWORK IS TO BE ADOPTED U.N.O. Ø100mm OR LESS TO BE CLASS 'SN10' AND ABOVE Ø100mm TO BE CLASS 'SN8'.
2. uPVC STORMWATER LINES PASSING UNDER FLOOR SLABS TO BE CONCRETE ENCASED.
3. 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.
5. COVERS
   - 5.1. USE HOT DIPPED GALVANISED COVERS AND GRATES COMPLYING WITH RELEVANT COUNCIL AND AUSTRALIAN STANDARDS.
   - 5.2. ALL COVERS AND GRATES TO BE POSITION IN A FRAME AND MANUFACTURED AS A UNIT.
   - 5.3. ALL COVERS AND GRATES TO BE FITTED WITH POSITIVE COVER LIFTING KEYS
   - 5.4. OBTAIN SUPERINTENDENTS APPROVAL FOR THE USE OF CAST IRON SOLID COVERS AND GRATES. 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.
   - 5.5. UNLESS DETAILED OR SPECIFIED OTHERWISE, COVERS AND GRATES TO BE CLASS 'D' IN VEHICULAR PAVEMENTS AND CLASS 'B' ELSEWHERE.
   - 5.6. ALL GRATED TRENCH DRAINS SHOULD BE 'CLASS D' CAST IRON WITHIN VEHICULAR PAVEMENTS AND CLASS 'B' HEEL SAFE WITHIN PEDESTRIAN PAVEMENTS.
6. ALL PIPE BENDS, JUNCTIONS, ETC ARE TO BE PROVIDED USING PURPOSE MADE FITTINGS OR STORMWATER PITS.
7. ALL CONNECTIONS TO EXISTING DRAINAGE STRUCTURES SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
8. STORMWATER PIPEWORK TO FINISH FLUSH WITH INTERNAL PIT WALLS AND MUST NOT PROTRUDE. CONNECTION TO BE NEATLY RENDER AND MADE NEAT.
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
10. 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.
11. 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.
12. BEDDING SHALL BE U.N.O TYPE HS2 UNDER ROADS AND H2 UNDER GENERAL AREAS IN ACCORDANCE WITH CURRENT RELEVANT INDUSTRY STANDARDS AND GUIDELINES.
13. 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.
14. 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.

SUBSOIL DRAINAGE

15. Ø100mm SUBSOIL DRAINAGE LINES 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;
   - 15.1. THE HIGH SIDE OF PROPOSED TRAFFICKED PAVEMENT AREAS.
   - 15.2. ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS.
   - 15.3. BEHIND RETAINING WALLS (IN ACCORDANCE WITH RETAINING WALL DETAILS).
   - 15.4. ALL OTHER AREAS SHOWN ON DRAWINGS.
   - 15.5. 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 SYSTEM.
16. WHERE SUBSOIL DRAINAGE PASSES BENEATH BUILDINGS / PAVED AREAS AND/OR PAVEMENTS, CONTRACTOR TO ENSURE Ø100mm CLASS 'SN10' uPVC DRAINAGE LINE IS USED AND THAT PROPRIETARY FITTINGS ARE USED TO RECONNECT SUBSOIL DRAINAGE LINE.
17. 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.
18. 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.
19. 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.

PRECAST STORMWATER PITS

1. THE USE OF PRE-CAST STORMWATER DRAINAGE PITS IS NOT ACCEPTED WITHOUT CONFIRMATION BETWEEN NORTHROP ENGINEERS AND THE CONTRACTOR REGARDING QUALITY CONTROL AND CERTIFICATION OF FINISHES.
2. REFER MANUFACTURERS SPECIFICATIONS FOR INSTALLATION GUIDELINES.
3. PRECAST PIT TO BE PLACED ON MINIMUM 150mm THICK CONCRETE PAD AND BED MINIMUM 50mm WHILST CONCRETE IS STILL PARTIALLY WET.
4. ENSURE PENETRATION IS CORED THROUGH PIT FACE TO ALLOW CONNECTION.
5. ENSURE A SMOOTH SEALED FINISH AT PIPE CONNECTIONS BY HAND APPLYING CONCRETE AROUND THE PIPE ON THE INTERNAL FACE OF THE PIT TO FILL IN ANY VOIDS CREATED WHEN PENETRATION FOR THE PIPE WAS CORED.
6. ENSURE A SEALED FINISH AT PIPE CONNECTIONS BY HAND-APPLYING MINIMUM 150mm THICK CONCRETE AROUND PIPE AT THE EXTERNAL FACE OF THE PIT. ENSURE CONCRETE DOES NOT AFFECT THE INTEGRITY OF THE SUBSOIL DRAINAGE CONNECTED TO THE PIT.
7. ENSURE PIPEWORK DOES NOT PROTRUDE INTO THE BEYOND THE WALL. PIPEWORK IS TO FINISH FLUSH WITH INTERNAL WALL (UNLESS OTHERWISE NOTED OR DETAILED).
8. ENSURE THE OUTLET PIPE IS CONNECTED AT THE INVERT LEVEL OF THE PIT TO DRAIN. ALTERNATIVELY FILL THE BASE OF THE PIT WITH MASS CONCRETE (MIN 50mm THICK) OR APPROVED GROUTING COMPOUND (LESS THAN 50mm THICK) TO DRAIN.
9. PROVIDE CONCRETE BENCHING TO SIDES OF PIT TO SUIT PIPE DIAMETER. HEIGHT TO MATCH MINIMUM 1/3 PIPE DIAMETER.

RAINWATER REUSE

1. PROVIDE RAINWATER RE-USE SYSTEM TO SUPPLY WATER FOR IRRIGATION.
2. GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.
3. PRESSURE PUMP / TAP TO BE PROVIDED FOR THE REUSE OF CAPTURED TANK WATER.
4. A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
5. ALL RAINWATER SERVICES SHALL BE CLEARLY LABELLED "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
6. PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.
7. ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELLED WITH SAFETY SIGNS TO COMPLY WITH AS1319.
8. AN AIR GAP OR RPZD TO ENSURE BACKFLOW PREVENTION (IF MAINS 'TOP UP' / BYPASS UTILISED)
9. RAINWATER TANK RETICULATION SYSTEM AND MAINS WATER BYPASS ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.1.2-2003 AND THE NSW CODE OF PRACTICE - PLUMBING AND DRAINAGE.
10. A FIRST FLUSH FILTRATION DEVICE IS TO BYPASS THE FIRST 1mm OF RAINWATER.

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 AS1742.3 AND RMS STANDARDS.
3. 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.
4. LINE MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.
5. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm AND 0.4.0mm.
6. CARPARK LINEMARKING TO BE 80mm WIDE.

LANDSCAPING

1. REFER TO DRAWINGS BY OTHERS FOR DETAILS OF PROPOSED LANDSCAPING TREATMENT.
2. ALL DISTURBED SURFACE TO BE TEMPORARILY STABILISED WITH HYDROMULCH UPON COMPLETION OF WORKS. A 500mm STRIP OF TURF (CT2 COUCH) IS TO BE PLACED BEHIND ALL NEW KERB AND GUTTER / ROLL KERB.

PAVEMENTS

1. ALL PAVEMENT MATERIALS SHALL COMPLY WITH CURRENT RMS SPECIFICATIONS. PROVIDE MECHANICAL ANALYSIS FOR EACH BATCH OF PAVEMENT MATERIAL TO ENSURE CONFORMITY.
2. COMPACTION STANDARDS

BASE	98% MODIFIED MAXIMUM DRY DENSITY
SUBBASE	98% MODIFIED MAXIMUM DRY DENSITY
SUBGRADE	100% STANDARD MAXIMUM DRY DENSITY

3. THE CONTRACTOR SHALL CONFIRM THE DESIGN CBR WITH A MINIMUM OF 3 TESTS TAKEN AT SUBGRADE LEVEL. WHERE DISCREPANCY IS FOUND, CONTACT THE DESIGN ENGINEER.
4. ALLOW FOR COMPACTION TESTING BY A N.A.T.A. REGISTERED LABORATORY FOR BASE LAYER, SUBBASE LAYER AND SUBGRADE LAYER IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 FOR PAVEMENTS (MINIMUM 2 TESTS PER LAYER). ALLOW FOR AT LEAST TWO SUCCESSFUL COMPACTION TESTS IN EACH LAYER.
5. MATCH NEW PAVEMENTS NEATLY AND FLUSH WITH EXISTING
6. AFTER BASE IS APPROVED, SWEEP CLEAN AND PRIME AT NOMINAL RATE OF 1.0L PER 1.0 sq.m.
7. PAVEMENT HOLD POINTS
   - 7.1. SUB-GRADE PROOF ROLL PRIOR TO SET-UP AND FORM FOR CONCRETE POUR.
   - 7.2. INSPECTION OF FORMWORK / STEEL PRIOR TO CONCRETE POUR.
   - 7.3. SUBMISSION OF SUB-GRADE AND BASE DENSITY TESTS.

ASPHALTIC CONCRETE

1. GENERAL
   - 1.1. ALL ASPHALTIC CONCRETE (AC) WORK TO BE PREPARED AND CARRIED OUT IN ACCORDANCE WITH GOOD ASPHALTIC PAVING PRACTICE AS DESCRIBED IN AS2150-2005 "ASPHALT (HOT-MIXED) PAVING - GUIDE TO GOOD PRACTICE" AND CURRENT RMS SPECIFICATIONS.
2. PAVEMENT PREPARATION
   - 2.1. THE FINISHED PAVEMENT SURFACE TO BE SEALED SHALL BE WITHIN +/- 2% OF THE OPTIMUM AND BROOMED BEFORE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFICIAL FOREIGN MATTER.
   - 2.2. PRIME ALL SURFACES TO BE SEALED. ALLOW PRIME TO SETTLE FOR A MINIMUM OF 3 DAYS BEFORE APPLYING TACK COAT AND ASPHALT.
   - 2.3. SWEEP PRIMED SURFACES BEFORE APPLYING TACK COAT.
   - 2.4. ALL DEPRESSIONS OR UNEVEN AREAS ARE TO BE TACK-COATED AND BROUGHT UP TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE LAYING OF MAIN COURSE.
   - 2.5. ALL DEFECTS IN THE BASE COURSE INCLUDING CRACKS, SURFACE DEFORMATION AND THE LIKE SHALL BE REPAIRED AS DIRECTED BY THE SUPERINTENDENT PRIOR TO PLACEMENT OF

NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW.
IF CONFLICT ARISE, BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE.

ENGINEERING CERTIFICATION

1. TO CERTIFY THE CONSTRUCTED CIVIL WORKS, A QUALIFIED EXPERIENCED ENGINEER IS TO VISIT THE SITE TO OBSERVE CONSTRUCTION TECHNIQUES AND VARIOUS ELEMENTS THAT MAY BE CONCEALED WHEN THE WORKS ARE COMPLETE.

2. THIS SPECIFICATION ALLOWS FOR CERTIFICATION OF WORKS CONTROLLED BY A PRIVATE CERTIFIER FOR LAND DEVELOPMENT WORKS. THIS SPECIFICATION DOES NOT COVER CERTIFICATION REQUIREMENTS FOR AUTHORITIES SUCH AS COUNCIL, RMS OR OFFICE OF WATER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND PROVIDE ALL PROJECT SPECIFIC CONSTRUCTION COMPLIANCE (WORKS AS EXECUTED) INFORMATION TO THE SATISFACTION OF THE STAKEHOLDER / AUTHORITY. DISCREPANCIES BETWEEN THIS SPECIFICATION AND SPECIFICATIONS OF OTHER EXTERNAL STAKEHOLDERS / AUTHORITIES IS TO BE REPORTED TO THE SUPERINTENDENT FOR CLARIFICATION.

3. THE CONTRACTOR IS TO AGREE WITH THE ENGINEER AN APPROPRIATE SITE VISIT SCHEDULE AND FEE ARRANGEMENT PRIOR TO COMMENCEMENT OF THE WORKS. THE CONTRACTOR SHALL ENSURE THAT THE ENGINEER CAN SAFELY ACCESS ALL CIVIL ELEMENTS TO BE REVIEWED. SITE VISITS ARE CONDUCTED DURING NORMAL BUSINESS HOURS. WE REQUIRE TWO (2) WORKING DAY NOTICE FOR ANY SITE VISIT.

4. TO PROVIDE CERTIFICATION THE ENGINEER MUST VISIT THE SITE TO OBSERVE.
   - 4.1. PAVEMENTS
     - 4.1.1. POOR SUBGRADE CONDITIONS
     - 4.1.2. PROOF ROLLING OF SUB-GRADE
     - 4.1.3. PLACEMENT OF SUB-BASE COURSE, BASE COURSE AND WEARING COURSE.
     - 4.1.4. PLACEMENT OF STEEL REINFORCEMENT , DOWELS AND JOINT CRADLES PRIOR TO POURING OF CONCRETE
   - 4.2. EARTHWORKS
     - 4.2.1. TOPSOIL STRIP
     - 4.2.2. EARTHWORKS BATTER
     - 4.2.3. FILLING
   - 4.3. STORMWATER DRAINAGE
     - 4.3.1. DRAINAGE TRENCHES PRIOR TO BACKFILLING
     - 4.3.2. LEGAL POINT OF CONNECTION PRIOR TO BACKFILLING
     - 4.3.3. ANY OTHER DRAINAGE STRUCTURE THAT MAY BE CONCEALED DURING THE COURSE OF THE WORKS
   - 4.4. CONCRETE STRUCTURES
     - 4.4.1. PLACEMENT OF ANY STEEL REINFORCEMENT PRIOR TO CONSTRUCTION.

5. THE CONTRACTOR SHALL PROVIDE SURVEYED LEVELS, PREPARED BY A QUALIFIED SURVEYOR FOR SUBGRADE, SUB-BASE COURSE, BASE COURSE AND WEARING COURSE.

6. THE CONTRACTOR SHALL PROVIDE WORKS AS EXECUTED (WAE) DOCUMENTATION PREPARED BY A QUALIFIED PRACTICING SURVEYOR. THE WAE DRAWINGS SHALL CLEARLY SHOW, STORMWATER GRATE/ COVER LEVELS, STORMWATER PIT INVERT LEVELS AND CORRESPONDING INVERT LEVELS OF ANY INCOMING OR OUTGOING PIPES, DIAMETER OF ALL PIPES, DIMENSIONS AND VOLUME OF ON-SITE DETENTION FACILITIES, INVERT LEVELS OF ORIFICE PLATES, OVERFLOW WEIRS, BASE OF TANK FINISHED LEVELS OF PAVEMENTS. THE WAE SHALL SHOW WHERE THE SIZE OR ALIGNMENT OF CIVIL ENGINEERING ELEMENTS WHEN THEY DEVIATE FROM THE DESIGN DOCUMENTATION.

7. THE WAE DRAWINGS SHALL BE STAMPED WITH THE FOLLOWING STATEMENT "THESE WAE DRAWINGS HAVE BEEN PREPARED BY [COMPANY NAME] AND ARE A TRUE AND ACCURATE REPRESENTATION OF THE CONSTRUCTED WORKS". EACH DRAWING SHALL BE SIGNED AND DATED BY THE SURVEYOR WHO PREPARED THE DRAWINGS.

THESE WAE DRAWINGS HAVE BEEN PREPARED BY [COMPANY NAME] AND ARE A TRUE AND ACCURATE REPRESENTATION OF THE CONSTRUCTED WORKS.

SIGNED..... DATE.....

NAME.....

POSITION.....

8. WAE SHALL BE PROVIDED IN BOTH AUTOCAD AND PDF FORMAT. NORTHROP CONSULTING ENGINEERS WILL PROVIDE ENGINEERING PLANS TO THE CONTRACTOR IN AUTOCAD FORMAT TO AID PREPARATION OF WAE DOCUMENTATION.

9. CONTRACTOR IS TO UNDERTAKE A CCTV INSPECTION OF ALL STORMWATER DRAINAGE PIPELINES AND PROVIDE TO THE ENGINEER FOR APPROVAL.

10. THE CONTRACTOR SHALL PROVIDE ALL RELEVANT TEST CERTIFICATES PROGRESSIVELY THROUGHOUT THE DURATION OF THE WORKS. ALL TEST CERTIFICATES SHALL BE PREPARED BY A NATA REGISTERED LABORATORY. TEST CERTIFICATES ARE REQUIRED FOR PROOF ROLLING, SUBGRADE COMPACTION, COMPACTION OF PAVEMENT LAYERS, COMPACTION OF FILLING OPERATIONS, CONCRETE SLUMP TEST, AND CONCRETE STRENGTH TESTS. THE CONTRACT SHALL PROVIDE ALL RELEVANT VALIDATIONS BY A GEOTECHNICAL ENGINEER FOR ALL IMPORTED FILL

11. EACH TEST CERTIFICATE WILL NOMINATE THE DATE AND TIME OF THE TEST AND PROVIDE A LOCATION OF WHERE THE TEST SAMPLE WAS TAKEN FROM.

12. THE CONTRACTOR SHALL ARRANGE FOR THE ENGINEER TO CONDUCT A FINAL VISIT TO REVIEW OF THE CONSTRUCTED WORKS. THIS WILL REVIEW WILL NOT TAKE PLACE UNTIL THE WAE DOCUMENTATION AND RELEVANT TEST CERTIFICATES HAVE BEEN RECEIVED.

13. IF DEFECTIVE OR INCOMPLETE WORK IS FOUND DURING THE FINAL INSPECTION ANOTHER INSPECTION MAY BE REQUIRED AT THE CONTRACTORS EXPENSE TO VERIFY THE RECTIFICATION WORKS HAVE BEEN COMPLETED.

PAVEMENT JOINTS

1. 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.

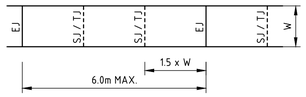
4. PEDESTRIAN PAVEMENTS
   ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.

5. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m CENTRES.

6. 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

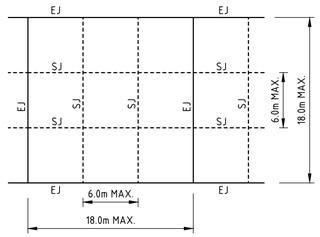


9. VEHICULAR PAVEMENTS
   ALL VEHICULAR PAVEMENTS TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.

10. TIED KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED LONGITUDINALLY AT A MAX. OF 6.0m CENTRES.

11. SAWN JOINTS SHOULD GENERALLY BE LOCATED LATERALLY AT A MAX. OF 6.0m CENTRES WITH DOWELED EXPANSION JOINTS AT MAX. 18.0m 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 CENTRES.
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 SEALING

1. THE CURING PROCESS FOR NEW CONCRETE IS TO INCORPORATE THE FOLLOWING ASPECTS, GENERALLY AS ORDERED;
   - 1.1. SPRAY CURING COMPOUND
   - 1.2. SAWCUT JOINTS AS LOCATED AND SPECIFIED AS SOON AS CURING PERMITS.
   - 1.3. 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 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. CONCRETE QUALITY AND REINFORCING COVER
   ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

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

4. CONCRETE PROPERTIES SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS
   - 4.1. MINIMUM CEMENT CONTENT 250 kg/m^3
   - 4.2. MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE
   - 4.3. 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.

5. 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.

6. CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL.

7. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379. TEST CYLINDERS ARE TO BE KEPT ON SITE.

8. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO THE CIVIL ENGINEER FOR REVIEW.

9. 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.

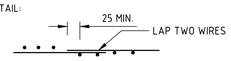
10. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE CIVIL ENGINEER.

11. FALLS IN SLAB AS SHOWN ON PLAN MAINTAIN MINIMUM SLAB THICKNESS AS SHOWN.

12. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE DESIGN ENGINEER.

13. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS.

14. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



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

15. POLYETHYLENE SHEET SHALL BE PLACED BELOW ALL CONCRETE PAVEMENTS.

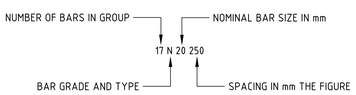
16. ALL PENETRATIONS TO HAVE 2/N12 TRIMMER BARS TOP AND BOTTOM TO EACH FACE U.N.O. EXTEND TRIMMERS 700 BEYOND PENETRATION. MAINTAIN 40mm COVER TOP AND BOTTOM.

17. FORMWORK CLASS SHALL BE IN ACCORDANCE WITH AS3600.

18. SURFACE FINISHES:

ELEMENT	FORMWORK CLASS
STORMWATER PIT	OFF FORM
PAVEMENTS	MACHINE FLOAT / BROOM FINISH
KERBS	STEEL FLOAT / TROWEL

19. REINFORCEMENT SYMBOLS:
    - N DENOTES GRADE 450 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



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	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 = B1
   NO ADMIXTURES SHALL BE USED IN CONCRETE MIX UNLESS APPROVED BY STRUCTURAL ENGINEER IN WRITING.

3. CONCRETE PROPERTIES FOR SLABS AND BEAMS SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS:
   - MINIMUM CEMENT CONTENT 250kg/cu.m.
   - 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.

4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE STRUCTURAL ENGINEER:
   - CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED)
   - STRIPPING PROCEDURE
   - DETAILS AND LOCATION OF CAST IN SERVICES
   - CONDUITS, PENETRATIONS AND CONSTRUCTION JOINT LOCATIONS

5. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB AND SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER.

6. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.

7. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN ACCORDANCE WITH AS1379. TEST CYLINDERS ARE TO BE KEPT ON SITE.

8. 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.

9. 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.

10. FORMWORK FINISH CLASSIFICATION TO AS3600:

ELEMENT	CLASS
- INGROUND FOOTINGS	5
- RETAINING WALLS	5 EARTH FACE
- RETAINING WALLS	3 EXPOSED FACE
- COLUMNS	2
- BEAMS AND SLABS	2

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 THE STRUCTURAL ENGINEER.

14. CONCRETE PROFILES:
    - BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB THICKNESS.
    - 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, CHAMFERS, DRIP GROOVES, REGLETS ETC TO BE TO ARCHITECTS DETAILS.

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.

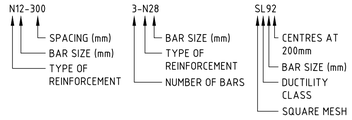
CONCRETE (cont)

17. REINFORCEMENT GRADE AND NOTATION:

SYMBOL	BAR SHAPE	STRENGTH GRADE (MPa)	DUCTILITY 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. FOR LAPS IN MESH REFER TO SLAB ON GROUND NOTES.

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.

25. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY THE STRUCTURAL ENGINEER PRIOR TO PLACING CONCRETE.

26. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.

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.

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JT		JRG	08.04.19
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	ISSUED FOR APPROVAL	JO		JRG	19.11.19

CLIENT: RICHARD CROOKES CONSTRUCTIONS
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT: GROUP GSA

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PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
SPECIFICATION NOTES - SHEET 02

JOB NUMBER: 182535
DRAWING NUMBER: C01.12
REVISION: 3
DRAWING SHEET SIZE = A1

NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW.
IF CONFLICT ARISE, BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE BLACKTOWN CITY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE.

