

PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE

CIVIL DRAWING INDEX

220391-CV-DRG-0001 - COVER SHEET AND GENERAL NOTES

220391-CV-DRG-0010 - SEDIMENTATION AND EROSION CONTROL PLAN

220391-CV-DRG-0011 - SEDIMENTATION AND EROSION CONTROL DETAILS

220391-CV-DRG-0020 - BULK EARTHWORKS PLAN

220391-CV-DRG-0030 - STORMWATER PLAN

220391-CV-DRG-0031 - STORMWATER DETAILS

CONSTRUCTION NOTES

GENERAL:

- G1 These drawings shall be read in conjunction with all Architectural & other consultants drawings & specifications and with such other written instructions as may be issued during the course of the contract. (Any discrepancy shall be referred to the Superintendent/Engineer before proceeding with the work. In case of discrepancy, precedence is given to drawings, then notes, then specifications.)
- G2 Materials and workmanship shall be in accordance with the relevant and current SAA codes, Local Government requirements or other relevant Building Authority.
- G3 All dimensions shown shall be verified by the builder on site. Engineers drawings shall not be scaled.
- G4 During all stages of construction, the structure shall be maintained in a stable condition with all temporary bracing and support of the structure being the responsibility of the contractor. The determination by the contractor of a safe work method remains the responsibility of the contractor as the documents, drawings and any written instructions, provided by MPC Consulting Engineers during the contract do not describe a work method. The design and installation of any temporary works remains the responsibility of the contractor. Any elements determined by the contractor of posing an unacceptable level of safety risk to construct shall be referred to MPC Consulting Engineers. The Occupational Health and Safety Act and Workcover Codes of Practice shall be complied with.
- G5 U.N.O. denotes "Unless Noted Otherwise". All dimensions shown are in millimetres U.N.O.
- G6 This design and issue is based on Architectural Drawings by SHAC.....
- G7 Construction works using these drawings must not commence until the drawings have been signed and "Issued For Construction" MPC Consulting Engineers accept no responsibility for any work not inspected or not approved by MPC Consulting Engineers during construction.
- G8 It is the responsibility of the head contractor or site supervisors to ensure that all works noted on site or written instructions are carried out. Any queries or clarifications must be directed to MPC Consulting Engineers.
- G9 Provide scaffolding, fall restraint, hand and mid rails and toe boards for work at height. Erect access stairs at earliest opportunity to reduce open shaft hazards and facilitate access maintain safety mesh and barriers to all openings and elevated edges.
- G10 Submit details of changes to scope, work methods or materials etc for approval before proceeding. Approval does not authorise a variation to the contract.
- G11 Check structural drawings against mechanical, electrical services and other drawings for requirements for penetrations, conduits, ducts, pipes, etc.
- G12 Nomination of proprietary items does not indicate exclusive preference but indicates required properties of item. Similar alternatives having required properties may be made of critical stages of work.
- G13 Give two working days' (48 hours) notice so that inspection may be made of critical stages of work.
- G14 All inspections undertaken by superintendent or others do not relieve contractor of responsibility for compliance with drawings and specifications.
- G15 Survey and setting out to be undertaken by a Registered Surveyor.
- G16 Verify on site setting out dimensions and existing member sizes shown on drawings before shop drawings, construction and fabrication is commenced. Existing structures shown on drawings are in approximate locations only.
- G17 Take care of hazards associated with buried, concealed or overhead services. Undertake exploration to establish location of and protect existing services at site positions shown on drawings are approximate locations only, services other than those shown may exist on site. Mark locations of services clearly on site and on as-built drawings. Hand excavate within one metre of in-ground services.
- G18 These drawings do not detail temporary works. Construction methods and temporary works are responsibility of the contractor.
- G19 Implement soil and water management procedures to avoid erosion. Contamination and sedimentation of site, surrounding areas and drainage systems.
- G20 Make good any damage to existing elements at completion of works.
- G21 Contractor to reflect any expansion, drowth or settled joints in structure through brittle floor, wall and ceiling finished to architects and manufacturer specifications.

FOUNDATIONS & SLABS ON GROUND:

- F1 Refer to Geotechnical Investigation Report No. 89754.03.R.002.REV.2, DOUGLAS PARTNERS. Notify superintendent if conditions encountered differ from those described in the reports and seek directions.
- F2 Footings have been designed for an allowable bearing pressure of kPa U.N.O.
- F3 The contractor shall allow to engage a qualified (NER) Geotechnical Engineer to inspect the foundation material and submit to MPC Consulting Engineers certification in writing that the design allowable bearing pressure stated in F1 prior to the placement of reinforcement or concreting foundations. The contract sum shall include all costs for geotechnical testing for the works.
- F4 Design site classification Class = to AS2870. Contact MPC Consulting Engineers if other conditions encountered on site.
- F5 Construct footings founded in specified materials (as stated, or in Geotechnical Report) remove softened or loose material and material that does not achieve these pressures.
- F6 The subgrade preparation shall include the following:
- Strip existing topsoil, vegetation and root affected or other deleterious materials.
- Excavate areas of proposed cut to design subgrade level and prod-roll the exposed surface.
- Obtain geotechnical inspection and advice at this stage to confirm the design parameters.
- Restrict access to the subgrade to tracked vehicles only (i.e. No wheels).
- The required thickness of topsoil to be stripped and select subgrade should be confirmed by the contractor after geotechnical testing & inspection during construction.
- F7 Footings shall be excavated to the dimensions detailed and inspected and filled with concrete as soon as possible. The contractor is to allow for concrete screed to all slip footings or footing beams where appropriate (based on site conditions) to avoid softening of the base material.
- F8 Sedimentation control measures:
- The contractor shall manage or otherwise engage a Soil and Water Consultant to manage the site on an ongoing basis.
- Where regrading is not carried out immediately, temporary measures such as contour drains, diversions and ponds are to be constructed and maintained until grass cover is established.
- All topsoiled and disturbed areas including batters, stormwater, interarmlet and subsoil drainage trenches, swales and open drains shall be grassed by drill seeding unless noted otherwise. This shall include preparation of ground, sowing and maintenance for 3 months after council approval.
- Areas to be turfed 600mm behind all kerb & gutter and all temporary drains as well as areas noted on plans.
- Footpath areas to be restored at the completion of underground electricity, telstra, gas.
- F9 Keep excavations free of water. Provide adequate drainage to ensure formation is not affected by moisture. Prevent foundation drying out due to exposure. Place blinding, footings, piles and backfill as soon as practicable after excavation.
- F10 Ensure excavations are stable and protect surrounding property and services from adverse effects of ground works. Provide temporary works as required. Provide engineer certified shoring to all deep excavations where required.
- F11 Do not undermine existing foundations.
- F12 Provide safety mesh and other protection to prevent exposure of personnel to excavations during foundation construction.
- F13 Use suitable construction techniques and equipment for backfilling adjacent to structures to prevent overstress and damage. Backfill evenly to avoid differential soil pressures on structures backfill against retaining walls only after specified concrete strength is achieved, and permanent support installed where applicable.
- F14 Backfill for retaining walls to be free draining granular material. Provide drainage behind retaining walls comprising continuous slotted drain with granular surround, or nylux "cordinair" connected to recalcitrated stormwater drainage system. Provide 50mm diameter weepholes at 1200 maximum centres at base of wall.
- F15 Provide 0.2mm high impact resistant virgin polyethylene film damp proof membrane to AS2870 on 50mm sand blinding where shown on drawings. Lap 200mm and seal damp proof membranes, tape at penetrations, etc to ensure a complete vapour barrier in accordance with manufacturer's recommendations and AS2870. Prevent puncturing or damage by placing a plastic plate under reinforcement supports.
- F16 Top of concrete slab to be at least 50mm above adjacent ground levels. Ground surrounding building to be sloped so that water will drain away from building to suitable discharge points. Where achieved by filling, fill to be less permeable than underlying material.
- F17 Slope services trenches away from building. Bed services on compacted material compatible with natural material on site. Backfill to 300mm of trenches with hand compacted clay within 1200mm of building.
- F18 For sites classified M or greater reactivity, where services pass under footings backfill trenches with hand compacted clay or blinding concrete for 1500mm each side of footing against clean, dry, undisturbed natural material. Backfill trenches with hand compacted clay within 1500mm of building. Provide 2 x proprietary flexible joints in stormwater and wastewater services not less than 600mm apart within 800mm of exterior of building perimeter in accordance with AS3500.2.
- F19 Provide 2 x proprietary flexible joints in stormwater and wastewater services not less than 600mm apart within 800mm of exterior of building perimeter in accordance with AS3500.2. (Using proprietary Coupling, Swivel and Combination Expansion Joint products to Manufacturers Specifications).
- F20 Where services pass through middle third of footing, wrap pipes in closed-cell polyethylene compressible material as follows. Refer to Specification Note F14 for Site Classification and for Class A, E & P provide 10mm thick wrapping. Class H1 - 20mm wrapping and Class H2, E & P to have 40mm thick wrapping.
- F21 Where pipe pass vertically through foundation systems, provide proprietary flexible connections using combination slab adaptors, coupling sleeves and expansion joints to allow for reactive ground movement in accordance with AS3500 and AS2870.
- F22 For sites with Mine Substance Design Parameters specified on the documents, all services in addition to notes above passing through horizontal ground slabs and footings must account for flexible connections with proprietary Swivel and Combination Expansion joints (To Manufacturers Specifications) to allow ground movement of +/- 50mm (U.N.O.).
- F23 For services under slabs in site material classed as 'unstable' or 'non-compactable material' (less than 95% Standard Compaction), proprietary stainless steel hangers must be used to support all hydraulic services at 500mm centres (U.N.O.).
- F24 Following construction foundation maintenance to be in accordance with CSIRO Building Technology File 18 'Foundation Maintenance and Footing Performance A Homeowner's Guide'.

