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2-8 Twin Creeks Drive
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Drawing List

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Development Application Drawings

MMD-390185-C-DR-DA-CV-1000 P1
Date: 30.10.17

General Notes				
GN1	All workmanship and materials shall comply with the National Construction Code of Australia and the relevant current Australian Standards.			
GN2	Any discrepancies, omissions or errors shall be reported to the Superintendent for clarification before proceeding with the work.			
GN3	Do NOT scale measurements from the drawings.			

Siteworks Notes				
SN1	Datum : Australian Height Datum (AHD) Origin of levels : SSM 146264 RL 38.33 Origin of co-ordinates : Mapping Grid Of Australia (MGA) Survey prepared by : StrataSurv - Level 1, Suite 103 49 Queens Road, Sydney, NSW 2046 surveyors@stratasurv.com.au			
SN2	The contractor must verify all dimensions and existing levels on site prior to commencement of work, and report any discrepancies to the superintendent.			
SN3	All existing services (including any not shown on the plans) must be accurately located in position and level prior to any excavation. Any discrepancies shall be reported to the superintendent. minimum service clearances shall be maintained from the relevant service authority.			
SN4	The contractor shall arrange for all setting out by a registered surveyor.			
SN5	It is the contractors responsibility to notify the Department of Land and Property Information NSW, of any survey marks that will be destroyed in the construction of works. Contact Head Office on 1300 052 637 www.lpi.nsw.gov.au and http://scims.lpi.nsw.gov.au/status_report_frames.html			
SN6	The contractor shall obtain all regulatory authority approvals at their own expense.			
SN7	Where new works abut existing, the contractor must ensure that a smooth and even profile, free from abrupt changes is obtained.			
SN8	All disturbed areas shall be restored to their original condition, unless specified otherwise.			
SN9	Excavated trenches shall be compacted to the same density as the adjacent natural material. Any subsidence's during the period to be rectified as directed by the superintendent.			
SN10	Any existing trees which form part of the final landscaping plan will be protected from construction activities in accordance with the landscape architect's details and / or by - Protecting them with barrier fencing or similar materials installed outside the drip line, ensuring that nothing is nailed to them, prohibiting paving, grading, sediment wash or placing of stockpiles within the drip line except under the following conditions - Encroachment only occurs on one side and no closer to the trunk than either 1.5m or half the distance between the outer edge of the drip line and the trunk, which ever is the greater, a drainage system that allows air and water to circulate through the root zone (eg a gravel bed) is placed under all fill layers of more than 300mm care is taken not to cut roots unnecessarily nor to compact the soil around them.			
SN11	Receptors for concrete and mortar slurries, paints, acid washings, light-weight waste materials and litter are to be emptied as necessary. Disposal of waste shall be in a manner approved by the superintendent or as specified in the works contract.			

Existing Services Notes				
ES1	Existing services have been plotted from supplied data and as such their accuracy cannot be guaranteed. It is the responsibility of the contractor to establish the location and level of all existing services prior to the commencement of any work. Any discrepancies shall be reported to the superintendent.			
ES2	The contractor shall allow for the capping off, excavation and removal if required of all redundant existing services in areas affected by works within the contract area, as shown on the drawings unless directed otherwise by the superintendent.			
ES3	The contractor shall ensure that at all times services to all buildings not affected by the works are not disrupted.			
ES4	If required, 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 and the relevant service authority.			
ES5	Interruption to supply of existing services shall be done so as not to cause any inconvenience to the principal. The contractor is to gain approval from the superintendent for time of interruption - the contractor is responsible for all liaison.			
ES6	All branch gas and water services under driveways and brick paving shall be located in Ø80mm uPVC sewer grade conduits extending a minimum of 500mm beyond the edge of paving.			
ES7	Clearance and cover requirements shall be obtained from the relevant service authority before commencement of works and shall be adhered to at all times.			
ES8	Care is to be taken when excavating near existing services. No mechanical excavations are to be undertaken over telecom or electrical services. Hand excavate in these areas only			

Earthworks Notes				
EW1	All work shall comply with AS3798 (2007) - Guidelines on earthworks for commercial and residential developments.			
EW2	All work shall comply with the project geotechnical report - To be confirmed			
EW3	Strip topsoil to expose naturally occurring engineering material and stockpile on site for reuse as directed by the superintendent.			
EW4	All soft, wet or unsuitable material to be removed as directed by the superintendent and replaced with approved fill material.			
EW5	All fill material shall be from a source approved by the superintendent and shall comply with the following - a) free from organic and perishable matter, b) maximum particle size 75mm, c) plasticity index - between 2% and 15%.			
EW6	All fill material shall be placed in maximum 200mm thick layers and compacted at optimum moisture content (+ or - 2%) to achieve a dry density determined in accordance with AS1289.5.1.1 - 2003 - methods of testing soils for engineering purposes of not less than the following standard minimum dry density -			
	location	standard dry density		
	under building slabs	98%		
	vehicular paved areas	100%		
	non-vehicular paved areas	98%		
	landscaped areas	95%		
EW7	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, roller 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 by the contractor at their own expense.			
EW8	Testing of the fill material shall be carried out by an approved NATA registered laboratory at the contractors expense.			
EW9	Where the subgrade is unable to support construction equipment, or it is not possible to compact overlying pavement layers, only because of the subgrade moisture content, then the contractor shall condition or replace the material at the contractors discretion and expense.			
EW10	Earthworks calculations are volumetric only and do not allow for bulking of excavated material. It is the contractors responsibility to make allowances for these items as part of the tender / works.			
EW11	No allowance has been made for footings or foundations, retaining walls or trenching. It is the contractors responsibility to make allowances for these items as part of the tender / works.			

Stormwater Notes				
SW1	All Ø300mm to Ø600mm drainage pipes shall be Class 4 approved spigot and socket reinforced concrete pipes with rubber ring joints (UNO). All Ø675mm or larger drainage pipes shall be Class 3 approved spigot and socket reinforced concrete pipes with rubber ring joints (UNO).			
SW2	All drainage pipes less than or equal to Ø225mm shall be PVC-u DWV grade Class SN8 in accordance with AS/NZS 1260: 2009 - PVC-u Pipes and Fittings for Drain, Waste and Vent Application with solvent welded joints.			
SW3	Equivalent strength fibrous reinforced concrete (F.R.C.) and / or high density polyethylene (H.D.P.E.) may be used subject to approval by the superintendent.			
SW4	All pipe junctions up to and including Ø450mm and tapers, shall be via purpose made fittings (UNO).			
SW5	Minimum grade to stormwater lines to be 1% (UNO).			
SW6	Contractor to supply and install all fittings and specials including various pipe adaptors to ensure proper connection between dissimilar pipework.			
SW7	All connections to existing drainage pits shall be made in a tradesman-like manner and the internal wall of the pit at the point of entry shall be cement rendered to ensure a smooth finish with no protrusions.			
SW8	All in-situ concrete pits to be 32Mpa minimum at 28 days.			
SW9	Pits and pipes in areas of salinity hazard shall have increased cover to any reinforcement.			
SW10	Precast concrete pits may be installed in lieu of cast in-situ pits, when pipe junctions are accommodated within the overall dimensions of the pit, and approved by the superintendent.			
SW11	Pits deeper than 1000mm shall have step irons installed in accordance with the local or statutory authority requirements.			
SW12	Bedding shall be Type H2 (UNO) for pipes not under pavements, and Type HS2 for pipes under pavements in accordance with AS/NZS 3725 : 2007 - Design for Installation of Buried Concrete Pipes.			
SW13	Backfill trench with sand or approved granular backfill to 300mm (min) above the pipe. Where the pipe is under pavements backfill remainder of trench to pavement subgrade with sand or approved gravel sub-base compacted in 150mm layers to 98% standard maximum dry density. The contractor is to ensure compaction equipment is appropriate for the pipe class used.			
SW14	Where stormwater lines pass under floor slabs DWV grade PVC-u rubber ring joints are to be used (UNO).			
SW15	Where subsoil drainage lines pass under floor slabs and vehicular pavements, unslotted PVC-u DWV grade Class SN8 pipe shall be used.			
SW16	Provide 3m length of Ø100mm subsoil drainage line or 200 'Nylex' strip drain surrounded with 150mm of 20mm blue metal or gravel, and wrapped in 'Bidim' A24 geotextile filter fabric or approved equivalent, at invert of incoming upstream pipe on each pit.			