SCOUR PROTECTION ROCK

1. ROCK USED IN THE SCOUR PROTECTION SHALL CONSIST OF MATERIAL WHICH COMPLIES WITH THESE NOTES AND THE DRAWINGS. THIS REQUIREMENT APPLIES TO BOTH IMPORTED ROCK AND IN-SITU ROCK WHICH IS RE-USED.
2. INDIVIDUAL ROCKS SHALL BE FREE FROM CRACKS, CLEAVAGE PLANES, SEAMS AND DEFECTS WHICH WOULD RESULT IN THE BREAKDOWN OF THE ROCK IN SERVICE.
3. ROCK UNITS SHALL BE EITHER SEDIMENTARY RACK ONLY OR IGNEOUS ROCK ONLY AND AS A MINIMUM, SHALL SATISFY THE FOLLOWING CRITERIA:
   - ROCK SHALL BE ROUGH AND ANGULAR
   - ROCK SHALL HAVE A MINIMUM DRY DENSITY OF 2200 kg/m
   - IGNEOUS ROCK SHALL HAVE NO MORE THAN 10% (BY VOLUME) OLIVINE MATERIAL AND SHALL EXHIBIT NO ZONES OF SECONDARY ALTERATION SUCH AS CHLORITISATION. SEDIMENTARY ROCK SHALL HAVE A MINIMUM SODIUM SULPHATE SOUNDNESS WEIGHT LOSS NOT EXCEEDING 25%
   - ROCK SHALL HAVE A SATURATED POINT LOAD STRENGTH INDEX (IS50) NO LESS THAN 5.0 MPa FOR IGNEOUS ROCK AND 1.5 MPa FOR SEDIMENTARY ROCK
   - THE RATIO OF THE MAXIMUM DIMENSION TO THE MINIMUM DIMENSION, MEASURED AT RIGHT ANGLES TO THE MAXIMUM DIMENSION SHALL NOT EXCEED 2.5
4. THE ROCK UNITS SHALL BE PLACED SUCH THAT THE SPECIFIED REQUIREMENTS FOR SIZE, FINISHED SIDE SLOPES, TOP AND TOE LEVELS AND DENSITY REQUIREMENTS, ARE SATISFIED. IN ADDITION, ROCKS SHALL BE WEDGED AND LOCKED TOGETHER SUCH THAT THEY ARE NOT FREE TO MOVE. ROCK UNITS SHALL NOT BE ROLLED OR DROPPED INTO POSITION, THEY SHALL BE PLACED.
5. THE METHOD OF ROCK PLACEMENT SHALL BE SUCH AS TO MINIMISE ITS BREAKDOWN ON HANDLING AND THE PRODUCTION OF FINES.
6. A NON-WOVEN GEOTEXTILE (BIDIM A64 OR EQUIVALENT) SHALL BE PLACED UNDERNEATH AND BEHIND ALL ROCK ARMOUR AND EXTEND 0.5m ABOVE THE EXTENT OF THE WORKS OR AS OTHERWISE SHOWN ON THE DRAWINGS. THE GEOTEXTILE IS TO BE LAID ON A NEATLY TRIMMED BATTER THAT IS FREE OF HOLLOWS OR SHARP OBJECTS.
7. GEOTEXTILE LAYERS SHALL EITHER OVERLAP ON ANOTHER BY 1000mm OR BE SEWN TOGETHER (WITH A NON-BIODEGRADABLE THREAD) WITH AN OVERLAP OF 100mm.
8. ROCK SUB-ARMOUR SHALL BE PLACED UPON THE GEOTEXTILE IN A LAYER NO LESS THAN 150mm THICK UNLESS NOTED OTHERWISE ON DRAWINGS.
9. ROCK ARMOUR SHALL BE SELECTIVELY HAND PLACED UPON THE SUB-ARMOUR TO ENSURE A SNUG FIT SUCH THAT INDIVIDUAL ROCKS ARE NOT TO MOVE. THE PLACING OF ANY ARMOUR ROCK SHALL BE COMPLETED IN SUCH A MANNER TO MINIMISE THE DISTURBANCE OR DISLODGEMENT OF THE SUB-ARMOUR.
10. THE ROCK ARMOUR SHALL BE NO LESS THAN 375mm THICK UNLESS NOTED OTHERWISE ON THE DRAWINGS.
11. THE ARMOUR ROCK AND SUB-ARMOUR ROCK SHALL BE PLACED TO THE CONSTRUCTION TOLERANCES SHOWN ON THE DRAWINGS.
12. AT LEAST FOURTEEN (14) DAYS PRIOR TO THE SUPPLY OF ANY ROCK, THE CONTRACTOR SHALL PROVIDE DOCUMENTATION TO DEMONSTRATE THAT THE ROCK TO BE SUPPLIED COMPLIES WITH THE REQUIREMENTS OF THE SPECIFICATION.

3D INFORMATION DISCLAIMER

THE 12D DESIGN FILE SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO USE IN THE CONSTRUCTION WORKS.

HARDCOPY/PDF PLANS AND DOCUMENTS TAKE PRECEDENCE OVER THE SUPPLIED ELECTRONIC INFORMATION AND ANY INCONSISTENCIES SHOULD IMMEDIATELY BE REPORTED TO NORTHROP CONSULTING ENGINEERS FOR VERIFICATION PRIOR TO USE BY THE CONTRACTOR.

NORTHROP CONSULTING ENGINEERS TAKES NO RESPONSIBILITY FOR USE OF NON-VERIFIED 3D DESIGN INFORMATION USED IN THE WORKS.

THE USE OF THE 3D MODEL INFORMATION SHALL CONSTITUTE ACKNOWLEDGMENT AND ACCEPTANCE OF THE ABOVE STATEMENTS BY THE RECIPIENT.

SAFETY IN DESIGN

THE FOLLOWING ITEMS HAVE BEEN IDENTIFIED AS SAFETY RISKS

S01 RISK DESCRIPTION

S01 RISK DESCRIPTION

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

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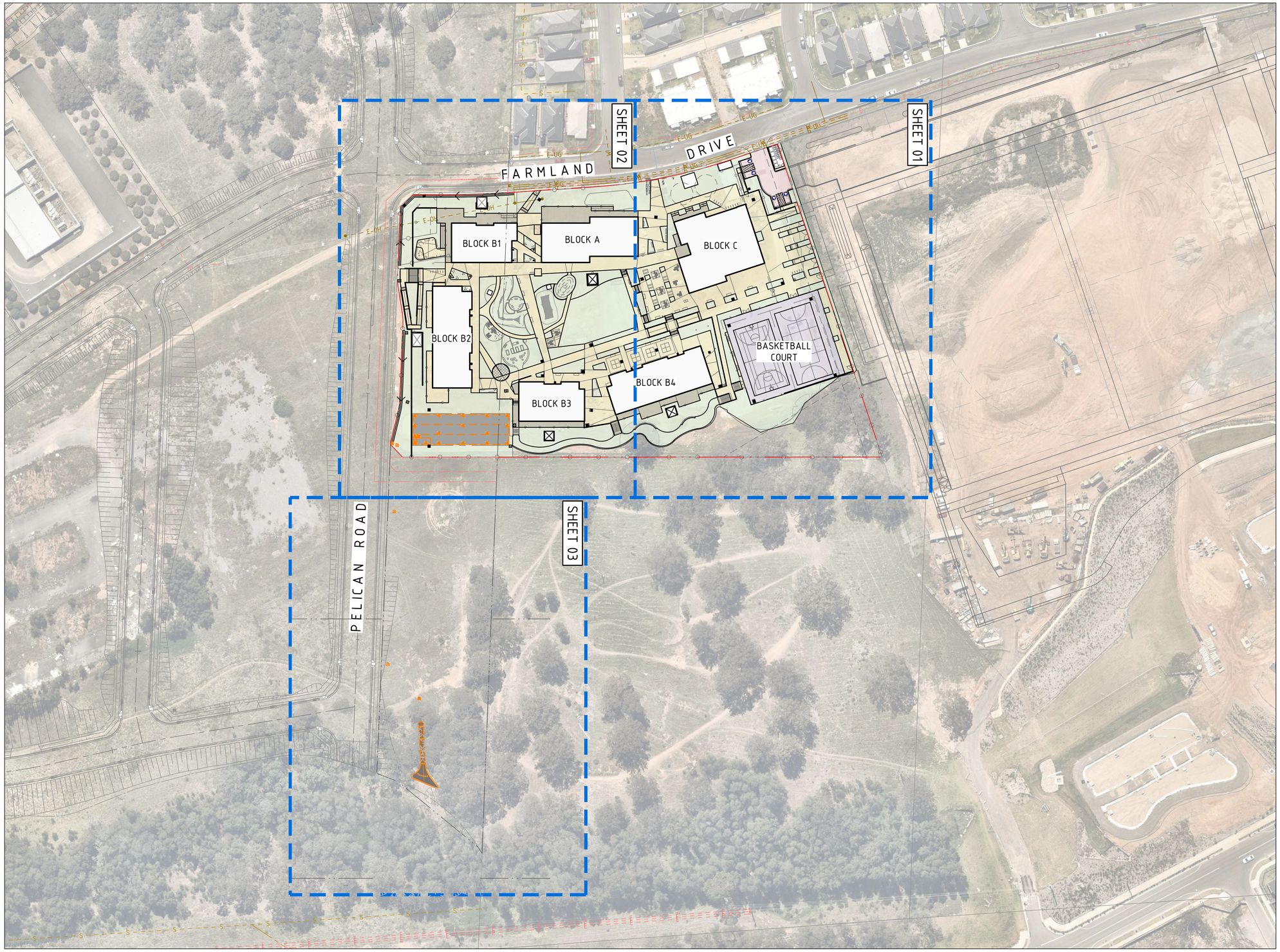
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
SPECIFICATION NOTES - SHEET 03

JOB NUMBER: 182535
DRAWING NUMBER: C01.13
REVISION: 3
DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- EXISTING KERB
- E — EXISTING ELECTRICITY
- E-OH — EXISTING ELECTRICITY (OVERHEAD)
- E-UG — EXISTING ELECTRICITY (UNDERGROUND)
- G — EXISTING GAS
- W — EXISTING WATER
- SW — EXISTING STORMWATER
- SHEET EXTENTS

GENERAL NOTES:

1. SURVEY SUPPLIED BY: LTS LOCKLEY
   - 1.1. REFERENCE NUMBER: 43778DT
   - 1.2. DATE: 09/06/2017
   - 1.3. REVISION: 1
2. ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, 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.
3. NORTHROP TAKE NO RESPONSIBILITY FOR THE ACCURACY AND/OR USE OF THIS SURVEY AND ITS CONTENTS

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
4	RE-ISSUED FOR CLIENT REVIEW	JRG		JRG	11.09.19
5	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
6	ISSUED FOR APPROVAL	JO		JRG	19.11.19
7	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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SCALE 1:500@ A1 — 0 5 10 15 20 25m

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

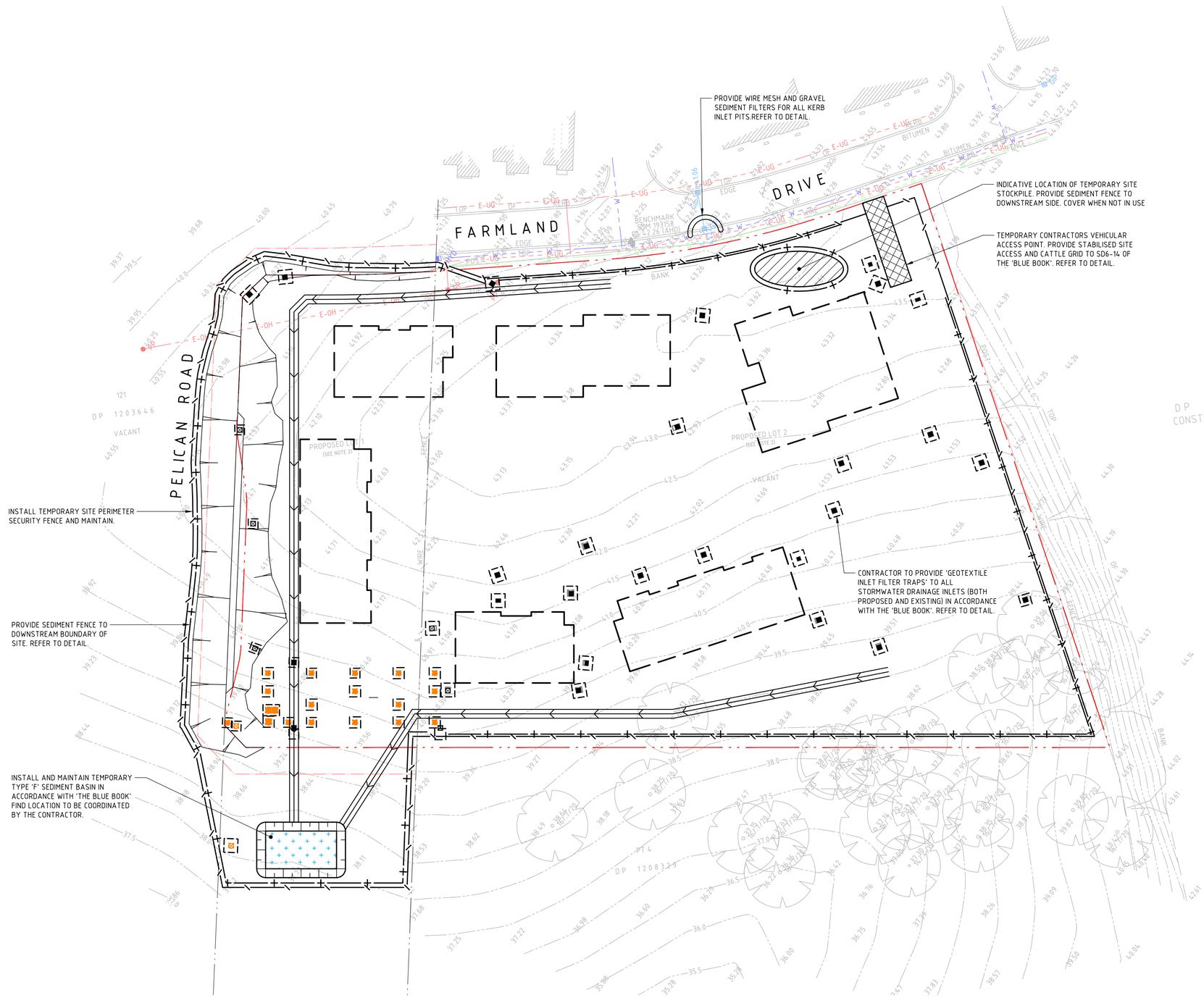
GENERAL ARRANGEMENT PLAN

JOB NUMBER: 182535

DRAWING NUMBER: C01.21

REVISION: B

DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- EXISTING KERB
- EXISTING ELECTRICITY
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING GAS
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- PROPOSED BUILDING FOOTPRINT
- WIRE MESH AND GRAVEL SEDIMENT FILTER
- GEOTEXTILE INLET FILTER TRAPS
- DRAINAGE SWALE
- STABILISED SITE ACCESS
- STOCKPILE
- EARTH BASIN - WET

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR SEDIMENT AND SOIL EROSION CONTROL GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. ALL SEDIMENT AND SOIL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE THESE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.
4. CONTRACTOR TO PROVIDE 'WIRE MESH AND GRAVEL SEDIMENT FILTER' TO ALL PAVED / ROAD AREAS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.
5. CONTRACTOR TO PROVIDE 'GEOTEXTILE INLET FILTER TRAPS' TO ALL STORMWATER DRAINAGE INLETS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
D	RE-ISSUED FOR CONSTRUCTION	VC		JRG	13.08.19
E	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
F	ISSUED FOR APPROVAL	JO		JRG	19.11.19
G	ISSUED FOR APPROVAL	CP		JRG	21.11.19
H	ISSUED FOR APPROVAL	VC		JRG	26.02.20
J	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

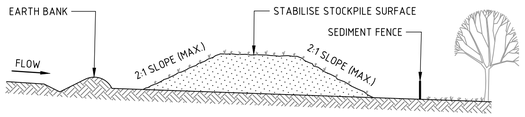
DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

SEDIMENT AND SOIL EROSION CONTROL PLAN

JOB NUMBER: 182535

DRAWING NUMBER: C02.01 REVISION: J

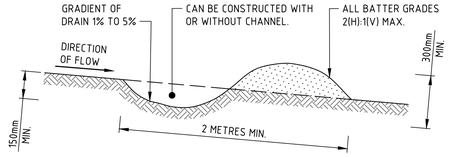
DRAWING SHEET SIZE = A1



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.

STOCKPILE

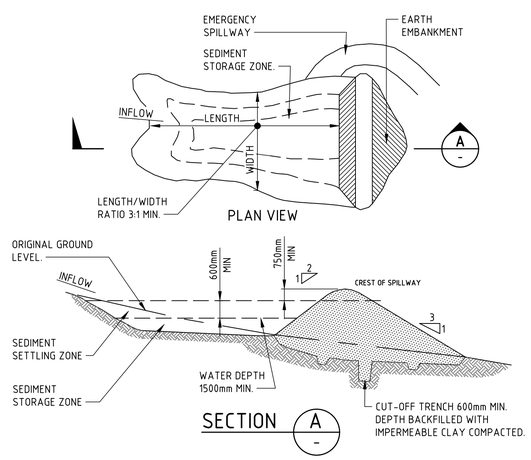


CONSTRUCTION NOTES

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.

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

DRAINAGE SWALE

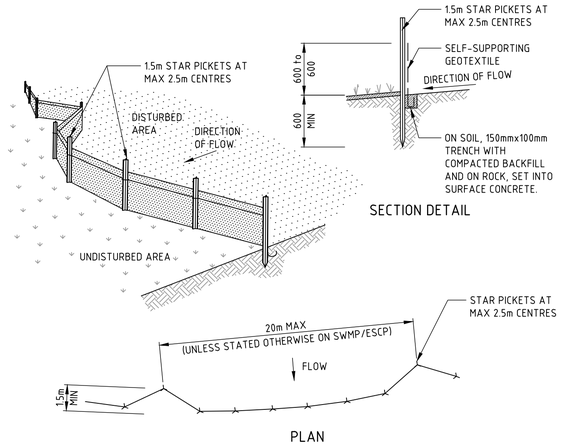


CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

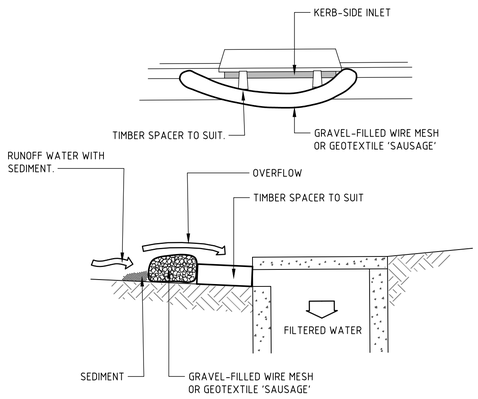
SEDIMENT BASIN



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 10-YEAR EVENT.
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

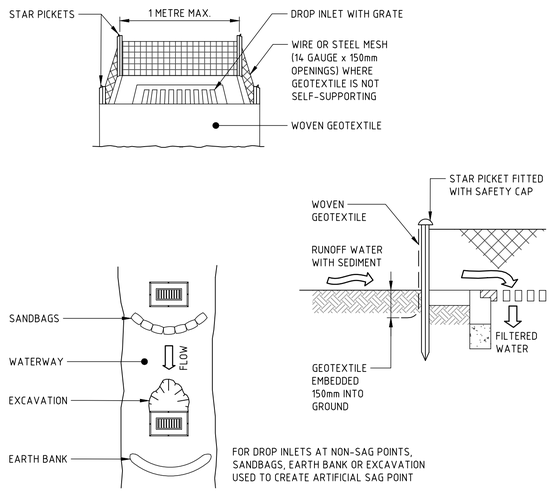


NOTE:THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

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 PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

WIRE MESH AND GRAVEL SEDIMENT FILTER



CONSTRUCTION NOTES

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.
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 WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER TRAPS

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

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

FOR CONSTRUCTION

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A	ISSUED FOR CONSTRUCTION	VC		JRG	31.05.19
B	RE-ISSUED FOR CONSTRUCTION	JO		JRG	20.06.19
C	RE-ISSUED FOR CONSTRUCTION	CP		JRG	12.07.19
D	RE-ISSUED FOR CONSTRUCTION	JO		JRG	15.11.19
E	ISSUED FOR APPROVAL	JO		JRG	19.11.19

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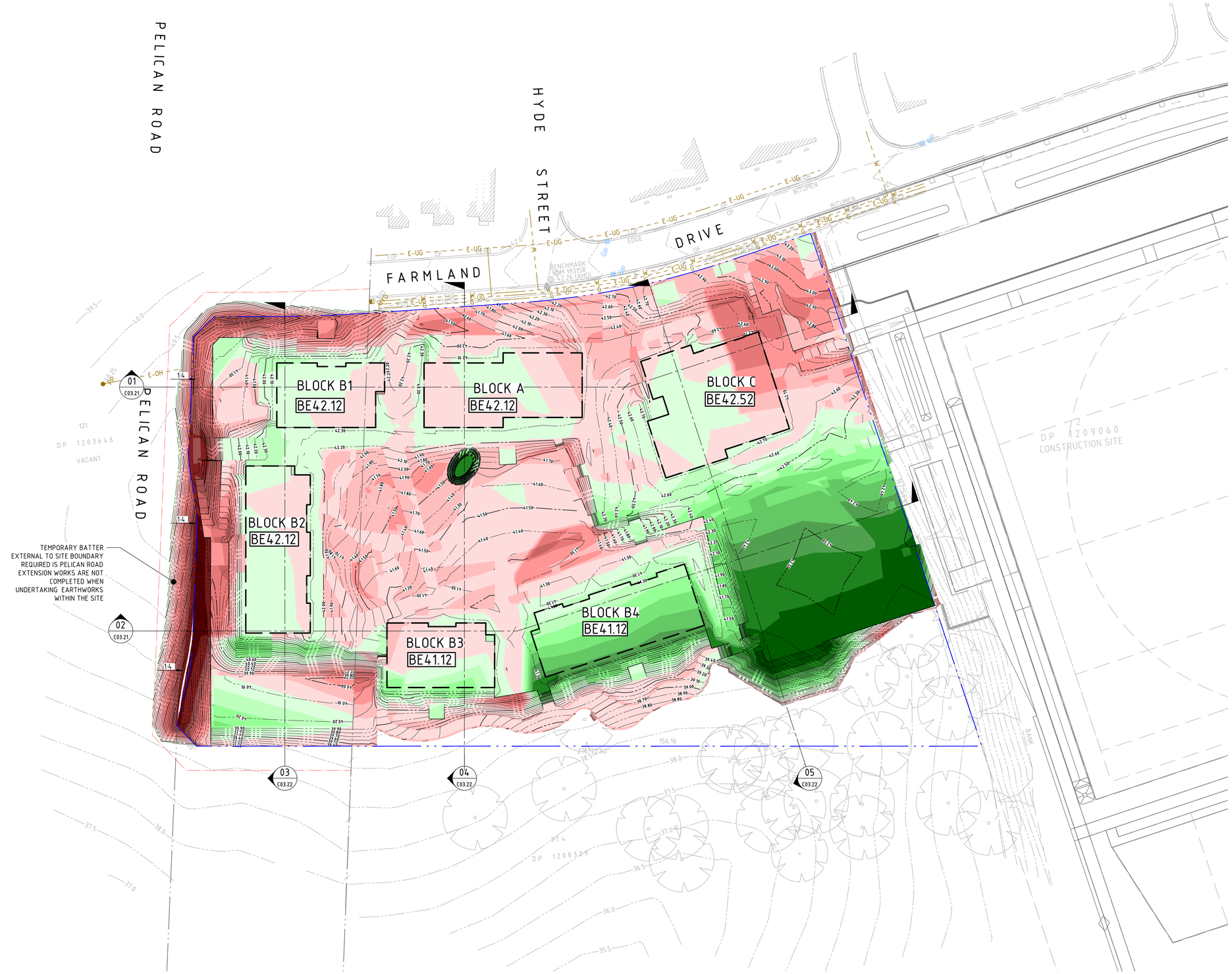
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
SEDIMENT AND SOIL EROSION CONTROL DETAILS