EARTHWORKS:

- E1 The contractor shall review the Geotechnical Engineering Report. Remove all topsoil, organic matter rubble, uncontrolled fill, unsuitable material at the direction of the Geotechnical Engineer. All materials stockpiles and all earthwork areas shall have sediment and erosion control measures installed in accordance with the "Blue Book" (Managing Urban Stormwater Soils and Construction, produced by Landcom). Any surplus excavated topsoil shall be removed from site and disposed of in accordance with EPA guidelines.
- E2 Prod roll all exposed natural sub-grade for building platforms, paved areas, areas to be filled, or cut batters in the presence of a suitably Qualified Geotechnical Engineer who will certify the works.
- E3 Allow for excavation in all materials as found U.N.O. Any surplus excavated material shall be removed from site and disposed of in accordance with EPA guidelines.
- E4 Ensure that there is continuity of compaction between building platforms in both cut and fill areas.
- E5 Testing of the sub-grade shall be carried out by an approved N.A.T.A. registered laboratory and in accordance with AS1078. Where the fails to prove suitable to building floor slabs, level 1 testing procedures (in accordance with AS3798) shall be followed, otherwise level 2 testing shall be undertaken.
- E6 The contractor shall allow in their prices for all costs associated with geotechnical testing during construction works.
- E7 U.N.O. Provide suitable compaction equipment to achieve specified standards. Refer to geotechnical engineering report for site sub-grade preparation guidelines. All fill materials shall be placed to a maximum 200mm thick layers and compacted at optimum moisture content (+/-2%) to achieve the following standards:
- Service trenches (not under pavements) 95% standard
- Service trenches under pavements 100% standard
- Top 600mm to subgrade level under paved areas 100% standard
- Landscaped and general areas 85% standard
Pavement:
- Base Layer 100% standard
- Sub-Base Layer 100% standard
Testing of placed fill shall be at the direction of the geotechnical engineer and suitable for the works to be certified as completed.
- E8 Provide to the superintendent all necessary test certificates and certifications for all earthworks and pavement preparations.
- E9 Ensure that all earthworks areas are free draining and do not pond water. Provide temporary drainage or sump pumping as required until sufficient site stormwater drainage has been installed.

CONCRETE:

- C1 Workmanship and materials to comply with AS3600, AS2870, AS3610, AS1379, AS1478, AS3582 and AS3972 for liquid retaining structures also comply with AS3735.
- C2 Wet concrete to be uniform, homogeneous, cohesive and to work readily into corners and around reinforcement completely filling formwork without segregation, access free water on surface, loss of material or penetration concrete to have good dimensional stability and able to resist plastic settlement cracking, thermal cracking and shrinkage cracking.
- C3 Review location of embedded items to minimize possible zones of poor compaction that may compromise structural integrity.
- C4 Externally exposed concrete to be classification B1 uno.
- C5 Concrete quality shall be as follows:

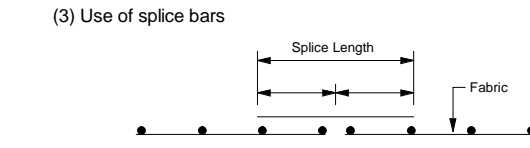
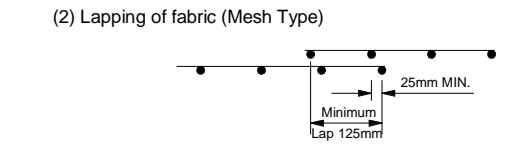
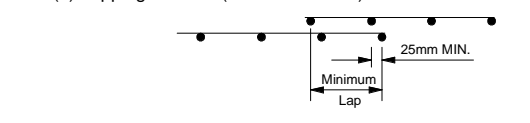
Element	f _{cu} MPa	Slump mm	Max. Agg. mm	Reinforcement Cover Internal Btm Top	External Btm Top
EXTERNAL PAVING	32 ±	60	20	-	50

U.N.O. Concrete shall be "Normal Class" to AS1379.

- C6 Sampling, testing and acceptance
Permanent records of plant assessment and project assessment shall be maintained at the plant and project respectively. Copies of these records shall be given promptly to the Engineer.
Concrete is subject to project assessment.
Sampling and testing shall comply with AS1379 and this specification and all such costs shall be borne by the contractor.
The sampling and site treatment of project control test specimens shall be carried out by a NATA laboratory other than that of the supplier.
Acceptance of concrete prior to placement shall be based on measured slump for compliance with the specification. Acceptance to hardened concrete for design properties shall be in accordance with AS1379.
U.N.O. Concrete shrinkage to be 700 microstrain maximum at 56 days. Test method AS1012 Part 13.
- C7 Construction tolerances to be in accordance with AS3610.
Provide drip grooves in soffit of beams and slabs at external perimeter of structures. Ensure cover to reinforcement is achieved.
C8 Depths of beams are given first and include slab thickness.
C9 For channells, drip grooves, registers, etc. refer to Architects' details.
C10 Do not make holes, penetrations, recesses, chases, or embed pipes (other than those shown on structural drawings) without approval of superintendent. Do not place conduits, pipes etc within cover concrete. Locate conduits, pipes etc only in middle third of slab or beam depth and between reinforcement layers, and spaced at 3 x diameter centres minimum. Do not cut reinforcement at penetrations without approval.
C11 Concrete cover shall be maintained by the use of plastic bar chairs at 750mm maximum centres U.N.O. Plastic tyrod ferrous chairs not permitted.
C12 Construction joints where not shown shall be located to the approval of the Engineer in writing.
C13 Symbols on drawings for grade and type of reinforcement are as follows:-
N Denotes grade 500 normal ductility deformed bar to AS4671
R Denotes grade 250 normal ductility plain round bar to AS4671
SL Denotes grade 500 low ductility welded square mesh to AS4671
RL Denotes grade 500 low ductility welded rectangular mesh to AS4671
Reinforcement is shown diagrammatically and not necessarily in true position.
C16 Splices in reinforcement shall be made only in positions shown to otherwise approved in writing by the Engineer.
C17 Cops and hooks to be standard in accordance with AS3600
C18 Reinforcement splices unless noted otherwise on the drawing.
All splices shall conform to the following table:

Deformed Bar Diameter	Footings	Slabs	Walls/Columns	Beams < 350mm DEEP	Beams > 350mm DEEP
N12	460	350	350	350	460
N16	610	480	470	480	620
N20	800	660	600	660	850
N24	1070	850	800	850	1100
N28	1370	1060	1000	1060	1370
N32	1690	1270	1220	1270	1650
N36	2030	1490	1460	1490	1930

- i) Plain Bars - Actual lap length for plain (non-deformed) bars shall be 1.5 times the basic lap length.
ii) Epoxy-Coated Bars - Actual lap length shall be 1.5 times the basic lap length.
iii) Lightweight Concrete - Actual lap length shall be 1.3 times the basic lap length.
iv) Structural elements built using slip forms - actual lap length shall be 1.3 times the basic lap length.
C20 Fabric splices shall be made by either of the following methods:-
(1) Lapping of fabric (Standard)



Splice bar length is 800mm or 1000mm for horizontal bars where more than 300mm concrete cast below bar.

Fabric Reference	Spacing of Bars mm	
	At sheet ends	At sheet sides
RL1218	75	300
RL1118	100	300
RL1018	125	300
RL918	150	300
RL718, RL818	200	300
SL102, SL81	200	200
SL82, SL92	300	300

- C21 Welding of reinforcement is only permitted where shown on the drawings or otherwise approved by the Engineer. Where welding of reinforcement is approved, it shall be carried out in accordance with AS1554, Part 3.
- C22 Dowels shall be sawn to length. In skewed joints, dowels shall be aligned with the longitudinal joints. Dowel alignment to be maintained by use of a support assembly suitable to ensure a horizontal and vertical tolerance of 5 in 400.
- C23 Minimum lap of fabric shall be two transverse wires plus 30 mm. Minimum 500mm lap length for trench mesh.
- C24 All concrete shall be placed and cured in accordance with Australian Standards. Curing must be applied to formwork immediately after finishing and onto walls and columns immediately after removal of formwork. Curing compounds must be compatible with future finishes and comply with AS3759.
- C25 Bulkier shall be responsible for design of formwork, shoring and scaffolding. Formwork and shoring shall comply with AS3610. Scaffolding shall comply with AS1576.
- C26 Do not strip formwork until concrete is hardened sufficiently to withstand movement and form removal without damage. Strip formwork to AS3600 Clause 17.6 Remove form tie bolts without damaging concrete, parts of bolts left in concrete must not intrude into cover concrete. Flush fill holes using pre-mixed non-shrink cementitious repair mortar matching concrete surface colour, strength and durability and adequate bond. Remove props and formwork for beams and slabs and ensure concrete has gained adequate strength before constructing walls or placing other permanent loading on work.
- C27 Slabs and beams shall bear only on the columns and walls shown on the drawings. All other building elements shall be kept 20mm clear from the soffits of structure.
- C28 Where transverse tie bars are not shown provide N12-300 spliced where necessary and lap with main bars 400mm. All penetrations to have 2x16 trimmer bars top and bottom to each face U.N.O. Extend trimmers 600mm beyond penetration. Site bending of reinforcement bars shall be done without heating. The bars shall be bent using a re-bending tool and against a flat surface or a pin with a diameter not less than the minimum pin size prescribed in AS3600.
- C29 U.N.O. All hot down bolts shall be hot dipped galvanized.
- C30 U.N.O. all masonry anchors into concrete shall be M20 metal trussbolts (145 min embedment) or approved equivalent. Bolts shall be galvanneal for internal environments. Stainless steel GK318 bolts should be used for all external conditions or in cavities where they are not readily accessible or visible.
- C32 Install waterstops onto smooth concrete surface. Do not scabble concrete beneath water stops.
- C33 Saw cut control joints as soon after casting as practicable to avoid spalling or swelling of joint edges, and within 16 hours of casting to prevent thermal and shrinkage cracking of slab. Immediately after saw cutting, flush out joints to remove sawing residue and insert a temporary foamed plastic bead to keep joint clean prior to filling or sealing protect saw cuts from wheel loads for at least one week after cutting.
- C34 Do not install sealants if expected maximum daily temperature exceeds 30° degrees celcius. Ensure recesses are clean and dry prior to installing fillers or sealants, and prepare in accordance with manufacturer's recommendations. Tolerance on sealant widths < 5, > 5 mm.
- C35 Do not use formwork that forms a complete hole through concrete elements. Do not use reinforcement to support formwork.
- C36 Do not stack loads of materials or traffic slabs with construction equipment until concrete test results can confirm that suitable strength exists to support any proposed loads. MPC should be contacted prior to carrying out any works.