Flexible Pavement Notes				
FP1	All sub-base and base course materials shall conform with RMS QA Specification 3051 'Unbound and Modified Base and Sub-base Materials for Surface Road Pavements.			
FP2	All sub-base and base course materials shall be compacted to achieve the following compaction standards - Base course Minimum 98% MMD0 AS1289.5.2.1 - 2003 - Methods of Testing Soils for Engineering Purposes Sub-base Minimum 98% MMD0 AS1289.5.2.1 - 2003 - Methods of Testing Soils for Engineering Purposes			

Asphaltic Concrete Notes				
General				
AC1	Asphaltic concrete mix design, manufacture, placing and compaction shall be in accordance with RMS Specification R116-Asphalt (dense graded and open graded) and AS2150- 2005 - Hot Mix Asphalt - A Guide To Good Practice. Annexure R116/1 to be completed by subcontractor and submitted for approval by superintendent 7 days prior to AC works.			
AC2	Mineral filler to comply with AS2150 - 2005 - Hot Mix Asphalt - A Guide to Good Practice.			
Mix Proportions				
AC3	Job mix - 7mm nominal size aggregate. Minimum bitumen content (%) by (mass of total mass) - 5.1%.			
AC4	Mix stability - between 16kn and 36kn as determined by RMS test method T601 - Compaction of test specimens of dense grade bituminous mixtures and T603 - Stability of dense grade bituminous mixtures.			
AC5	Air voids in compacted mix - between 4% of volume and 7% of the mix. Voids filled in binder, 65-80% of air voids in the total mineral aggregate filled by binder in accordance with RMS test method T601 - Compaction of test specimens of dense grade bituminous mixtures, T605 - Maximum density of bituminous plant mix and T606 - Bulk density of compacted dense graded bituminous mixtures.			
Pavement Preparation				
AC6	The existing surface to be sealed, shall be dry and broomed before commencement of work to ensure complete removal of all superficial foreign and loose matter.			
AC7	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.			
Tack Coat				
AC8	The whole of the area to be sheeted with asphaltic concrete shall be lightly and evenly coated with rapid setting bitumen. Application rate for residual bitumen shall be 0.15 to 0.30 litres/square metre. Application shall be by means of a mechanical sprayer with spray bar.			
Spreading				
AC9	All asphaltic concrete shall be spread with a self propelled paving machine.			
AC10	The asphaltic concrete shall be laid at a mix temperature as shown below -			
	road surface temp in shade (°c)	mix temperatures (°c)		
	5 - 10	not permitted		
	10 - 15	150		
	15 - 25	145		
	25+	140		
AC11	Asphaltic concrete shall not be laid when the road surface is wet or when cold winds chill the mix to adversely affect temperature of mix during spreading and compaction operations.			
AC12	The minimum compacted thickness is 50mm in two (2) layers.			
Joints				
AC13	The number of joints both longitudinal and transverse shall be kept to a minimum.			
AC14	The density and surface finish at joints shall be similar to those of the remainder of the layer.			
Compaction				
AC15	All compaction shall be undertaken using self propelled rollers.			
AC16	Initial rolling shall be completed before the mix temperature falls below 105°c.			
AC17	Secondary rolling shall be completed before the mix temperature falls below 60°c.			
AC18	Minimum characteristic value of relative compaction of a lot when tested in accordance with AS2150 - 2005 - Hot mix asphalt - a guide to good practice shall be 95%.			
Finished Pavement Properties				
AC19	Finished surfaces shall be smooth, dense and true to shape and shall not vary more than 10mm from the specified plan level at any point and shall not deviate from the bottom of a 3m straight edge laid in any direction by more than 5mm.			

Bitumen Sealing Notes				
Pavement Preparation				
BS1	The surface to be sealed shall be dry and broomed before commencement of work to ensure complete removal of all superficial, foreign and loose matter.			
BS2	If approved by the superintendent, all depressions or uneven areas are to be tack-coated and brought to general level of pavement with asphaltic concrete before sealing commences.			
Material				
BS3	Binder shall be class 170 to AS2008 -1997 - Residual Bitumen for Pavements, or approved proprietary material for priming and prime-sealing.			
BS4	Aggregate shape, durability and wet to dry strength shall comply to AS2758.2 - 2009 - Aggregates and rock for Engineering Purposes for Class "N" Aggregates.			
BS5	A 20kg sample of aggregate proposed for use shall be approved by the superintendent prior to use.			
BS6	Aggregates shall be delivered uniformly pre-coated, excessive or uneven pre-coating may result in aggregates being rejected.			
BS7	For two coat flush seals, the size of the aggregate for the second coat, while normally half that of the first coat, shall be dimensionally compatible with that of the first coat.			
BS8	Pre-coating agents shall be compatible with the aggregates and binder to be used.			
Design				
BS9	Design of sprayed bituminous seals shall be carried out in accordance with the Austroads (NAASRA) publication, "Principles and Practice of Bituminous Surfacing, Volume 1 - Sprayed Work".			
BS10	Where not indicated on the drawings, primers and primer-seals shall be designed to remain intact until final sealing takes place, having regard for the traffic and climatic conditions pertaining.			
BS11	Unless otherwise specified, binder application rates shall be selected to fill 85% of the theoretical voids of the mat.			
Primer-sealing				
BS12	A single coat primer-seal using a suitable cut-back or proprietary binder shall be applied to basecourse material for protection of pavement during construction.			
Bitumen Flush Sealing				
BS13	Bitumen flush seals shall be either single or double coat as shown on the drawings, eg 20/10 indicates a double coat flush seal using two applications of bitumen and aggregate, the first aggregate layer being of 20mm nom. size, the second 10mm.			
BS14	Cover aggregate shall be spread immediately after spraying of binder. In no case shall spreading be delayed more than 8 minutes (or so that bitumen has cooled such that adhesion of aggregate is compromised).			
BS15	All spray records, aggregate supply tonnage and receipts shall be retained and passed onto the superintendent as part of the quality assurance procedures.			