JOB NUMBER: 182535
DRAWING NUMBER: C02.11
REVISION: E
DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- PROPOSED BUILDING FOOTPRINT
- BEXX.XX — BULK EARTHWORKS PAD LEVEL
- X.X — DIRECTION OF GRADE
- BATTERS
- XX.XX — CONTOURS

DEPTH OF CUT

- - 999m TO - 2.0m
- - 2.0m TO - 1.5m
- - 1.5m TO - 1.25m
- - 1.25m TO - 1.0m
- - 1.0m TO - 0.75m
- - 0.75m TO - 0.5m
- - 0.5m TO - 0.25m
- - 0.25m TO - 0.0m

DEPTH OF FILL

- 0.0m TO 0.25m
- 0.25m TO 0.5m
- 0.5m TO 0.75m
- 0.75m TO 1.0m
- 1.0m TO 1.25m
- 1.25m TO 1.5m
- 1.5m TO 2.0m
- 2.0m TO 999m

GENERAL NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
2. CAD FILES / DTM FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. STRIP EXISTING TOPSOIL IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER / REPORT. FOR THE PURPOSES OF EARTHWORKS CALCULATIONS A TOPSOIL STRIPPING DEPTH OF 100mm HAS BEEN ASSUMED.
4. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.
5. NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS; ie SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALLS AND THE LIKE.
6. THE CONTRACTOR SHALL USE FINAL SURFACE LEVELS AND TYPICAL PAVEMENT DETAILS FOR ACTUAL EARTHWORKS LEVELS.
7. BULK EARTHWORKS ARE BASED ON THE FOLLOWING DEPTHS FROM FINISHED SURFACE LEVELS;
   - 7.1. BUILDING SLAB + VOID 380mm
   - 7.2. VEHICULAR PAVEMENT 520mm
   - 7.3. RUBBER SOFT FALL 200mm
   - 7.4. PLAY MULCH 400mm
   - 7.5. MASS PLANTING 375mm
   - 7.6. FOOTPATH 150mm
   - 7.7. SAND PIT 200mm
   - 7.8. TIMBER DECKS VARIES
   - 7.9. TURF 100mm
   - 7.10. ARTIFICICAL TURF 120mm
   - 7.11. OTHER EXTERNAL SURFACES 200mm
8. APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS;
   - 8.1. CUT 3,831 cu.m
   - 8.2. FILL 5,350 cu.m
   - 8.3. BALANCE 1,519 cu.m FILL
   - 8.4. NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
F	RE-ISSUED FOR CONSTRUCTION	VC		JRG	11.10.19
G	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
H	ISSUED FOR APPROVAL	JRG		JRG	09.12.19
J	ISSUED FOR APPROVAL	JRG		JRG	10.02.20
K	ISSUED FOR APPROVAL	VC		JRG	26.02.20
L	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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

ARCHITECT: GROUP GSA

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SCALE 1:500@ A1 — 0 5 10 15 20 25m

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Sydney
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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

BULK EARTHWORKS PLAN

JOB NUMBER: 182535

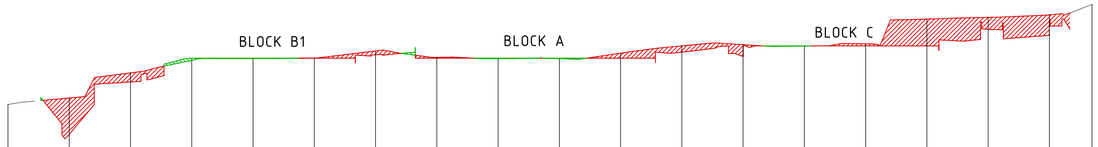
DRAWING NUMBER: C03.01

REVISION: L

DRAWING SHEET SIZE = A1

LEGEND

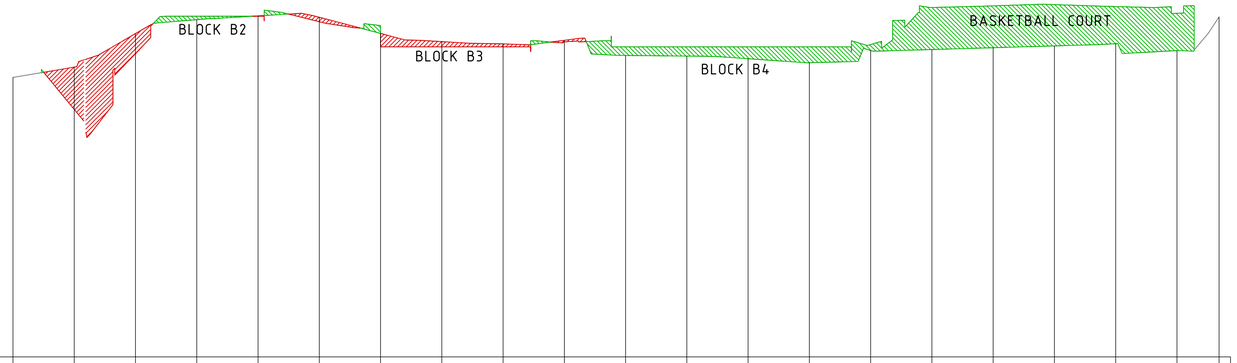
- CUT AREA
- FILL AREA



DATUM RL 32.0

BULK EARTHWORKS SURFACE		39.633	41.347	42.12	42.12	42.12	42.231	42.12	42.12	42.12	42.12	42.319	42.174	42.52	42.52	42.52	43.062	43.348		
EXISTING SURFACE	40.61	40.821	41.641	42.051	42.107	42.127	42.359	42.15	42.105	42.104	42.286	42.524	42.562	42.517	42.589	43.399	43.453	43.536	43.878	
CHAINAGE	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	176.959	

SECTION 01 (C03.01)
SCALE 1:500 (H), 1:100 (V)



DATUM RL 31.0

BULK EARTHWORKS SURFACE		39.077	40.897	42.12	42.12	41.941	41.12	41.12	41.12	41.284	41.12	41.12	41.12	41.12	41.196	42.405	42.459	42.499	42.436	42.216		
EXISTING SURFACE	40.123	40.458	41.554	42.006	42.13	42.085	41.559	41.291	41.218	41.334	40.839	40.819	40.733	40.602	41	41.032	41.091	41.151	41.223	40.999	42.095	
CHAINAGE	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	196.87	

SECTION 02 (C03.01)
SCALE 1:500 (H), 1:100 (V)

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
E	RE-ISSUED FOR CONSTRUCTION	VC		JRG	11.10.19
F	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
G	ISSUED FOR APPROVAL	JRG		JRG	09.12.19
H	ISSUED FOR APPROVAL	JRG		JRG	10.02.20
J	ISSUED FOR APPROVAL	VC		JRG	26.02.20
K	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT
RICHARD CROOKES CONSTRUCTIONS
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ARCHITECT
GROUP GSA
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Email sydney@northrop.com.au ABN 81 094 433 100

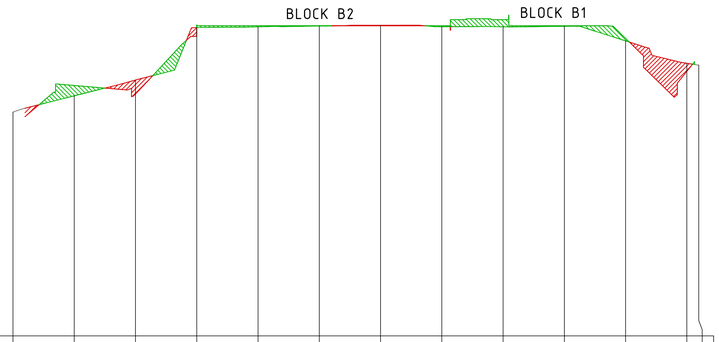
PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
BULK EARTHWORKS CUT AND FILL SECTIONS - SHEET 01

JOB NUMBER 182535
DRAWING NUMBER C03.21
REVISION K
DRAWING SHEET SIZE = A1

LEGEND

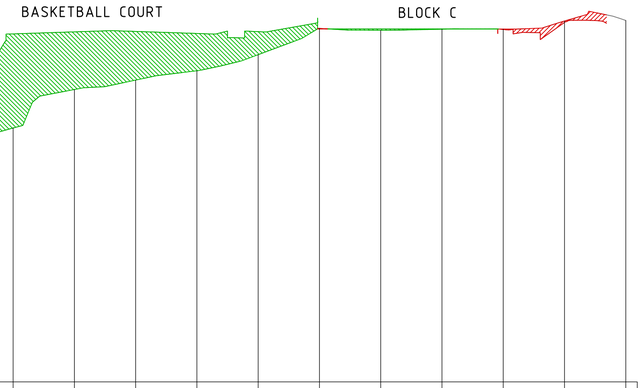
- CUT AREA
- FILL AREA



DATUM RL 32.0

BULK EARTHWORKS SURFACE		40.173	39.896	42.12	42.12	42.12	42.12	42.12	42.32	42.12	41.709	40.634		
EXISTING SURFACE	39.304	39.834	40.349	42.062	42.087	42.113	42.139	42.09	42.087	42.104	41.627	40.897	40.835	
CHAINAGE	0	10	20	30	40	50	60	70	80	90	100	110	111.94	

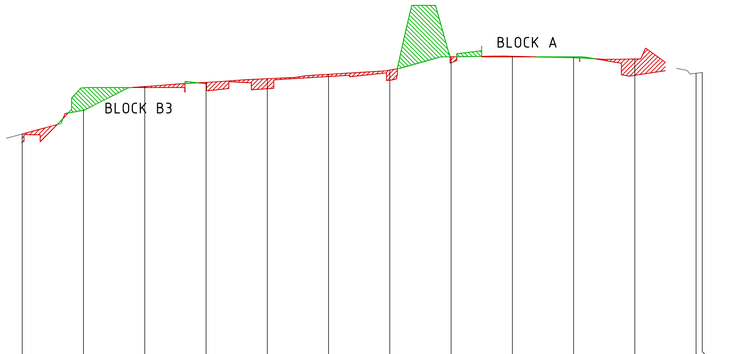
SECTION 03 (C03.01)
SCALE 1:500 (H), 1:100 (V)



DATUM RL 31.0

BULK EARTHWORKS SURFACE			39.242	42.358	42.424	42.438	42.371	42.431	42.52	42.52	42.52	42.502	42.731		
EXISTING SURFACE	37.633	38.146	38.727	39.286	40.542	40.849	41.155	41.68	42.536	42.476	42.509	42.516	42.777	42.795	
CHAINAGE	0	10	20	30	40	50	60	70	80	90	100	110	120	130	

SECTION 05 (C03.01)
SCALE 1:500 (H), 1:100 (V)



DATUM RL 32.0

BULK EARTHWORKS SURFACE		39.341	41.109	41.12	41.247	41.079	41.477	41.358	41.927	42.12	42.12	41.519			
EXISTING SURFACE	39.051	39.603	40.375	41.151	41.287	41.407	41.55	41.689	42.122	42.14	42.09	42.048	41.585	41.611	
CHAINAGE	0	10	20	30	40	50	60	70	80	90	100	110	120	121	

SECTION 04 (C03.01)
SCALE 1:500 (H), 1:100 (V)

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
D	RE-ISSUED FOR CONSTRUCTION	VC		JRG	13.08.19
E	RE-ISSUED FOR CONSTRUCTION	VC		JRG	11.10.19
F	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
G	ISSUED FOR APPROVAL	JRG		JRG	09.12.19
H	ISSUED FOR APPROVAL	JRG		JRG	10.02.20
J	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT
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ARCHITECT
GROUP GSA
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SCALE 1:500@ A1 — 0 5 10 15 20 25m
SCALE 1:100 @ A1 — 0 1 2 3 4 5m

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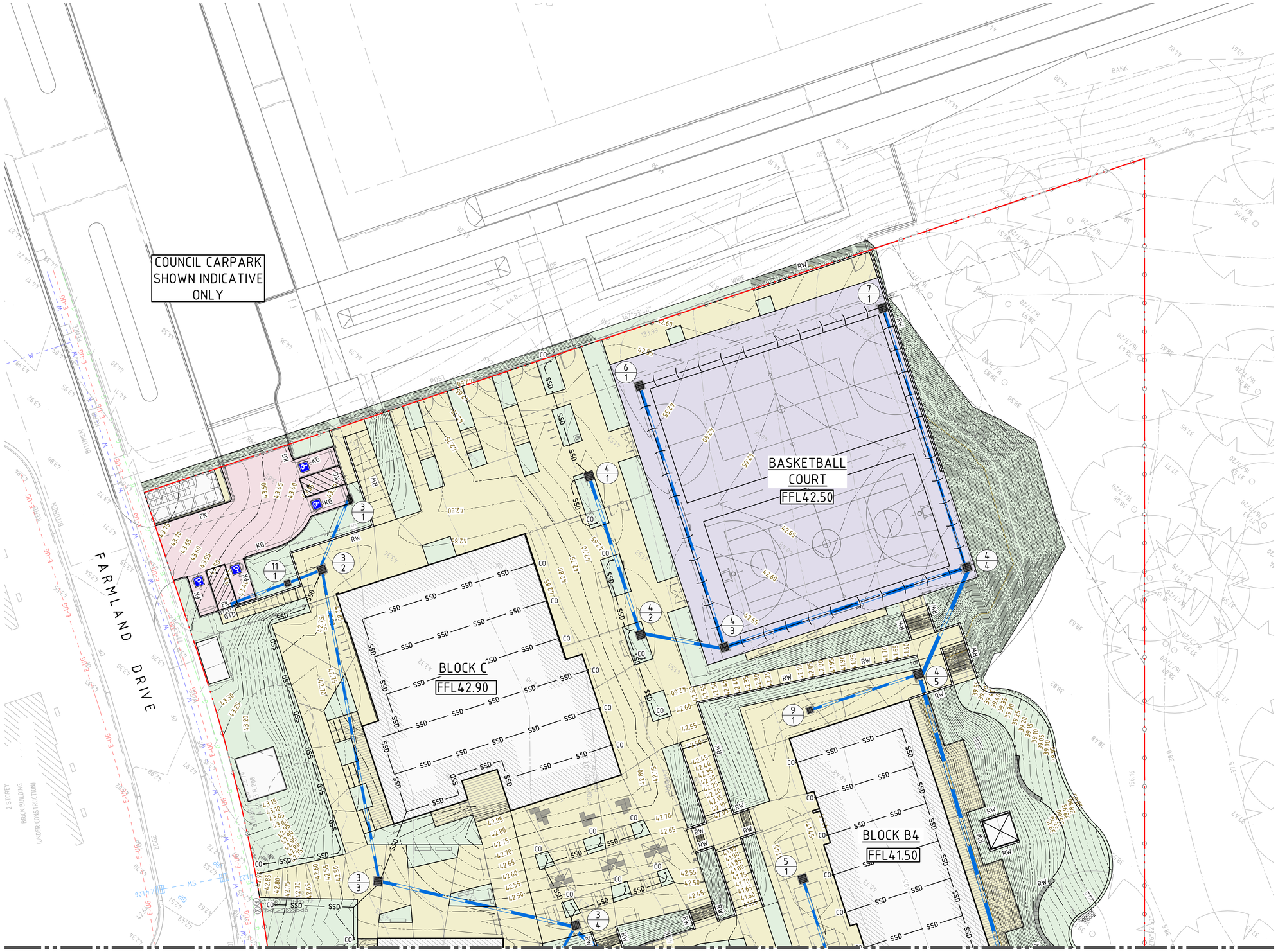
PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
BULK EARTHWORKS CUT AND FILL SECTIONS - SHEET 02

JOB NUMBER 182535
DRAWING NUMBER C03.22
REVISION J
DRAWING SHEET SIZE = A1



FOR CONTINUATION REFER TO SHEET 02

LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- E — EXISTING ELECTRICITY
- E-OH — EXISTING ELECTRICITY (OVERHEAD)
- E-UG — EXISTING ELECTRICITY (UNDERGROUND)
- G — EXISTING GAS
- W — EXISTING WATER
- SW — EXISTING STORMWATER
- PROPOSED KERB
- EXISTING KERB
- INT — SAWCUT AND PAVEMENT INFILL
- KO — KERB ONLY
- KG — KERB AND GUTTER
- FK — FLUSH KERB
- VC — VEHICULAR CROSSING
- KR — KERB RAMP
- MTE — MATCH TO EXISTING
- • RL.XX.XX — PROPOSED SPOT HEIGHT
- × eRL.XX.XX — EXISTING SPOT HEIGHT
- FFL.XX.XX — PROPOSED FINISHED FLOOR LEVEL
- X.X — DIRECTION OF GRADE
- BATTERS
- XX.XX — CONTOURS
- XX.XX — EXISTING CONTOURS
- DRAINAGE SWALE
- 300 WIDE SPOON DRAIN
- NEW DRAINAGE STRUCTURE
- DRAINAGE STRUCTURE SEPARATE PACKAGE APPROVAL
- EXISTING DRAINAGE STRUCTURE
- GTD — NEW GRATED TRENCH DRAIN
- STORMWATER PIPE
- STORMWATER PIPE SEPARATE PACKAGE APPROVAL
- SW — EXISTING STORMWATER PIPE
- 2/1 — STRUCTURE No / LINE ID STORMWATER PIT TAG
- RWT — RAINWATER HARVESTING TANK
- RW — RETAINING WALL - REFER TO RETAINING WALL PLAN FOR DETAIL
- FOOTPATH - REFER TO PAVEMENT PLAN FOR DETAIL
- TIMBER DECK - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- LANDSCAPING - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- VEHICULAR PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL
- BASKETBALL COURT PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
4. SUBSOIL DRAINAGE TO RETAINING WALLS, KERBS AND SWALE DRAINS NOT SHOWN FOR CLARITY - REFER RELEVANT DETAILS.
5. REFER 'STORMWATER LONGITUDINAL SECTIONS' FOR PIPE INFORMATION.
6. REFER HYDRAULIC ENGINEERS / ARCHITECTS DRAWINGS FOR DOWNPIPE LOCATIONS AND SIZING.
7. CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATIONS.
8. ALL SURFACE INLET PITS ARE TO BE FITTED WITH OCEAN PROTECT "200 MICRON OCEANGUARD" PIT INSERTS.

NOT FOR CONSTRUCTION

DRAWN: C PASKE
DESIGNED: J GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	CP		JRG	21.11.19
7	ISSUED FOR APPROVAL	JRG		JRG	15.04.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20
C	ISSUED FOR COUNCIL REVIEW	VC		JRG	04.06.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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ARCHITECT: GROUP GSA

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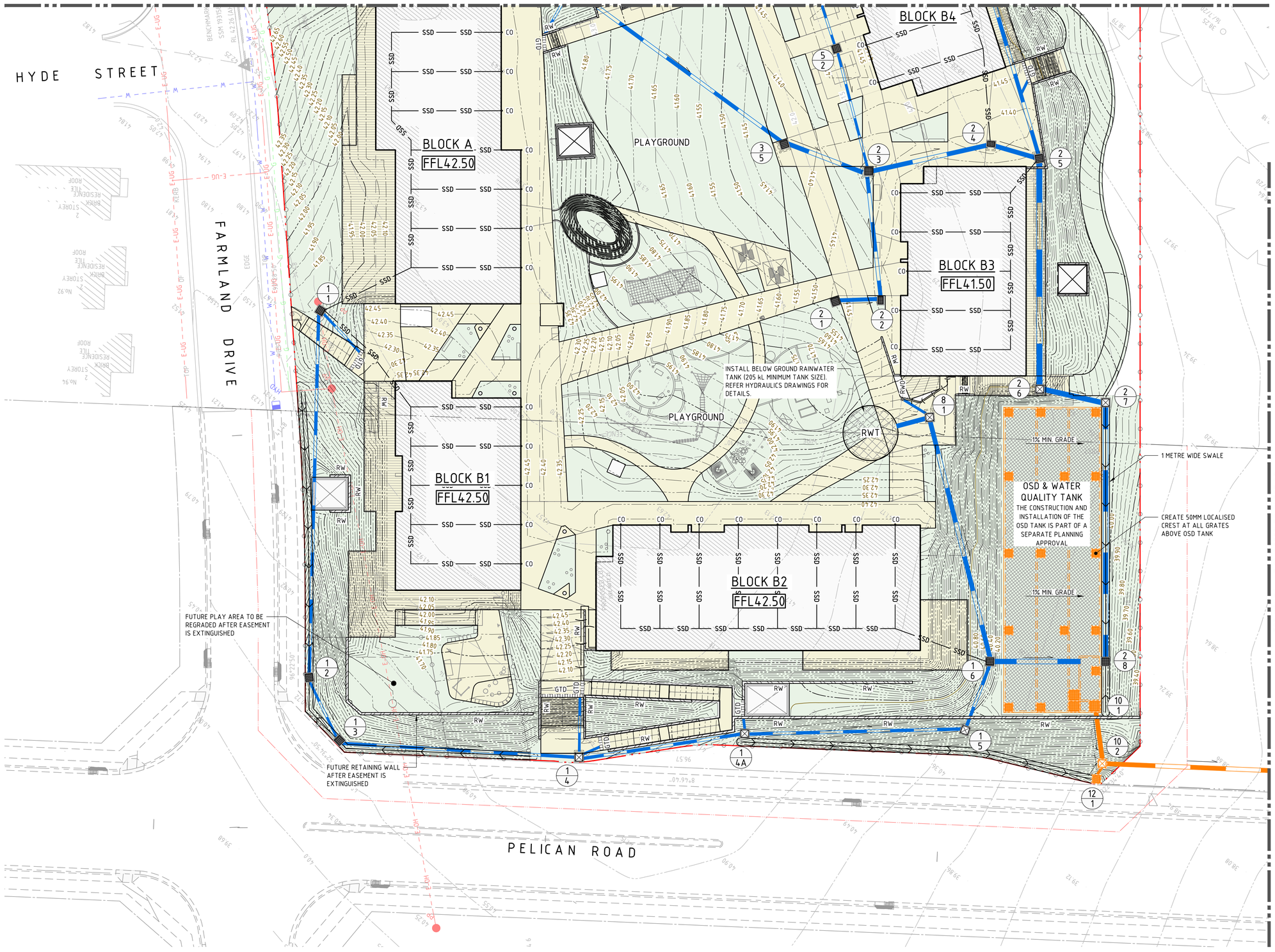
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01