LOADING:

- L1 The structure has been designed for loads in accordance with AS/NZS 1170.0:2002 General Principles, and AS/NZS 1170.1:2002 Permanent, Imposed and Other Actions.
- L2 Superimposed floor loads are generally in accordance with AS/NZS 1170.1:2002 Permanent, Imposed and Other Actions, or as noted in Table 6.
- L3 Commercial/Industrial Development:
Wind loads are in accordance with AS/NZS 1170.2:2011
Wind Actions as follows:
Region = Terrain Category =
Basic Wind Speeds V_b = m/s. V_s = m/s
Residential Development:
Wind loads are in accordance with AS 4555 Wind Loads for Housing' as follows:
Region = Terrain Category =
Wind Classification =
L5 Earthquake loads are in accordance with AS/NZS 1170.4:2007 Earthquake Loads as follows:
Z = Sub-Soil Class = C_b = BCA Importance Level = 2.0.
- L6 LIVE LOADING

Element	SDL kPa	Design Live Load kPa

SDL Denotes Superimposed Design Dead Load kPa

SAFETY IN DESIGN:

- S1D The safety risk mitigation items set out below are based on MPC Consulting Engineers design office experience and may not take into account all construction, operation, maintenance and demolition safety risks. Based on the information available at the time this drawing was made, it is the responsibility of the contractor to ensure that the design and construction of the works pertaining to the construction, operation, maintenance and demolition phases of the project include the inclusion (or not) of any item does not reduce or limit the obligations of the contractor user, maintainer and demolisher to undertake appropriate risk management activities to reduce risk and is not an admission by MPC Consulting Engineers that the inclusion of any item is a designer's responsibility.
- S2D Construct building elements that contribute to safety, such as fall arrest systems, access stairs, etc as early as possible.
- S2SD Review adequacy of working space available for construction activities. Ensure separation of plant and personnel on site, including movements of both.
- S3D Locate lifting slew and lay down areas away from regular construction traffic.
- S3SD Provide protection to personnel from plant and equipment, including post-tensioned ground anchor installation works.
- S4D Ensure isolation safe systems of work or protective measures are installed before working near live electrical infrastructure. Provide protection of electrical overhead wiring systems during construction.
- S5D Written risk assessments are advised for access to open excavations.
- S7D Formal access and egress to excavations is advised in event of inundation, collapse or engulfment.
- S8D Locate stockpiles and heavy equipment including cranes away from buried services and building boundaries where adjacent basements, earth or retaining structures are present.
- S10D Seek advice from suitably Qualified Geotechnical or Structural Engineer prior to operation of heavy surface plant and equipment or stockpiling material near open excavations or existing retaining structures.
- S11D Do not stockpile materials behind or excavate in front of existing retaining walls until wall stability has been reviewed by suitably Qualified Structural Engineer.
- S12D Seek advice from suitably Qualified Structural Engineer before laying services below existing foundation levels.
- S13D Have load capacity of structures verified by suitably Qualified Structural Engineer before loading or storing materials on existing or partially completed structural elements.
- S14D Seek advice from suitably Qualified Structural Engineer if planning crane lifts or hoist installation on partially erected or suspended structures.
- S15D Seek advice from suitably Qualified Structural Engineer before coring, chasing, cutting or removal of existing concrete and reinforcement.
- S16D Have suitably Qualified Structural Engineer undertake structural check of existing concrete, masonry and steel walls where fixings or equipment is to be attached.
- S17D Instruct services contractors that under no circumstances can structural members be cut, notched or drilled to accommodate new services.
- S18D Establish locations of live embedded services before cutting through slabs, etc.
- S19D Develop steelwork/precast/it up installation safe work method statement to eliminate and minimise installation risks, and have reviewed by suitably Qualified Structural Engineer prior to erection.
- S20D Do not cut or unbolt any structural members without seeking review by Qualified Structural Engineer.
- S21D Provide buckling stability to long span beams, trusses etc during erection. If unsure, check with suitably Qualified Structural Engineer prior to lifting and installation.
- S22D Minimise site based treatments (eg welding, cutting, spray painting, grit blasting, etc). Provide adequate protection, screening and ventilation to minimise hazards to personnel if safe based treatment is unavoidable.
- S23D Try to avoid working in confined spaces. If confined spaces work can't be avoided, provide safe work method statement addressing mitigation of risks. Provide adequate signage to temporary and permanent confined spaces to AS2865.
- S24D Avoid hot works on site particularly in timber framed structures. Hot works to comply with civil procedures for applicable 'hot works' permits.
- S25D Some sites in Australia contain unexpected obstructions (use) in the ground. Undertake desktop reviews for the likelihood of obstructions before commencing any ground investigation or excavation in these areas. Should evidence indicate potential void presence, do not commence ground works until engaging a Specialist Consultant who can help define any future clearance tasks.
- S26D Determine appropriate method of paint removal and disposal before stripping paint, particularly on historic structures. Provide screening and protect environment for paint removal and cleaning operations. Use environmentally appropriate restoration methods during maintenance and repair work.
- S27D Make work areas safe where structural elements are damaged. Cracked or have suffered significant section loss before allowing general construction or repair access.
- S28D Report significant section loss or corrosion flaking before starting painting or repairs. Consult suitably Qualified Structural Engineer if section loss or extensive corrosion flaking present before proceeding with work.
- S29D Develop and implement risk mitigation strategies before allowing access over suspended structures.
- S30D Report loose or missing bolts etc in connections encountered during day to day operations.
- S31D Remove material from storage structures before undertaking maintenance work.

GENERAL CIVIL NOTES:

- All works to be carried out in accordance with Council's Civil Construction Specification and Subdivision Policy to the satisfaction of the Director - Development/Environment.
- G1 All erosion and sedimentation control measures are to be carried out in accordance with Council's Code of Practice for Erosion and Sedimentation and must be implemented prior to the commencement of any building of civil works. The developer is responsible for ongoing maintenance of erosion and siltation control measures.
- G2 All public utilities are to be clearly identified in the field prior to any civil works. Council accepts no responsibility for damage or relocation costs to utilities during construction.
- G3 Council is to be notified prior to the commencement of any works.
- G4 It is the contractor's responsibility to ensure that all works are carried in accordance with the Occupational Health and Safety Act.
- G6 Permission to enter, construct works and discharge storm water onto adjoining properties is to be obtained and submitted to Council prior to commencement of any works.
- G7 Pavement to be designed and certified by a practicing consultant geotechnical engineer and submitted to Council for approval prior to commencement of any works.
- G8 All rectification work arising from insufficient information being shown on the submitted plans is to be carried out to the engineer's satisfaction.
- G9 All disturbed areas to be shaped and turfed.
- G10 The plans to be read conjunction with engineering plan approval correspondence.

CONCRETE PAVEMENT:

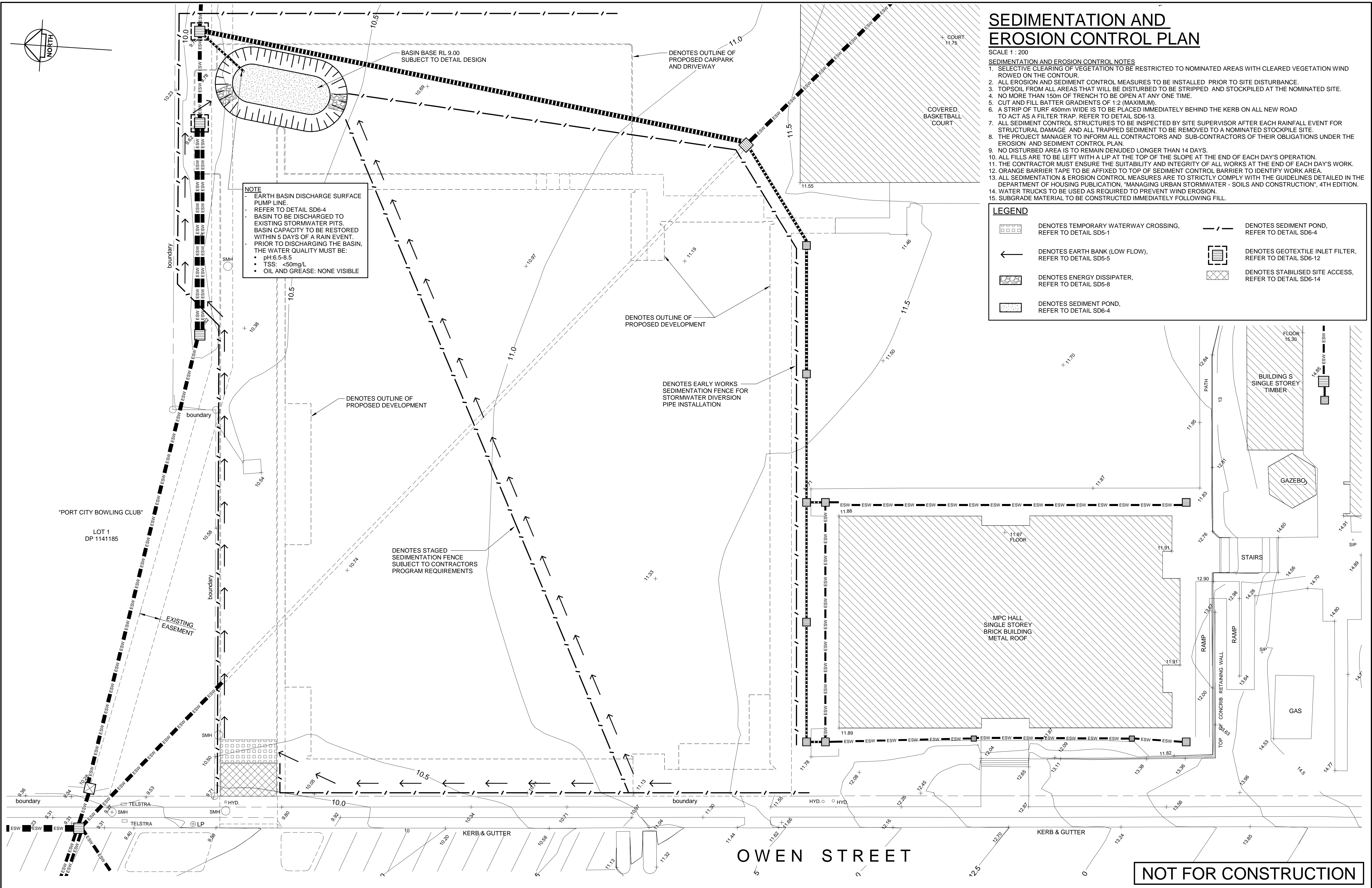
- C1 Concrete Mix Parameters
Compressive Strength F_{cu} = 32 MPa
Flexural Strength at 28 days = 3.5 MPa
Flexural Strength at 90 days = 3.8 MPa
Maximum Shrinkage Limit = 600 Microstrain (AS1012 Part 13)
Cement to be Normal Class to AS1379
Slump = 60mm
C2 All work to be broom finish U.N.O.
CP3 A Joints as detailed.
B Bond breaker to be two (2) uniform coats of bitumen emulsion all over the exposed surface & on end. Joint sealant to be compatible with bond breaker.
C Dowels and tie bars to meet strength requirements of structural grade steel in accordance with AS4671.
D Dowels and tie bars shall be:-
- Straight
- To length specified
- Galvanneal
- Sawn to length not cropped.
CP4 Joint to be sawn as soon as concrete has hardened sufficiently that it will not be damaged by sawing.
CP5 Dimensions of sealant reservoir depend on the sealant type adopted. Engineers approval to be obtained for sealant and reservoir dimensions and detail proposed by the contractor.
CP6 Where slabs abut walls or buildings, provide 10mm abuttees all round typical.
CP7 Match new pavements neatly and flush with existing where required.
CP8 No concrete to be poured on days forecast to be greater than 30° degrees celcius.
CP9 Nominal compaction parameters:
- Base 100% standard.
- Sub-grade 100% standard.
CP10 Allow for at least two successful compaction tests in each layer. Allow for one additional test per 200 sq.m of pavement. Testing to be undertaken by N.A.T.A. registered laboratory.
CP11 All trafficable concrete pavements to be 32MPa with footpath pavements minimum 25MPa (U.N.O.).