Concrete Notes				
General				
CN1	Use "AS3972 - 2010 - General purpose and blended cements - Type GP" cement (UNO).			
CN2	All concrete shall be subject to project control sample and testing to AS3600 - 2009 - concrete structures.			
CN3	Consolidate all concrete, including footings and slabs on ground with mechanical vibrators.			
CN4	Cure all concrete as follows - - keep surfaces continuously wet for 3 days, then - prevent moisture loss for the next 4 days using polythene sheeting or wet hessian protected from wind and traffic, and then allow drying out. - curing compounds may be used provided that they comply with AS3799 and they do not affect floor finishes. - PVA-based curing compounds are NOT acceptable.			
CN5	Fix reinforcement as shown on drawings. The type and grade is indicated by a symbol as shown below -			
	N	hot rolled deformed bar, grade 500		
	R	plain round bar, grade 250		
	SL / RL	hard drawn wire fabric square or rectangular		
	following this symbol a numeral indicates the specified diameter.			
CN6	Provide bar supports or spacers to provide concrete cover as detailed to all reinforcement.			
Concrete Pavements				
CN7	Concrete mix parameters - maximum aggregate size 20mm flexural strength at 28 days = 3.5 MPa, F'c= 32 MPa, (UNO) flexural strength at 90 days = 3.85 MPa max water/cement ratio = 0.55 max shrinkage limit = 650 micron strains (AS1012.13-1992) min cement content = 300kg/m³ cement to be type "SL" (normal cement) to AS3972-2010 slump = 80mm			
CN8	Early age saw cutting ('softcut') or similar shall be used for initial saw cut. It is to be performed as soon as the concrete has hardened sufficiently, to prevent excessive chipping, spalling, or tearing regardless of time or weather conditions.			
CN9	Joint layout shall be as detailed on the plans.			
CN10	Provide 10mm wide expansion joints between all buildings, other structures and pavements.			
CN11	Bond breaker to be two (2) uniform coats of bitumen emulsion all over the exposed surface and on end.			
CN12	Dowels and tie bars to meet strength requirements of structural grade steel in accordance with AS ISO 1302 - 2005 - geometrical product specifications. Dowels and tie bars shall be - straight, to length specified, all dowels to be hot dip galvanised, sawn to length not cropped.			
CN13	Dimensions of sealant reservoir dependant on the sealant type adopted. Superintendent approval to be obtained for sealant and reservoir dimensions and detail proposed by the contractor. Refer to plans for typical arrangement and sealant.			
CN14	Prior to the placement of concrete in the adjacent slab, 'Ableflex' filler shall be adhered to the already cast and cleaned concrete face using an approved waterproof adhesive. Adhesive shall be liberally applied to the full face of the concrete slab to be covered by the filler, and on the full face of the filler to be adhered.			
CN15	The base course shall be kept moist (not wet) by sprinkling with water immediately prior to pouring the concrete.			
CN16	All work to be finished to satisfy its intended use as shown on the plans, and / or in accordance with the specification.			
Kerbing Notes				
CN17	All concrete kerbs to have a minimum characteristic compressive strength F'c=25MPa (UNO).			
CN18	All kerbs, dish drains, etc. to be constructed on 75mm minimum base course (UNO on the Drawings)			
CN19	Kerb expansion joints shall be formed from 10mm 'Ableflex' (or approved equivalent) for the full depth of the section.			
CN20	Expansion joints shall be located at drainage pits, tangent points of curves and elsewhere at 12m maximum spacing (UNO).			
CN21	Tooled joints shall be min 3mm wide and located at maximum 3m spacing.			
CN22	Integral kerb joints shall match the location of the pavement jointing.			

P1	30.10.17	DRC	Issued for Development Application	CFK	JG
Rev	Date	Drawn	Description	Ch'k'd	App'd

Designed	D.Chapman	Eng check	S.Reilly	
Drawn	D.Chapman	Coordination	C.Keenan	
Dwg check	A.Singh	Approved	B.Soo	
Scale at A1	Status	Rev	Security	
N/A	PRE	P1	STD	
Drawing Number				
MMD-390185-C-DR-DA-CV-1001				

	Existing boundary, bearing & distance
	Existing road name
	Existing kerb and spot levels
	Existing fence
	Existing spot level
	Existing tree, level, (trunk diameter, height and spread)
	Existing sewer
	Existing stormwater drainage
	Existing water
	Existing underground electrical
	Existing overhead electrical
	Existing gasmain
	Existing recycled water
	Existing underground telecommunications
	Existing electricity light pole
	Existing gas valve
	Existing sewer lamp hole and manhole
	Existing stormwater grate, maintenance hole and pit
	Existing water hydrant, stop valve and valve and water meter
	Existing telecommunications pit and pillar
	Existing maintenance hole (unspecified)
	Existing sign
	Existing pit (unspecified)
	Existing traffic signal
	Existing overhead electrical stanchion
	Existing pavement
	Existing Major contour
	Existing Minor contour

	Civil Works Legend
	Sawcut existing pavement
	Construct kerb only, refer to PCC standard drawing SD1003/1 and SD1003/2
	Construct kerb and gutter, refer to PCC standard drawing SD1003/1 and SD1003/2
	Construct dish drain, refer to PCC standard drawing SD1003/2
	Construct flush kerb, refer to drawing MMD-370030-C-DR-XX-DA-1050 for details
	Construct kerb pram ramp refer to PCC standard drawing SD1002
	Construct kerb vehicular crossing refer to PCC standard drawing SD1004
	Transition kerb profile over 1.5m
	Construct batter
	Construct retaining wall. Refer to Landscape architect's specification for details
	Install wheel stop in permeable pavement - For details refer to drawing MMD-370030-C-DR-XX-DA-1050
	Proposed basement underground
	Existing basement underground

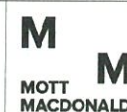
	Civil Grading Legend
	Construct surface to level..
	Finished surface level
	Grate level
	Top of kerb level
	Levels shown thus - F10.00* are to be confirmed on site prior to the commencement of works
	Bottom of wall level
	Top of wall level
	Water level
	Finished floor level
	Major contour
	Minor contour
	Construct finished surface to grade
	Construct batter slope

	Stormwater Drainage Legend
	Stormwater drainage structure / pit number
	Stormwater drainage structure / pit number with 'EnviroPod'
	Surface inlet pit
	Junction pit
	Kerb inlet pit on grade with lintel
	Kerb inlet pit
	Kerb inlet pit at sag with lintel
	Butterfly grate pit
	Kerb inlet pit on grade with lintel to hydraulic engineers details
	Kerb inlet pit to hydraulic engineers details
	Stormwater drainage line
	Upstream invert level
	Pipe size / class
	Grade
	Length
	Downstream invert level

	Pavement Legend
	Pavement type 1 (Asphaltic)
	For pavement details refer to drawing MMD-390185-C-DR-DA-CV-1050
	Pavement Reinstatement
	For pavement details refer to PCC standard drawing SD1003/1 and SD1003/2
	Footpath Pavement (Concrete)
	For pavement details refer to PCC standard drawing SD1001
	Landscape
	Refer to Landscape Architect's specification for details.
	Hardscape
	Refer to Landscape Architect's specification for details.
	Pond / Pool
	Refer to Landscape Architect's specification for details.
	Proposed Building
	Refer to Architect's specification for details.

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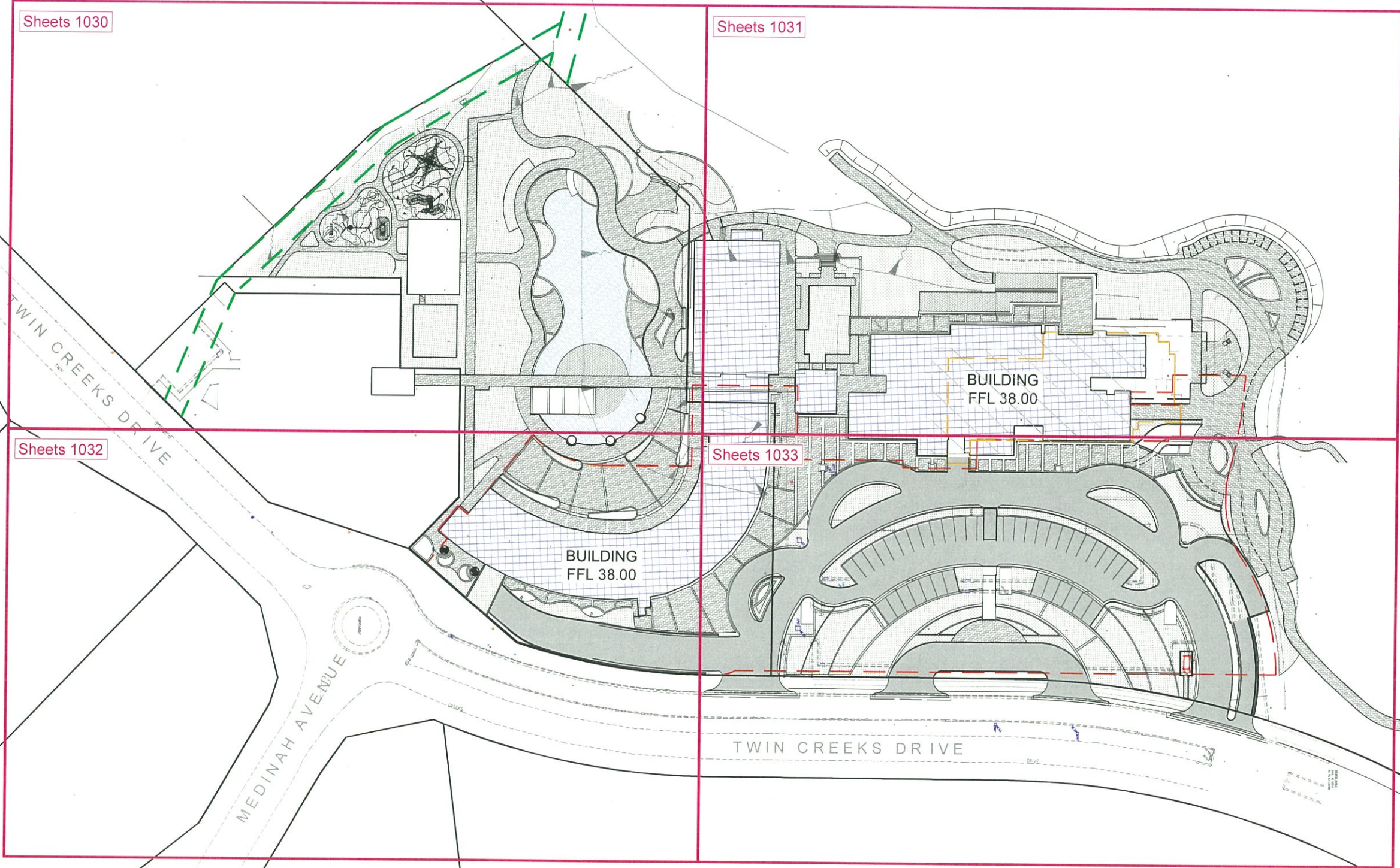