JOB NUMBER: 182535
DRAWING NUMBER: C04.01
REVISION: C
DRAWING SHEET SIZE = A1

FOR CONTINUATION REFER TO SHEET 01



FOR CONTINUATION REFER TO SHEET 03

LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- E — EXISTING ELECTRICITY
- E-OH — EXISTING ELECTRICITY (OVERHEAD)
- E-UG — EXISTING ELECTRICITY (UNDERGROUND)
- G — EXISTING GAS
- W — EXISTING WATER
- SW — EXISTING STORMWATER
- PROPOSED KERB
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- DRAINAGE STRUCTURE SEPARATE PACKAGE APPROVAL
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- VEHICULAR PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL
- BASKETBALL COURT PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
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NOT FOR CONSTRUCTION

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
7	ISSUED FOR APPROVAL	VC		JRG	26.02.20
8	ISSUED FOR APPROVAL	VC		JRG	07.04.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20
C	ISSUED FOR COUNCIL REVIEW	JO		JRG	03.06.20
D	ISSUED FOR COUNCIL REVIEW	VC		JRG	04.06.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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ARCHITECT: GROUP GSA

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SCALE 1:250@ A1 (0 2 4 6 8 10 12m)

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02

JOB NUMBER: 182535

DRAWING NUMBER: C04.02

REVISION: D

DRAWING SHEET SIZE = A1

LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- E — EXISTING ELECTRICITY
- E-OH — EXISTING ELECTRICITY (OVERHEAD)
- E-UG — EXISTING ELECTRICITY (UNDERGROUND)
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- FK — FLUSH KERB
- VC — VEHICULAR CROSSING
- KR — KERB RAMP
- MTE — MATCH TO EXISTING
- • RL.XX.XX — PROPOSED SPOT HEIGHT
- × eRL.XX.XX — EXISTING SPOT HEIGHT
- FFL.XX.XX — PROPOSED FINISHED FLOOR LEVEL
- X.X — DIRECTION OF GRADE
- BATTERS
- XX.XX — CONTOURS
- XX.XX — EXISTING CONTOURS
- DRAINAGE SWALE
- 300 WIDE SPOON DRAIN
- NEW DRAINAGE STRUCTURE
- DRAINAGE STRUCTURE SEPARATE PACKAGE APPROVAL
- EXISTING DRAINAGE STRUCTURE
- GTD — NEW GRATED TRENCH DRAIN
- STORMWATER PIPE
- STORMWATER PIPE SEPARATE PACKAGE APPROVAL
- SW — EXISTING STORMWATER PIPE
- 2 / 1 — STRUCTURE No / LINE ID STORMWATER PIT TAG
- RWT — RAINWATER HARVESTING TANK
- RW — RETAINING WALL - REFER TO RETAINING WALL PLAN FOR DETAIL
- FOOTPATH - REFER TO PAVEMENT PLAN FOR DETAIL
- TIMBER DECK - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- LANDSCAPING - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- VEHICULAR PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL
- BASKETBALL COURT PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
4. SUBSOIL DRAINAGE TO RETAINING WALLS, KERBS AND SWALE DRAINS NOT SHOWN FOR CLARITY - REFER RELEVANT DETAILS.
5. REFER 'STORMWATER LONGITUDINAL SECTIONS' FOR PIPE INFORMATION.
6. REFER HYDRAULIC ENGINEERS / ARCHITECTS DRAWINGS FOR DOWNPIPE LOCATIONS AND SIZING.
7. CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATIONS.
8. ALL SURFACE INLET PITS ARE TO BE FITTED WITH OCEAN PROTECT "200 MICRON OCEANGUARD" PIT INSERTS.

NOT FOR CONSTRUCTION

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
2	ISSUED FOR APPROVAL	JO		JRG	19.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20
C	ISSUED FOR COUNCIL REVIEW	VC		JRG	04.06.20

CLIENT
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GROUP GSA

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SCALE 1:250@ A1
0 2 4 6 8 10 12m

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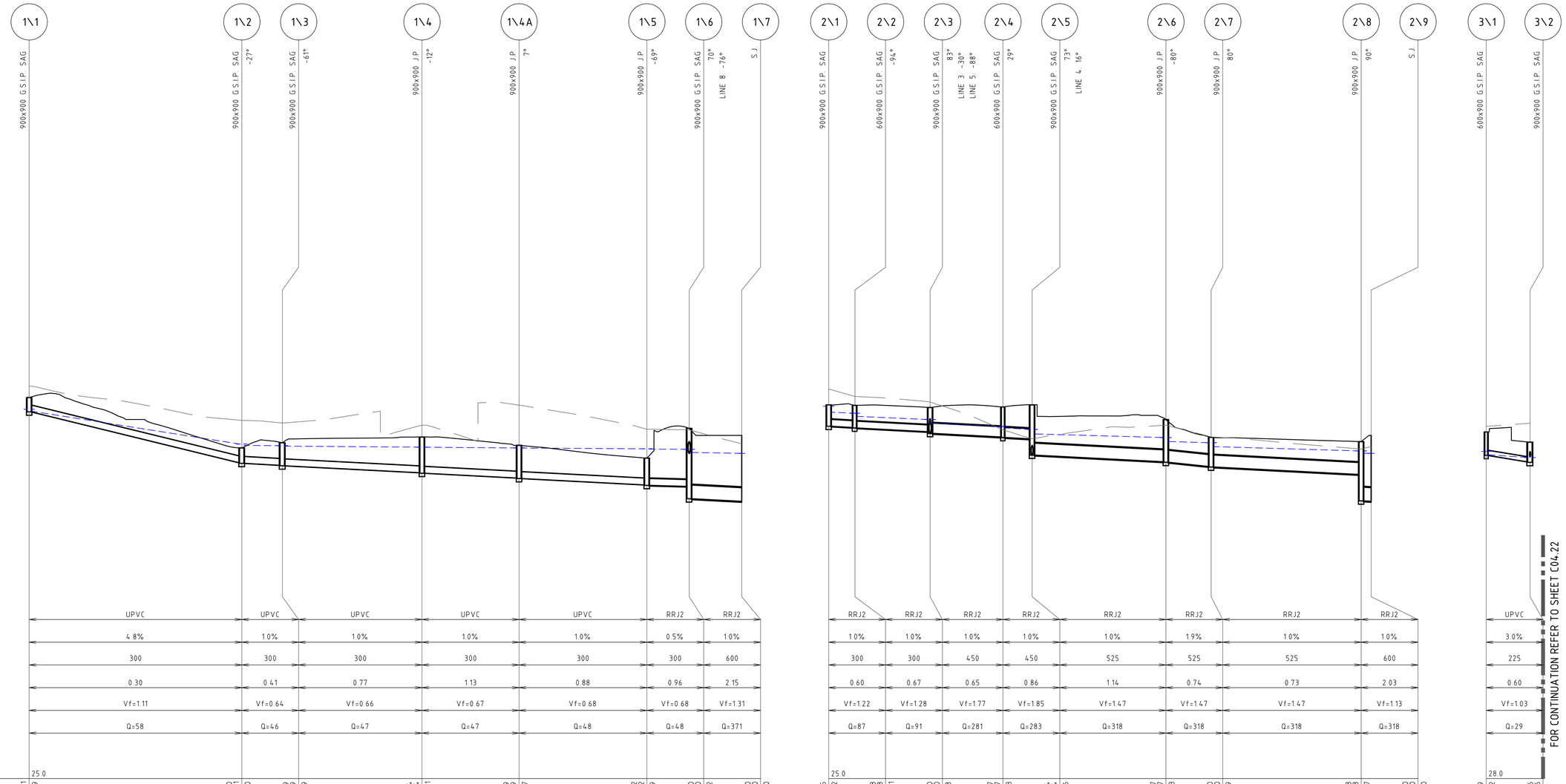
PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 03

JOB NUMBER 182535
DRAWING NUMBER C04.03
REVISION C
DRAWING SHEET SIZE = A1



	1\1	1\2	1\3	1\4	1\4A	1\5	1\6	1\7
PIPE CLASS	UPVC	UPVC	UPVC	UPVC	UPVC	UPVC	RRJ2	RRJ2
PIPE GRADE (%)	4.8%	1.0%	1.0%	1.0%	1.0%	0.5%	1.0%	
PIPE SIZE (mm)	300	300	300	300	300	300	600	
MINIMUM COVER (m)	0.30	0.41	0.77	1.13	0.88	0.96	2.15	
Vf - FULL PIPE VELOCITY (m/s)	Vf=1.11	Vf=0.64	Vf=0.66	Vf=0.67	Vf=0.68	Vf=0.68	Vf=1.31	
Q - PIPE FLOW (L/s)	Q=58	Q=46	Q=47	Q=47	Q=48	Q=48	Q=371	
DATUM RL	25.0							
H.G.L. (1% A.E.P.)	41.251 41.169	39.720 39.721	39.660 39.649 39.649 39.629	39.584 39.584 39.581	39.549 39.549 39.547	39.512 39.512	39.499 39.490 39.490 39.352	39.310 39.310 39.310
FINISHED SURFACE	41.769	39.550	39.777	40.031	39.667	39.101	40.412	40.100
NATURAL SURFACE	42.279	40.760	40.645	40.553	41.436	40.375	40.345	39.734
PIPE INVERT LEVEL	41.137	38.894 38.874	38.784 38.764	38.457 38.437	38.224 38.204	37.923 37.903	37.856 37.315	37.200 37.200
DEPTH TO INVERT	0.632	0.656 0.676	0.992 1.012	1.574 1.594	1.443 1.463	1.178 1.198	2.556 3.097	2.900 2.900
CO-ORDINATED SETOUT	E303569.511 N6269039.471	E303523.212 N6269046.123	E303514.762 N6269043.261	E303509.257 N6269013.057	E303509.921 N6268991.717	E303507.229 N6268963.739	E303515.581 N6268959.616	E303514.298 N6268948.138
CHAINAGE	-22.455	24.320	33.241	63.943	85.294	113.401	122.715	134.265

LINE 1

	2\1	2\2	2\3	2\4	2\5	2\6	2\7	2\8	2\9
PIPE CLASS	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	
PIPE GRADE (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.9%	1.0%	1.0%	
PIPE SIZE (mm)	300	300	450	450	525	525	525	600	
MINIMUM COVER (m)	0.60	0.67	0.65	0.86	1.14	0.74	0.73	2.03	
Vf - FULL PIPE VELOCITY (m/s)	Vf=1.22	Vf=1.28	Vf=1.77	Vf=1.85	Vf=1.47	Vf=1.47	Vf=1.47	Vf=1.13	
Q - PIPE FLOW (L/s)	Q=87	Q=91	Q=281	Q=283	Q=318	Q=318	Q=318	Q=318	
DATUM RL	25.0								
H.G.L. (1% A.E.P.)	41.385 41.122	41.078 41.078	40.941 40.800 40.800 40.648	40.497 40.497 40.433	40.364 40.364 40.166	40.007 40.007 39.833	39.780 39.780 39.609	39.418 39.418 39.317	39.310 39.310 39.310
FINISHED SURFACE	41.446	41.424	41.330	41.350	41.446	40.801	40.016	39.828	40.100
NATURAL SURFACE	42.141	41.814	41.569	40.352	39.956	40.550	40.037	39.501	39.612
PIPE INVERT LEVEL	40.506	40.448 40.428	40.263 40.191	40.031 40.011	39.947 39.236	38.941 38.921	38.732 38.712	38.382 37.222	37.200 37.200
DEPTH TO INVERT	0.940	0.976 0.996	1.067 1.139	1.319 1.339	1.499 2.211	1.860 1.880	1.285 1.305	1.446 2.606	2.900 2.900
CO-ORDINATED SETOUT	E303563.382 N6268974.109	E303562.895 N6268968.355	E303579.418 N6268968.068	E303581.129 N6268952.137	E303578.607 N6268946.237	E303549.361 N6268949.447	E303546.581 N6268939.899	E303513.787 N6268943.566	E303514.031 N6268945.753
CHAINAGE	0.000	5.774	22.300	38.323	44.739	74.162	84.106	117.105	119.305

LINE 2

	3\1	3\2
PIPE CLASS	UPVC	
PIPE GRADE (%)	3.0%	
PIPE SIZE (mm)	225	
MINIMUM COVER (m)	0.60	
Vf - FULL PIPE VELOCITY (m/s)	Vf=1.03	
Q - PIPE FLOW (L/s)	Q=29	
DATUM RL	28.0	
H.G.L. (1% A.E.P.)	42.399 42.252	42.126 42.126
FINISHED SURFACE	43.254	42.806
NATURAL SURFACE	43.502	43.635
PIPE INVERT LEVEL	42.224	41.934
DEPTH TO INVERT	1.030	0.871
CO-ORDINATED SETOUT	E303666.403 N6269025.260	E303655.889 N6269029.800
CHAINAGE	-6.345	3.303

LINE 3

FOR CONTINUATION REFER TO SHEET C04.22

VERIFIER:
JOB MANAGER: J. GILLIGAN
DESIGNED: J. GRINSELL
DRAWN: C. PASKE

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2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

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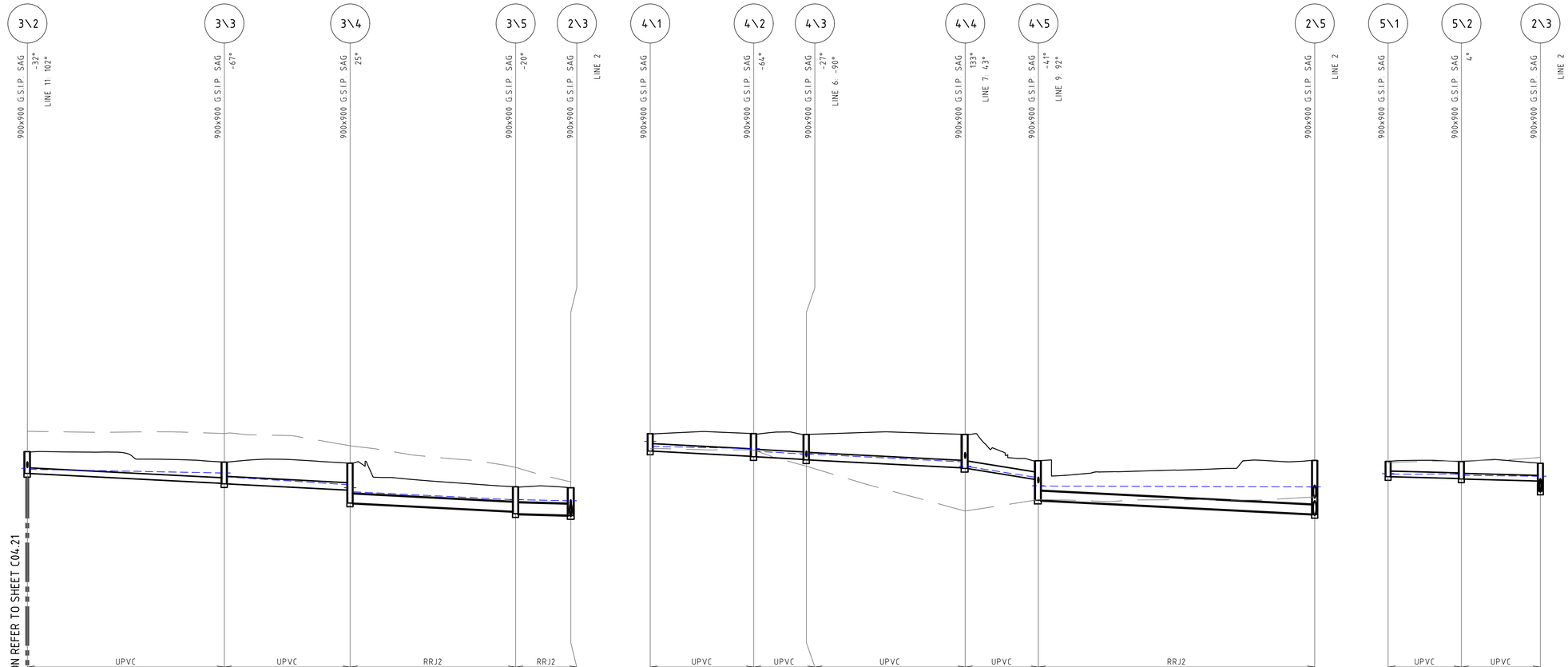
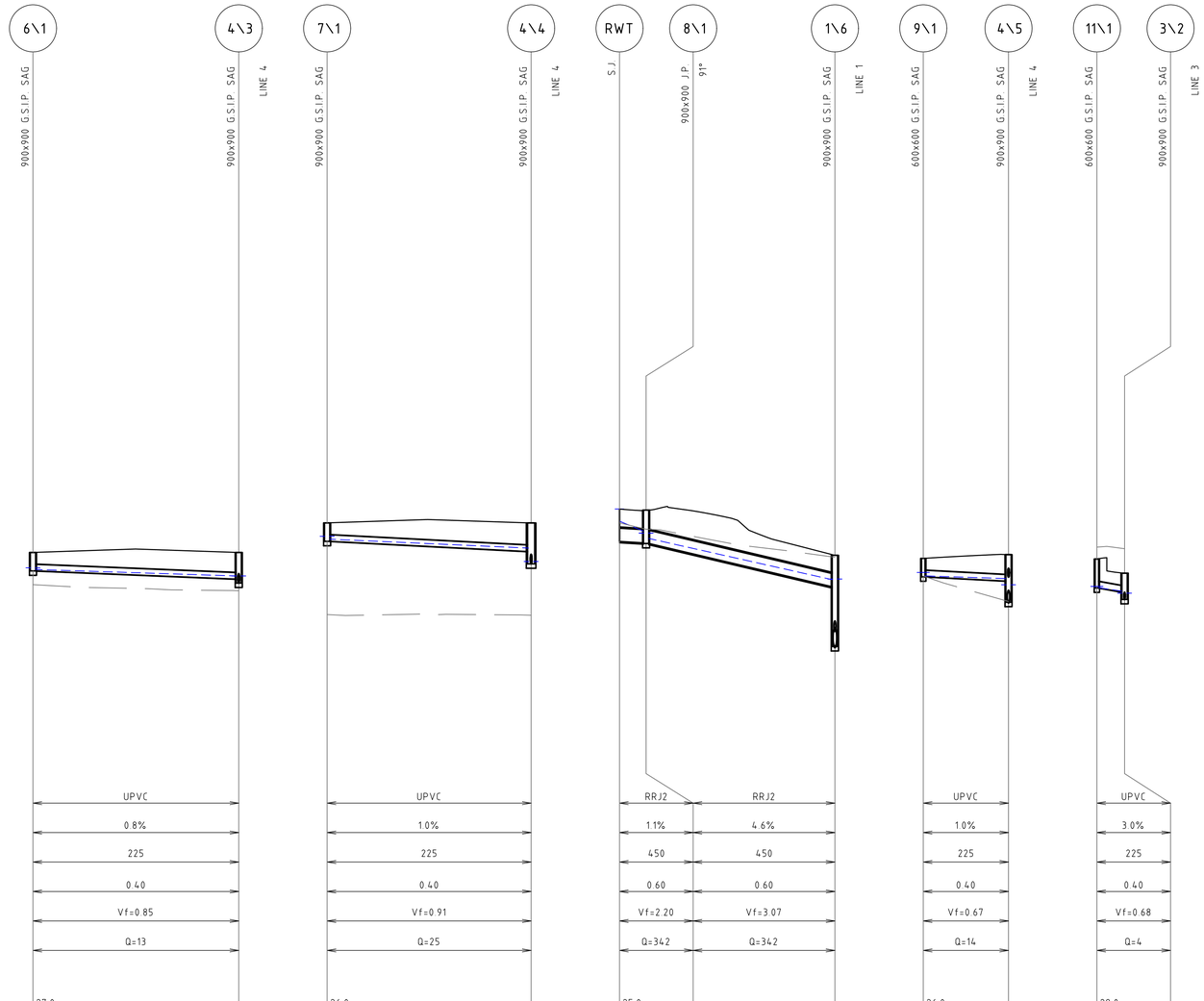
PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
STORMWATER LONGITUDINAL SECTIONS - SHEET 01

JOB NUMBER 182535
DRAWING NUMBER C04.21
REVISION A
DRAWING SHEET SIZE = A1


3\2
3\3
3\4
3\5
2\3
4\1
4\2
4\3
4\4
4\5
2\5
5\1
5\2
2\3
900x900 G.S.I.P. SAG -32° LINE 11: 102°
900x900 G.S.I.P. SAG -67°
900x900 G.S.I.P. SAG 25°
900x900 G.S.I.P. SAG -20°
900x900 G.S.I.P. SAG LINE 2
900x900 G.S.I.P. SAG
900x900 G.S.I.P. SAG -64°
900x900 G.S.I.P. SAG -27° LINE 6: -90°
900x900 G.S.I.P. SAG 133° LINE 7: 43°
900x900 G.S.I.P. SAG -41° LINE 9: 92°
900x900 G.S.I.P. SAG LINE 2
900x900 G.S.I.P. SAG
900x900 G.S.I.P. SAG 4°
900x900 G.S.I.P. SAG LINE 2
FOR CONTINUATION REFER TO SHEET C04.21

| | | |



	6\1	4\3	7\1	4\4	RWT	8\1	1\6	9\1	4\5	11\1	3\2
PIPE CLASS	UPVC		UPVC		RRJ2	RRJ2		UPVC		UPVC	
PIPE GRADE (%)	0.8%		1.0%		1.1%	4.6%		1.0%		3.0%	
PIPE SIZE (mm)	225		225		450	450		225		225	
MINIMUM COVER (m)	0.40		0.40		0.60	0.60		0.40		0.40	
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.85		Vf=0.91		Vf=2.20	Vf=3.07		Vf=0.67		Vf=0.68	
Q - PIPE FLOW (L/s)	Q=13		Q=25		Q=342	Q=342		Q=14		Q=4	
DATUM RL	27.0		26.0		25.0			26.0		28.0	
H.G.L. (1% A.E.P.)	41.988 41.931	41.711 41.711 41.711	42.058 41.959	41.658 41.203 41.196	41.984 41.571	41.233 41.166 40.984	39.584 39.607 39.352	40.829 40.713	40.622 40.412 40.399	42.356 42.311	42.194 42.126 42.083
FINISHED SURFACE	42.510	42.509	42.513	42.509	41.982	41.946	40.412	41.307	41.434	43.287	42.806
NATURAL SURFACE	41.417	41.210	39.402	39.378	41.513	41.298	40.345	40.709	39.845	43.691	43.635
PIPE INVERT LEVEL	41.882	41.602 41.470	41.885	41.538 41.121	40.882	40.833 40.813	39.343 37.315	40.680	40.535 39.820	42.301	42.160 41.914
DEPTH TO INVERT	0.628	0.907 1.039	0.628	0.971 1.389	1.100	1.113 1.133	1.069 3.097	0.627	0.899 1.614	0.986	0.646 0.891
CO-ORDINATED SETOUT	E303674.614 N6268987.129	E303640.398 N6268980.099	E303680.970 N6268955.337	E303647.057 N6268948.341	E303546.691 N6268968.257	E303547.358 N6268963.793	E303515.581 N6268959.616	E303631.247 N6268970.182	E303634.228 N6268956.022	E303654.638 N6269034.331	E303655.889 N6269029.800
CHAINAGE	0.000	34.931	0.000	34.627	0.000	4.514 36.564		0.000	14.470	0.000	4.701
	LINE 6		LINE 7		LINE 8			LINE 9		LINE 11	