NOT FOR CONSTRUCTION

			© Copyright MPC Consulting Engineers as date of issue			COPYRIGHT			CLIENT			PROJECT			DO NOT SCALE DRAWING			SHEET		
			THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW			The concepts and information contained in this document are the copyright of MPC Consulting Engineers. Use or copying of the document in whole or in part without the written permission of MPC Consulting Engineers constitutes an infringement of copyright.			PORT MACQUARIE - HASTINGS PCYC			PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE			DRAWN R.G. ENGINEER R.B./D.P. SCALES N.T.S.			A1		
									TITLE						AUTHOR CODE DRG No			No in SET 1		
A			SSD 11920082 - MODIFICATION - PCYC			27.10.22			COVER SHEET AND GENERAL NOTES						220391 CV-DRG 0001			ISSUE A		
ISSUE			REASON FOR ISSUE			DATE			RESPONSIBLE PRINCIPAL SIGNATURE			ISSUE								



Level 1,
16 Telford Street,
NEWCASTLE EAST, NSW 2300
PO BOX 553
THE JUNCTION, NSW 2291
Tel: (02) 4927 5566
Fax: (02) 4927 5577
Email: admin@mpceng.com.au
Web: www.mpceng.com.au
A.C.N. 098 542 575



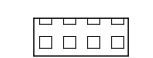




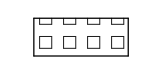


SEDIMENTATION AND EROSION CONTROL PLAN

SCALE 1 : 200

SEDIMENTATION AND EROSION CONTROL NOTES

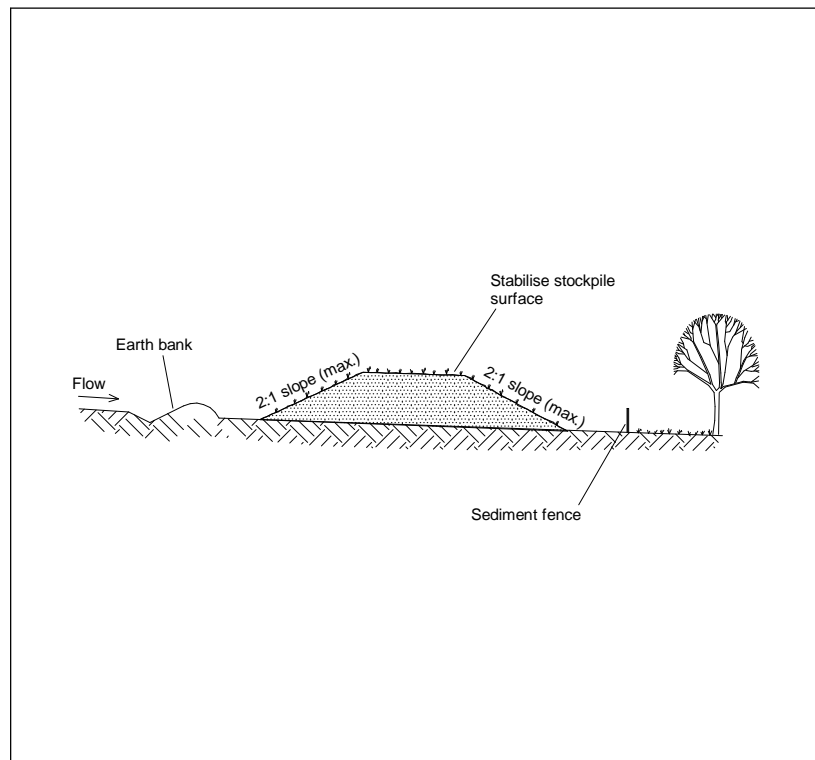
1. SELECTIVE CLEARING OF VEGETATION TO BE RESTRICTED TO NOMINATED AREAS WITH CLEARED VEGETATION WIND ROWED ON THE CONTOUR.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
3. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE.
4. NO MORE THAN 150m OF TRENCH TO BE OPEN AT ANY ONE TIME.
5. CUT AND FILL BATTER GRADIENTS OF 1:2 (MAXIMUM).
6. A STRIP OF TURF 450mm WIDE IS TO BE PLACED IMMEDIATELY BEHIND THE KERB ON ALL NEW ROAD TO ACT AS A FILTER TRAP. REFER TO DETAIL SD6-13.
7. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED BY SITE SUPERVISOR AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED STOCKPILE SITE.
8. THE PROJECT MANAGER TO INFORM ALL CONTRACTORS AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN.
9. NO DISTURBED AREA IS TO REMAIN DENUDED LONGER THAN 14 DAYS.
10. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S OPERATION.
11. THE CONTRACTOR MUST ENSURE THE SUITABILITY AND INTEGRITY OF ALL WORKS AT THE END OF EACH DAY'S WORK.
12. ORANGE BARRIER TAPE TO BE AFFIXED TO TOP OF SEDIMENT CONTROL BARRIER TO IDENTIFY WORK AREA.
13. ALL SEDIMENTATION & EROSION CONTROL MEASURES ARE TO STRICTLY COMPLY WITH THE GUIDELINES DETAILED IN THE DEPARTMENT OF HOUSING PUBLICATION, "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", 4TH EDITION.
14. WATER TRUCKS TO BE USED AS REQUIRED TO PREVENT WIND EROSION.
15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.

LEGEND

-  DENOTES TEMPORARY WATERWAY CROSSING, REFER TO DETAIL SD5-1
-  DENOTES SEDIMENT POND, REFER TO DETAIL SD6-4
-  DENOTES EARTH BANK (LOW FLOW), REFER TO DETAIL SD5-5
-  DENOTES ENERGY DISSIPATER, REFER TO DETAIL SD5-8
-  DENOTES SEDIMENT POND, REFER TO DETAIL SD6-4
-  DENOTES SEDIMENT POND, REFER TO DETAIL SD6-4
-  DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL SD6-12
-  DENOTES STABILISED SITE ACCESS, REFER TO DETAIL SD6-14

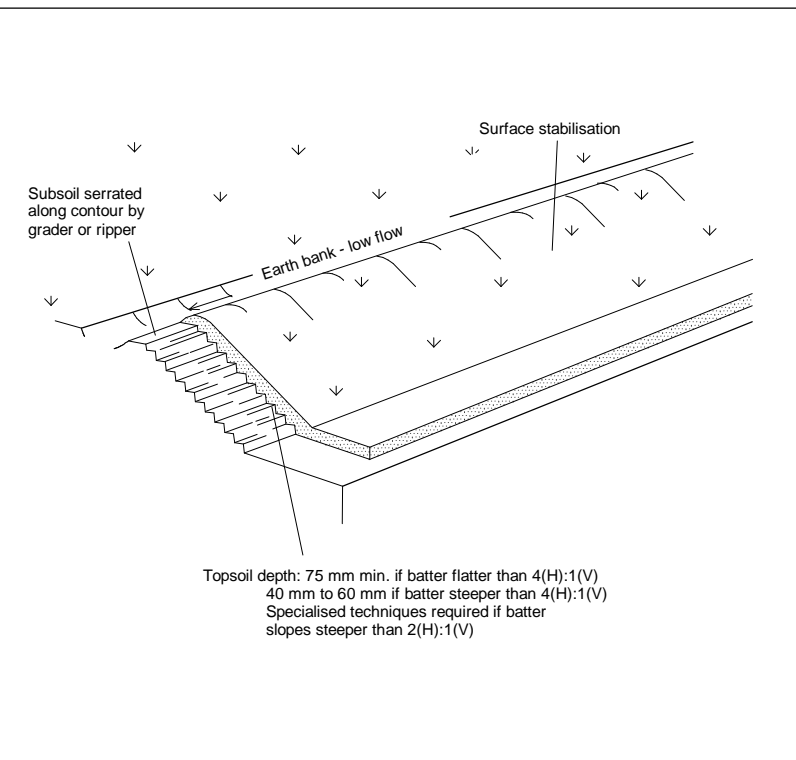
© Copyright MPC Consulting Engineers as date of issue			COPYRIGHT			CLIENT			PROJECT			DO NOT SCALE DRAWING			SHEET		
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW			The concepts and information contained in this document are the copyright of MPC Consulting Engineers. Use or copying of the document in whole or in part without the written permission of MPC Consulting Engineers constitutes an infringement of copyright.			PORT MACQUARIE - HASTINGS PCYC			PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE			DRAWN R.G.			A1		
						TITLE						ENGINEER R.B./D.P.			No in SET		
						SEDIMENTATION AND EROSION CONTROL PLAN						SCALES 1 : 200			1		
												AUTHOR 220391			ISSUE A		
												CODE CV-DRG					
												DRG No 0010					

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



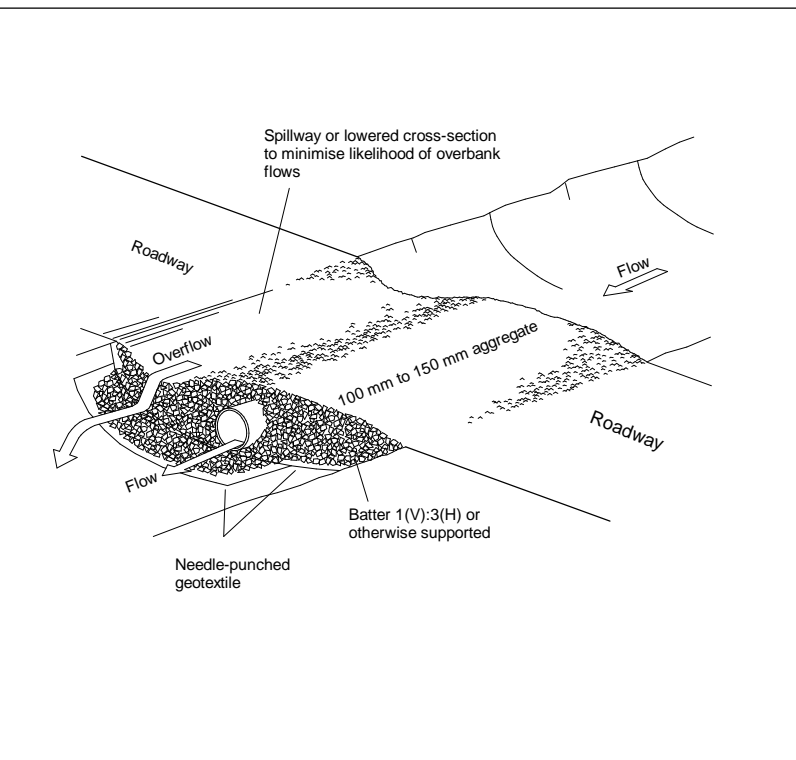
- Construction Notes**
1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
 2. Construct on the contour as low, flat, elongated mounds.
 3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
 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 2 metres downslope.