Title

Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
General Civil Legends

Preliminary - Not for Construction

Designed	D.Chapman	Eng check	S.Reilly
Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	B.Soo
Scale at A1	N/A	Status	PRE
Rev	P1	Security	STD
Drawing Number	MMD-390185-C-DR-DA-CV-1002		



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Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	30.10.17	DRC	Issued for Development Application	CFK	JG

1:400 0 20m 40m



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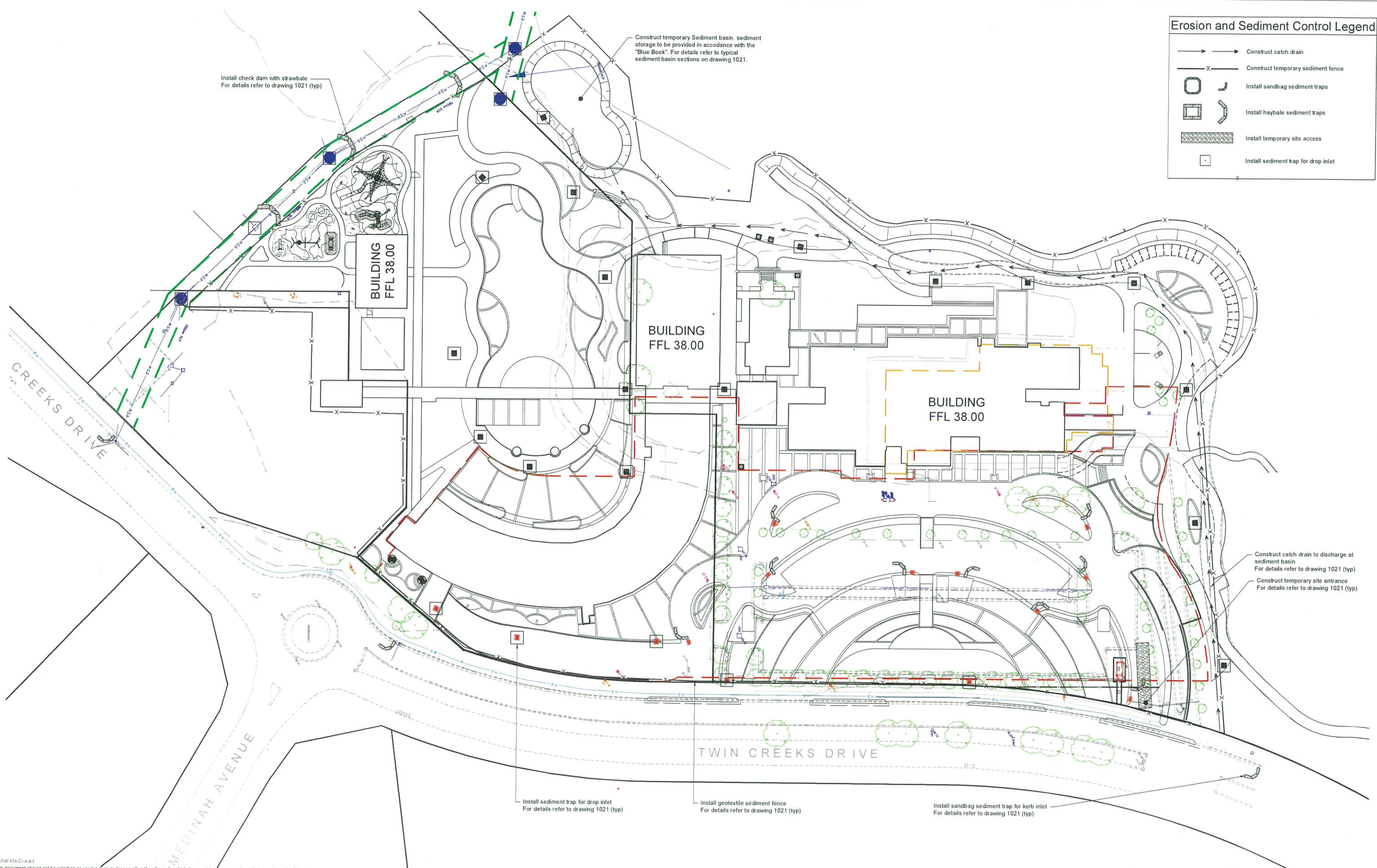
Twin Creeks
golf & country club

Title

Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
General Arrangement Plan

Preliminary - Not for Construction

Designed	D.Chapman	Eng check	S.Reilly
Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	B.Soo
Scale at A1	1:500	Status	PRE
Drawing Number	MMD-390185-C-DR-DA-CV-1010	Rev	P1
		Security	STD

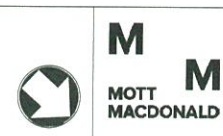
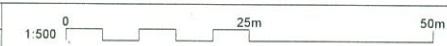


Erosion and Sediment Control Legend

- Construct catch drain
- Construct temporary sediment fence
- Install sandbag sediment traps
- Install haybale sediment traps
- Install temporary site access
- Install sediment trap for drop inlet

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2-8 Twin Creeks Drive
Luddenham, NSW, 2745
Concept Sediment and Erosion
Management Control Plan

Preliminary - Not for Construction

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Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	B.Soo
Scale at A1	Status	Rev	Security
1:500	PRE	P1	STD
Drawing Number			
MMD-390185-C-DR-DA-CV-1020			

Soil and Water Management Notes

General Instructions

SWM01 These plans present a conceptual soil and water management plan (SWMP) only and shows a possible way of managing soil and erosion. The contractor shall be responsible for the establishment and management of the site and preparing a detailed plan and obtaining approval from the relevant authority prior to the commencement of any works.

SWM02 This plan is to be read in conjunction with the engineering plans and any other plans, written instructions, specification or documentation that may be issued and relating to development of the subject site.

SWM03 The contractor will ensure that all soil and water management works are consistent with 'Managing Urban Stormwater - Soils and Construction' - also known as 'The Blue Book'.

SWM04 All builders and sub-contractors shall be informed of their responsibilities in minimising the potential for soil erosion and pollution to downslope lands and waterways.

Erosion Control

SWM05 Water shall be prevented from entering the permanent drainage system until sediment concentration is less than or equal to 50mg/L, i.e. the catchment area has been permanently landscaped and / or any likely sediment has been filtered through an approved structure.

SWM06 Any sand used in the concrete curing process (spread over the surface) will be removed as soon as possible and within 10 working days from placement.