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

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PROJECT
ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

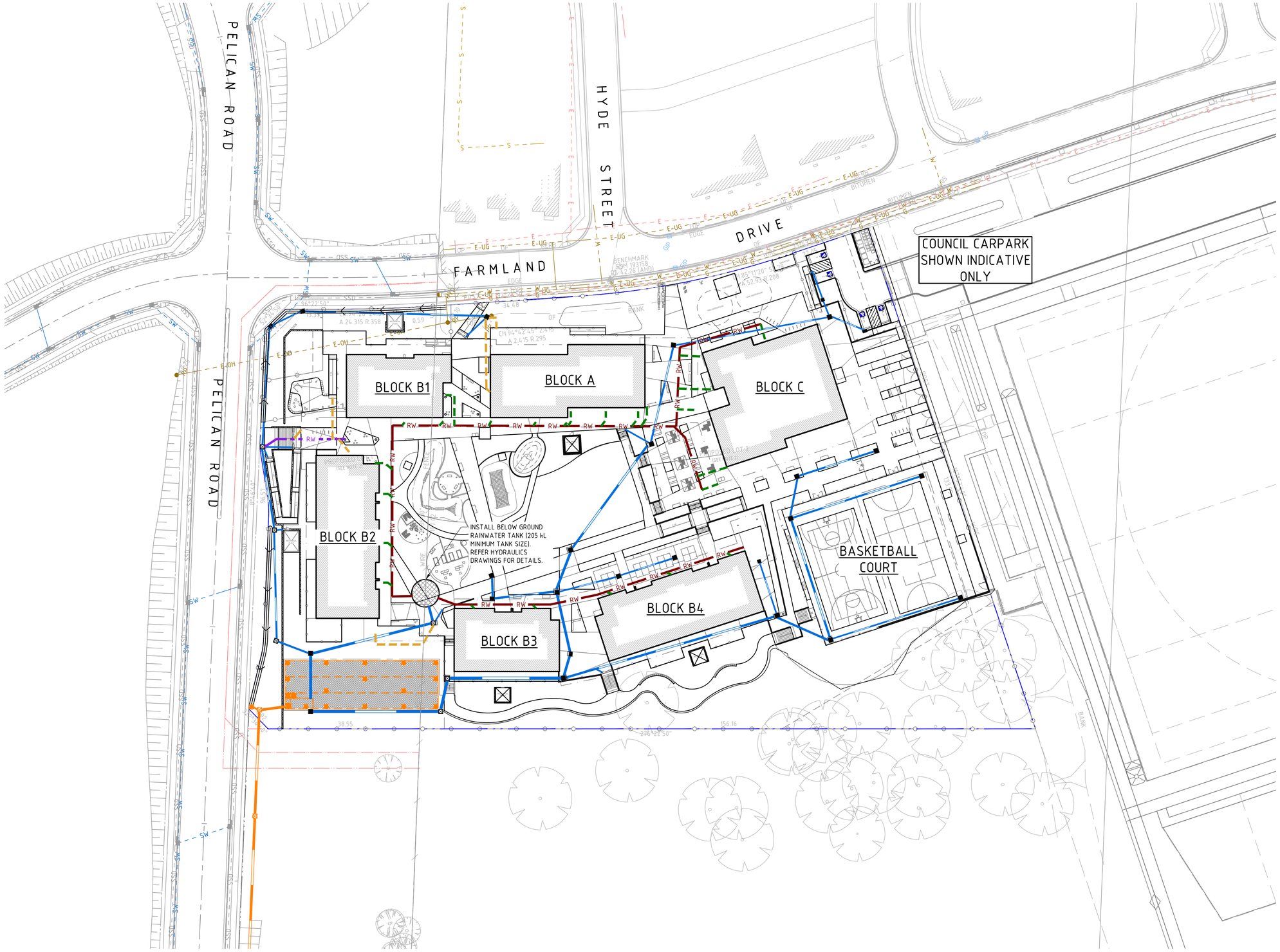
DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

STORMWATER LONGITUDINAL SECTIONS - SHEET 03

JOB NUMBER **182535**

DRAWING NUMBER **C04.23** REVISION **A**

DRAWING SHEET SIZE = A1



LEGEND

- RW — Ø225 RAINWATER PIPE
- Ø150 RAINWATER PIPE
- RW — Ø225 FLOOR WASTE PIPE
- Ø150 FLOOR WASTE PIPE
- STORMWATER PIT
- STORMWATER PIPE

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR APPROVAL	JRG		JRG	02.03.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20
C	ISSUED FOR COUNCIL REVIEW	VC		JRG	04.06.20

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SCALE 1:500@ A1 — 0 5 10 15 20 25m

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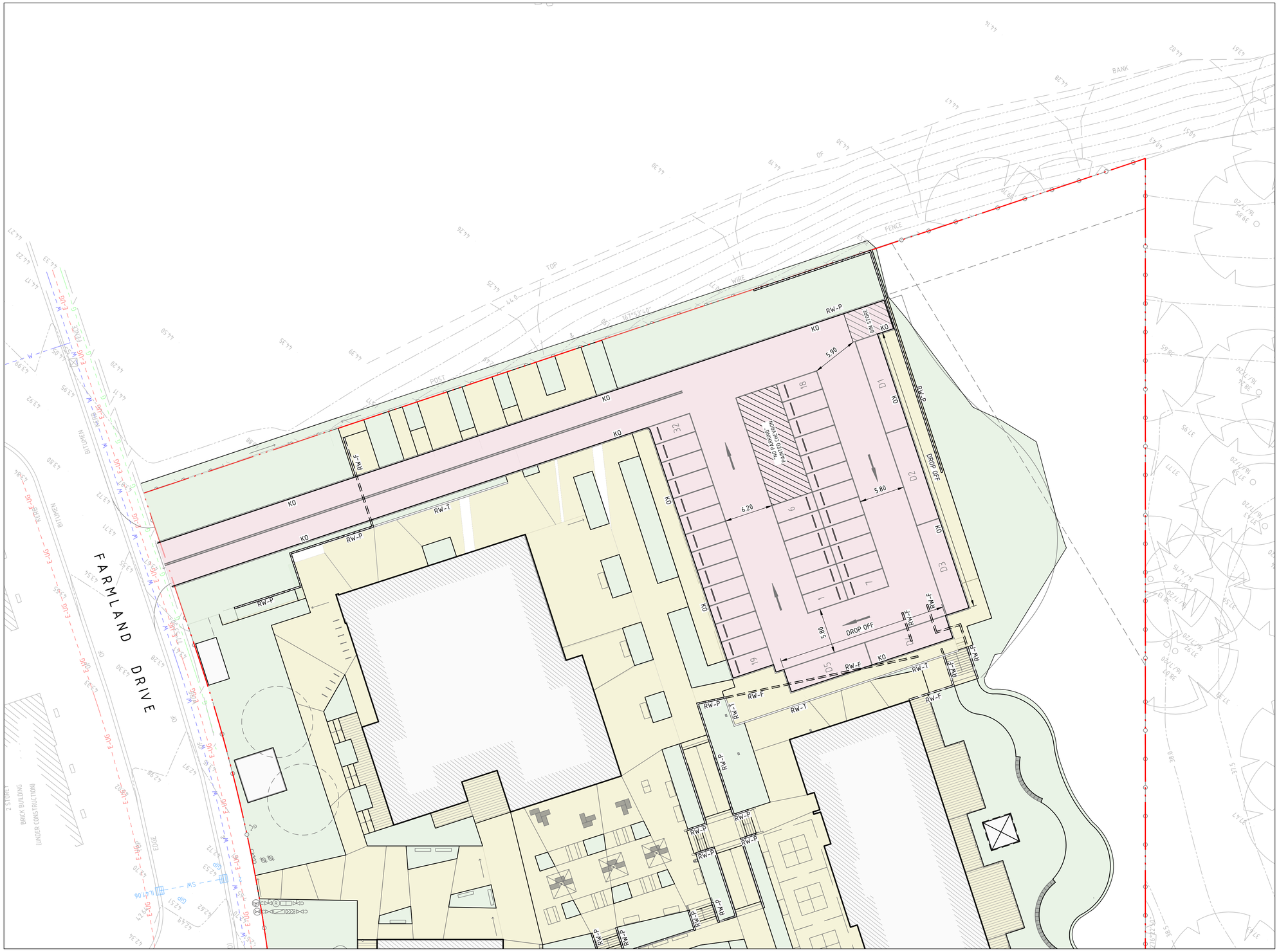
PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
RAINWATER RE-USE PLAN

JOB NUMBER 182535
DRAWING NUMBER C04.41
REVISION C
DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- PROPOSED KERB
- KO — KERB ONLY
- PROPOSED DRAINAGE STRUCTURE
- RW-P — PROPOSED RETAINING WALL
- RW-F — FUTURE RETAINING WALL
- RW-T — TEMPORARY RETAINING WALL
- VEHICULAR PAVEMENT - REFER TO PAVEMENT PLAN FOR DETAIL

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR APPROVAL	JRG		JRG	21.11.19
2	ISSUED FOR APPROVAL	JRG		JRG	24.04.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

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SCALE 1:250@ A1
0 2 4 6 8 10 12m

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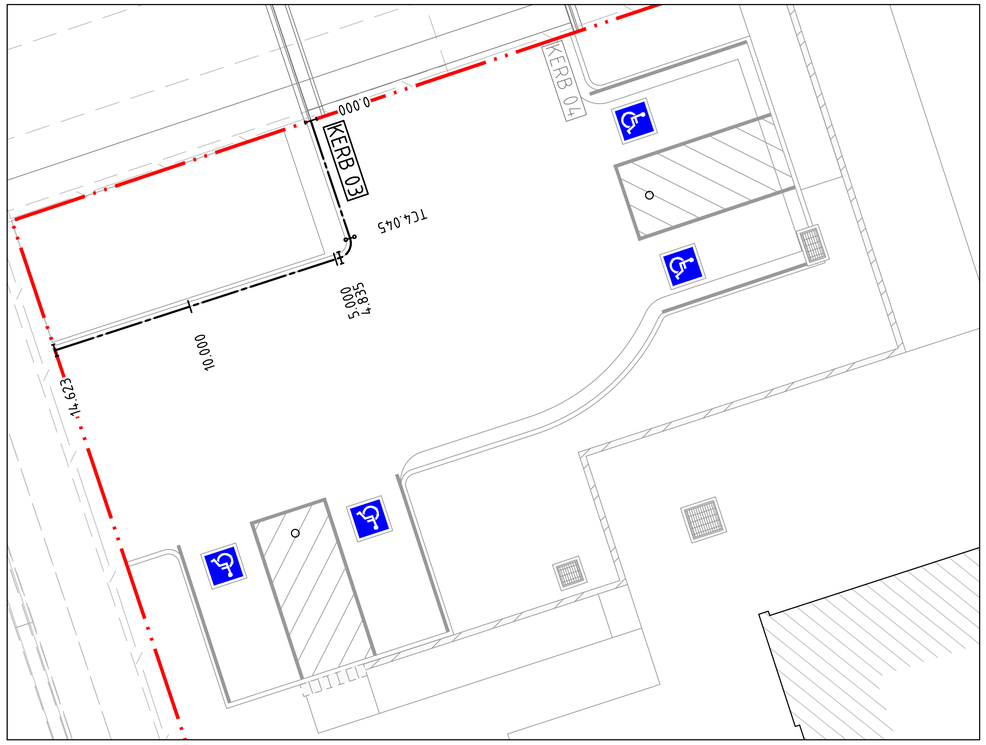
PROJECT
ALEX AVENUE PRIMARY SCHOOL

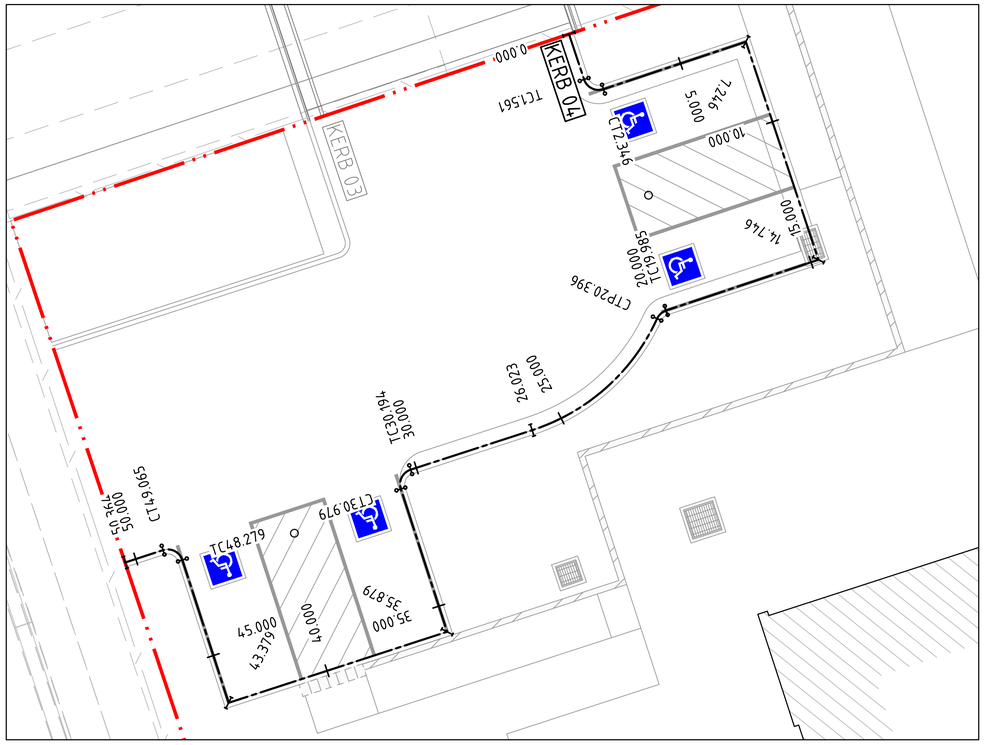
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

TEMPORARY CARPARK LAYOUT PLAN

JOB NUMBER 182535
DRAWING NUMBER C04.51
REVISION A
DRAWING SHEET SIZE = A1





LEGEND

— · · —	PROPOSED BOUNDARY LINE
— · · — · · —	EXISTING BOUNDARY LINE
KERB	CONTROL LINE
— CH0.00	CHAINAGE

GENERAL NOTES:

1. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).

D KERB->KERB 03 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	303670.263	6269041.098	43.601	257°53'45.00"			
TC	4.045	303666.308	6269040.250	43.601	257°53'45.00"			
IP 2	4.440	303665.815	6269040.144	43.603		R = 0.500	0.790	90°29'07.80"
CT	4.835	303665.713	6269040.638	43.609	348°22'52.80"			
IP 3	14.623	303663.742	6269050.226	43.776	348°22'52.80"			

D KERB->KERB 03 VERTICAL POINTS

PT	CHAINAGE	HEIGHT
IP 1	0.000	43.601
IP 2	4.340	43.601
IP 3	14.623	43.776

D KERB->KERB 04 HORIZONTAL POINTS

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	303672.133	6269032.377	43.450	257°57'46.65"			
TC	1.561	303670.607	6269032.051	43.435	257°57'46.65"			
IP 2	1.953	303670.118	6269031.947	43.431		R = -0.500	0.785	90°00'00.00"
CT	2.346	303670.222	6269031.458	43.426	167°57'46.65"			
IP 3	7.246	303671.244	6269026.666	43.355				
IP 4	14.746	303663.909	6269025.102	43.247				
TC	19.985	303662.817	6269030.225	43.301	347°57'46.65"			
IP 5	20.190	303662.771	6269030.438	43.303		R = -0.500	0.411	47°06'36.60"
CC	20.396	303662.584	6269030.550	43.305	300°51'10.05"			
IP 6	23.209	303660.020	6269032.082	43.334		R = 6.782	5.627	47°32'07.46"
IP 7	26.023	303659.419	6269035.007	43.364				
TC	30.194	303658.579	6269039.093	43.407	348°22'45.42"			
IP 8	30.586	303658.478	6269039.582	43.411		R = -0.500	0.785	89°57'50.62"
CT	30.979	303657.989	6269039.482	43.407	258°24'54.80"			
IP 9	35.879	303653.188	6269038.498	43.358				
IP 10	43.379	303651.677	6269045.844	43.478				
TC	48.279	303656.477	6269046.828	43.575	78°24'54.80"			
IP 11	48.672	303656.967	6269046.929	43.582		R = -0.500	0.786	90°02'09.38"
CT	49.065	303656.867	6269047.419	43.596	348°22'45.42"			
IP 12	50.364	303656.605	6269048.692	43.642	348°22'45.42"			

D KERB->KERB 04 VERTICAL POINTS

PT	CHAINAGE	HEIGHT
IP 1	0.000	43.450
IP 2	2.099	43.430
IP 3	14.679	43.247
IP 4	20.055	43.301
IP 5	30.578	43.412
IP 6	35.794	43.357
IP 7	43.411	43.478
IP 8	48.682	43.583
IP 9	50.364	43.642

NOT FOR CONSTRUCTION

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
2	ISSUED FOR CLIENT REVIEW	CP		JRG	11.15.19
3	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
4	ISSUED FOR APPROVAL	JO		JRG	19.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

CLIENT
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SCALE 1:100 @ A1
0 1 2 3 4 5m

NORTHROP
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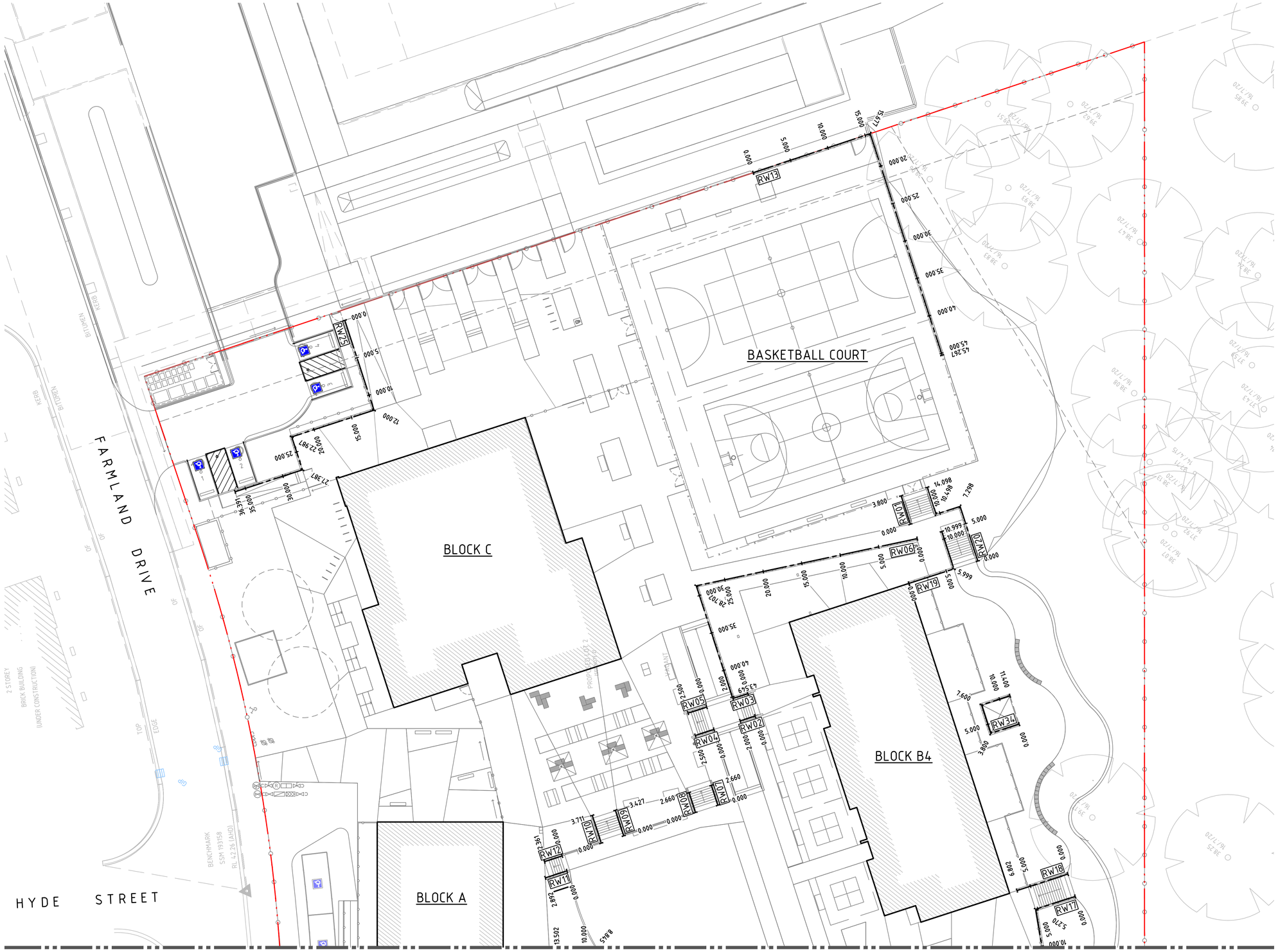
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
SITEWORKS SETOUT
CONTROL PLAN & TABLES

JOB NUMBER 182535
DRAWING NUMBER C06.01
REVISION B
DRAWING SHEET SIZE = A1



LEGEND

	PROPOSED BOUNDARY LINE
	EXISTING BOUNDARY LINE
	EASEMENT LINE
RWXX	CONTROL LINE
CH0.00	CHAINAGE

GENERAL NOTES:

1. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	CP		JRG	21.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

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SCALE 1:250@ A1
0 2 4 6 8 10 12m