STOCKPILES SD 4-1



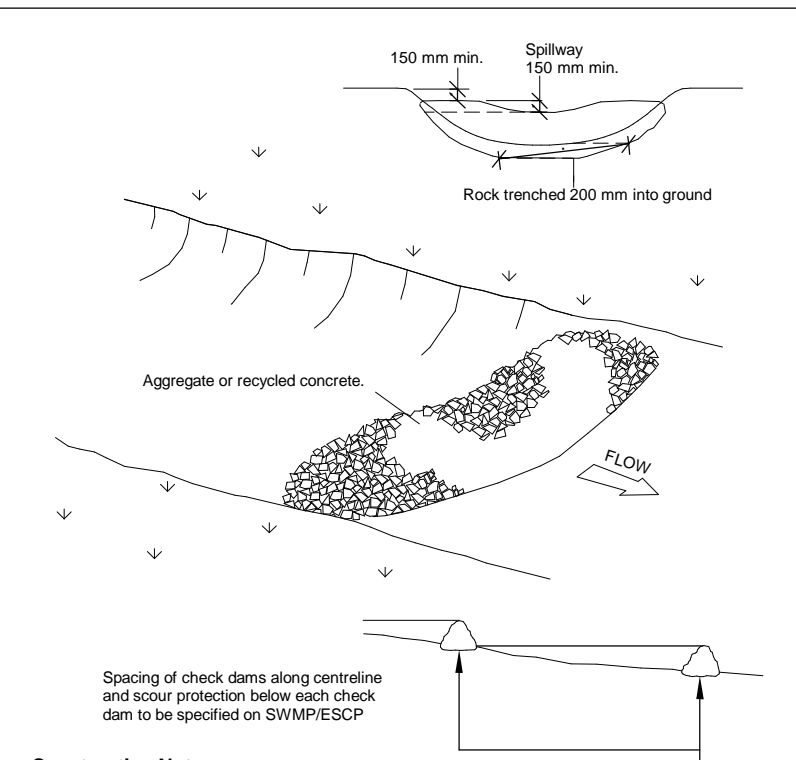
- Construction Notes**
1. Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respraid material and subsoil.
 2. Add soil ameliorants as required by the ESCP or SWMP.
 3. Rip to a depth of 300 mm if compacted layers occur.
 4. Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.

REPLACING TOPSOIL SD 4-2



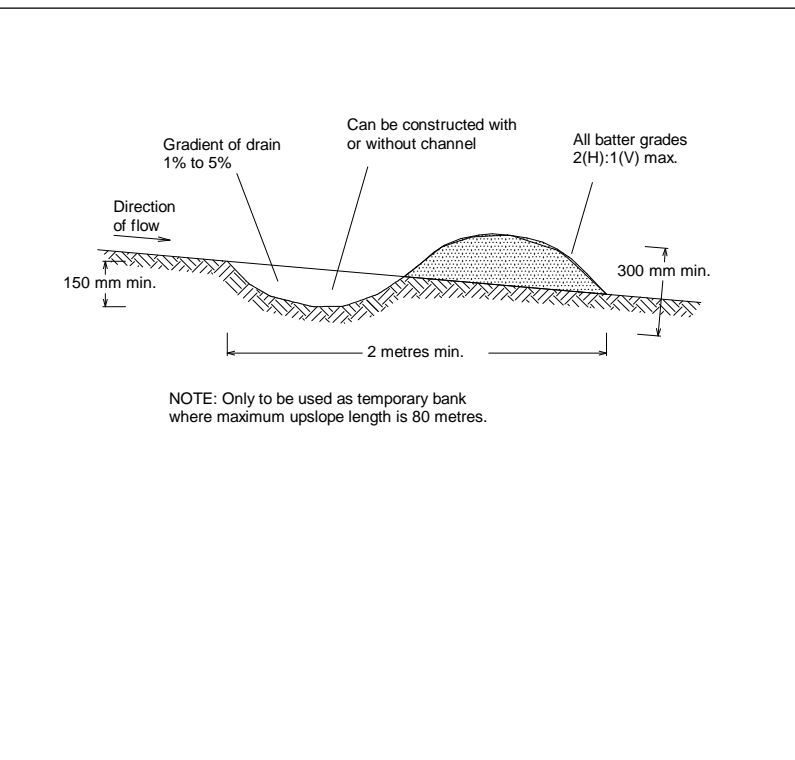
- Construction Notes**
1. Prohibit all traffic until the access way is constructed.
 2. Strip any topsoil and place a needle-punched textile over the base of the crossing.
 3. Place clean, rigid, non polluting aggregate or gravel in the 100 mm to 150 mm size class over the fabric to a minimum depth of 200 mm.
 4. Provide a 3-metre wide cartway with sufficient length of culvert pipe to allow less than a 3(H):1(V) slope on side batters.
 5. Install a lower section to act as an emergency spillway in greater than design storm events.
 6. Ensure that culvert outlets extend beyond the toe of fill embankments.

TEMPORARY WATERWAY CROSSING SD 5-1



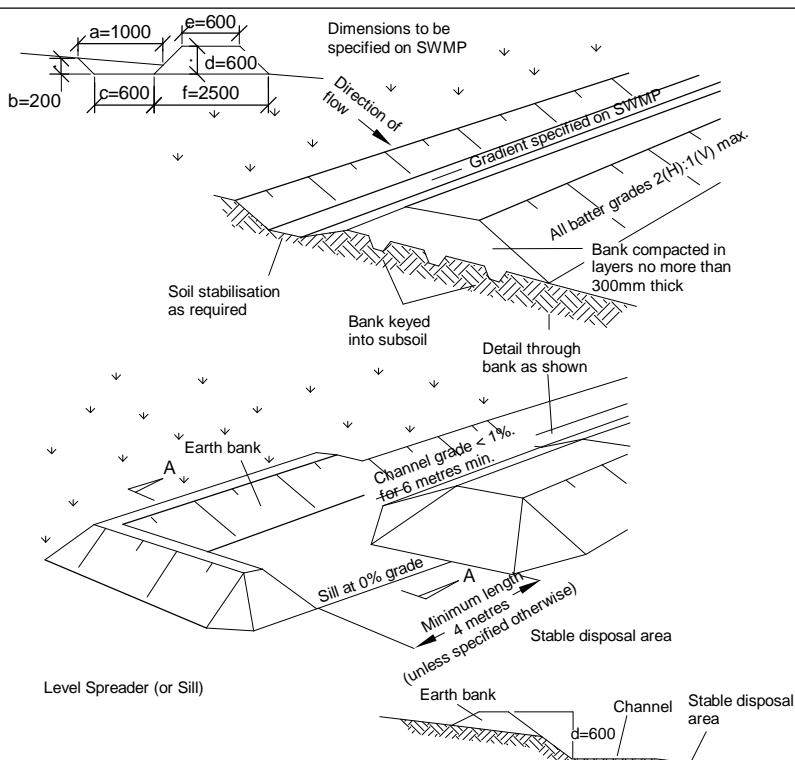
- Construction Notes**
1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
 2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
 3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
 4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM SD 5-4



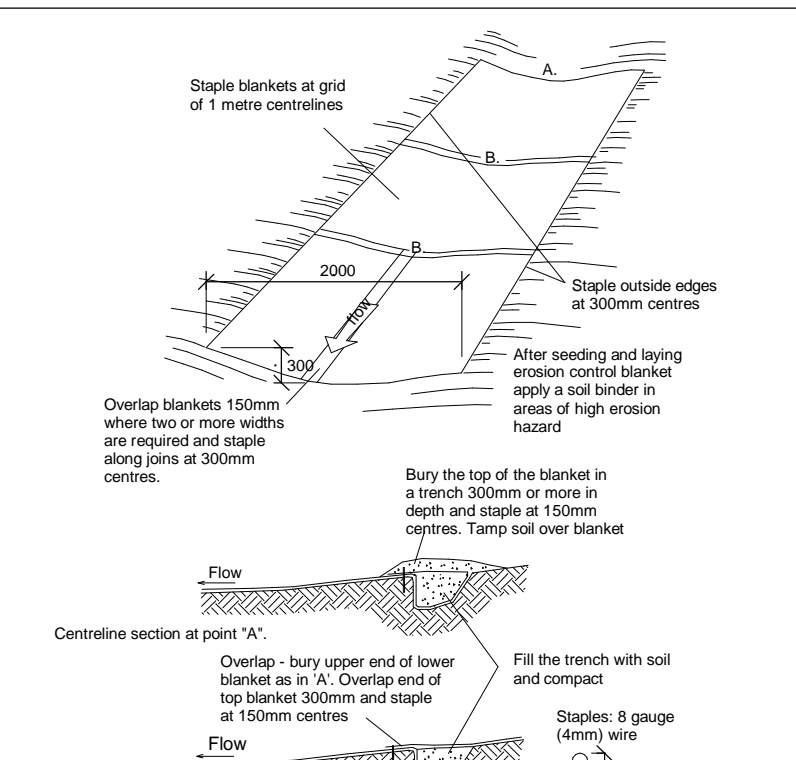
- Construction Notes**
1. Build with gradients between 1 percent and 5 percent.
 2. Avoid removing trees and shrubs if possible - work around them.
 3. Ensure the structures are free of projections or other irregularities that could impede water flow.
 4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
 5. Ensure the banks are properly compacted to prevent failure.
 6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD 5-5