SWM07 Acceptable receptors will be constructed for concrete and mortar slurries, paints, acid washings, light-weight waste materials and litter.

SWM08 'Sediment' fencing will be installed as indicated on the plans and at the direction of site superintendent to ensure containment of sediment. The sediment fencing will outlet or overflow under stabilised conditions into the sediment basin, to safely convey water into a suitable filtering system should the pores in the fabric block.

SWM09 The sediment basins will be constructed with the minimum wet sediment capacity of 543 cubic metres and designed to remain stable in at least the 1 in 20 year critical duration storm event. Artificial flocculation of the finer particles may not be necessary in this instance.

SWM10 Stockpiles should not be located within 5m of trees and hazard areas, including likely areas of concentrated or high velocity flows such as waterways, drainage lines, paved areas and driveways. Where they are within 5m from such areas, special sediment control measures should be taken to minimise possible pollution to downstream waters. Measures should also be applied to prevent the erosion of the stockpile.

SWM11 All cut and fill batters are to be seeded and mulched within 14 days of completion of formation.

SWM12 Any existing trees which form part of the final landscaping plan will be protected from construction activities by:-

- Protecting them with barrier fencing or similar materials installed outside the drip line.
- Ensuring that nothing is nailed to them.
- Prohibiting paving, grading, sediment wash or placing of stockpiles within the drip line except under the following conditions:
 - Encroachment only occurs on one side and no closer to the trunk than either 1.5 metres or half the distance between the outer edge of the drip line and the trunk, whichever is the greater.
 - A drainage system that allows air and water to circulate through the root zone (e.g. a gravel bed) is placed under all fill layers of more than 300 millimetres depth
 - Care is taken.

SWM13 During windy weather, large disturbed unprotected areas should be kept moist (not wet) by sprinkling with water to keep dust under control.

SWM14 Temporary protection from erosive forces will be undertaken on lands where final shaping has not been completed but works are unlikely to proceed for periods of two months or more (eg. on topsoil stockpiles). This may be achieved with a vegetative cover. A recommended listing of plant species for temporary cover is -

- | | |
|--------------------------|-------------------------------|
| i) autumn/winter sowing | - oats/ryecom at 20 kg/ha |
| | - japanese millet at 10 kg/ha |
| ii) spring/summer sowing | - japanese millet at 20 kg/ha |
| | - oats/ryecom at 10 kg/ha |

SWM15 Diversion banks / channels will be rehabilitated as soon as possible and within 5 working days from their final shaping. Other than in the winter months, suitable materials include turf grasses such as Couch or Kikuyu. During winter, or at other times when temporary rehabilitation (more than 3 months) is required, it is suggested that hessian cloth is used but only if tacked with appropriate pegs and an anionic bitumen emulsion. Foot and vehicular traffic should be kept away from these areas.

SWM16 Undertake site development works in accordance with the engineering plans. Where possible, phase development so that land disturbance is confined to areas of workable size.

Construction Sequence

SWM17 Where practical, the soil erosion hazard on the site should be kept as low as possible. To this end, works should be undertaken in the FOLLOWING SEQUENCE -

- Install inlet sediment traps to all gully pits fronting the site.
- Install a 1.8m chain wire fence around the boundaries and attach hessian cloth or similar to it on the windward side (ties at the top, centre and bottom and at 1m intervals or as instructed by the superintendent).
- Install geofabric sediment fence and sediment traps around all permanent stormwater reticulation structures as shown on the plan.
- Construct stabilised construction entrance as shown on the plan or to location as determined by superintendent.
- Install diversion banks along the boundary where required, rehabilitate disturbed lands downslope from the basins within 20 working days.
- Ensure that the sediment basin is directed onto a turfed area and drains to a suitable location. A temporary stormwater line may be necessary to convey the flows to this location. Construct diversion channels at the boundary to drain into the sediment basin as shown on plans.
- At completion stabilise site and decommission sediment basin and all erosion control devices.

SWM18 Temporary soil and water management structures will be removed only after the lands they are protecting are rehabilitated.

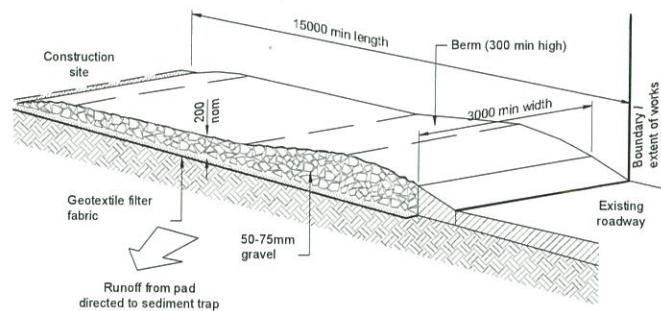
SWM19 Final site landscaping will be undertaken as soon as possible and within 20 working days from completion of construction activities.

Site Inspection and Maintenance

SWM20 At least weekly and after every rain fall event, the contractor will inspect the site and ensure that -

- Drains and all sediment control devices operate effectively and initiate repair or maintenance as required.
- Receptors for concrete and mortar slurries, paints, acid washings, light-weight waste materials and litter are to be emptied as necessary. Disposal of waste shall be in a manner approved by the superintendent.
- Spilled sand (or other materials) is removed from hazard areas, including likely areas of concentrated or high velocity flows such as waterways, gutters, paved areas and driveways.
- Sediment is removed from basins and / or traps when less than 20m³ of trapping capacity remain per 1000m² of disturbed lands, and / or less than 500mm depth remains in the settling zone. Any collected sediment will be disposed in areas where further pollution to down slope lands and waterways is unlikely.
- Rehabilitated lands have effectively reduced the erosion hazard and initiate upgrading or repair as appropriate.

SWM21 The contractor shall provide all monitoring control and testing.

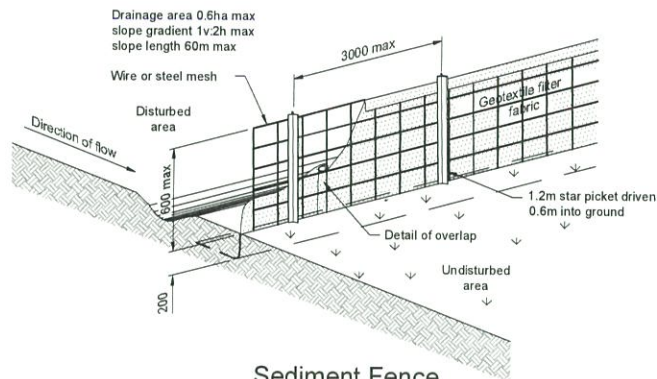


Temporary Site Entrance

NTS

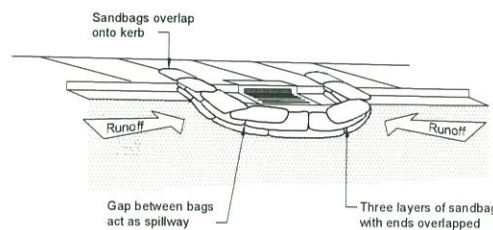
Maintenance

- The temporary access shall be maintained in a condition that prevents tracking or flowing of sediment onto public rights of way.
- This may require periodic top dressing with additional gravel as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- All sediment spilled, dropped, washed or tracked onto public rights of way must be removed immediately.