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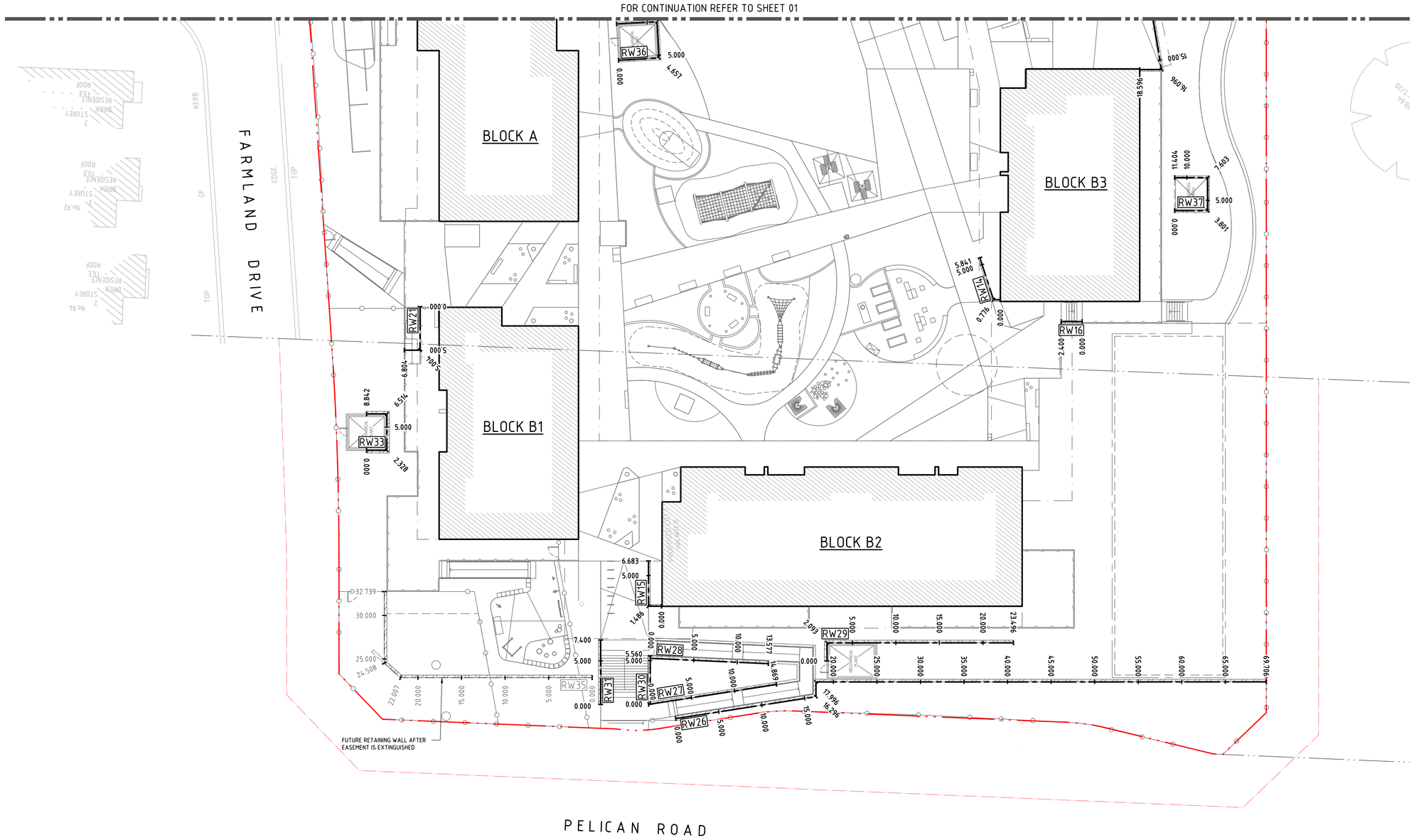
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
RETAINING WALL SETOUT PLAN - SHEET 01

JOB NUMBER 182535
DRAWING NUMBER C07.01
REVISION A
DRAWING SHEET SIZE = A1



LEGEND

— · · —	PROPOSED BOUNDARY LINE
— · · —	EXISTING BOUNDARY LINE
— · · —	EASEMENT LINE
RWXX — · · —	CONTROL LINE
— CH0.00	CHAINAGE

GENERAL NOTES:

1. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	CP		JRG	21.11.19
7	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

RETAINING WALL SETOUT PLAN - SHEET 02

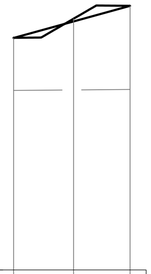
JOB NUMBER: 182535

DRAWING NUMBER: C07.02 REVISION: A

DRAWING SHEET SIZE = A1

GENERAL NOTES

1. REFER SPECIFICATIONS NOTES FOR GENERAL REQUIREMENTS.
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

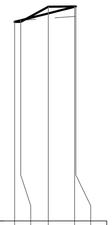


DATUM RL34

EXISTING SURFACE	39.858	39.875	39.89
HEIGHT (FSL-FSL)	0.01	0.09	0.00
RETAINING WALL TOP FSL	41.58	42.20	42.62
RETAINING WALL BOTTOM FSL	41.57	42.11	42.62
CHAINAGE	0.00	1.96	3.80

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW01 BW RETAINING WALL

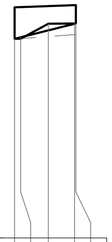


DATUM RL35

EXISTING SURFACE	41.532	41.546	41.613	41.676	41.679
HEIGHT (FSL-FSL)	0.00	0.05	-0.22	-0.01	0.00
RETAINING WALL TOP FSL	41.50	41.55	41.77	41.99	42.00
RETAINING WALL BOTTOM FSL	41.50	41.50	41.99	42.00	42.00
CHAINAGE	0.00	0.20	1.10	1.96	2.00

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW02 BW RETAINING WALL

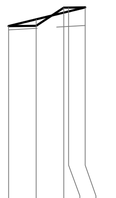


DATUM RL35

EXISTING SURFACE	41.492	41.507	41.573	41.637	41.64
HEIGHT (FSL-FSL)	-0.00	0.05	-0.22	-0.01	-0.00
RETAINING WALL TOP FSL	41.50	41.55	41.77	41.99	42.00
RETAINING WALL BOTTOM FSL	41.50	41.50	41.99	42.00	42.00
CHAINAGE	0.00	0.20	1.10	1.96	2.00

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW03 BW RETAINING WALL

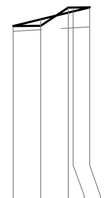


DATUM RL36

EXISTING SURFACE	41.916	41.967	42.019	42.029	42.06
HEIGHT (FSL-FSL)	0.00	0.21	-0.16	-0.13	0.00
RETAINING WALL TOP FSL	42.04	42.26	42.48	42.52	42.65
RETAINING WALL BOTTOM FSL	42.04	42.05	42.64	42.64	42.65
CHAINAGE	0.00	0.90	1.80	1.96	2.50

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW04 BW RETAINING WALL



DATUM RL36

EXISTING SURFACE	41.87	41.922	41.974	41.983	42.014
HEIGHT (FSL-FSL)	0.00	0.21	-0.16	-0.13	-0.00
RETAINING WALL TOP FSL	42.04	42.26	42.48	42.52	42.65
RETAINING WALL BOTTOM FSL	42.04	42.05	42.64	42.65	42.65
CHAINAGE	0.00	0.90	1.80	1.96	2.50

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW05 BW RETAINING WALL

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JT		JRG	08.04.19
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

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ARCHITECT
GROUP GSA

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

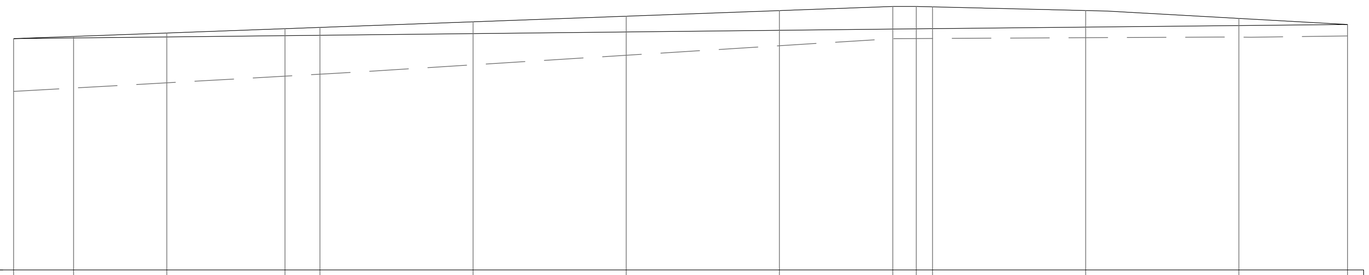
DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

RETAINING WALL ELEVATIONS - SHEET 01

JOB NUMBER **182535**
DRAWING NUMBER **C07.11**
REVISION **A**
DRAWING SHEET SIZE = A1

GENERAL NOTES

1. REFER SPECIFICATIONS NOTES FOR GENERAL REQUIREMENTS.
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

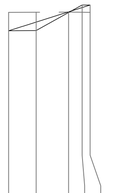


DATUM RL34

EXISTING SURFACE	39.827	39.937	40.108	40.324	40.388	40.695	41.006	41.318	41.549	41.553	41.555	41.58	41.598	41.637
HEIGHT (FSL-FSL)	0.00	0.05	0.13	0.23	0.26	0.39	0.51	0.64	0.74	0.73	0.71	0.54	0.23	0.00
RETAINING WALL TOP FSL	41.55	41.62	41.73	41.87	41.92	42.10	42.28	42.46	42.60	42.60	42.59	42.47	42.21	42.01
RETAINING WALL BOTTOM FSL	41.55	41.57	41.60	41.65	41.66	41.71	41.77	41.82	41.86	41.87	41.88	41.93	41.98	42.01
CHAINAGE	0.00	1.96	5.00	8.86	10.00	15.00	20.00	25.00	28.70	29.47	30.00	35.00	40.00	43.55

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW06 BW RETAINING WALL

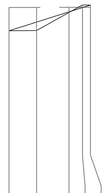


DATUM RL36

EXISTING SURFACE	42.162	42.166	42.17	42.165	42.161
HEIGHT (FSL-FSL)	0.00	0.28	0.02	-0.08	0.00
RETAINING WALL TOP FSL	41.56	41.84	42.18	42.32	42.40
RETAINING WALL BOTTOM FSL	41.56	41.57	42.16	42.40	42.40
CHAINAGE	0.00	0.90	1.96	2.40	2.66

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW07 BW RETAINING WALL

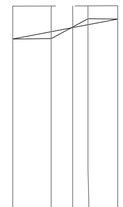


DATUM RL36

EXISTING SURFACE	42.319	42.323	42.327	42.328	42.329	
HEIGHT (FSL-FSL)	0.00	0.28	0.02	-0.08	0.00	
RETAINING WALL TOP FSL	41.56	41.84	42.18	42.32	42.40	
RETAINING WALL BOTTOM FSL	41.56	41.57	42.16	42.40	42.40	
CHAINAGE	0.00	0.90	1.96	2.40	2.66	

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW08 BW RETAINING WALL

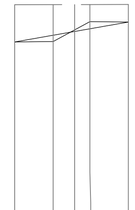


DATUM RL36

EXISTING SURFACE	42.821	42.826	42.829	42.831	42.834	
HEIGHT (FSL-FSL)	0.00	0.23	-0.02	-0.19	-0.00	
RETAINING WALL TOP FSL	41.75	41.99	42.12	42.22	42.40	
RETAINING WALL BOTTOM FSL	41.75	41.76	42.14	42.41	42.40	
CHAINAGE	0.00	1.26	1.96	2.46	3.43	

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW09 BW RETAINING WALL



DATUM RL36

EXISTING SURFACE	42.966	42.969	42.97	42.971	42.974
HEIGHT (FSL-FSL)	-0.00	0.21	-0.05	-0.23	0.00
RETAINING WALL TOP FSL	41.75	41.97	42.09	42.18	42.40
RETAINING WALL BOTTOM FSL	41.75	41.76	42.14	42.41	42.40
CHAINAGE	0.00	1.26	1.96	2.46	3.71

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW10 BW RETAINING WALL

NOT FOR CONSTRUCTION

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	CP		JRG	21.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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

ARCHITECT: GROUP GSA

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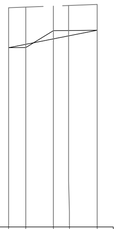
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
RETAINING WALL ELEVATIONS - SHEET 02

JOB NUMBER: 182535
DRAWING NUMBER: C07.12
REVISION: A
DRAWING SHEET SIZE = A1

GENERAL NOTES

1. REFER SPECIFICATIONS NOTES FOR GENERAL REQUIREMENTS.
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

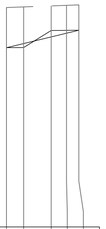


DATUM RL36

EXISTING SURFACE	43.155	43.176	43.21	43.228	43.263
HEIGHT (FSL-FSL)	0.00	0.10	-0.27	-0.17	-0.00
RETAINING WALL TOP FSL	41.85	41.96	42.14	42.24	42.42
RETAINING WALL BOTTOM FSL	41.85	41.86	42.41	42.41	42.42
CHAINAGE	0.00	0.56	1.46	1.96	2.89

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW11 BW RETAINING WALL

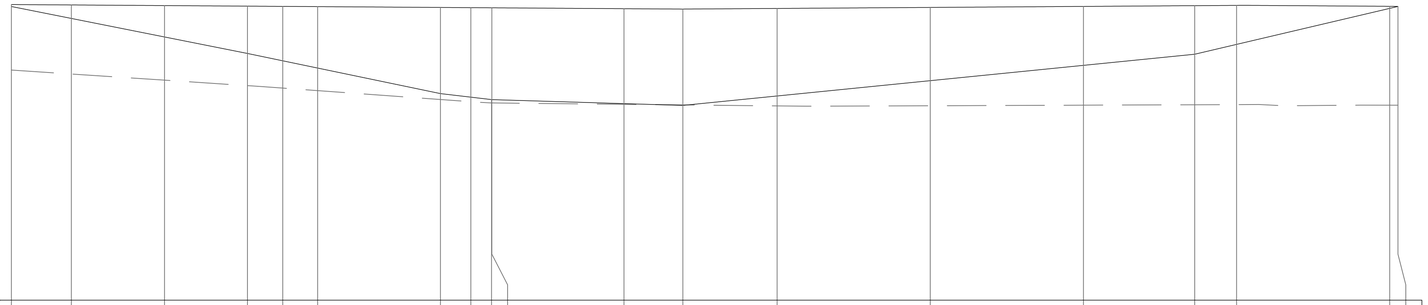


DATUM RL36

EXISTING SURFACE	43.16	43.181	43.214	43.233	43.248
HEIGHT (FSL-FSL)	0.00	0.13	-0.21	-0.09	-0.00
RETAINING WALL TOP FSL	41.85	41.99	42.20	42.32	42.42
RETAINING WALL BOTTOM FSL	41.85	41.86	42.41	42.42	42.42
CHAINAGE	0.00	0.56	1.46	1.96	2.36

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW12 BW RETAINING WALL

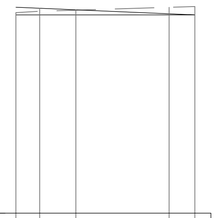


DATUM RL33

EXISTING SURFACE	40.51	40.381	40.18	40.002	39.921	39.839	39.549	39.477	39.436	39.436	39.392	39.372	39.34	39.345	39.363	39.377	39.382	39.363	39.363
HEIGHT (FSL-FSL)	0.06	0.44	1.02	1.55	1.78	2.01	2.81	2.92		3.00	3.10	3.14	2.86	2.39	1.92	1.59	1.27	0.07	0.00
RETAINING WALL TOP FSL	42.65	42.64	42.61	42.60	42.59	42.58	42.55	42.55		42.54	42.51	42.50	42.52	42.55	42.59	42.61	42.62	42.59	42.59
RETAINING WALL BOTTOM FSL	42.58	42.20	41.59	41.05	40.81	40.57	39.74	39.63	39.55	39.55	39.41	39.36	39.66	40.16	40.66	41.03	41.35	42.52	42.59
CHAINAGE	0.00	1.96	5.00	7.71	8.86	10.00	14.01	15.00	15.68	15.69	20.00	21.92	25.00	30.00	35.00	38.63	40.00	45.00	45.27

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW13 BW RETAINING WALL



DATUM RL35

EXISTING SURFACE	41.544	41.59	41.626	41.718	41.743	
HEIGHT (FSL-FSL)		0.22	0.17	0.04	0.00	
RETAINING WALL TOP FSL		41.69	41.64	41.51	41.47	
RETAINING WALL BOTTOM FSL	41.47	41.47	41.47	41.47	41.47	
CHAINAGE	-0.00	0.78	1.96	5.00	5.84	

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW14 BW RETAINING WALL

NOT FOR CONSTRUCTION

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
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PROJECT
ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

RETAINING WALL ELEVATIONS - SHEET 03

JOB NUMBER **182535**
DRAWING NUMBER **C07.13**
REVISION **A**
DRAWING SHEET SIZE = A1

GENERAL NOTES

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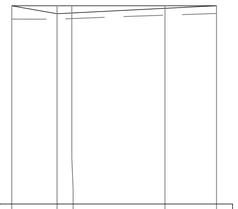
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

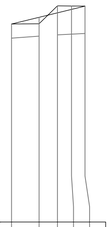


DATUM RL36

EXISTING SURFACE	42.033	42.031	42.051	42.162	42.219
HEIGHT (FSL-FSL)	0.00	0.26	0.24	0.08	0.00
RETAINING WALL TOP FSL	42.47	42.47	42.47	42.47	42.47
RETAINING WALL BOTTOM FSL	42.47	42.21	42.23	42.39	42.47
CHAINAGE	0.00	1.48	1.96	5.00	6.68

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW15 BW RETAINING WALL

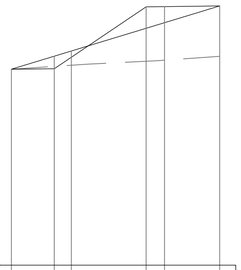


DATUM RL35

EXISTING SURFACE	41	41.065	41.107	41.13	41.153
HEIGHT (FSL-FSL)	0.00	0.21	-0.23	-0.11	0.00
RETAINING WALL TOP FSL	41.46	41.68	41.83	41.94	42.05
RETAINING WALL BOTTOM FSL	41.46	41.47	42.06	42.05	42.05
CHAINAGE	0.00	0.90	1.50	1.96	2.40

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW16 BW RETAINING WALL

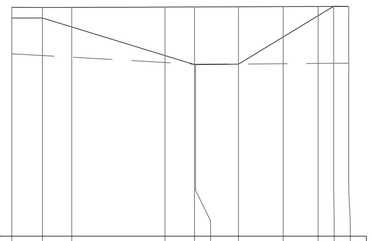


DATUM RL33

EXISTING SURFACE	39.396	39.488	39.525	39.655	39.69	39.816
HEIGHT (FSL-FSL)	0.00	0.41	0.20	-0.70	-0.53	-0.00
RETAINING WALL TOP FSL	39.40	39.82	39.99	40.73	40.91	41.46
RETAINING WALL BOTTOM FSL	39.40	39.41	39.79	41.43	41.44	41.46
CHAINAGE	0.00	1.40	1.96	4.40	5.00	6.80

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW18 BW RETAINING WALL

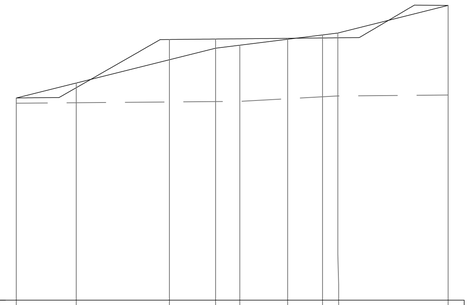


DATUM RL34

EXISTING SURFACE	39.953	39.896	39.842	39.668	39.614	39.617	39.629	39.638	39.642	39.646
HEIGHT (FSL-FSL)	0.35	0.34	0.64	1.58	1.88	1.87	0.99	0.30	-0.01	0.00
RETAINING WALL TOP FSL	41.47	41.46	41.47	41.48	41.48	41.49	41.49	41.50	41.50	41.50
RETAINING WALL BOTTOM FSL	41.12	41.12	40.83	39.90	39.60	39.61	40.50	41.20	41.50	41.50
CHAINAGE	0.00	1.00	1.96	5.00	5.96	7.40	8.86	10.00	10.51	11.00

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW19 BW RETAINING WALL



DATUM RL33

EXISTING SURFACE	39.428	39.444	39.469	39.481	39.488	39.575	39.638	39.666	39.696
HEIGHT (FSL-FSL)	0.00	-0.15	0.66	0.30		0.03	-0.10	-0.16	0.00
RETAINING WALL TOP FSL	39.60	39.93	41.51	41.52		41.55	41.56	41.56	42.62
RETAINING WALL BOTTOM FSL	39.60	40.09	40.85	41.22	41.32	41.52	41.66	41.72	42.62
CHAINAGE	0.00	1.96	5.00	6.51	7.30	8.86	10.00	10.50	14.10

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW20 BW RETAINING WALL

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

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2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19
6	ISSUED FOR APPROVAL	CP		JRG	21.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

RETAINING WALL ELEVATIONS - SHEET 04

JOB NUMBER: 182535

DRAWING NUMBER: C07.14

REVISION: A

DRAWING SHEET SIZE = A1

GENERAL NOTES

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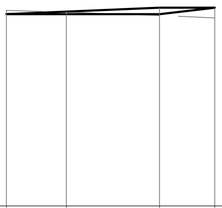
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

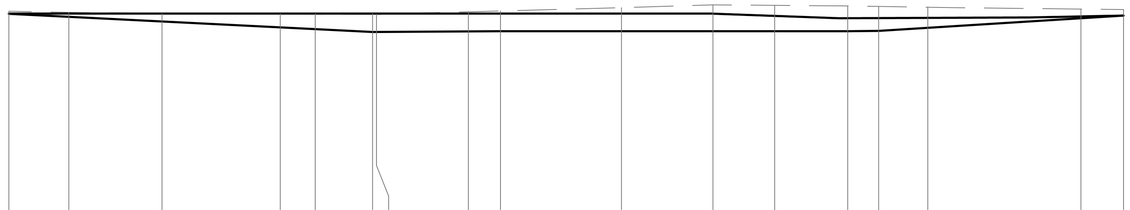


DATUM RL36

EXISTING SURFACE	42.381	42.323	42.216	42.137
HEIGHT (FSL-FSL)	0.00	0.08	0.21	0.00
RETAINING WALL TOP FSL	42.26	42.34	42.47	42.47
RETAINING WALL BOTTOM FSL	42.26	42.26	42.26	42.447
CHAINAGE	0.00	1.96	5.00	6.80

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW21 BW RETAINING WALL

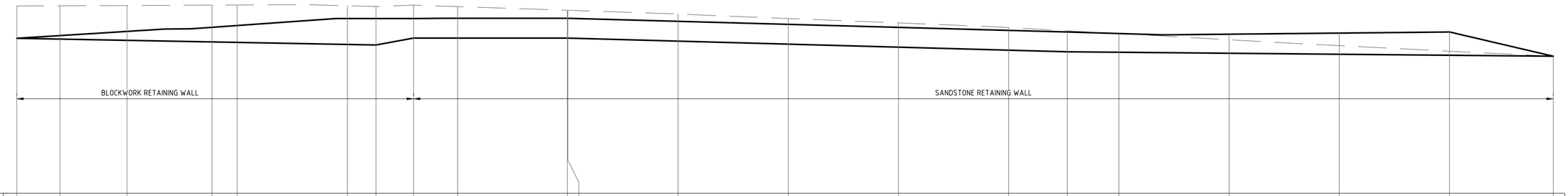


DATUM RL37

EXISTING SURFACE	43.533	43.496	43.466	43.448	43.443	43.434	43.433	43.515	43.543	43.652	43.742	43.726	43.707	43.691	43.665	43.605	43.59		
HEIGHT (FSL-FSL)	0.01	0.10	0.26	0.45	0.51	0.60		0.58	0.57	0.57	0.57	0.50		0.42	0.32	0.06	0.00		
RETAINING WALL TOP FSL	43.46	43.46	43.46	43.46	43.46	43.46		43.46	43.46	43.46	43.46	43.38		43.31	43.32	43.37	43.39		
RETAINING WALL BOTTOM FSL	43.45	43.35	43.20	43.01	42.95	42.86	42.86	42.88	42.88	42.88	42.88	42.88	42.88	42.89	42.99	43.31	43.39		
CHAINAGE	0.00	1.96	5.00	8.86	10.00	11.87	12.00	15.00	16.05	20.00	22.99	25.00	27.39	28.40	30.00	35.00	36.39		