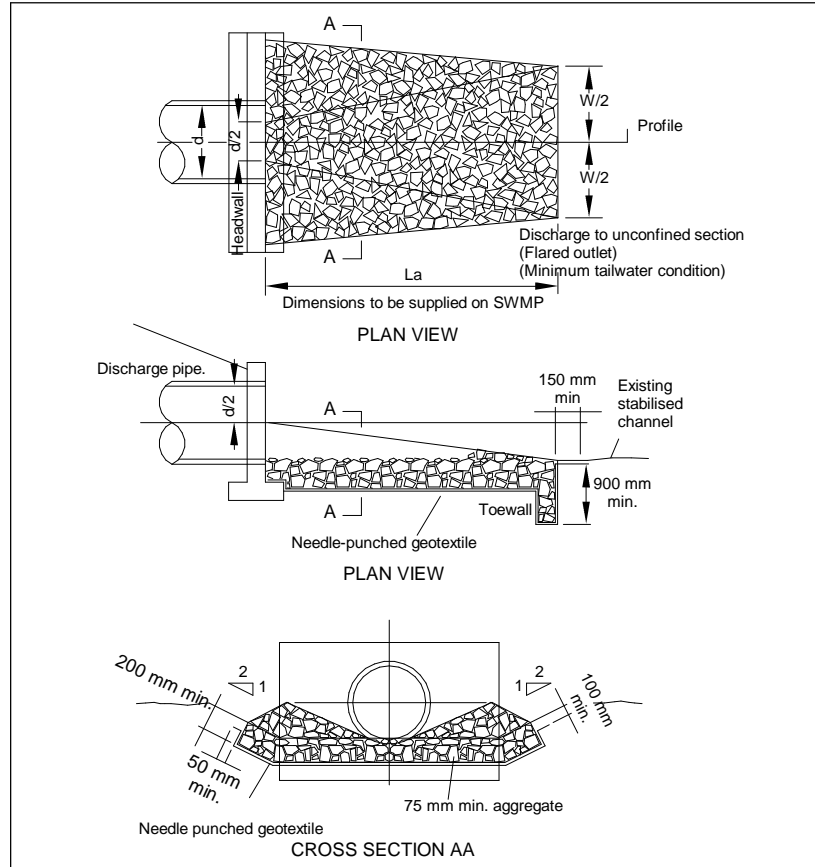
- Construction Notes**
1. Construct at the gradient specified on the ESCP or SWMP, between 1 and 5 percent.
 2. Avoid removing trees and shrubs if possible - work around them.
 3. Ensure the structures are free of projections or other irregularities that could impede water flow.
 4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
 5. Ensure the banks are properly compacted to prevent failure.
 6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
 7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
 8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
 9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS) SD 5-6



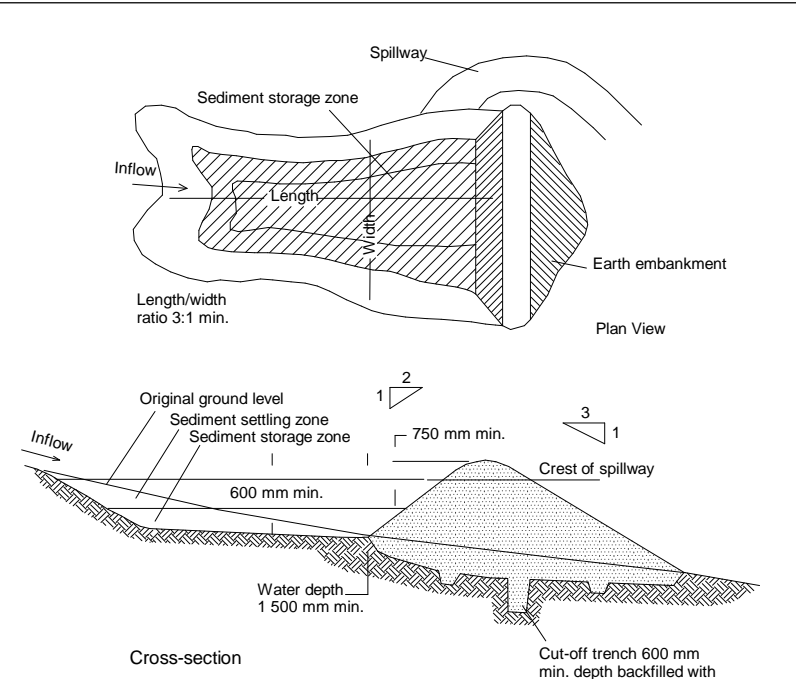
- Construction Notes**
1. Remove any rocks, clods, sticks or grass from the surface before laying matting.
 2. Ensure that topsoil is at least 75 mm deep.
 3. Complete fertilising and seeding before laying the matting.
 4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
 5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end.
 6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
 7. Divert water from the structure until vegetation is stabilised properly.

RECIP : CONCENTRATED FLOW SD 5-7



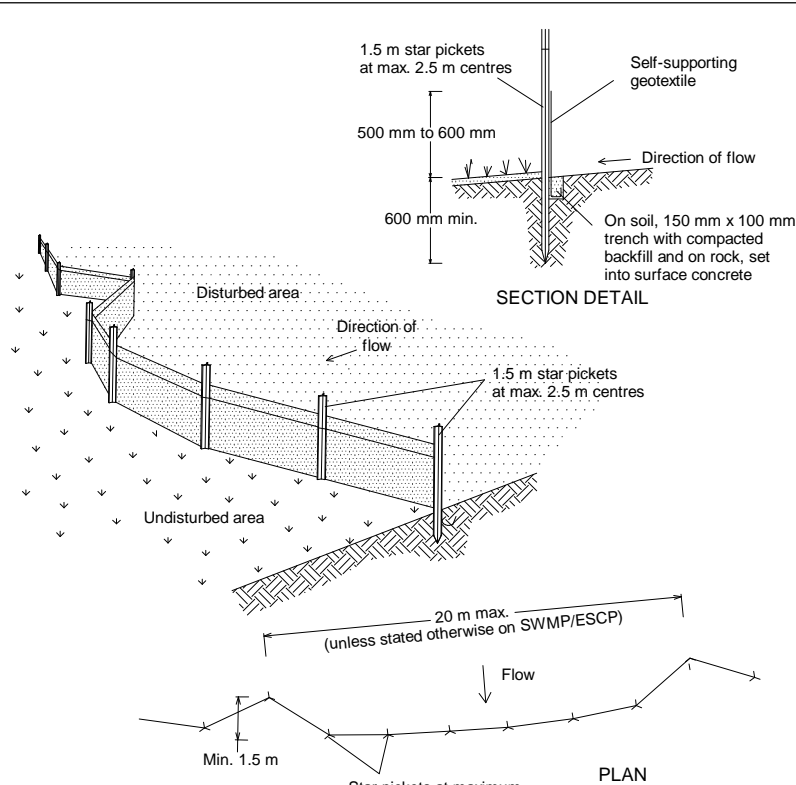
- Construction Notes**
1. Compact the subgrade fill to the density of the surrounding undisturbed material.
 2. Prepare a smooth, even foundation for the structure that will ensure that the needle-punched geotextile does not sustain serious damage when covered with rock.
 3. Should any minor damage to the geotextile occur, repair it before spreading any aggregate. For repairs, patch one piece of fabric over the damage, making sure that all joints and patches overlap more than 300 mm.
 4. Lay rock following the drawing, according to Table 5.2 of Landcom (2004) and with a minimum diameter of 75 mm.
 5. Ensure that any concrete or riprap used for the energy dissipator or the outlet protection conforms to the grading limits specified on the SWMP.

ENERGY DISSIPATER SD 5-8



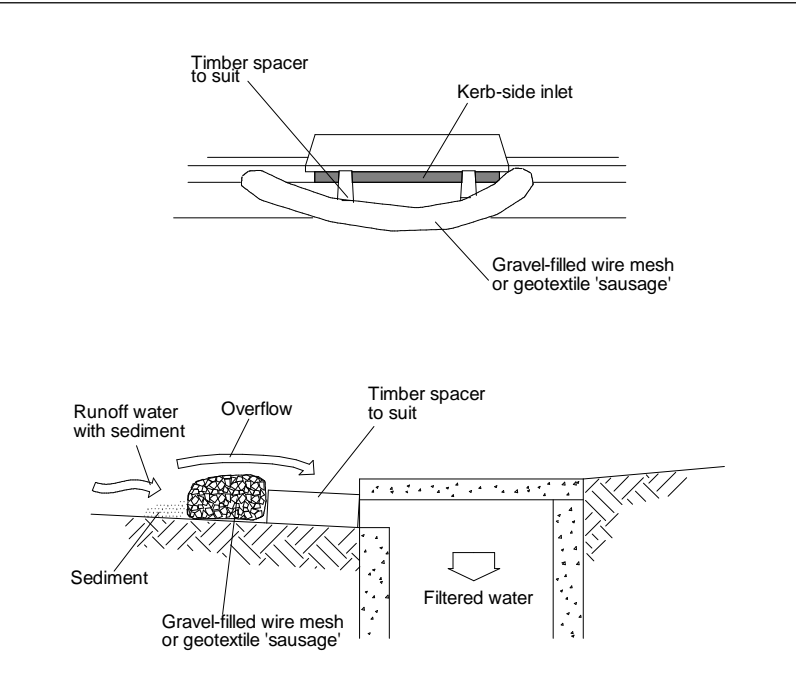
- Construction Notes**
1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
 2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centrelines of the embankment extending to a point on the gully wall level with the riser crest.
 3. Maintain the 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 100 mm to help bond compacted fill to the existing substrate.
 6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
 7. Construct the emergency spillway.
 8. Rehabilitate the structure following the SWMP.