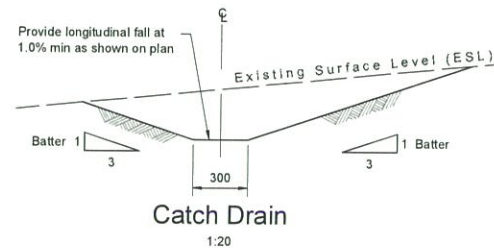
Sediment Fence
(Geotextile Filter Fabric)

NTS



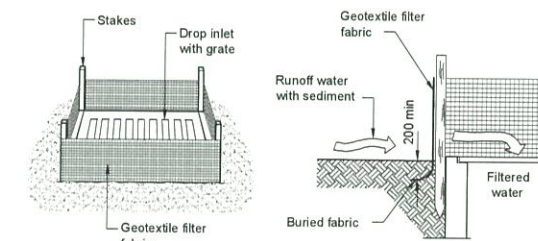
Sediment Trap for Kerb Inlet
(at Low Point - Sandbag)

NTS



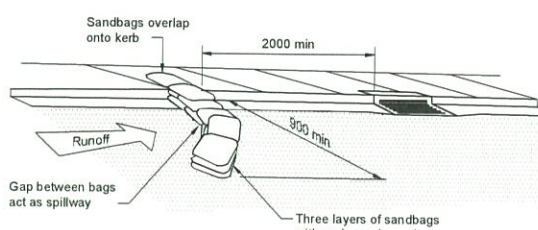
Catch Drain

NTS



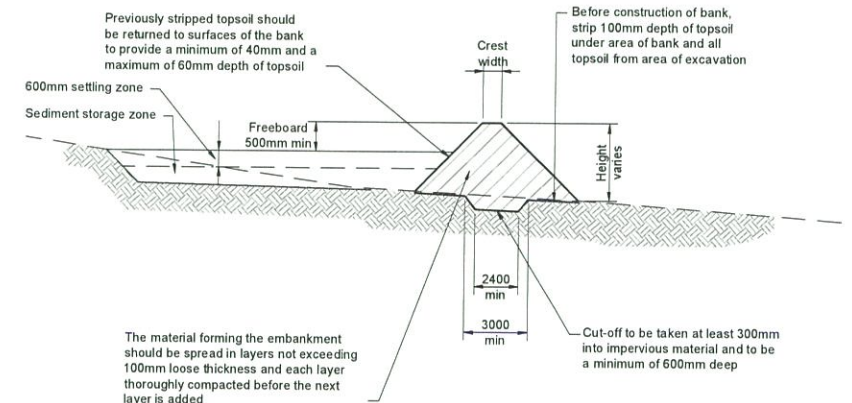
Sediment Trap for Drop Inlet
(Geotextile Filter Fabric)

NTS



Sediment Trap for Kerb Inlet
(On Grade - Sandbag)

NTS

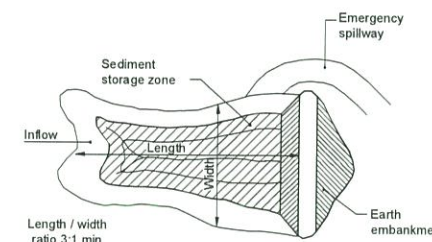


Sediment Basin Wet (Typical) Cross Section - Type D and F Soils

NTS

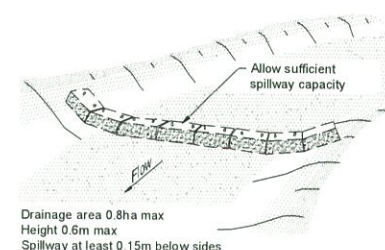
Construction Notes

- Remove all vegetation and topsoil from under the dam wall and from within the storage area.
- Construct a cut-off trench 500mm deep and 1200mm wide along the centerline of the embankment extending to a point on the gully wall level with the riser crest.
- Maintain the trench free of water and recompact the material with equipment as specified in the swmp to 95% standard proctor density.
- Select fill following the swmp that is free of roots, wood, rock, large stone or foreign material.
- Prepare the site under the embankment by ripping to at least 100mm to help bond compacted fill to the existing substrate.
- Spread the fill in 100mm to 150mm layers and compact it at optimum moisture content following the SWMP.
- Construct the emergency spillway.
- Rehabilitate the structure following the SWMP.



Sediment Basin Wet (Typical) Plan - Type D and F Soils

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Check Dam - Straw Bale

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Client

Twin Creeks
golf & country club

Title

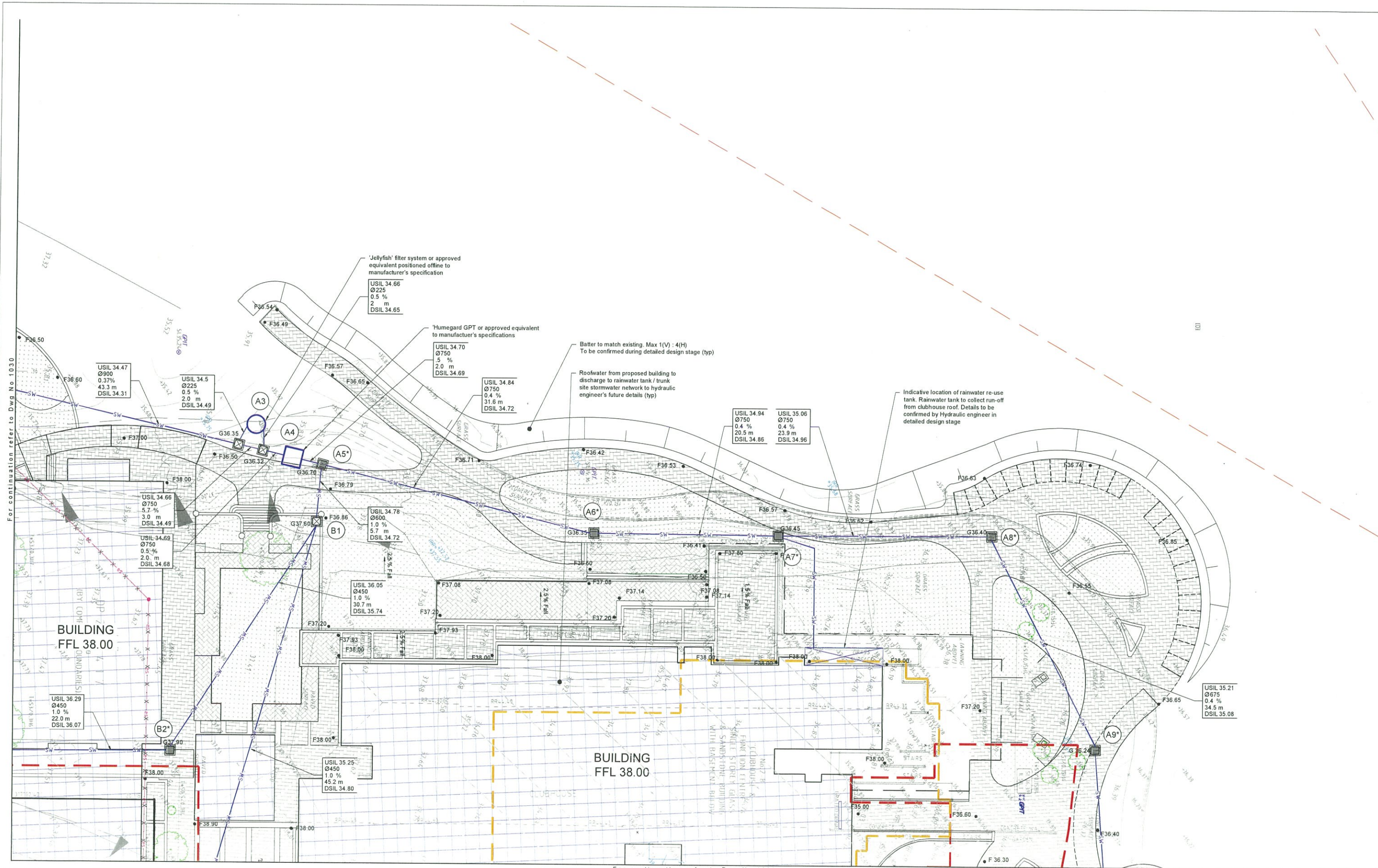
Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
Concept Sediment and Erosion
Management Control Plan Details

Designed	D.Chapman	Eng check	S.Reilly
Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	B.Soo
Scale at A1	N/A	Status	PRE
Drawing Number	MMD-390185-C-DR-DA-CV-1021	Rev	P1
		Security	STD