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW25 BW RETAINING WALL



DATUM RL33

EXISTING SURFACE	41.518	41.521	41.534	41.552	41.557	41.523	41.487	41.551	41.484	41.318	41.317	41.148	40.943	40.743	40.531	40.384	40.255	39.978	39.709	39.457	39.228
HEIGHT (FSL-FSL)	0.00	0.16	0.41	0.66	0.77	1.18	1.20	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.87	0.96	1.06	-0.00
RETAINING WALL TOP FSL	40.04	40.17	40.36	40.54	40.62	40.94	40.94	40.94	40.95	40.95	40.95	40.82	40.68	40.54	40.40	40.33	40.26	40.23	40.28	40.33	39.23
RETAINING WALL BOTTOM FSL	40.04	40.01	39.95	39.88	39.86	39.76	39.74	40.05	40.05	40.05	40.05	39.92	39.78	39.64	39.50	39.43	39.41	39.36	39.32	39.27	39.23
CHAINAGE	0.00	1.96	5.00	8.86	10.00	15.00	16.30	18.00	20.00	24.97	25.00	30.00	35.00	40.00	45.00	47.66	50.00	55.00	60.00	65.00	69.71

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW26 BW RETAINING WALL

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

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1	ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
2	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
3	ISSUED FOR APPROVAL	JO		JRG	19.11.19
4	ISSUED FOR APPROVAL	CP		JRG	21.11.19
5	ISSUED FOR APPROVAL	VC		JRG	26.02.20
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PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
RETAINING WALL ELEVATIONS - SHEET 05

JOB NUMBER 182535
DRAWING NUMBER C07.15
REVISION A
DRAWING SHEET SIZE = A1

GENERAL NOTES

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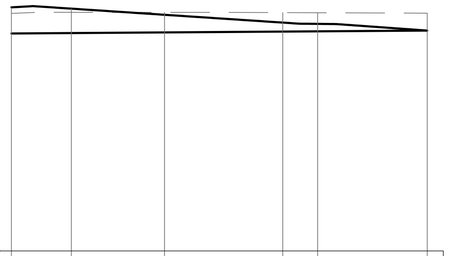
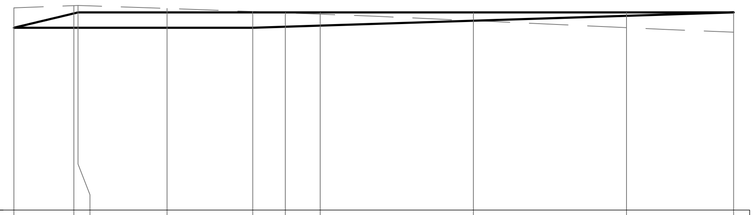


DATUM RL34

EXISTING SURFACE	41.753	41.789	41.787	41.779	41.775	41.761
HEIGHT (FSL-FSL)	0.85	0.80	0.57	0.29	0.24	0.00
RETAINING WALL TOP FSL	41.95	41.91	41.71	41.45	41.41	41.19
RETAINING WALL BOTTOM FSL	41.10	41.11	41.13	41.16	41.17	41.19
CHAINAGE	0.00	1.96	5.00	8.86	10.00	13.58

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW28 BW RETAINING WALL

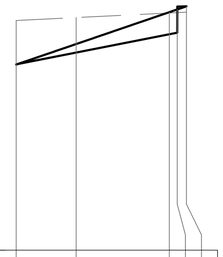


DATUM RL35

EXISTING SURFACE	41.598	41.672	41.677	41.58	41.476	41.436	41.393	41.18	40.953	40.805
HEIGHT (FSL-FSL)	0.00	0.47	0.50	0.50	0.50	0.47	0.43	0.27	0.11	0.00
RETAINING WALL TOP FSL	40.95	41.42	41.45	41.45	41.45	41.45	41.45	41.45	41.45	41.45
RETAINING WALL BOTTOM FSL	40.95	40.95	40.95	40.95	40.95	40.98	41.02	41.18	41.34	41.45
CHAINAGE	0.00	1.96	2.09	5.00	7.80	8.86	10.00	15.00	20.00	23.50

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW29 BW RETAINING WALL

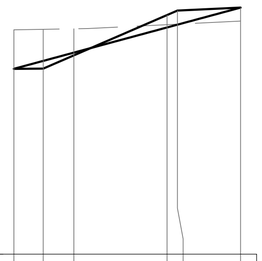


DATUM RL34

EXISTING SURFACE	41.495	41.591	41.74	41.753	41.768
HEIGHT (FSL-FSL)	0.00	0.28	0.72	0.76	-0.00
RETAINING WALL TOP FSL	40.07	40.73	41.77	41.86	41.96
RETAINING WALL BOTTOM FSL	40.07	40.45	41.05	41.10	41.96
CHAINAGE	0.00	1.96	5.00	5.26	5.56

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW30 BW RETAINING WALL

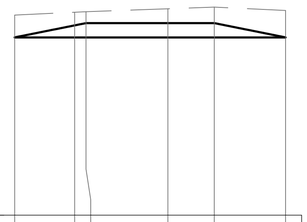


DATUM RL34

EXISTING SURFACE	41.322	41.338	41.355	41.49	41.506	41.608
HEIGHT (FSL-FSL)	0.00	0.25	0.09	-0.41	-0.46	-0.00
RETAINING WALL TOP FSL	40.05	40.31	40.58	41.40	41.49	42.05
RETAINING WALL BOTTOM FSL	40.05	40.06	40.49	41.80	41.95	42.05
CHAINAGE	0.00	0.96	1.96	5.00	5.34	7.40

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW31 BW RETAINING WALL



DATUM RL35

EXISTING SURFACE	41.53	41.622	41.64	41.735	41.79	41.68
HEIGHT (FSL-FSL)	0.00	0.39	0.47	0.47	0.47	0.00
RETAINING WALL TOP FSL	40.80	41.19	41.27	41.27	41.27	40.80
RETAINING WALL BOTTOM FSL	40.80	40.80	40.80	40.80	40.80	40.80
CHAINAGE	0.00	1.96	2.33	5.00	6.51	8.84

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW33 BW RETAINING WALL

NOT FOR CONSTRUCTION

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
2	ISSUED FOR APPROVAL	JO		JRG	19.11.19
3	ISSUED FOR APPROVAL	CP		JRG	21.11.19
4	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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

ARCHITECT: GROUP GSA

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NORTHROP
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Email sydney@northrop.com.au ABN 81 094 433 100

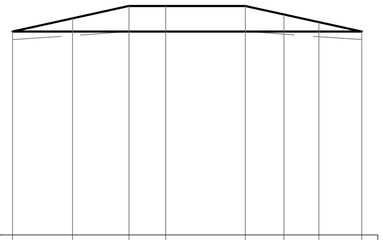
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
RETAINING WALL ELEVATIONS - SHEET 06

JOB NUMBER: 182535
DRAWING NUMBER: C07.16
REVISION: A
DRAWING SHEET SIZE = A1

GENERAL NOTES

1. REFER SPECIFICATIONS NOTES FOR GENERAL REQUIREMENTS.
2. CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
3. REFER RETAINING WALL DETAILS.
4. TOW DENOTES TOP OF WALL.
5. TOF DENOTES TOP OF FOOTING

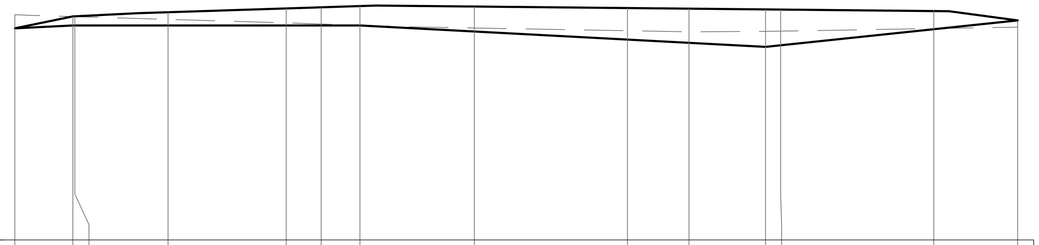


DATUM RL33

EXISTING SURFACE	39.376	39.505	39.641	39.643	39.647	39.553	39.469	39.377
HEIGHT (FSL-FSL)	0.00	0.43	0.83	0.83	0.83	0.56	0.31	-0.00
RETAINING WALL TOP FSL	39.64	40.07	40.47	40.47	40.47	40.20	39.95	39.64
RETAINING WALL BOTTOM FSL	39.64	39.64	39.64	39.64	39.64	39.64	39.64	39.64
CHAINAGE	0.00	1.96	3.80	5.00	7.60	8.86	10.00	11.40

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW34 BW RETAINING WALL

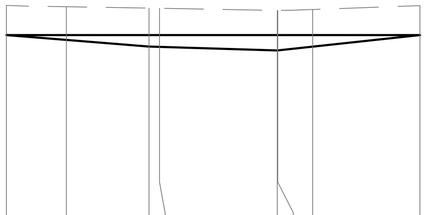


DATUM RL34

EXISTING SURFACE	41.352	41.29	41.288	41.199	41.085	41.047	41.004	40.917	40.828	40.792	40.807	40.815	40.9	40.946
HEIGHT (FSL-FSL)	0.00	0.30	0.30	0.43	0.56	0.59	0.63	0.82	1.03	1.12	1.22	1.17	0.59	0.00
RETAINING WALL TOP FSL	40.91	41.30	41.30	41.43	41.56	41.59	41.63	41.62	41.57	41.55	41.52	41.52	41.47	41.17
RETAINING WALL BOTTOM FSL	40.91	41.00	41.00	41.00	41.00	41.00	41.00	40.80	40.54	40.43	40.30	40.35	40.88	41.17
CHAINAGE	0.00	1.89	1.96	5.00	8.86	10.00	11.27	15.00	20.00	22.01	24.51	25.00	30.00	32.74

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW35 BW RETAINING WALL



DATUM RL36

EXISTING SURFACE	43.27	43.226	43.182	43.176	43.105	43.105	43.136	43.262
HEIGHT (FSL-FSL)	0.00	0.16	0.39		0.50	0.50	0.38	0.00
RETAINING WALL TOP FSL	42.30	42.30	42.30		42.30	42.30	42.30	42.30
RETAINING WALL BOTTOM FSL	42.30	42.14	41.93	41.92	41.80	41.80	41.92	42.30
CHAINAGE	0.00	1.96	4.66	5.00	8.84	8.86	10.00	13.50

SCALE 1:100 HORIZ 1:100 VERT

ELEVATION OF RW36 BW RETAINING WALL

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR APPROVAL	CP		JRG	21.11.20
2	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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ARCHITECT: GROUP GSA

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

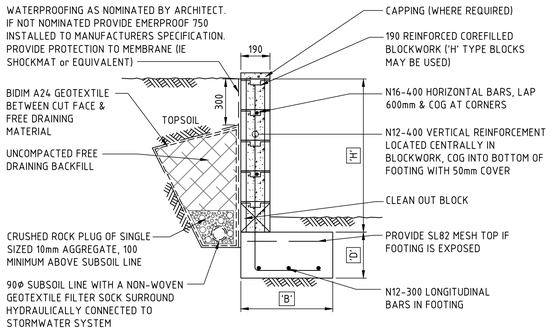
RETAINING WALL ELEVATIONS - SHEET 07

JOB NUMBER: 182535

DRAWING NUMBER: C07.17

REVISION: A

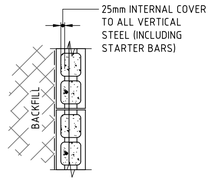
DRAWING SHEET SIZE = A1



HEIGHT to 1000

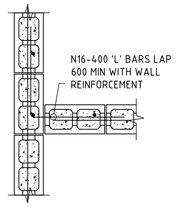
RETAINING WALL NOTES:
- BUILDER IS TO MAINTAIN STABILITY OF WALL DURING BACKFILLING PROCEDURE.
- PROVIDE CLEANOUT BLOCKS IN BOTTOM COURSE.
- LOADINGS FOR HANDRAILS, BALUSTRADES & FENCES HAVE NOT BEEN INCLUDED IN DESIGN OF WALL. REFER TO ENGINEER IF THESE ARE REQUIRED.
- BUILDER IS TO ENSURE THAT THE STABILITY OF THE TEMPORARY EXCAVATION IS MAINTAINED DURING THE CONSTRUCTION OF THE WALL & THAT NO ADJACENT FOOTINGS / STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF THE EXCAVATION, CONTACT NORTHROP ENGINEERS or A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER IF THERE ARE ANY CONCERNS.

RETAINING WALL SCHEDULE		
HEIGHT 'H'	FOOTING WIDTH 'B'	FOOTING DEPTH 'D'
600	400	400
800	600	400
1000	750	500

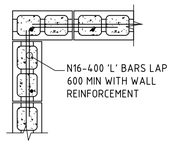


SECTION X

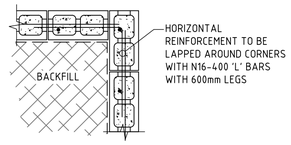
THIS SECTION TO GO ON CANTILEVER RETAINING WALL DETAILS



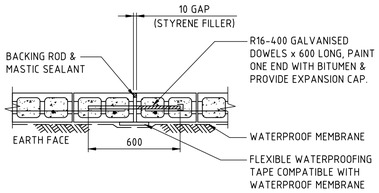
BLOCKWORK JUNCTION DETAIL



BLOCKWORK CORNER DETAIL

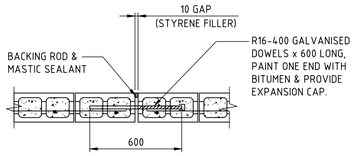


BLOCKWORK CORNER DETAIL



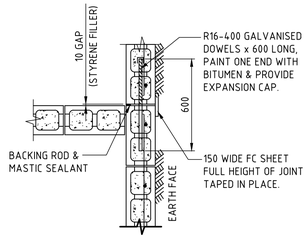
BLOCKWORK DOWEL JOINT for RETAINING WALL

PROVIDE JOINTS AT 8m MAXIMUM CTS. CONFIRM ALL JOINT LOCATIONS WITH ARCHITECT

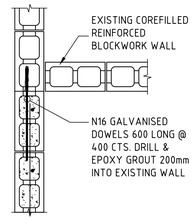


BLOCKWORK DOWEL JOINT for NON RETAINING WALL

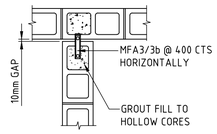
PROVIDE JOINTS AT 8m MAXIMUM CTS. CONFIRM ALL JOINT LOCATIONS WITH ARCHITECT



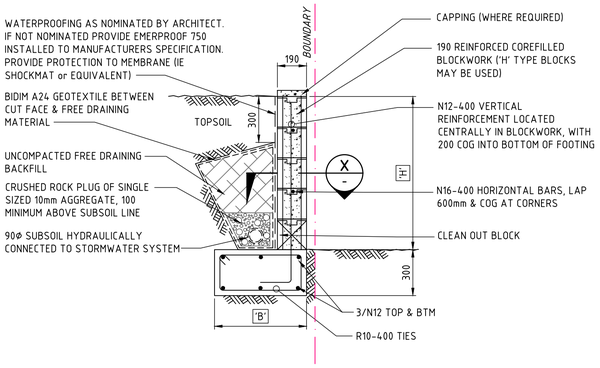
BLOCKWORK DOWEL JOINT (BWDJ)



BLOCKWORK DETAIL AT EXISTING WALL



BLOCKWORK JOINT DETAIL



HEIGHT to 1000

RETAINING WALL NOTES:
1: PROVIDE NYLEX STRIP DRAIN COLLECTOR. USE STRIP DRAIN END AND TEE FITTINGS TO CONNECT TO NEAREST AVAILABLE STORMWATER PIT.

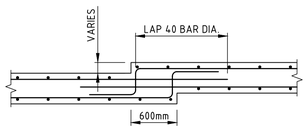
2. BLOCKWORK TO BE 'SANDSTONE' FACED. NORTHROP TO INSPECT AND APPROVED SAMPLE PRIOR TO CONSTRUCTION.

3. PROVIDE 'E' SHAPED CLEAN-OUT BLOCK AT BASE OF RETAINING WALL. OMIT HORIZ. BAR FROM TOP OF THIS BLOCK.

4. PROVIDE NYLEX CORDRAIN WITH GEOFABRIC SURROUND.

5. REFER TO BLOCKWORK NOTES.

6. FOUNDATION OF WALLS TO HAVE A MINIMUM BEARING CAPACITY OF 100KPa EVERYWHERE AND 150KPa ADJACENT TO BUILDINGS.



TYPICAL SLAB FOLD DETAILS

RETAINING WALL NOTES:
- BUILDER IS TO MAINTAIN STABILITY OF WALL DURING BACKFILLING PROCEDURE.
- PROVIDE CLEANOUT BLOCKS IN BOTTOM COURSE.
- LOADINGS FOR HANDRAILS, BALUSTRADES & FENCES HAVE NOT BEEN INCLUDED IN DESIGN OF WALL. REFER TO ENGINEER IF THESE ARE REQUIRED.
- BUILDER IS TO ENSURE THAT THE STABILITY OF THE TEMPORARY EXCAVATION IS MAINTAINED DURING THE CONSTRUCTION OF THE WALL & THAT NO ADJACENT FOOTINGS / STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF THE EXCAVATION, CONTACT NORTHROP ENGINEERS or A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER IF THERE ARE ANY CONCERNS.

RETAINING WALL SCHEDULE	
HEIGHT 'H'	FOOTING WIDTH 'B'
600	450
800	550
1000	700

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR INFORMATION	JO		JRG	27.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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

ARCHITECT: GROUP GSA

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

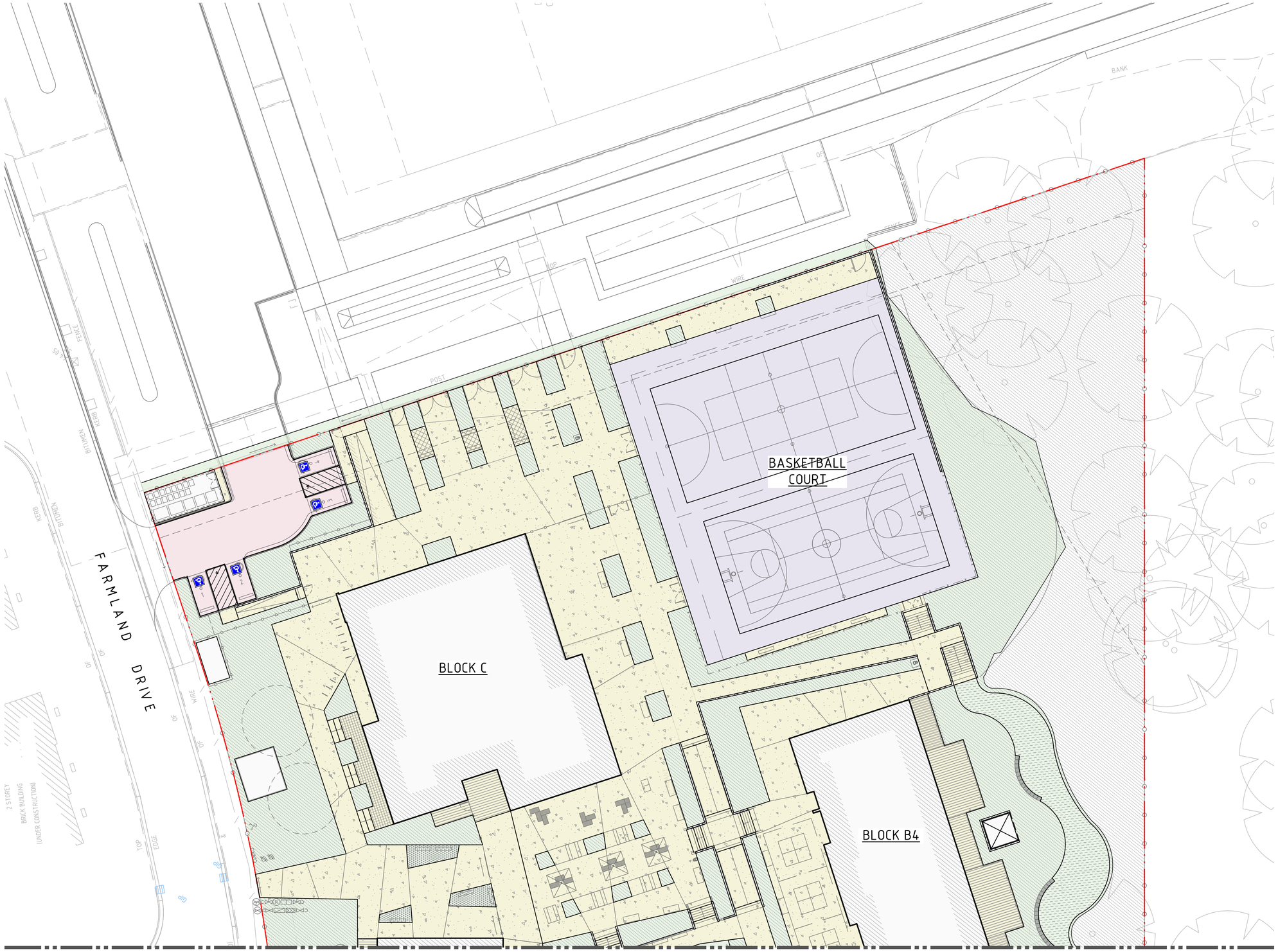
RETAINING WALL DETAILS - SHEET 01

JOB NUMBER: 182535

DRAWING NUMBER: C07.21

REVISION: A

DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- PROPOSED KERB
- EXISTING KERB
- PAVEMENT TYPE 1 - FLEXIBLE
- PAVEMENT TYPE 2 - FLEXIBLE BASKET BALL COURT
- PAVEMENT TYPE 3 - CONCRETE FOOTPATH
- TIMBER DECK - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- TURF - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- MASS PLANTING - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- MULCH - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- PLAY MULCH SOFTFALL - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- RUBBER SOFTFALL - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR PAVEMENT GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.

FOR CONTINUATION REFER TO SHEET 02

NOT FOR CONSTRUCTION

DRAWN: C PASKE
DESIGNED: J GRINSELL
JOB MANAGER: J GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
2	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
3	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
4	ISSUED FOR APPROVAL	JO		JRG	19.11.19
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20
B	ISSUED FOR CLIENT REVIEW	VC		JRG	26.05.20

CLIENT
RICHARD CROOKES CONSTRUCTIONS
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
GROUP GSA
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SCALE 1:250@ A1 (0 2 4 6 8 10 12m)

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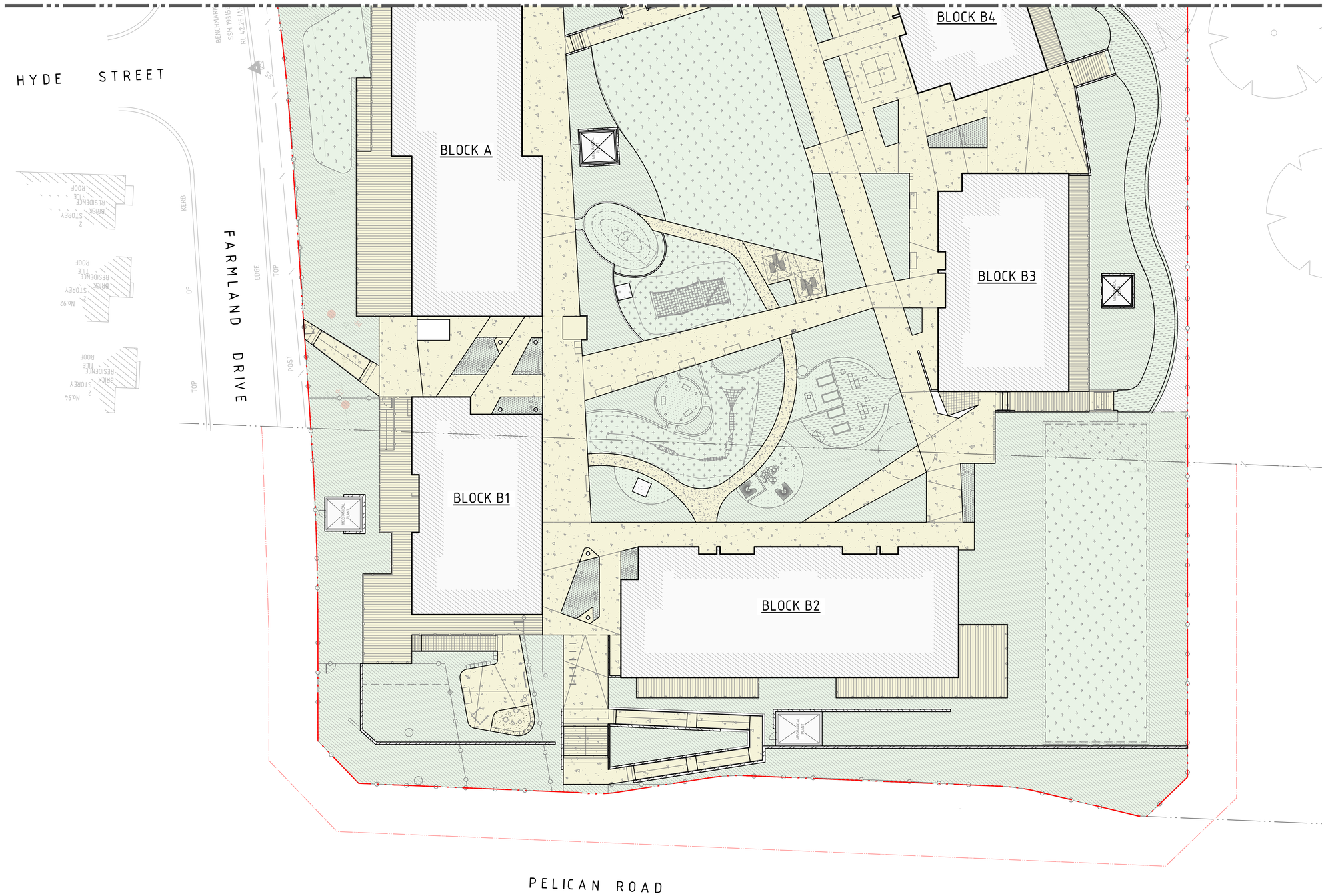
Ph (02) 9241 4188 Fax (02) 9241 4324
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE
CIVIL DOCUMENTATION
CONSTRUCTION CERTIFICATE
PAVEMENT PLAN - SHEET 01

JOB NUMBER 182535
DRAWING NUMBER C08.01
REVISION B
DRAWING SHEET SIZE = A1



LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- PROPOSED KERB
- EXISTING KERB
- PAVEMENT TYPE 1 - FLEXIBLE
- PAVEMENT TYPE 2 - FLEXIBLE BASKET BALL COURT
- PAVEMENT TYPE 3 - CONCRETE FOOTPATH
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- MULCH - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- PLAY MULCH SOFTFALL - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL
- RUBBER SOFTFALL - REFER TO LANDSCAPE ARCHITECTS FOR DETAIL

GENERAL NOTES:

1. REFER SPECIFICATIONS NOTES FOR PAVEMENT GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
2	ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
3	ISSUED FOR APPROVAL	JO		JRG	19.11.19
4	ISSUED FOR APPROVAL	VC		JRG	26.02.20
A	ISSUED FOR CLIENT REVIEW	VC		JRG	19.05.20

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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

ARCHITECT: GROUP GSA

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SCALE 1:250@ A1 — 0 2 4 6 8 10 12m

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PROJECT: ALEX AVENUE PRIMARY SCHOOL

PELICAN ROAD, SCHOFIELDS

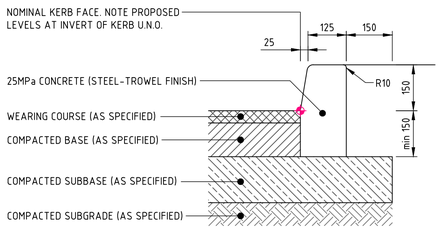
DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE

PAVEMENT PLAN - SHEET 02

JOB NUMBER: 182535

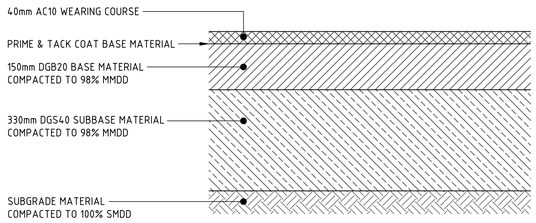
DRAWING NUMBER: C08.02 REVISION: A

DRAWING SHEET SIZE = A1



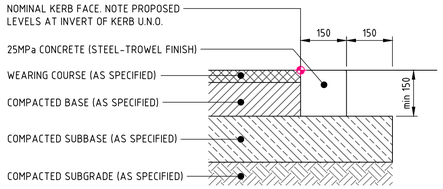
KERB ONLY 'KO'

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 20mm U.N.O.



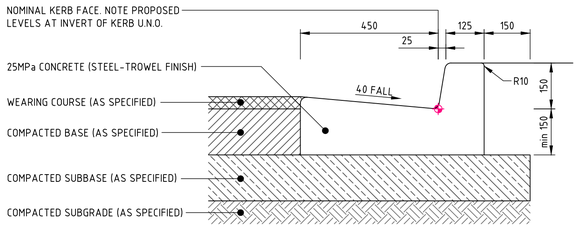
PAVEMENT TYPE '1'

MIN CBR 3% (CONTRACTOR TO CONFIRM ONSITE) DESIGN
LOADING IN ACCORDANCE WITH 'EFSG' SPECIFICATIONS



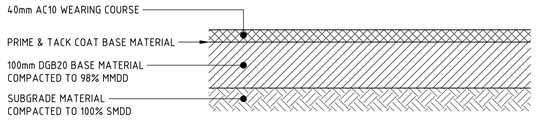
FLUSH KERB 'FK'

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 5mm U.N.O.



KERB & GUTTER 'KG'

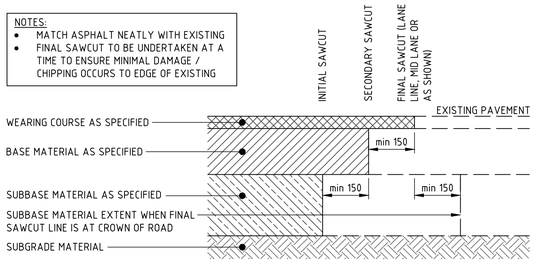
EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 20mm U.N.O.



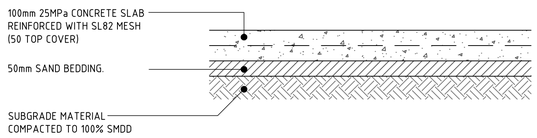
PAVEMENT TYPE '2'

MIN CBR 3% (CONTRACTOR TO CONFIRM ONSITE) DESIGN
LOADING IN ACCORDANCE WITH 'EFSG' SPECIFICATIONS

NOTES:
- MATCH ASPHALT NEATLY WITH EXISTING
- FINAL SAWCUT TO BE UNDERTAKEN AT A TIME TO ENSURE MINIMAL DAMAGE / CHIPPING OCCURS TO EDGE OF EXISTING

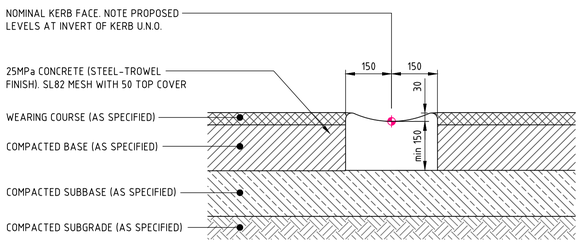


PAVEMENT INTERFACE 'INT'



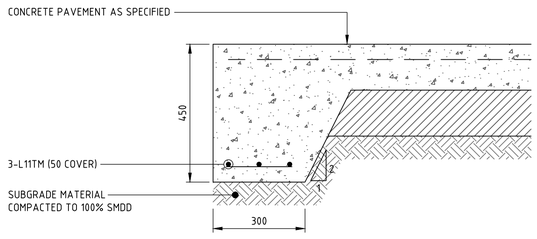
PAVEMENT TYPE '3'

MIN CBR 3% (CONTRACTOR TO CONFIRM ONSITE).
CONTRACTOR TO ALLOW FOR JOINTS - REFER JOINT DETAILS



SPOON DRAIN - 300 WIDE 'SD'

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 20mm U.N.O.



THICKENED EDGE DETAIL 'TE'

SELECT FILL COMPACTED TO 98% MMDD WHERE FILL IN EXCESS
OF PAVEMENT THICKNESS

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JT		JRG	08.04.19
2	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
3	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
4	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	12.07.19
5	ISSUED FOR APPROVAL	JO		JRG	19.11.19

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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SCALE 1:10 @ A1 (0.0 0.1 0.2 0.3 0.4 0.5m)

NORTHROP
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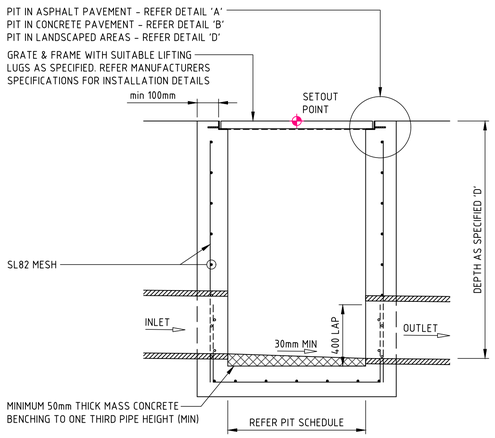
Email sydney@northrop.com.au ABN 81 094 433 100

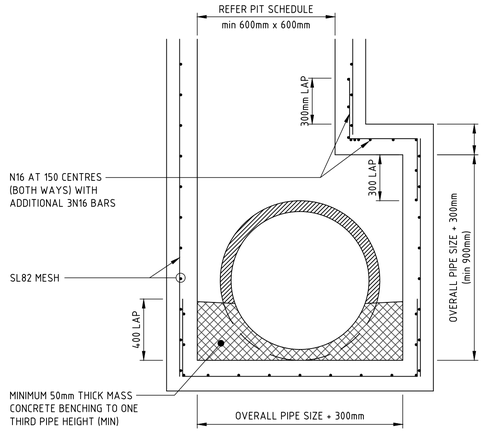
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
DETAILS - SHEET 01

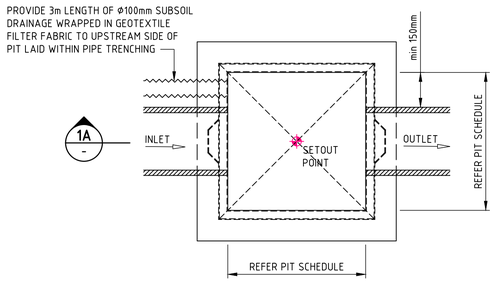
JOB NUMBER: 182535
DRAWING NUMBER: C09.01
REVISION: 5
DRAWING SHEET SIZE = A1



SECTION 1A -

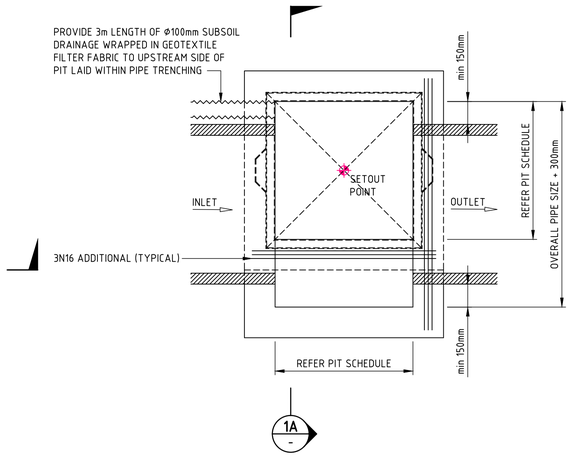


SECTION 1B -



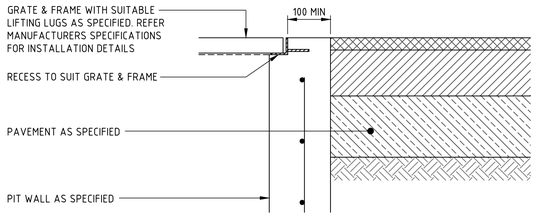
PLAN
SURFACE INLET 'SIP' / JUNCTION PIT 'JP'

PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE. DRILL AND EPOXY PLASTIC PROPRIETARY STEP IRONS IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MANUFACTURERS SPECIFICATIONS (PITS > 1000mm DEPTH).
REFER PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT

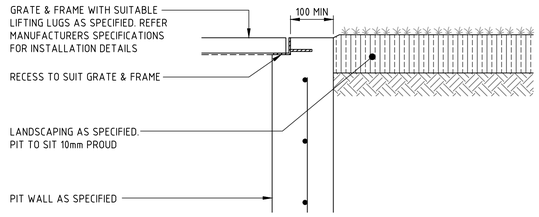


PLAN
DRAINAGE PIT - EXTENDED CHAMBER

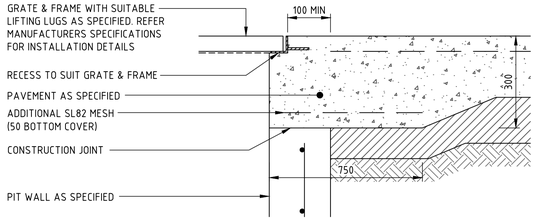
PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE. DRILL AND EPOXY PLASTIC PROPRIETARY STEP IRONS IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MANUFACTURERS SPECIFICATIONS (PITS > 1000mm DEPTH).
REFER PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT



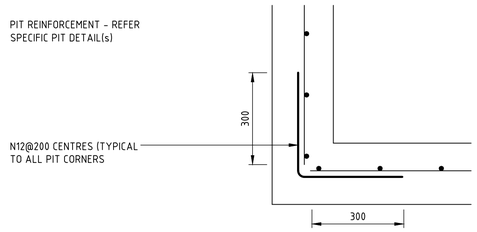
PIT INTERFACE - DETAIL 'A'



PIT INTERFACE - DETAIL 'D'



PIT INTERFACE - DETAIL 'B'



PIT INTERFACE (PLAN VIEW)- DETAIL 'F'
APPLICABLE TO ALL STORMWATER DRAINAGE STRUCTURES

DRAWN: C. PASKE DESIGNED: J. GRINSELL JOB MANAGER: J. GILLIGAN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	JO		JRG	20.06.19
2	RE-ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
3	RE-ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
4	ISSUED FOR APPROVAL	JO		JRG	19.11.19

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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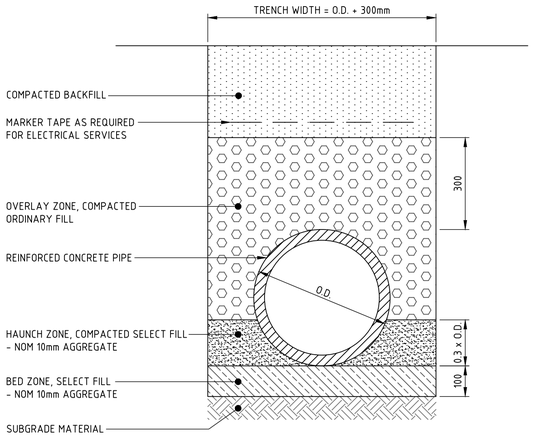
PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

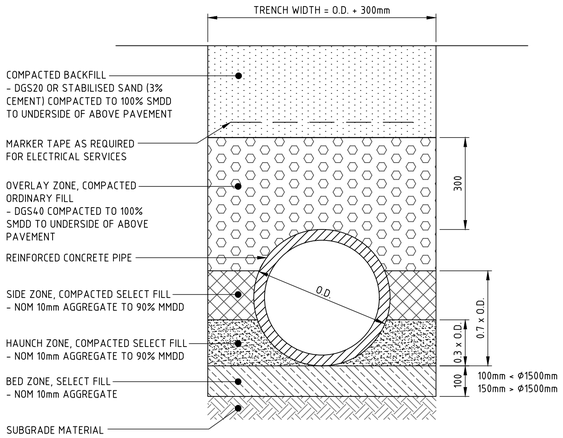
DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
DETAILS - SHEET 02

JOB NUMBER: 182535
DRAWING NUMBER: C09.02
REVISION: 4
DRAWING SHEET SIZE = A1



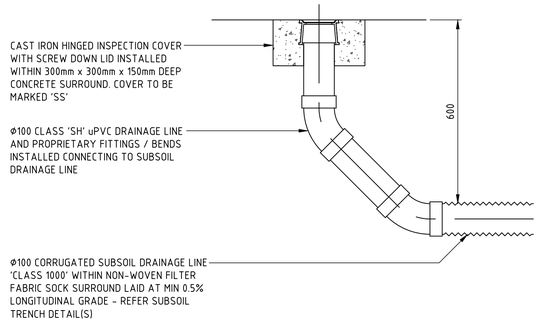
TYPICAL PIPE TRENCH - GENERAL AREAS

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 NOT UNDER ROADS TO BE 300mm U.N.O.
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
   - 4.2. TRENCHES NOT UNDER PAVEMENTS - 95% SMDD



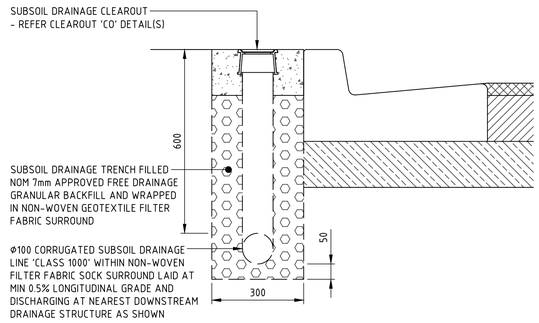
TYPICAL PIPE TRENCH - UNDER ROADS

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



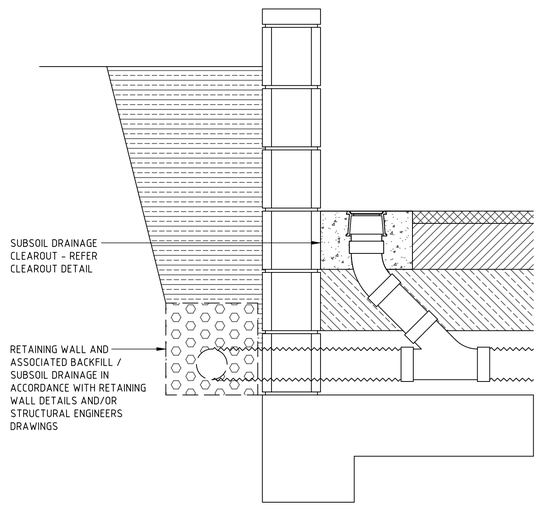
SUBSOIL DRAINAGE CLEAROUT 'CO'

CLEAROUT TO BE INSTALLED AT UPSTREAM POINTS ALONG SUBSOIL DRAINAGE LINES @ MAX 30m CENTRES AND DISCHARGING TO DRAINAGE STRUCTURES @ MAX 60m CENTRES.
SCALE 1:10



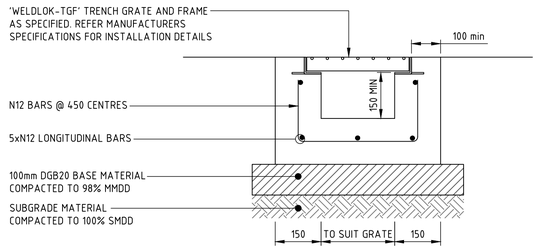
SUBSOIL DRAINAGE TRENCH 'SSD'

CLEAROUT TO BE INSTALLED @ MAX 30m CENTRES AND DISCHARGING TO DRAINAGE STRUCTURES @ MAX 60m CENTRES.
SCALE 1:10



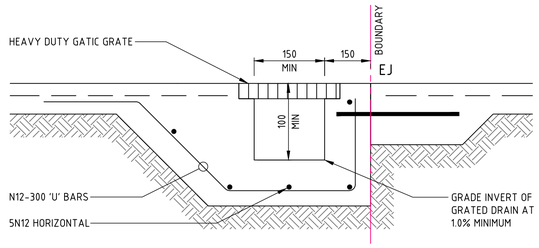
SUBSOIL DRAINAGE CLEAROUT 'CO' - WALL

CLEAROUT TO BE INSTALLED AT INTERMEDIATE POINTS ALONG SUBSOIL DRAINAGE LINES @ MAX 30m CENTRES AND DISCHARGING TO DRAINAGE STRUCTURES @ MAX 60m CENTRES.
SCALE 1:10



GRATED TRENCH DRAIN 'GTD1'

GRATED TRENCH DRAIN TO HAVE MINIMUM 150mm CLEARANCE AND 1% LONGITUDINAL FALL.
GRATE CLASS TO BE CLASS 'B' HEELSAFE IN PEDESTRIAN AREAS AND CLASS 'D' IN TRAFFICKED AREAS UNLESS NOTED OTHERWISE ON PLAN



GRATED TRENCH DRAIN 'GTD2'

DRAWN: C. PASKE
DESIGNED: J. GRINSELL
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	CP		JRG	12.07.19
2	ISSUED FOR CLIENT REVIEW	JO		JRG	15.11.19
3	ISSUED FOR APPROVAL	JO		JRG	19.11.19

CLIENT: RICHARD CROOKES CONSTRUCTIONS

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: ALEX AVENUE PRIMARY SCHOOL
PELICAN ROAD, SCHOFIELDS

DRAWING TITLE: CIVIL DOCUMENTATION CONSTRUCTION CERTIFICATE
DETAILS - SHEET 03

JOB NUMBER: 182535
DRAWING NUMBER: C09.03
REVISION: 3
DRAWING SHEET SIZE = A1