EARTH BASIN - WET (APPLIES TO TYPE D AND TYPE F SOILS ONLY) SD 6-4



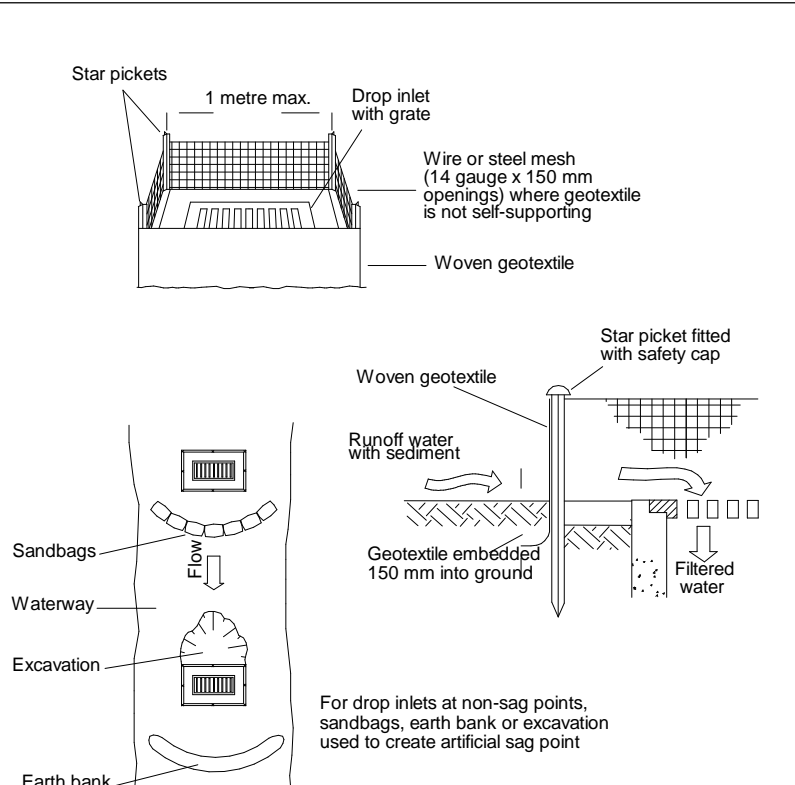
- Construction Notes**
1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
 2. Cut a 150-mm 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 150-mm overlap.
 6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-8



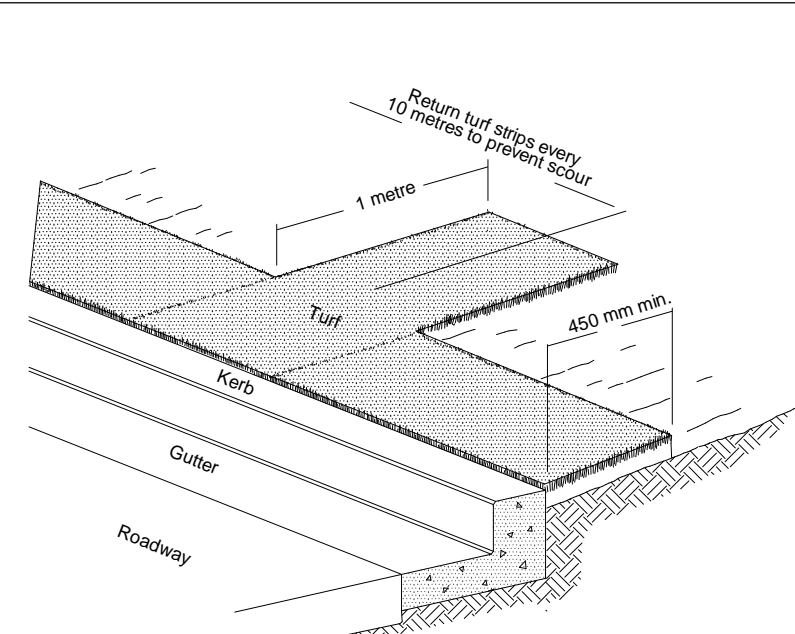
- Construction Notes**
1. Install filters to kerb inlets only at sag points.
 2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
 3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
 4. Place the filter at the opening leaving at least a 100-mm 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.

MESH AND GRAVEL INLET FILTER SD 6-11



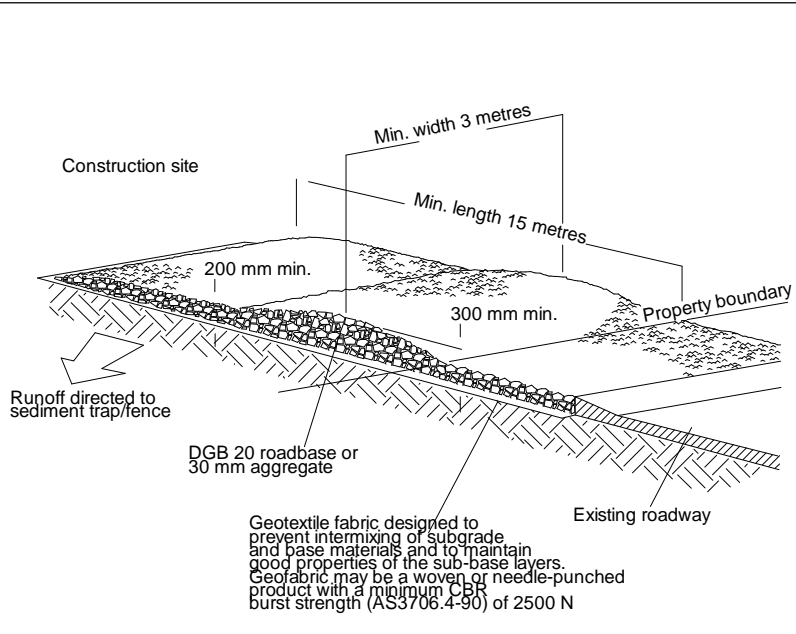
- Construction Notes**
1. Fabricate a sediment barrier made from geotextile or straw bales.
 2. Follow Standard Drawing 6-8 for installation procedures for the straw bales or geotextile. Reduce the picket spacing to 1 metre centres.
 3. In waterways, artificial sag points can be created with sandbags 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 SD 6-12



- Construction Notes**
1. Install a 450 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
 2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
 3. Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.

KERBSIDE TURF STRIP SD 6-13



- Construction Notes**
1. Strip the topsoil, level the site and compact the subgrade.
 2. Cover the area with needle-punched geotextile.
 3. Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
 4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
 5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence.

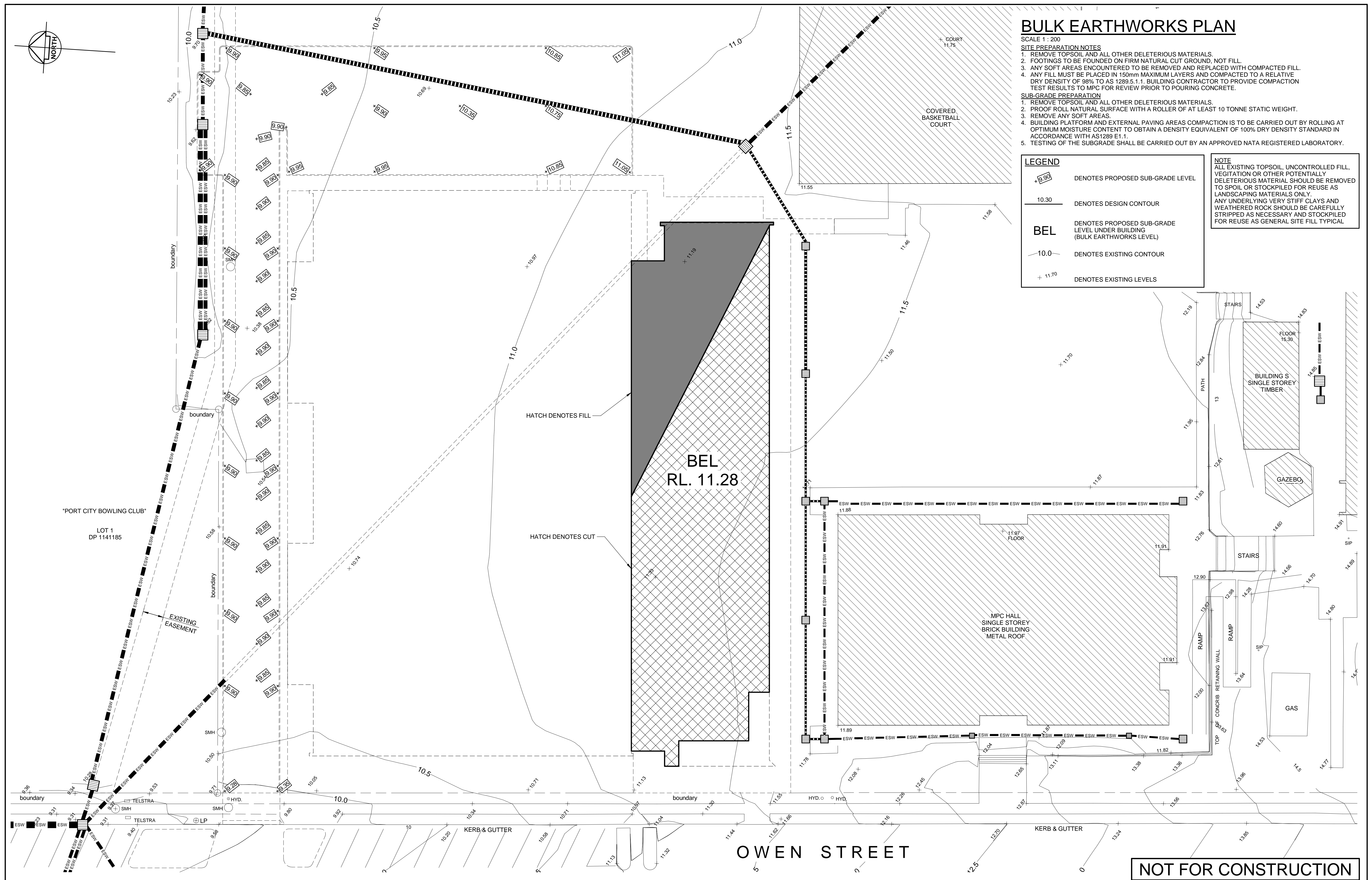
STABILISED SITE ACCESS SD 6-14


SEDIMENTATION AND EROSION CONTROL DETAILS

NOT FOR CONSTRUCTION

			© Copyright MPC Consulting Engineers as date of issue			COPYRIGHT			CLIENT			PROJECT			DO NOT SCALE DRAWING			SHEET		
			THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW			The concepts and information contained in this document are the copyright of MPC Consulting Engineers. Use or copying of the document in whole or in part without the written permission of MPC Consulting Engineers constitutes an infringement of copyright.			PORT MACQUARIE - HASTINGS PCYC			PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE			ENGINEER R.B./D.P.			No in SET 1		
									TITLE						CODE			ISSUE		
									SEDIMENTATION AND EROSION CONTROL DETAILS						CV-DRG			A		
A SSD 11920082 - MODIFICATION - PCYC			27.10.22												220391					
ISSUE			REASON FOR ISSUE			DATE			DATE OF RELEASE			RESPONSIBLE PRINCIPAL SIGNATURE								

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



			© Copyright MPC Consulting Engineers as date of issue			COPYRIGHT		CLIENT		PROJECT		DO NOT SCALE DRAWING			SHEET A1
			THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW			The concepts and information contained in this document are the copyright of MPC Consulting Engineers Use or copying of the document in whole or in part without the written permission of MPC Consulting Engineers constitutes an infringement of copyright.		PORT MACQUARIE - HASTINGS PCYC		PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE		No in SET 1			
								TITLE		CODE		ISSUE			
A SSD 11920082 - MODIFICATION - PCYC			27.10.22					BULK EARTHWORKS PLAN		220391		A			
ISSUE			DATE			DATE OF RELEASE			RESPONSIBLE PRINCIPAL SIGNATURE			ISSUE			
REASON FOR ISSUE															