For continuation refer to Dwg No 1032

Designed	D.Chapman		Eng check	S.Reilly	
Drawn	D.Chapman		Coordination	C.Keenan	
Dwg check	A.Singh		Approved	B.Soo	
Scale at A1	Status		Rev	Security	
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Drawing Number MMD-390185-C-DR-DA-CV-1030					

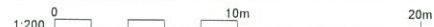


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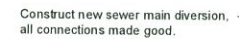


Title

Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
Siteworks Grading Plan
Sheet 2 of 4

Designed	D. Chapman	Eng check	S. Reilly
Drawn	D. Chapman	Coordination	C. Keenan
Dwg check	A. Singh	Approved	B. Soo
Scale at A1	1:200	Status	PRE
Drawing Number	MMD-390185-C-DR-DA-CV-1031	Rev	P1
		Security	STD

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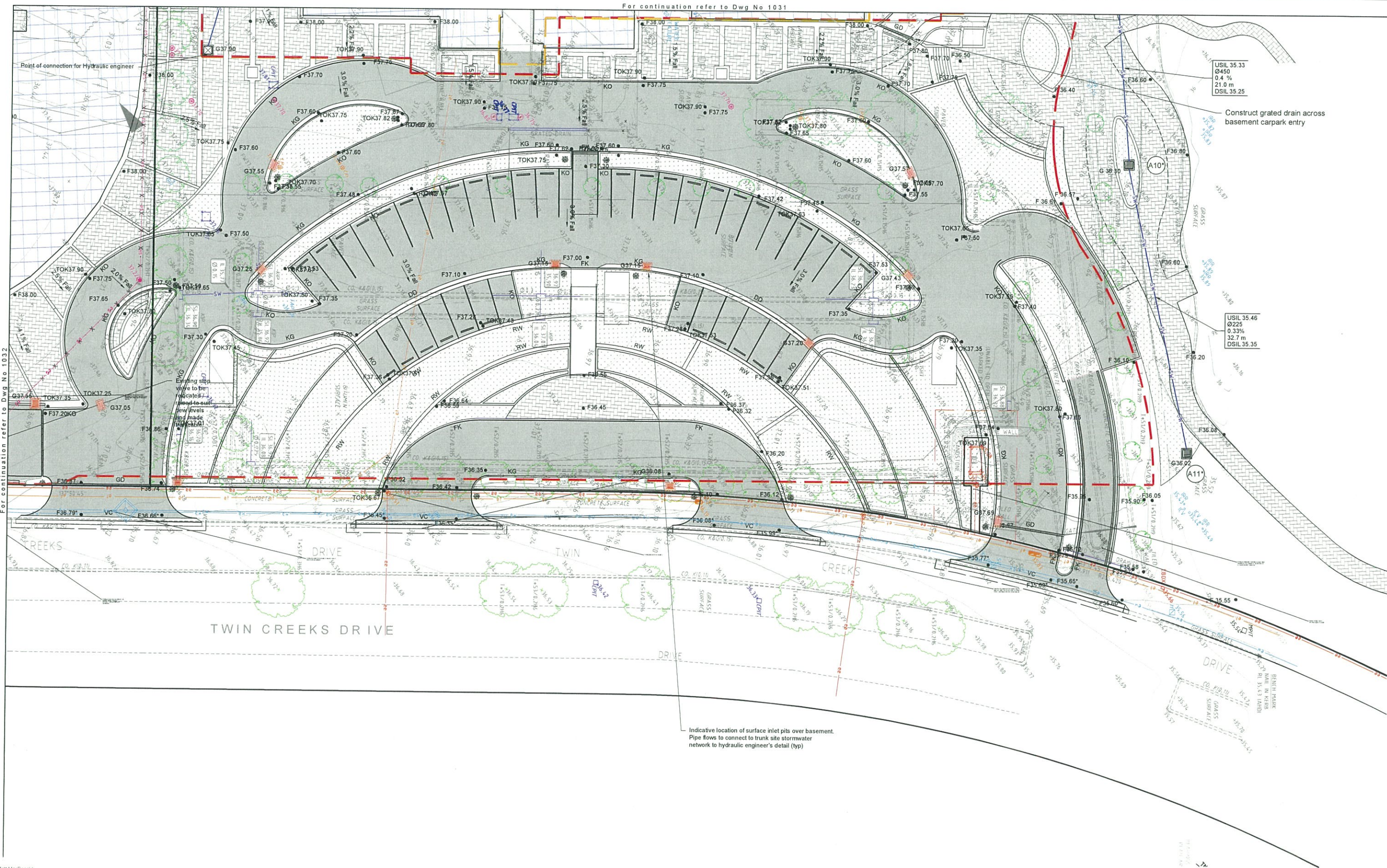
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Twin Creeks
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Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
Siteworks Grading Plan

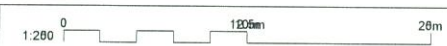
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Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	B.Soo
Scale at A1 1:200	Status PRE	Rev P1	Security STD

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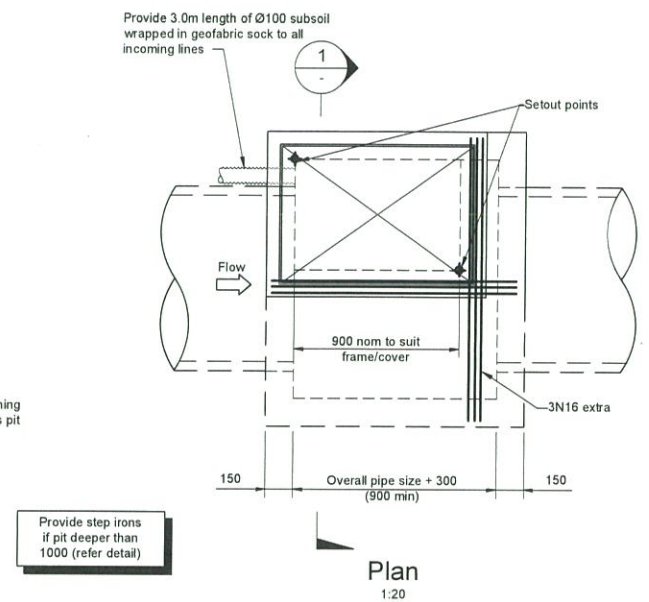
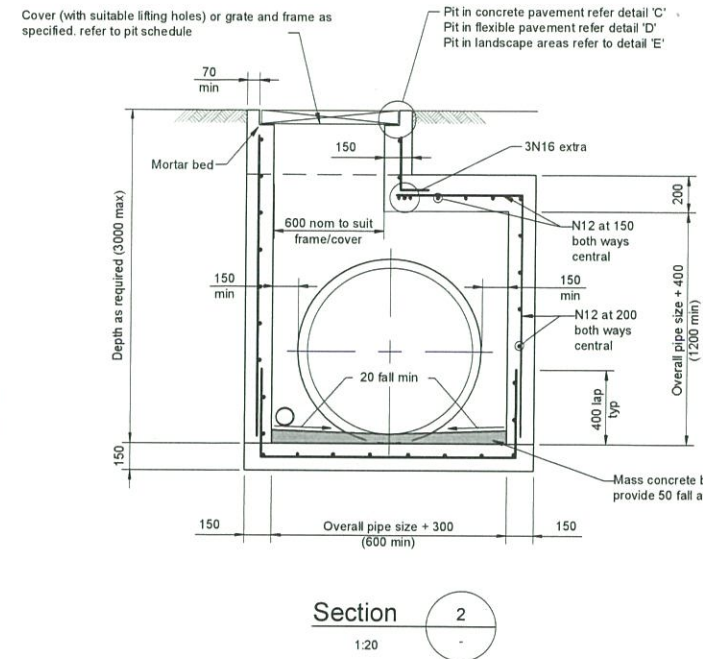
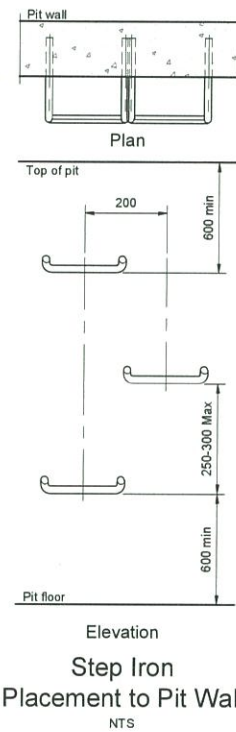
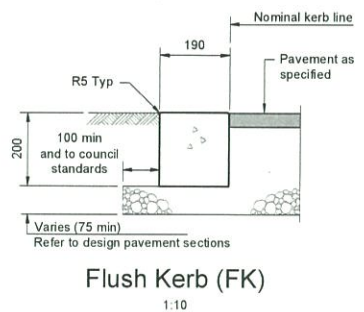
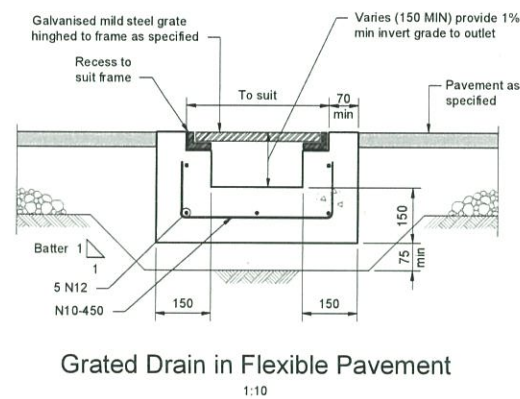
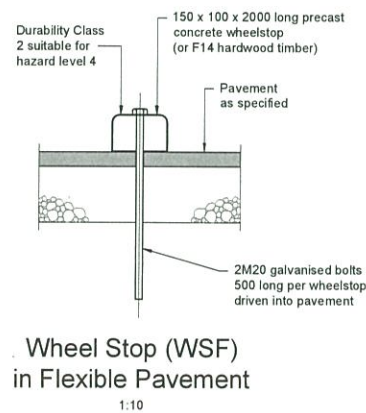
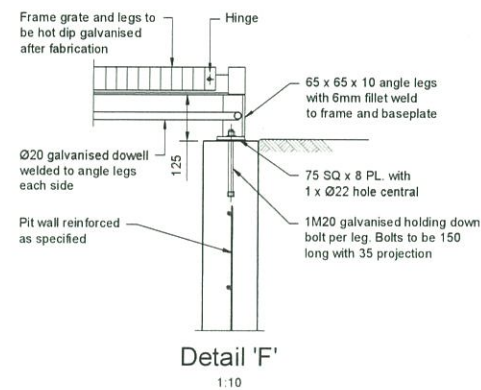
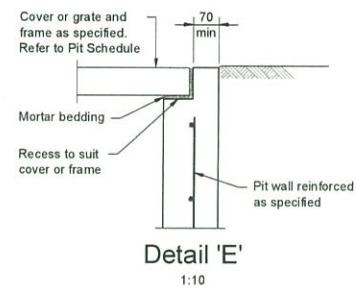
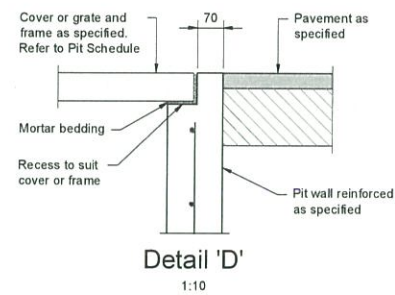
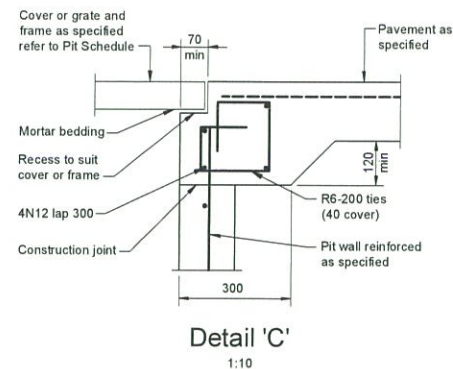


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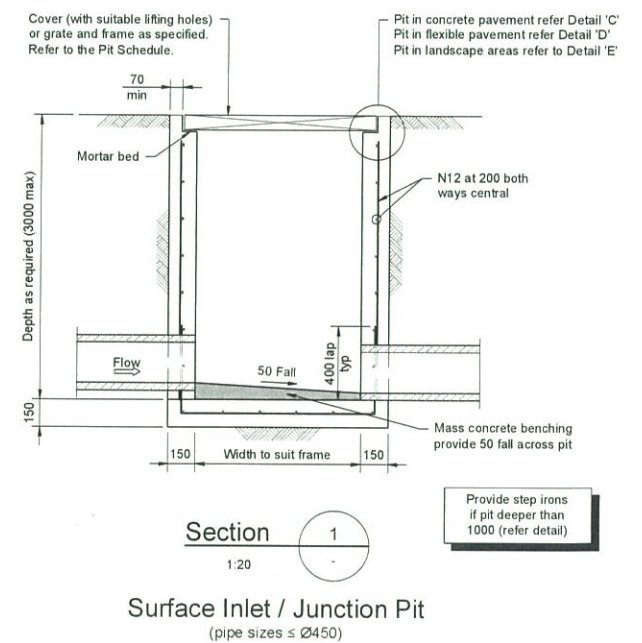
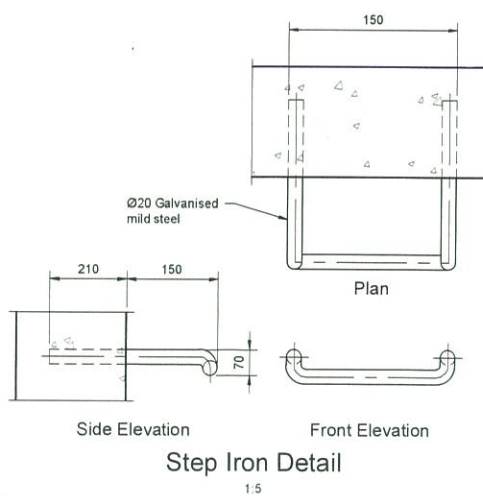
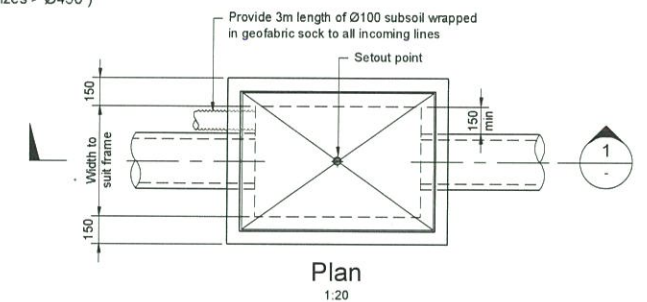
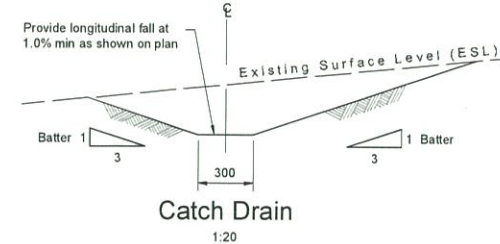
Twin Creeks Resort
2-8 Twin Creeks Drive
Luddenham, NSW, 2745
Siteworks Grading and Stormwater
Management Plan - Sheet 4

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Designed	P.Cavanagh	Eng check	J.Gilligan
Drawn	D.Chapman	Coordination	C.Keenan
Dwg check	A.Singh	Approved	J.Gilligan
Scale at A1	1:200	Status	PRE
Drawing Number	MMD-390185-C-DR-DA-CV-1033	Rev	P1
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Surface inlet / junction pit (pipe sizes > Ø450)



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Siteworks Details

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Drawn	D. Chapman	Coordination	C. Keenan
Dwg check	A. Singh	Approved	J. Gilligan
Scale at A1	1:10,20	Status	PRE
Rev	P1	Security	STD
Drawing Number	MMD-390185-C-DR-DA-CV-1050		

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