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



© Copyright MPC Consulting Engineers as date of issue		COPYRIGHT		CLIENT		PROJECT		DO NOT SCALE DRAWING		SHEET	
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW		The concepts and information contained in this document are the copyright of MPC Consulting Engineers. Use or copying of the document in whole or in part without the written permission of MPC Consulting Engineers constitutes an infringement of copyright.		PORT MACQUARIE - HASTINGS PCYC		PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE		DRAWN R.G. ENGINEER R.B./D.P. SCALES 1 : 200		A1	
B SSD 11920082 - MODIFICATION - PCYC 28.10.22		A SSD 11920082 - MODIFICATION - PCYC 27.10.22		TITLE STORMWATER PLAN				AUTHOR 220391 CODE CV-DRG DRG No 0030		No in SET 1	
ISSUE		REASON FOR ISSUE		DATE		DATE OF RELEASE		RESPONSIBLE PRINCIPAL SIGNATURE		ISSUE	
										B	

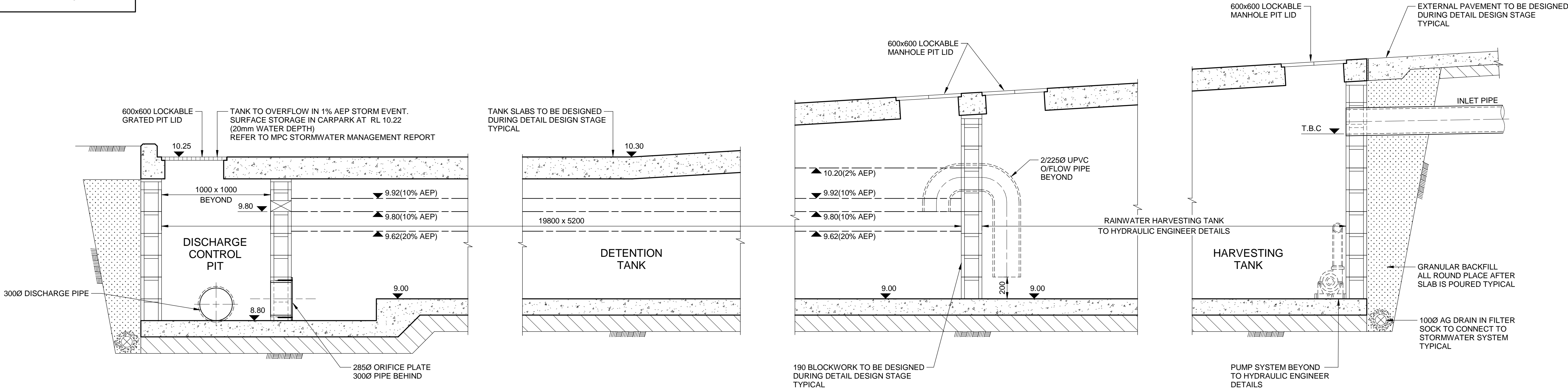
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

- STORMWATER NOTES**
1. ALL WORKS TO BE IN ACCORDANCE WITH AS/NZS3500.3.
 2. ALL PIPES TO HAVE A 1% MINIMUM FALL U.N.O.
 3. ALL DOWNPIPES (DP) TO BE SPECIFIED BY ARCHITECT. FOR EXACT LOCATION OF DOWNPIPES, REFER TO ARCHITECTURAL DRAWINGS.
 4. ALL PIPES TO BE UPVC U.N.O.
 5. ALL UPVC PIPES TO BE SEWER GRADE AND TO AS/NZS1260 WITH THE FOLLOWING PIPE CLASSES U.N.O.:
1000 OR LESS TO BE CLASS 'SN10', 1500 AND ABOVE TO BE CLASS 'SN8'
 6. ALL REINFORCED CONCRETE PIPES (RCP) TO BE SPIGOT AND SOCKET TYPE WITH RUBBER RINGS TO AS4058, CLASS 3 BENEATH TRAFFICABLE PAVEMENTS U.N.O., CLASS 4 UNDER HEAVY VEHICLE PAVEMENTS, CLASS 2 OTHERWISE.
 7. PITS TO BE C1&D REINFORCED PRE-CAST CONCRETE PITS OR EQUIVALENT PROPRIETARY PITS.
 8. ALL LIDS AND GRATES TO BE PROPRIETARY HOT DIPPED GALVANISED U.N.O. LOCKABLE HEAVY DUTY CLASS 'D' IN AREAS OF VEHICULAR TRAFFIC AND CLASS 'B' ELSEWHERE, COMPLYING WITH RELEVANT COUNCIL AND AUSTRALIAN STANDARDS SPECIFICALLY AS3996.
 9. ALL GRATED TRENCH DRAINS AND GRATED PITS TO BE CLASS 'B' HEEL SAFE WITHIN PEDESTRIAN PAVEMENTS
 10. MINIMUM COVER TO STORMWATER PIPES TO BE AS FOLLOW U.N.O.:
LANDSCAPED AREAS - 300mm, SEALED ROADS/TRAFFICABLE AREAS - 600mm, UN-SEALED ROADS - 750mm.
PIPES TO BE CONCRETE ENCASED IF MINIMUM COVERS CANNOT BE OBTAINED.
REFER TO MPC CONSULTING ENGINEERS FOR FURTHER ADVICE.
 11. PROVIDE 1000 AG DRAINS IN FILTER SOCKS TO ALL LANDSCAPED AREAS, PLANTER BEDS AND STORMWATER PIPE TRENCHES.
ALL AG DRAINS TO BE BEDDED IN COARSE AGGREGATE AND TO BE CONNECTED TO STORMWATER SYSTEM U.N.O.
 12. ALL PITS, DETENTION TANKS AND PROPRIETARY POLLUTION CONTROL DEVICES TO BE CLEANED OF SEDIMENT AT 3 MONTH MAXIMUM INTERVALS.
 13. ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.
 14. ANY FOOTPATHS, KERB AND GUTTER OR ROADWAY DISTURBED BY WORKS TO BE REINSTATED TO CURRENT COUNCIL REQUIREMENTS.
 15. PROVIDE ACCESS LADDER TO TANK AS REQUIRED, REFER TO AS1657.

LEGEND	
	DENOTES EXISTING STORMWATER PIPE
	DENOTES STORMWATER PIPE
	DENOTES EXISTING CONTOUR
	DENOTES DESIGN CONTOUR
	DENOTES EXISTING LEVEL
	DENOTES DESIGN SPOT LEVEL
	DENOTES 100 HIGH KERB U.N.O.
	DENOTES 1000 WIDE x 150 MIN DEEP GRASS LINED SWALE, 1% MIN FALL, U.N.O
	DENOTES DIRECTION OF SURFACE FLOWS
	DENOTES 600x600 MANHOLE PIT LID
	DENOTES OVERLAND FLOW DIRECTION IN MAJOR STORM EVENT
	DENOTES EXISTING GRATED PIT SURFACE AND INVERT LEVEL T.B.C
	DENOTES EXISTING KERB INLET PIT SURFACE AND INVERT LEVEL T.B.C
	DENOTES EXISTING JUNCTION PIT SURFACE AND INVERT LEVEL T.B.C

PIT SCHEDULE					
LINE	PIT No.	SIZE	TYPE	SURFACE LEVEL S.L.	INVERT LEVEL I.L.
LINE 1	P1/1	600x600	GRATED PIT	10.20	9.51
	P2/1	600x600	GRATED PIT	10.20	9.46
	P3/1	600x600	GRATED PIT	10.20	9.41
	P4/1	600x600	GRATED PIT	10.20	9.36
	P5/1	600x600	GRATED PIT	10.20	9.31
	P6/1	600x600	GRATED PIT	10.20	9.26
	P7/1	600x600	GRATED PIT	10.20	9.21
	P8/1	600x600	GRATED PIT	10.20	9.16
LINE 2	P1/2	600x600	GRATED PIT	10.70	9.57
	P2/2	600x600	GRATED PIT	10.25	9.47
	P3/2	600x600	GRATED PIT	10.20	9.32
	P4/2	600x600	GRATED PIT	10.20	9.37
	P5/3	600x600	GRATED PIT	11.40	T.B.C
LINE 3	P1/3	600x600	GRATED PIT	T.B.C	T.B.C
	P2/3	600x600	GRATED PIT	T.B.C	T.B.C
	P3/3	600x600	GRATED PIT	T.B.C	T.B.C
	P4/3	600x600	GRATED PIT	T.B.C	T.B.C
	P5/3	600x600	GRATED PIT	11.40	T.B.C
	P6/3	900x900	GRATED PIT	11.40	T.B.C
	Exp1	T.B.C	GRATED PIT	9.61	* 7.71
	GD1	300 WIDE	GRATED DRAIN	REFER TO PLAN	200 MIN DEPTH


* DENOTES INVERT LEVEL OBTAINED FROM COUNCIL UNDERGROUND SERVICE MAPS
EXISTING INVERT LEVEL TO BE CONFIRMED



NOT FOR CONSTRUCTION

TYPICAL HARVESTING AND DETENTION TANK SECTION

SCALE 1 : 20

			© Copyright MPC Consulting Engineers as date of issue			COPYRIGHT		Level 1, 16 Telford Street, NEWCASTLE EAST, NSW 2300 PO BOX 553 THE JUNCTION, NSW 2291 Tel: (02) 4927 5566 Fax: (02) 4927 5577 Email: admin@mpceng.com.au Web: www.mpceng.com.au A.C.N. 098 542 575	CLIENT PORT MACQUARIE - HASTINGS PCYC	TITLE STORMWATER DETAILS	PROJECT PROPOSED MULTI-SPORT CENTRE AT; PORT MACQUARIE - HASTINGS PCYC, LOT 2, DP 1141185, No.16 OWEN STREET, PORT MACQUARIE	DO NOT SCALE DRAWING			SHEET A1
			THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW									DRAWN R.G.	ENGINEER R.B./D.P.	SCALES As indicated	No in SET 1
												AUTHOR 220391	CODE CV-DRG	DRG No 0031	ISSUE A
A	SSD 11920082 - MODIFICATION - PCYC	27.10.22	DATE OF RELEASE	RESPONSIBLE PRINCIPAL SIGNATURE								ISSUE			
ISSUE	REASON FOR ISSUE	DATE	DATE OF RELEASE	RESPONSIBLE PRINCIPAL SIGNATURE		ISSUE									

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm