



SITE

FERNHILL ESTATE MULGOA EASTERN PRECINCT

Fernhill Estate, Mulgoa NSW
LOCALITY SKETCH
Not To Scale

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CLIENT **Fernhill Estate**

PREPARED BY



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MM Project No	322876
Dwg No	0200
Revision	P4
Date	29.07.14
Reason For Issue	Issued for DA

Survey Legend

268°02' 198.12 Existing boundary, bearing and distance

PINE Existing road name

SHED Existing building

Existing kerb and spot levels

Existing block wall

Existing fence

Existing spot level

Existing earth batter

Existing tree, level, trunk diameter, height and spread

Existing electricity (underground)

Existing electricity (overhead)

Existing gas

Existing sewer

Existing stormwater drainage

Existing water

Existing telecommunications (underground)

Existing electricity pit, pole, pole with light and light pole

Existing gas valve

Existing sewer pit and maintenance hole

Existing stormwater grate, maintenance hole and pit

Existing water hydrant, stop valve and valve

Existing telecommunications pit and pillar

Existing maintenance hole (unspecified)

Existing pole (unspecified)

Existing pit (unspecified)

Existing traffic signal

Civil Works Legend

Construct swale type 1

Construct swale type 2

Construct Stormwater drainage line

Construct headwall and provide scour protection

Construct reinforced concrete box culvert

Stormwater drainage structure / pit number

Construct Gross Pollutant Trap

Construct Timber Edge Strip

Construct reinforced concrete block retaining wall

Construct Guard Rail

Major contour

Minor contour

Construct batter

Proposed sewer pump station area

Proposed detention basin with bio-retention at base of basin

Siteworks Notes

SN1 Datum : Australian Height Datum (AHD)
Origin of levels : PM 41894 RL 71.119
Origin of co-ordinates : Mapping Grid Of Australia (MGA)
Survey prepared by : Land Partners
L1, 20 Smith St Parramatta
02 9685 2000

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 The contractor shall obtain all regulatory authority approvals at their own expense.

SN6 Where new works abut existing, the contractor must ensure that a smooth and even profile, free from abrupt changes is obtained.

SN7 All disturbed areas shall be restored to their original condition, unless specified otherwise.

SN8 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.

SN9 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.

SN10 Receptors for concrete and mortar slurries, paints, acid washings, light-weight waste materials and litter are to be employed as necessary. Disposal of waste shall be in a manner approved by the superintendent or as specified in the works contract.

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 - Geotechnical Engineer Report Reference Number DD.MM.YY

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.

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% MMD AS1289.5.2.1 - 2003 - Methods of Testing Soils for Engineering Purposes

Sub-base
Minimum 98% MMD AS1289.5.2.1 - 2003 - Methods of Testing Soils for Engineering Purposes

Pavement Legend

Asphaltic concrete (AC)
Details to be confirmed during detail design

Roadworks Asphaltic concrete (AC)
Details to be confirmed during detail design

Fire Trail
Refer detail on 0250 for details. Details to be confirmed during detail design

Access Road
Refer detail on 0250 for details. Details to be confirmed during detail design

Stormwater Notes

SW1 For residential subdivisions and public roads -
All Ø375mm 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).

All uPVC drainage pipes in footways or accessways shall be DWV grade class SN8 in accordance with AS/NZS 1260:2009 - PVC-u pipes and fittings for drain, waste and vent application. heavy duty uPVC pipes to be in accordance with AS/NZS 1254 : 2010 - PVC pipes and fittings for storm and surface water applications may be used within allotments.

SW2 For commercial or industrial sites -
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).

All drainage pipes less than or equal to Ø225mm shall be uPVC 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 uPVC rubber ring joints are to be used (UNO).

SW15 Where subsoil drainage lines pass under floor slabs and vehicular pavements, unslotted uPVC 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 'Bidum' A24 geotextile filter fabric or approved equivalent, at invert of incoming upstream pipe on each pit.

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.

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.

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.

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA



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Client **Fernhill Estate**

Title **Fernhill Estate
General Notes and Legends
Sheet 1**

Designed	GL	.	Eng check	GL	.
Drawn	DW	.	Coordination	CJA	.
Dwg check	GC	.	Approved	DB	.
Scale at A1	Status	PRE		Rev	P4

Drawing Number
MMD-322876-C-DR-00-EA-0201

Not For Construction

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 out. 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.

Linemarking Notes

- LM1 All linemarking works to be in accordance with either the current Australian standard AS1742.2-2009-Manual Uniform Traffic Control Devices, or as shown on the plans or as directed by the superintendent.
- LM2 The scope of work shall include all pavement markings to roads and carparks.
- LM3 The work carried out and testing performed shall comply with the current, relevant Australian standards and RMS standards where necessary.
- LM4 All markings shall be spotted out and verified by the contractors representative prior to application.
- LM5 Paint shall be applied at a wet thickness of between 0.35mm - 0.45mm.
- LM6 Paint shall only be applied to clean and dry surfaces.
- LM7 All longitudinal lines shall be applied by a self-propelled machine.
- LM8 Linemarking removal shall be carried out by grinding or sandblasting. Removal by burning will not be permitted.
- LM9 The extent of linemarking to be eradicated shall be confirmed on site prior to removal. Any markings incorrectly removed shall be reinstated at the contractor's expense.
- LM10 All markings shall be completed in a workmanlike manner and be straight, smooth and with even curves. Any non-conforming work, shall be removed and reinstated at the direction of the superintendent at the contractor's expense.
- LM11 Linemarking on AC pavements to be provided no sooner than 7-10 days once the asphalt has set.

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
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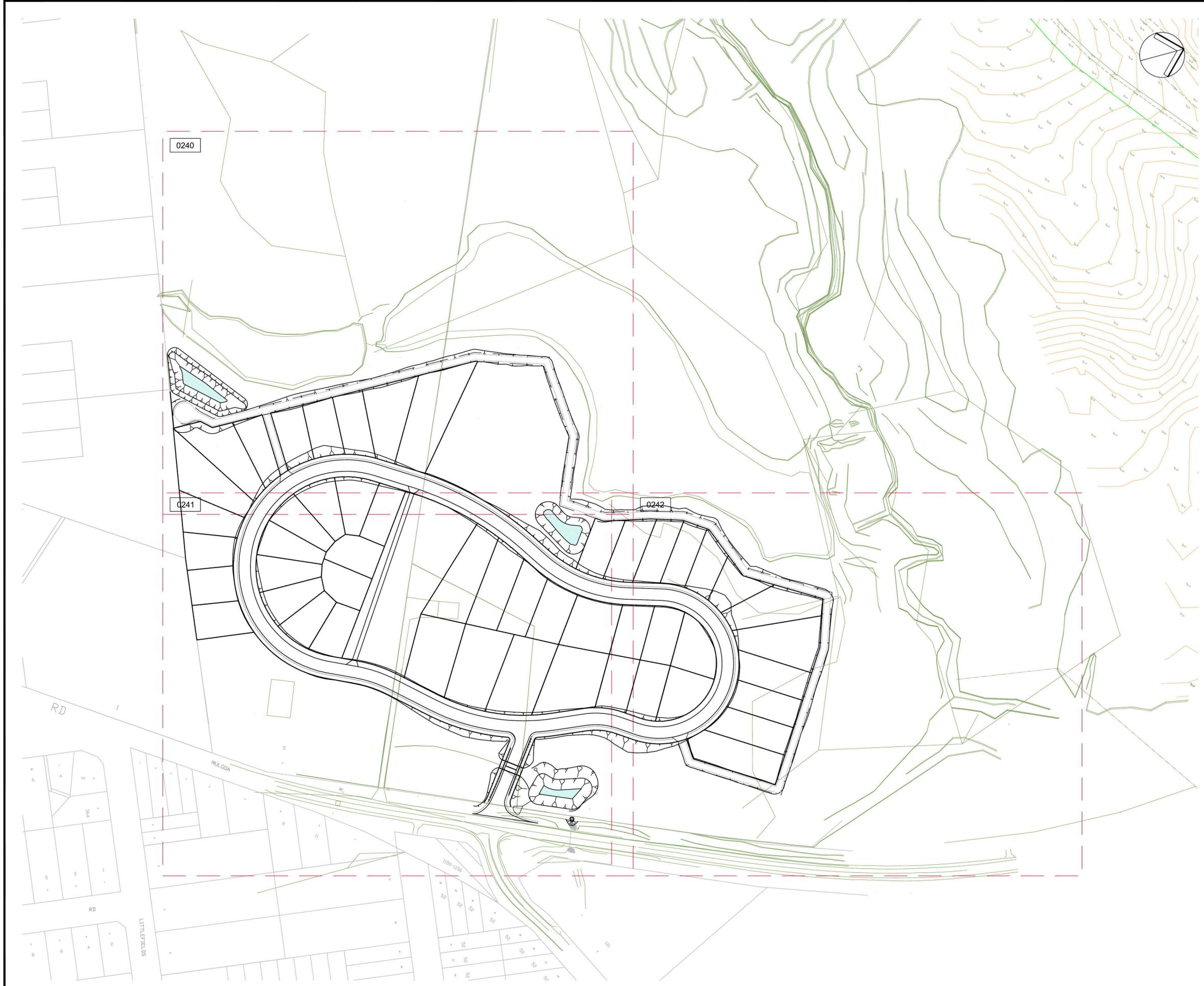
Client
Fernhill Estate

Title
**Fernhill Estate
 General Notes and Legends
 Sheet 2**

Designed	GL	.	Eng check	GL	.
Drawn	DW	.	Coordination	CJA	.
Dwg check	GC	.	Approved	DB	.
Scale at A1	Status		Rev		
	PRE		P4		

Drawing Number
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Not For Construction



Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
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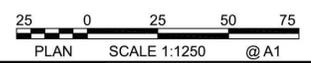
Client
Fernhill Estate

Title
**Fernhill Estate
 General Arrangement Plan**

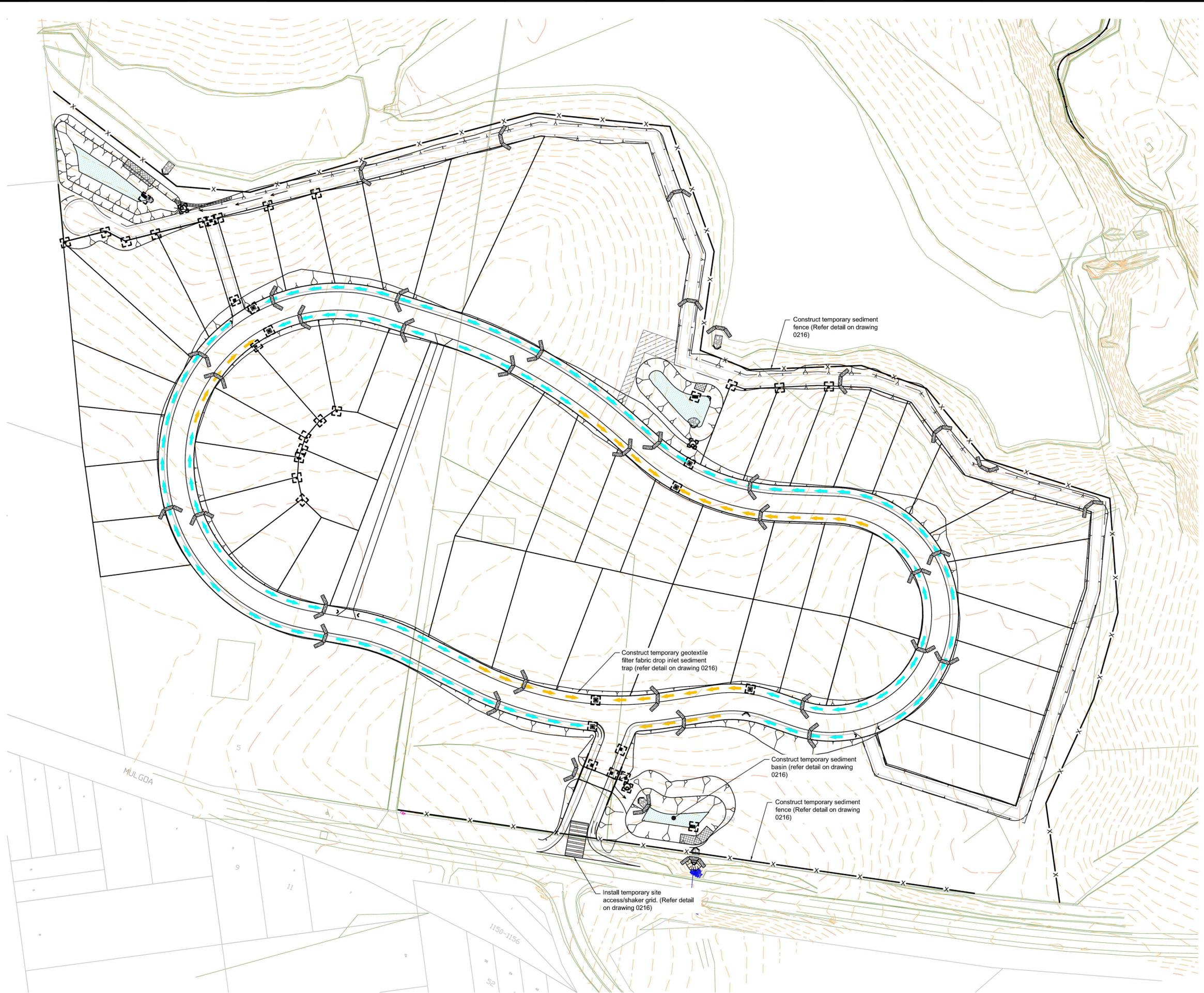
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	1:1250	Status	PRE
		Rev	P4

Drawing Number
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Notes

Key to symbols

Erosion and Sediment Control Legend

- Construct temporary sediment fence
- Install sandbag sediment traps
- Install haybale sediment traps
- Construct temporary geotextile filter fabric drop inlet sediment trap (refer detail)
- Install temporary site access
- Construct temporary sediment basin
- Construct temporary catch drain

Reference drawings

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Client **Fernhill Estate**

Title **Fernhill Estate
Soil and Water Management Plan**

Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	NTS	Status	PRE
		Rev	P4

Drawing Number **MMD-322876-C-DR-00-EA-0215**

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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, ie 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 20 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 -

- autumn/winter sowing - oats/ryecorn at 20 kg/ha
- japanese millet at 10 kg/ha
- japanese millet at 20 kg/ha
- oats/ryecorn at 10 kg/ha
- spring/summer sowing

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 latched 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.

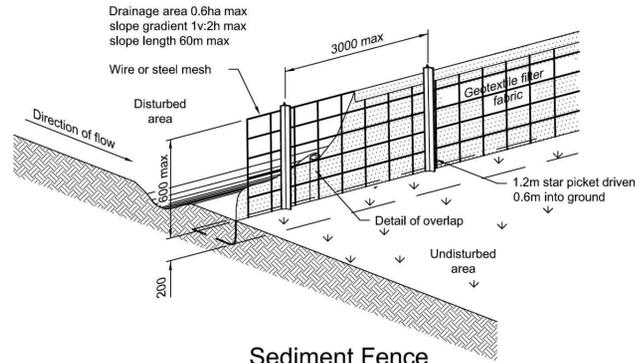
SWM19 Final site landscaping will be undertaken as soon as possible and within 20 working days from completion of construction activities.

Site Inspection and Maintenance

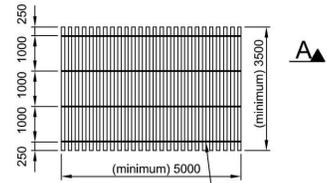
SWM20 At least weekly and after every rain fall event, the contractor will inspect the site and ensure that -

- 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.

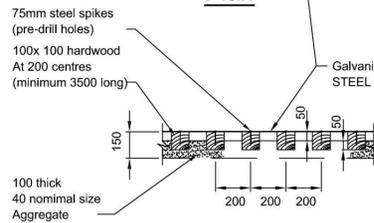
SWM21 The contractor shall provide all monitoring control and testing.



Sediment Fence (Geotextile Filter Fabric)
NTS



Plan



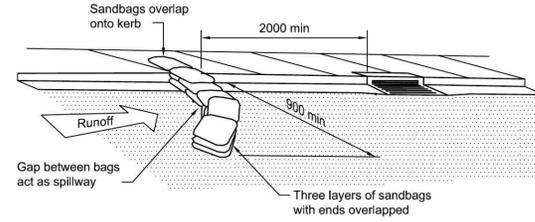
Section A-A

Shaker Grid

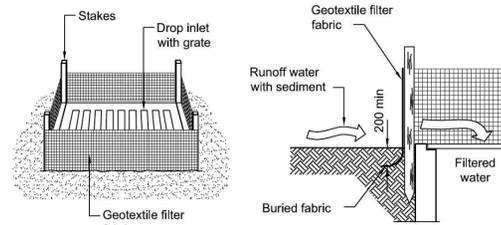
Not To Scale

Shaker Grid Notes

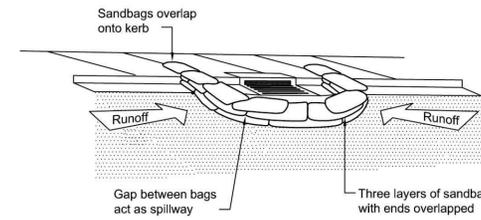
- This device is to be located at all exits from the construction site.
 - the device is to be regularly cleaned of deposited material so as to maintain a 50 mm deep space between planks.
 - Any unsealed road between this device and Councils nearest roadway to be topped with 100mm thick 40mm nominal size aggregate.
 - Alternatively, three (3) precast concrete cattle grids (as manufactured by 'humes concrete') may be used.
- Notes 1, 2, 3, above also apply.



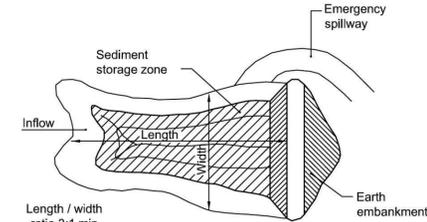
Sediment Trap for Kerb Inlet (On Grade - Sandbag)
NTS



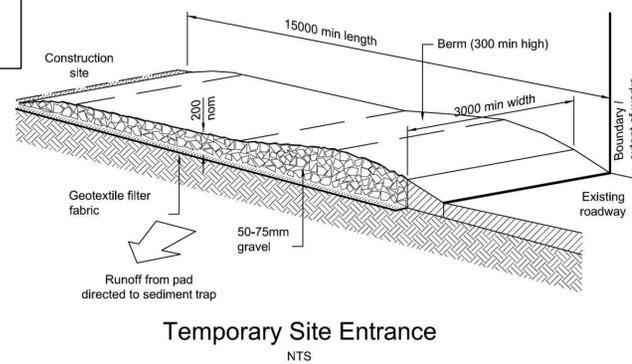
Sediment Trap for Drop Inlet (Geotextile Filter Fabric)
NTS



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



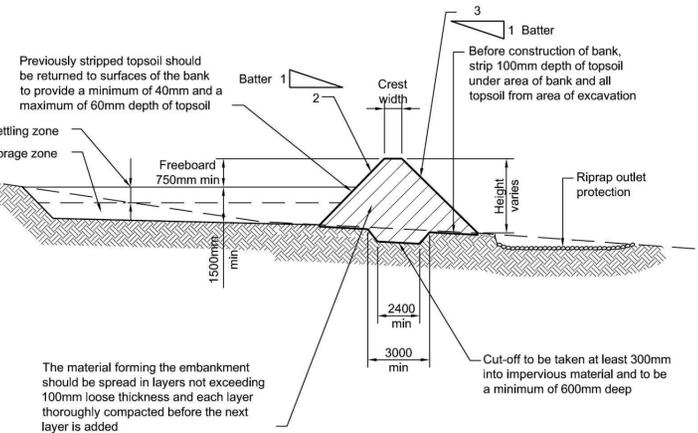
Sediment Basin Wet (Typical) Plan - Type D and F soils
NTS



Temporary Site Entrance
NTS

Maintenance

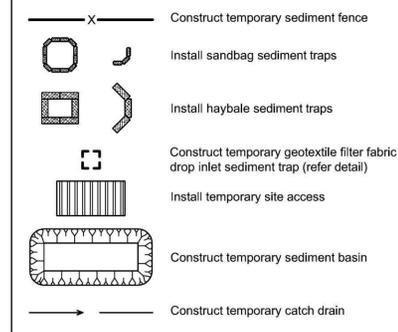
- The temporary access shall be maintained in a condition that prevents tracking or flowing of sediment onto public rights of way.
- This may require periodic top dressing with additional gravel as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- All sediment spilled,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



Sediment Basin (Typical) Cross Section - Type D and F soils
NTS

Not For Construction

Erosion and Sediment Control Legend



Important note:
This plan is a concept only. It is created to highlight some of the sediment and erosion control measures which may appear. The contractor is responsible for the final design and ensuring all measures are taken to protect the environment.

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Chk'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA



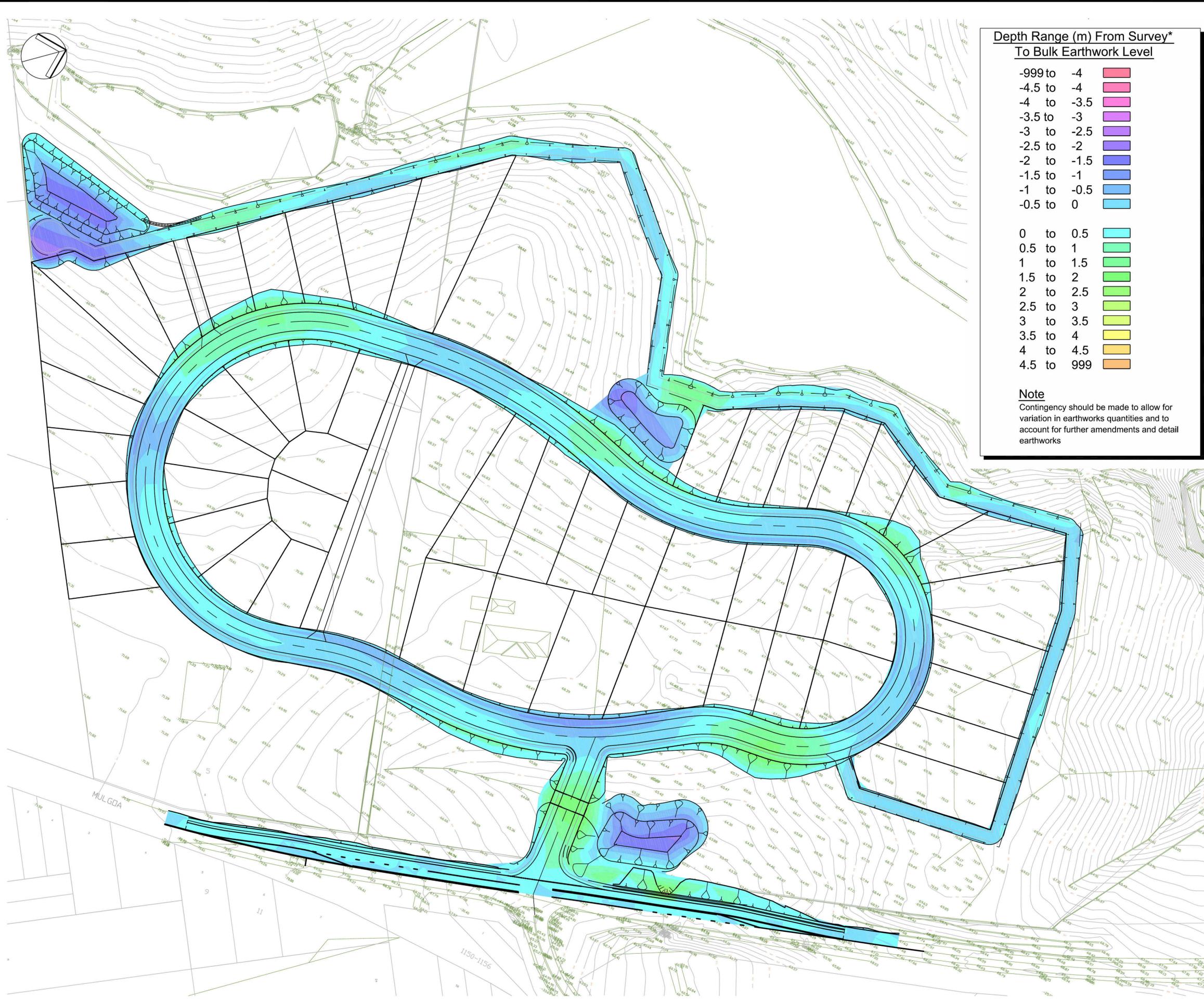
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Client **Fernhill Estate**

Title **Fernhill Estate
Soil and Water Management Details**

Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	NTS	Status	PRE
Rev			P4

Drawing Number
MMD-322876-C-DR-00-EA-0216



**Depth Range (m) From Survey*
To Bulk Earthwork Level**

-999 to -4	█
-4 to -3.5	█
-3.5 to -3	█
-3 to -2.5	█
-2.5 to -2	█
-2 to -1.5	█
-1.5 to -1	█
-1 to -0.5	█
-0.5 to 0	█
0 to 0.5	█
0.5 to 1	█
1 to 1.5	█
1.5 to 2	█
2 to 2.5	█
2.5 to 3	█
3 to 3.5	█
3.5 to 4	█
4 to 4.5	█
4.5 to 999	█

Note
Contingency should be made to allow for variation in earthworks quantities and to account for further amendments and detail earthworks

Notes

Key to symbols

Reference drawings

P2	29.07.14	AMP	Issued for DA	GL	CJA
P1	24.07.13	AMP	Issued for information	GL	-
Rev	Date	Drawn	Description	Ch'K'd	App'd



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Client **Fernhill Estate**

Title **Fernhill Estate
Earthworks Cut and Fill Plan**

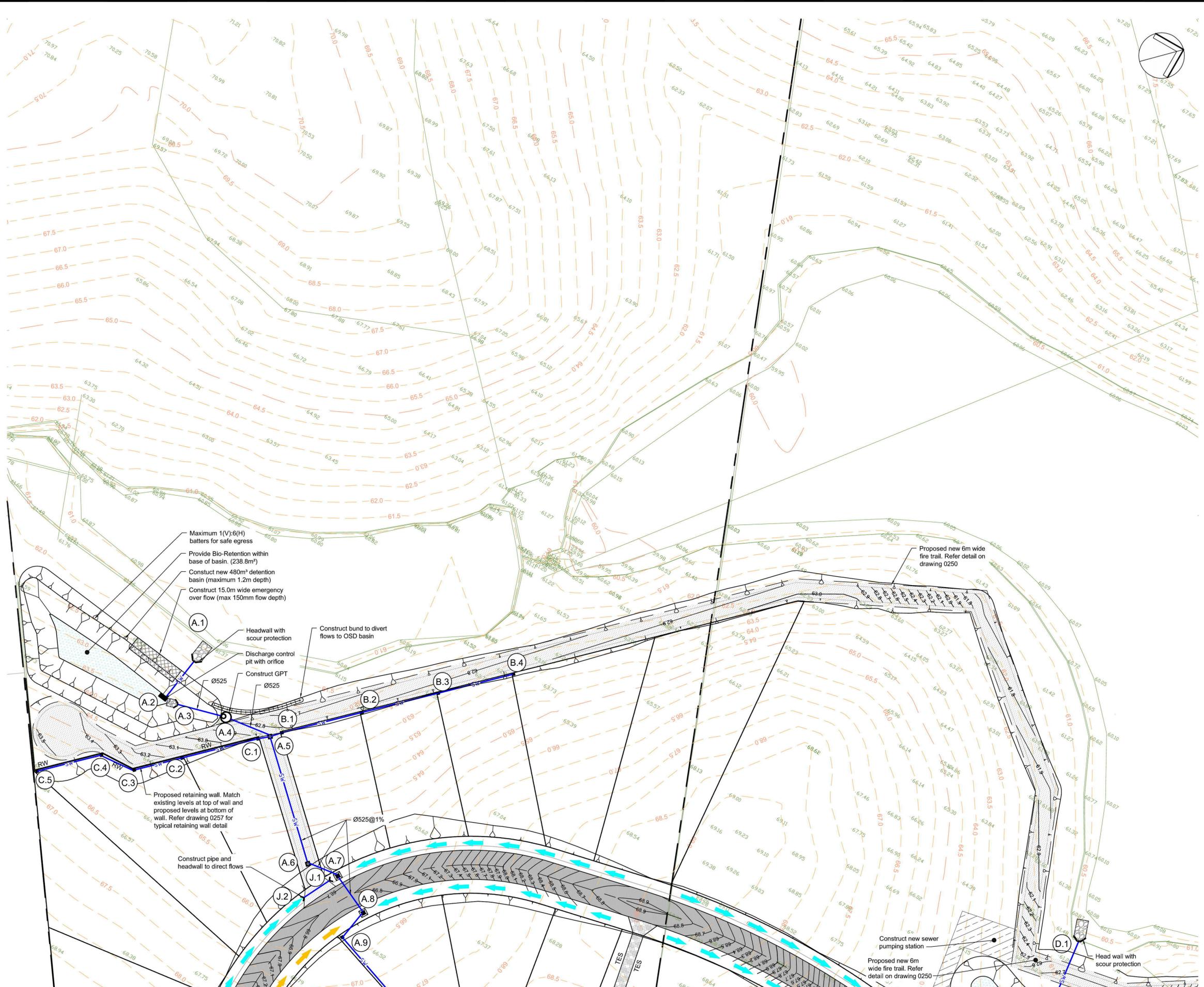
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	1:800	Status	PRE
		Rev	P2

Drawing Number **MMD-322876-C-DR-00-EA-0225**

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- Notes
- All Proposed road batters maximum 1(H):5(V)
 - All services shown are approximate only.
 - Inter allotment drainage per Penrith City Council DCP unless noted otherwise.

Key to symbols

- Swale Type 1
- Swale Type 2
- Asphaltic concrete (AC)
- Fire Trail (6m)
- Access road

Reference drawings

Rev	Date	Drawn	Description	Ch'K'd	App'd
P5	29.07.14	ADS	Issued for DA	GL	CJA
P4	24.07.14	ADS	Issued for information	GL	CJA
P3	08.07.14	ADS	Re-issued for DA Approval	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

Rev	Date	Drawn	Description	Ch'K'd	App'd
P5	29.07.14	ADS	Issued for DA	GL	CJA
P4	24.07.14	ADS	Issued for information	GL	CJA
P3	08.07.14	ADS	Re-issued for DA Approval	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

Rev	Date	Drawn	Description	Ch'K'd	App'd
P5	29.07.14	ADS	Issued for DA	GL	CJA
P4	24.07.14	ADS	Issued for information	GL	CJA
P3	08.07.14	ADS	Re-issued for DA Approval	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

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Client **Fernhill Estate**

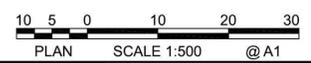
Title **Fernhill Estate
Siteworks and Stormwater Plan
Sheet 1**

Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	Status	Rev	
1:500	PRE	P5	

Drawing Number **MMD-322876-C-DR-00-EA-0240**

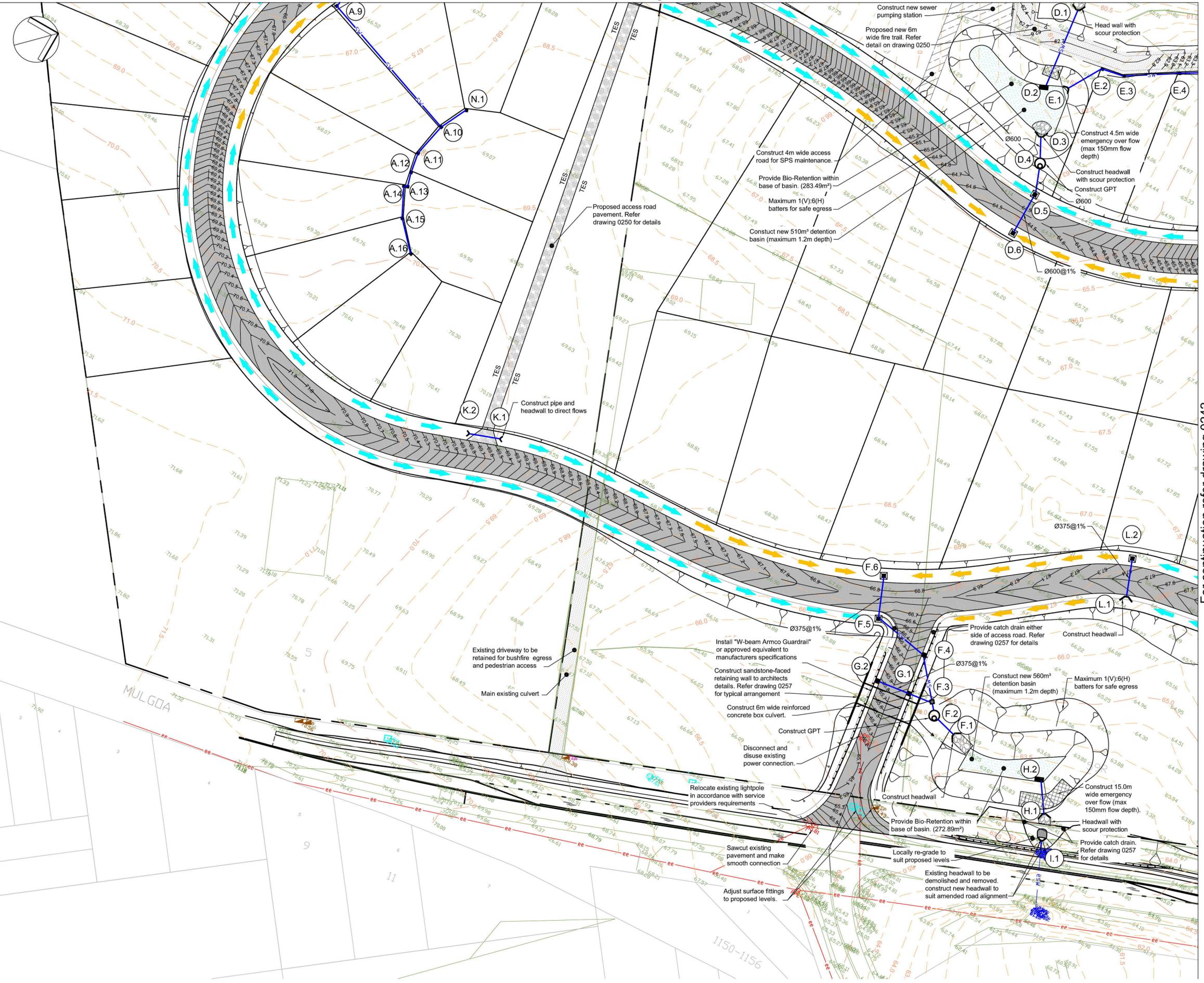
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For continuation refer drawing 0242

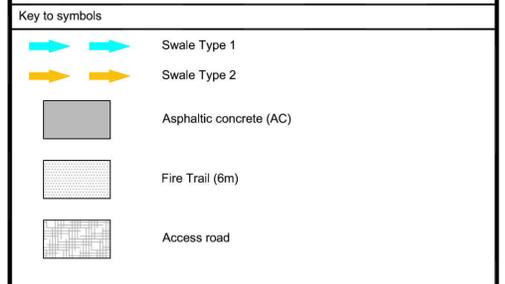


Not For Construction

For continuation refer drawing 0240



- Notes
- All Proposed road batters maximum 1(H):5(V)
 - All services shown are approximate only.
 - Inter allotment drainage per Penrith City Council DCP unless noted otherwise.



Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P5	29.07.14	ADS	Issued for DA	GL	CJA
P4	24.07.14	ADS	Issued for information	GL	CJA
P3	08.07.14	ADS	Re-issued for DA Approval	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

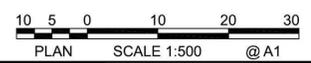
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Client **Fernhill Estate**

Title **Fernhill Estate
Siteworks and Stormwater Plan
Sheet 2**

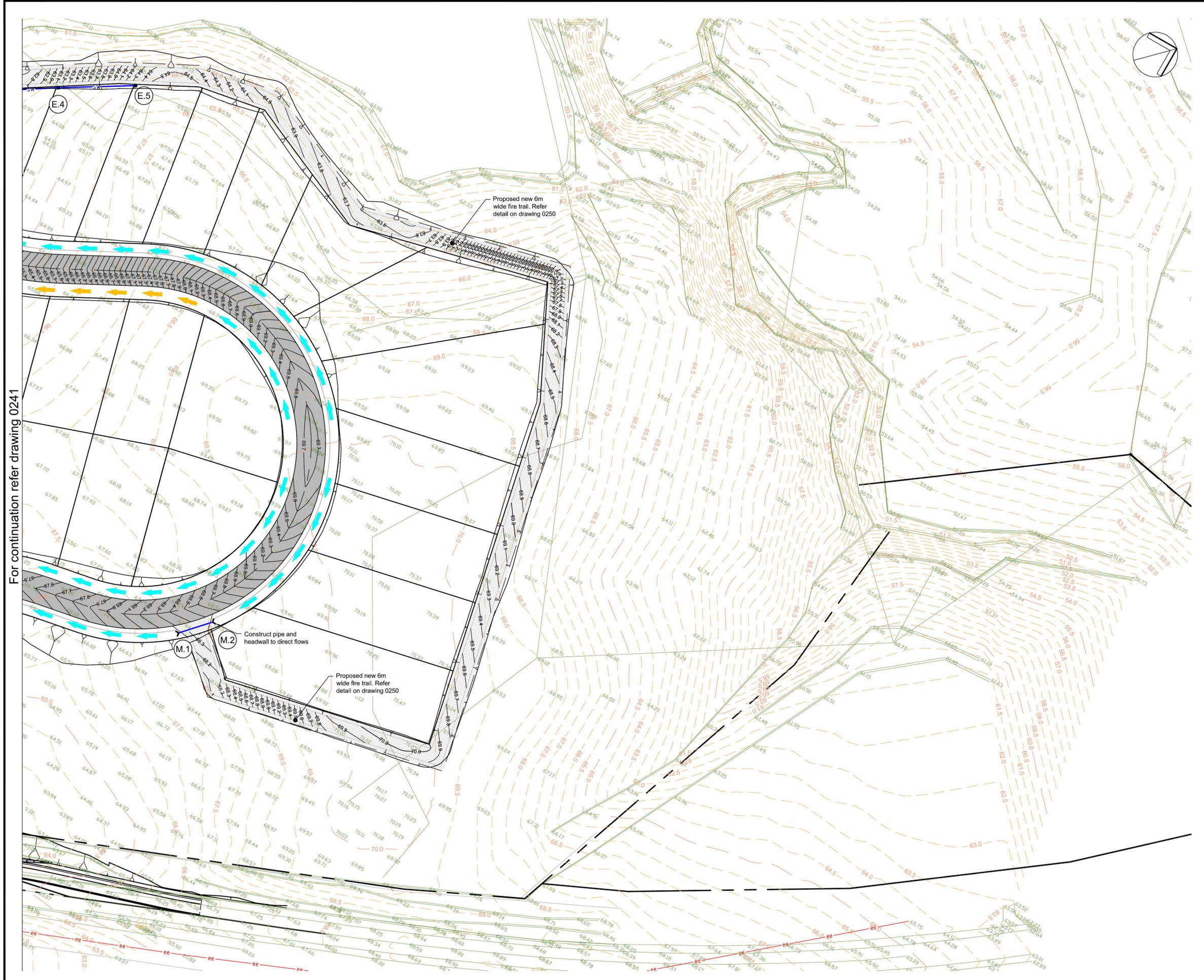
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	Status	Rev	
1:500	PRE	P5	

Drawing Number **MMD-322876-C-DR-00-EA-0241**



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For continuation refer drawing 0241

- Notes
- All Proposed road batters maximum 1(H):5(V)
 - All services shown are approximate only.
 - Inter allotment drainage per Penrith City Council DCP unless noted otherwise.

Key to symbols

- Swale Type 1
- Swale Type 2
- Asphaltic concrete (AC)
- Fire Trail (6m)
- Access road

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P5	29.07.14	ADS	Issued for DA	GL	CJA
P4	24.07.14	ADS	Issued for information	GL	CJA
P3	08.07.14	ADS	Re-issued for DA Approval	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

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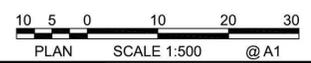
Client **Fernhill Estate**

Title **Fernhill Estate
Siteworks and Stormwater Plan
Sheet 3**

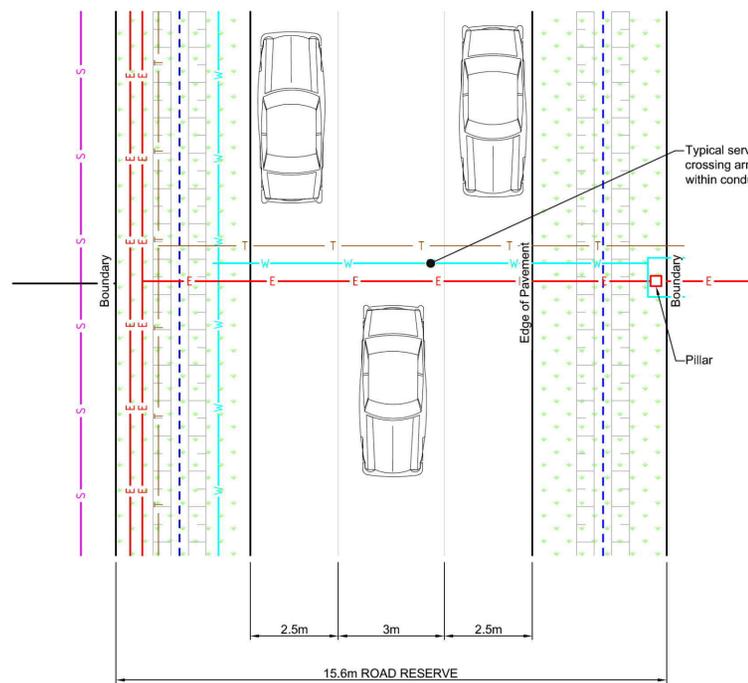
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	1:500	Status	PRE
		Rev	P5

Drawing Number **MMD-322876-C-DR-00-EA-0242**

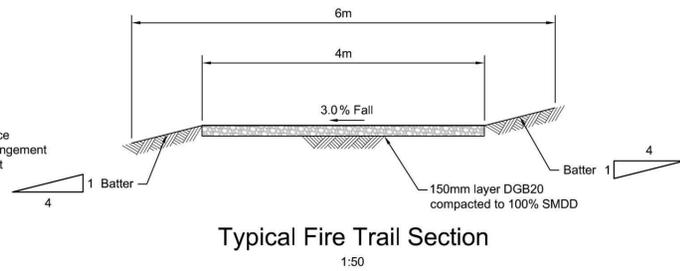
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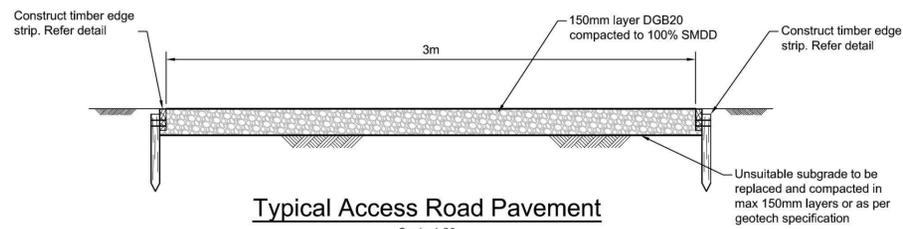
Not For Construction



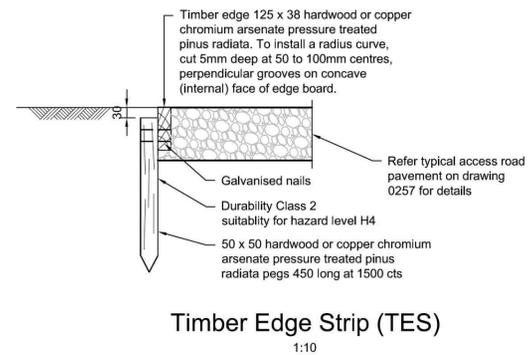
New Road Plan
SCALE 1:100



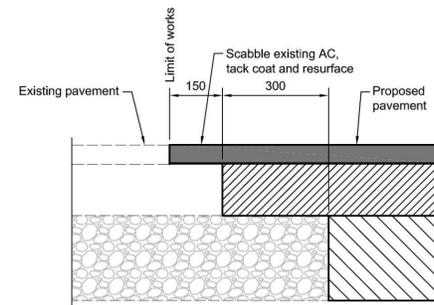
Typical Fire Trail Section
1:50



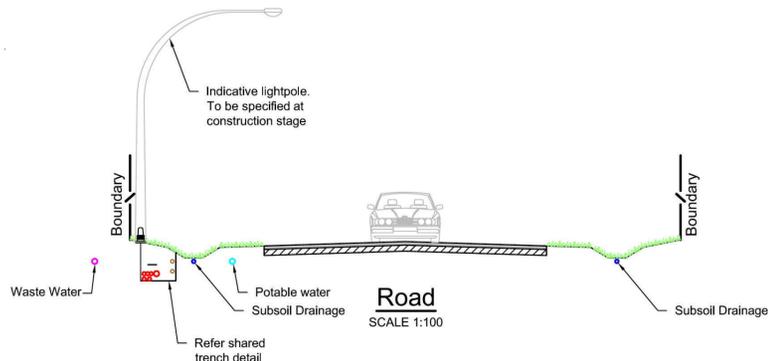
Typical Access Road Pavement
Scale 1:20



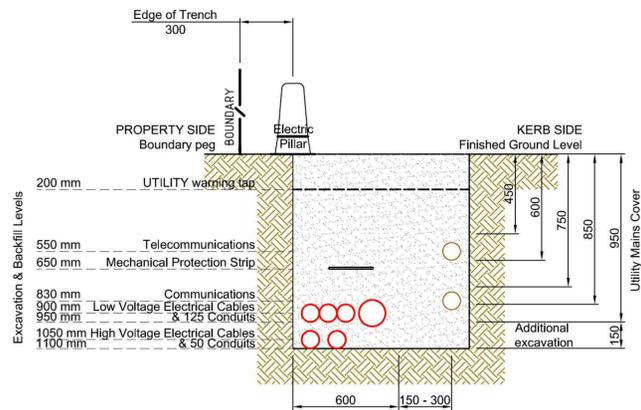
Timber Edge Strip (TES)
1:10



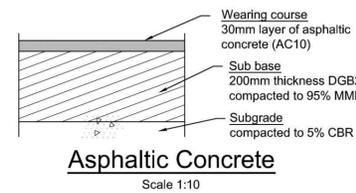
AC Connection to existing pavement
1:10



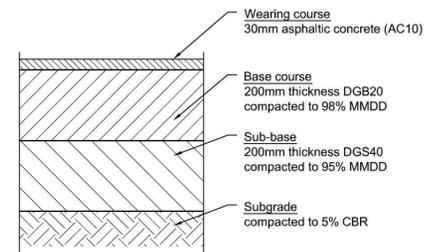
Road
SCALE 1:100



Typical Shared Trench Detail
scale 1:20

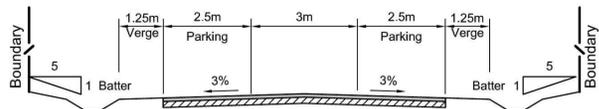


Asphaltic Concrete
Scale 1:10



Roadworks Asphaltic Concrete
Scale 1:10

Note: All Pavements are subject to geotechnical/structural testing, investigation and design. The pavements listed above are provisional only.



TYPICAL SECTION Road
SCALE 1:100

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	30.07.14	ADS	Re-issued for DA	GL	CJA
P3	29.07.14	ADS	Issued for DA	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

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Client **Fernhill Estate**

Title **Fernhill Estate
Typical Road Cross Sections
and Fire Trail Section Sheet**

Designed	GL	.	Eng check	GL	.
Drawn	DW	.	Coordination	CJA	.
Dwg check	GC	.	Approved	DB	.
Scale at A1	As Shown	Status	PRE	Rev	P4

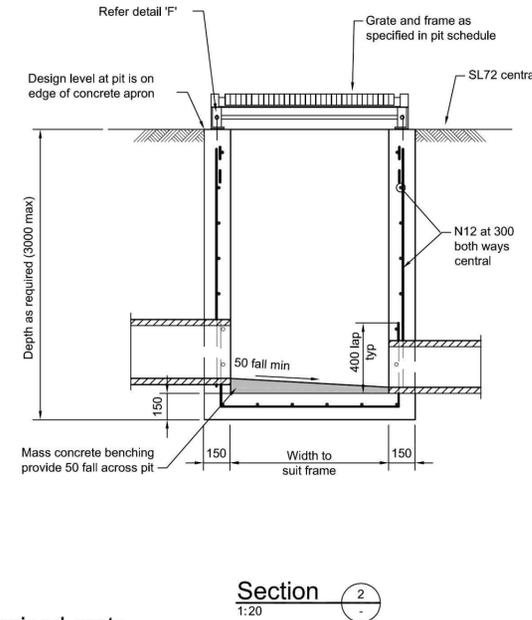
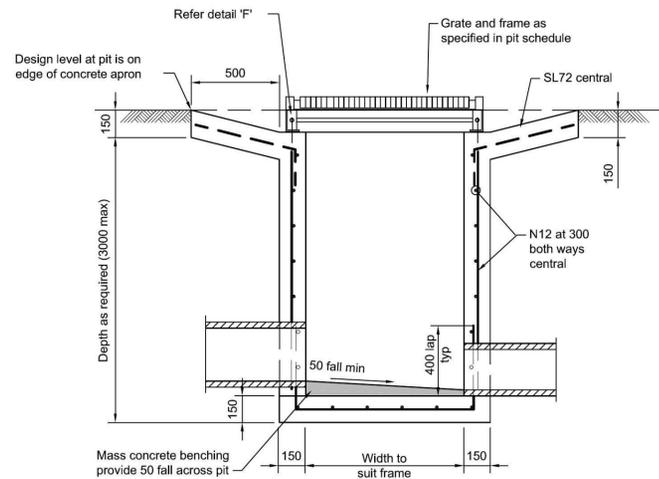
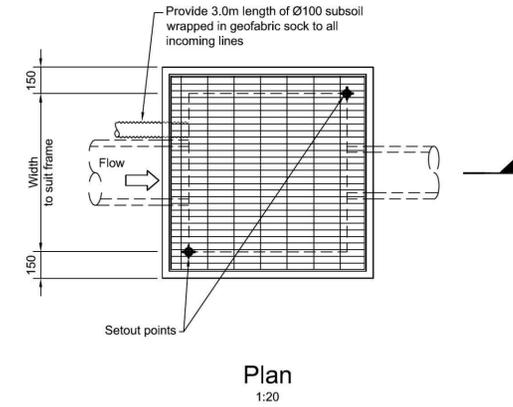
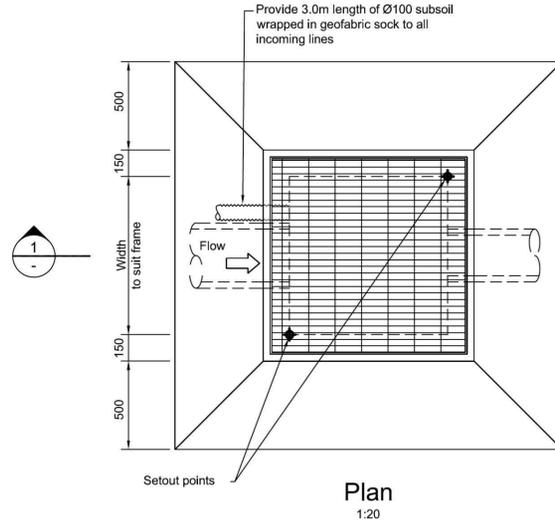
Drawing Number **MMD-322876-C-DR-00-EA-0250**



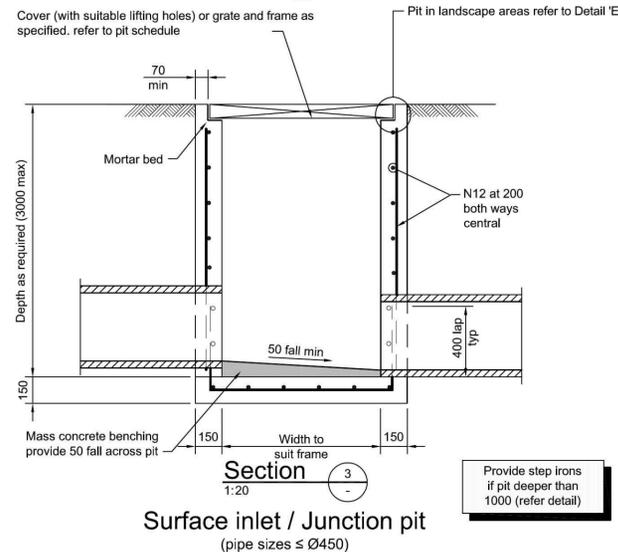
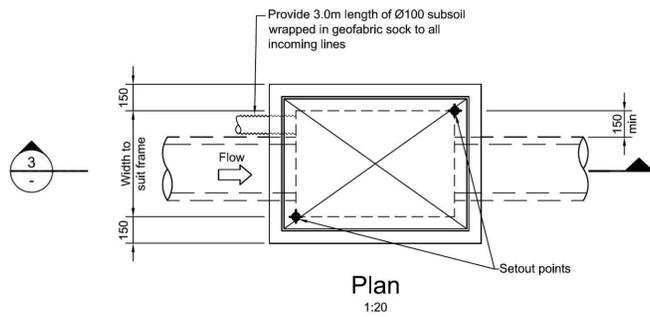
Not For Construction

STORMWATER PIT SCHEDULE

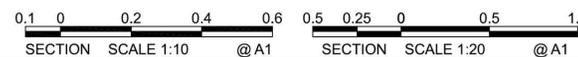
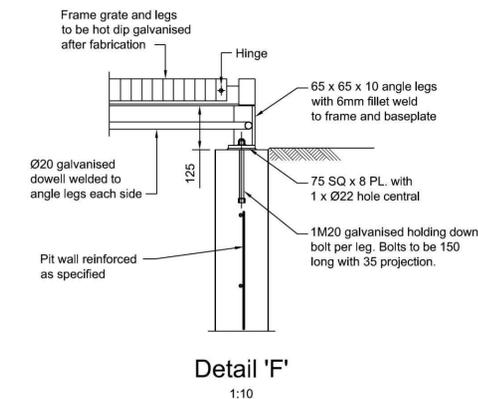
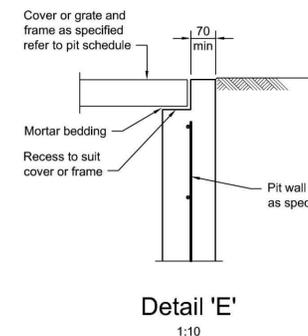
PIT NO.	PIT TYPE	INTERNAL DIMENSIONS	COVER AND CLASS
A.1	HEADWALL	-	-
A.2	ON-SITE DETENTION/BIORETENTION PIT	1200 X 1200	2 X 1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
A.3	HEADWALL	-	-
A.4	GPT	REFER DETAIL	-
A.5	JUNCTION PIT	900 X 900	900 X 900 CLASS D CAST IRON COVER WITH CONCRETE INFILL
A.6	JUNCTION PIT	900 X 900	900 X 900 CLASS D CAST IRON COVER WITH CONCRETE INFILL
A.7	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL GRATE
A.8	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL GRATE
A.9	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.10	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.11	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.12	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.13	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.14	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.15	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
A.16	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
B.1	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
B.2	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
B.3	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
B.4	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
C.1	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
C.2	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
C.3	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
C.4	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
C.5	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
D.1	HEADWALL	-	-
D.2	ON-SITE DETENTION/BIORETENTION PIT	1200 X 1200	2 X 1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
D.3	HEADWALL	-	-
D.4	GPT	REFER DETAIL	-
D.5	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
D.6	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
E.1	HEADWALL	-	-
E.2	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
E.3	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
E.4	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
F.1	HEADWALL	-	-
F.2	GPT	REFER DETAIL	-
F.3	JUNCTION PIT	900 X 900	900 X 900 CLASS D CAST IRON COVER WITH CONCRETE INFILL
F.4	SURFACE INLET PIT	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
F.5	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
F.6	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
G.1	SURFACE INLET PIT	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
G.1	SURFACE INLET PIT	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME
H.1	HEADWALL	-	-
H.2	ON-SITE DETENTION/BIORETENTION PIT	1200 X 1200	2 X 1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
I.1	HEADWALL	-	-
J.1	HEADWALL	-	-
J.2	HEADWALL	-	-
K.1	HEADWALL	-	-
K.2	HEADWALL	-	-
L.1	HEADWALL	-	-
L.2	SURCHARGE PIT WITH RAISED GRATE	1200 X 1200	1200 X 1200 CLASS B GALVANISED MILD STEEL RAISED GRATE
M.1	HEADWALL	-	-
M.2	HEADWALL	-	-
N.1	SURFACE INLET PIT	450 X 450	450 X 450 CLASS B GALVANISED MILD STEEL GRATE HINGED TO FRAME



Surcharge pit with raised grate



Surface inlet / Junction pit (pipe sizes ≤ Ø450)



Not For Construction

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

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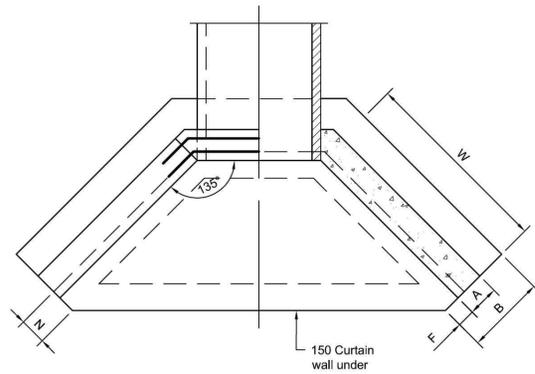
Client **Fernhill Estate**

Title **Fernhill Estate Siteworks Details Sheet 1**

Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	Status	Rev	
As Shown	PRE	P4	

Drawing Number **MMD-322876-C-DR-00-EA-0255**

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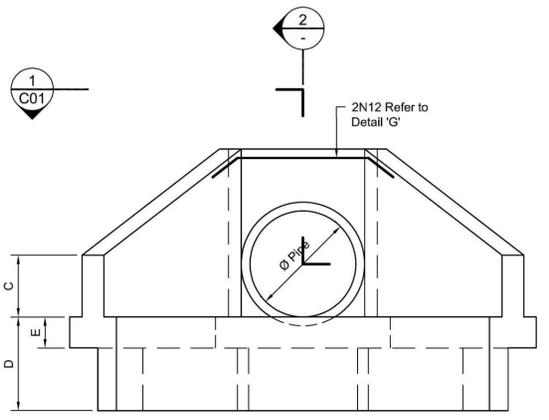
Notes

1. Compressive strength (F_c) for cast-in-situ concrete to be in accordance with AS3600, for the relevant exposure conditions - 25MPa as a minimum at 28 days.
2. 25mm Chamfer on all exposed edges.

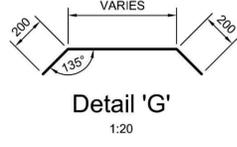
Headwall dimensions

Ø Pipe	300
A	150
B	300
C	300
D	375
E	150
F	75
G	40
H	70
J	100
K	200
N	150
W	700
Reinforcement Ø	12

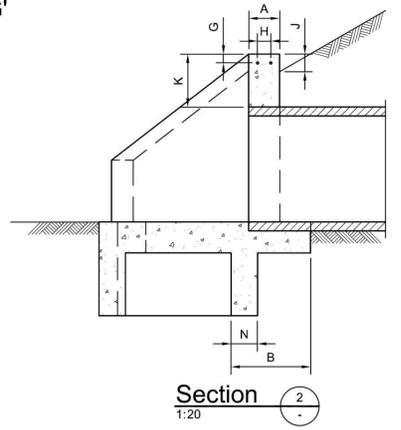
Section 1
1:20



Elevation 1
1:20

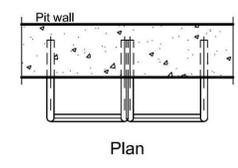


Detail 'G'
1:20

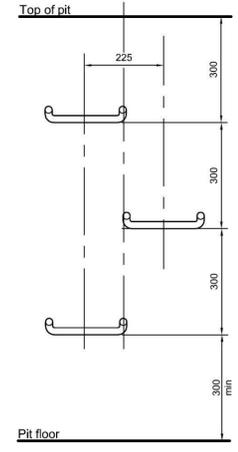


Section 2
1:20

Pipe Headwall With Apron
1:20

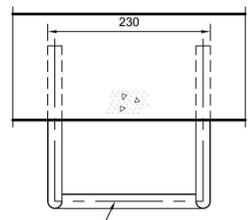


Plan



Elevation

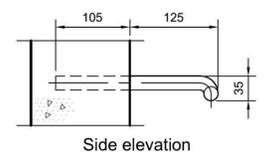
Step iron placement to pit wall
NTS



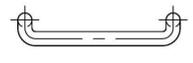
Plan

Ø20 galvanised mild steel

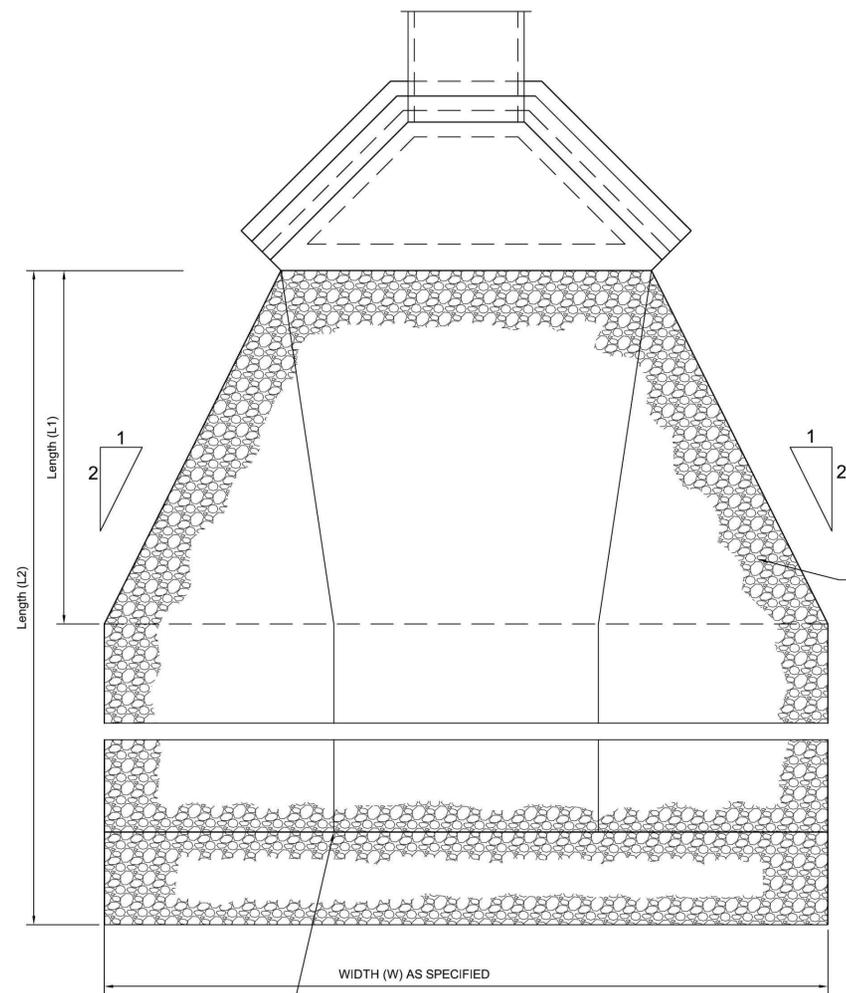
Step iron detail
1:5



Side elevation

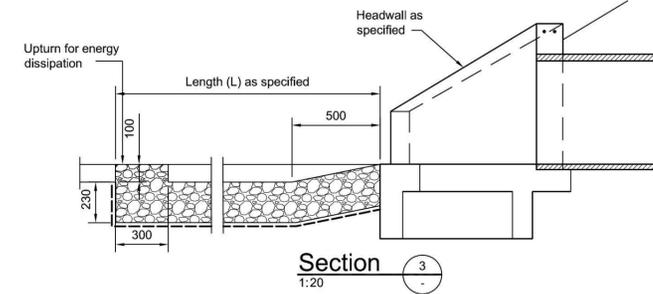


Front elevation

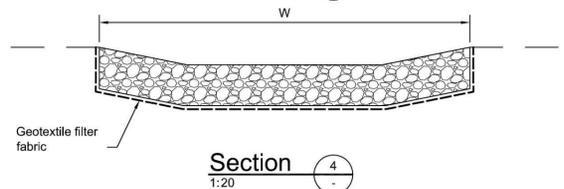


Galvanised wire or plastic coated wire mesh mattress filled with rock and securely wired together. mattress to be contoured to suit inlet or outlet drains.

NOTE
Refer to the "blue book" detail sd 5-6 for construction notes.



Section 3
1:20



Section 4
1:20

Outlet Scour Protection
1:20

Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA



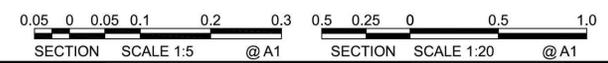
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Client
Fernhill Estate

Title
**Fernhill Estate
Siteworks Details
Sheet 2**

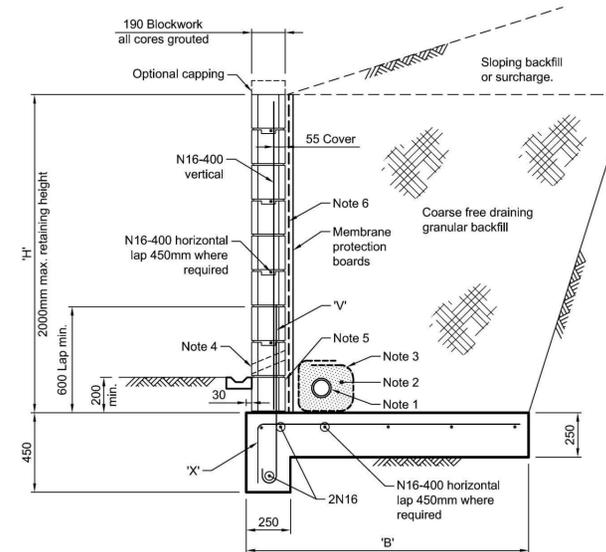
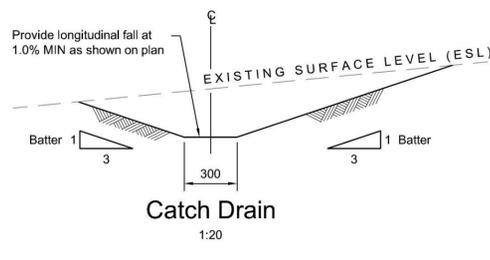
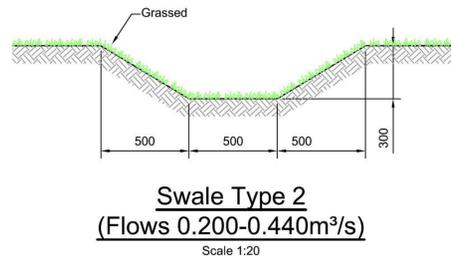
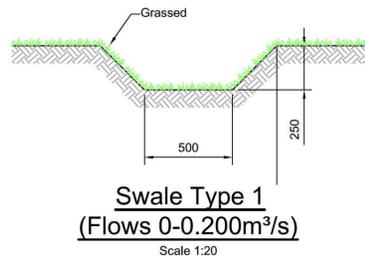
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	As Shown	Status	PRE
		Rev	P4

Drawing Number
MMD-322876-C-DR-00-EA-0256



Not For Construction

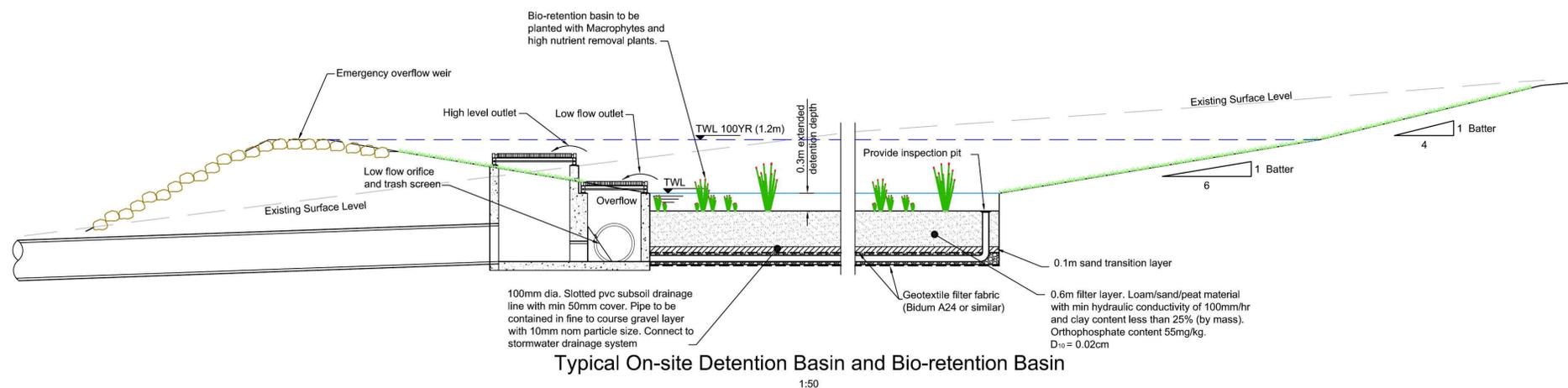
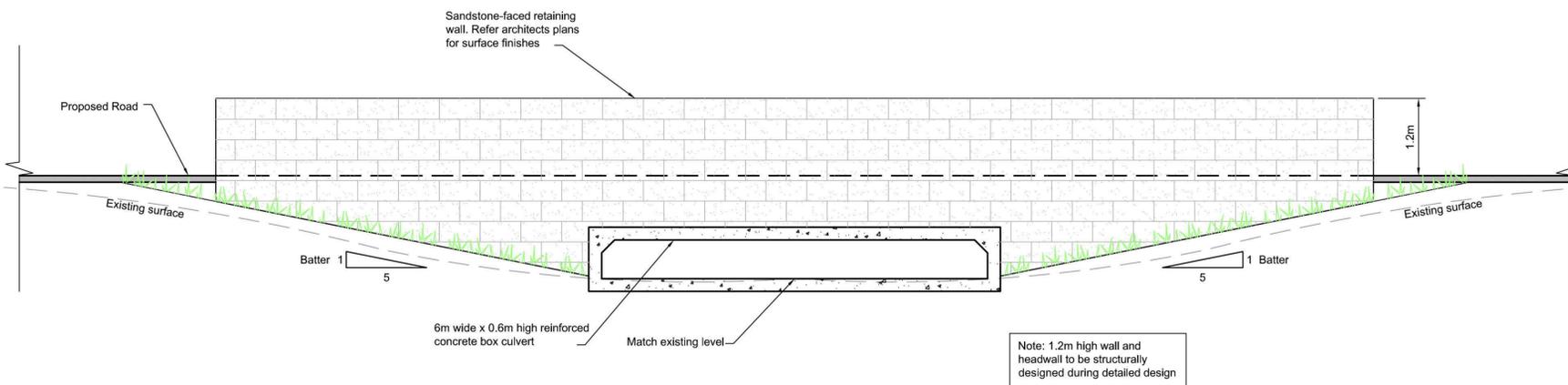
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Retaining Wall Schedule		
Wall Height 'H'	Base Width 'B'	Bar Type 'X' & 'V'
800	800	N16-400
1000	900	N16-400
1200	1000	N16-400
1400	1100	N16-400
1600	1200	N16-400
1800	1400	N16-400
2000	1600	N16-200

These dimensions are provided based on a 5kPa surcharge

- Retaining Wall Notes:**
- Ø100mm rigid slotted uPVC sub-soil pipe with filter sock (on min. 0.5% fall) to nearest available stormwater pit.
 - 150mm surround of 20mm blue metal or gravel.
 - Geofabric surround to be 'Bidum' A24 filter fabric or approved equal.
 - Provide Ø50 weep holes located above concrete dish drain at 1600 maximum centers.
 - Provide 'E' shaped clean-out block at base of retaining wall. omit horizontal bar from top of this block.
 - If tanking membrane is required the design and certification is to be provided by waterproofing specialist.
 - Refer to blockwork notes.



Notes

Key to symbols

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

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Client **Fernhill Estate**

Title **Fernhill Estate Siteworks Details Sheet 3**

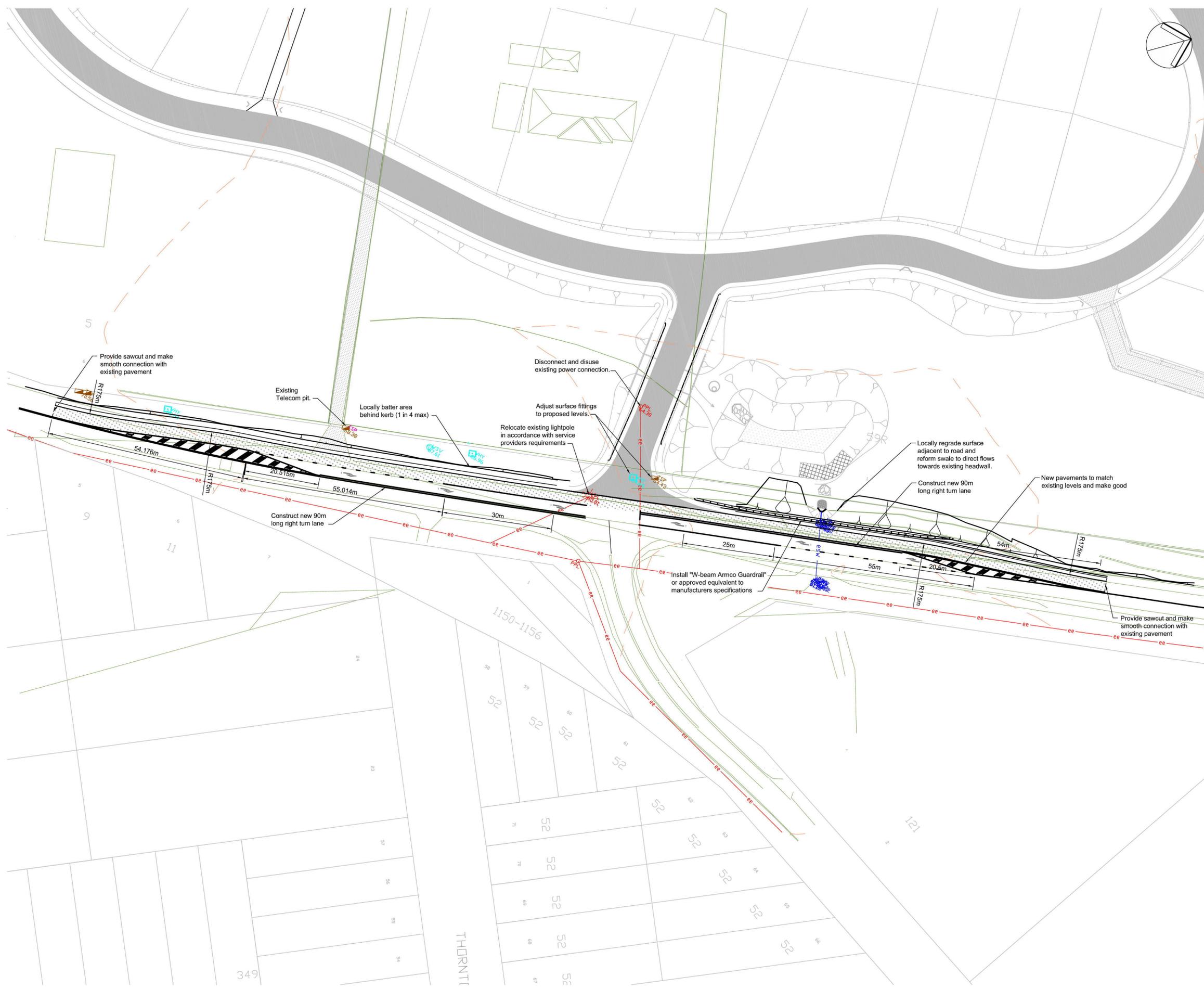
Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	As Shown	Status	PRE
		Rev	P4

Drawing Number **MMD-322876-C-DR-00-EA-0257**



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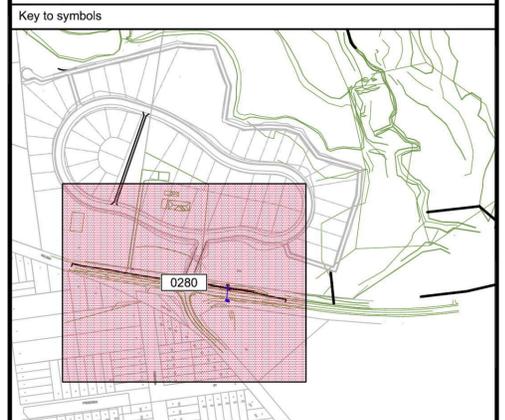
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Notes

Existing services to be modified to suit to the satisfaction of services provider (typ)

Roadworks Asphaltic concrete (AC)



Key Plan
1:NTS

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P4	29.07.14	ADS	Issued for DA	GL	CJA
P3	24.07.14	ADS	Issued for information	GL	CJA
P2	07.07.14	ADS	Issued for DA Approval	GL	CJA
P1	30.06.14	ADS	Issued for information	GL	CJA

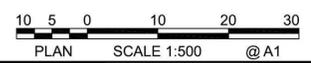
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Client **Fernhill Estate**

Title **Fernhill Estate
Mulgoa Road
Roadworks Plan**

Designed	GL	Eng check	GL
Drawn	DW	Coordination	CJA
Dwg check	GC	Approved	DB
Scale at A1	1:500	Status	PRE
		Rev	P4

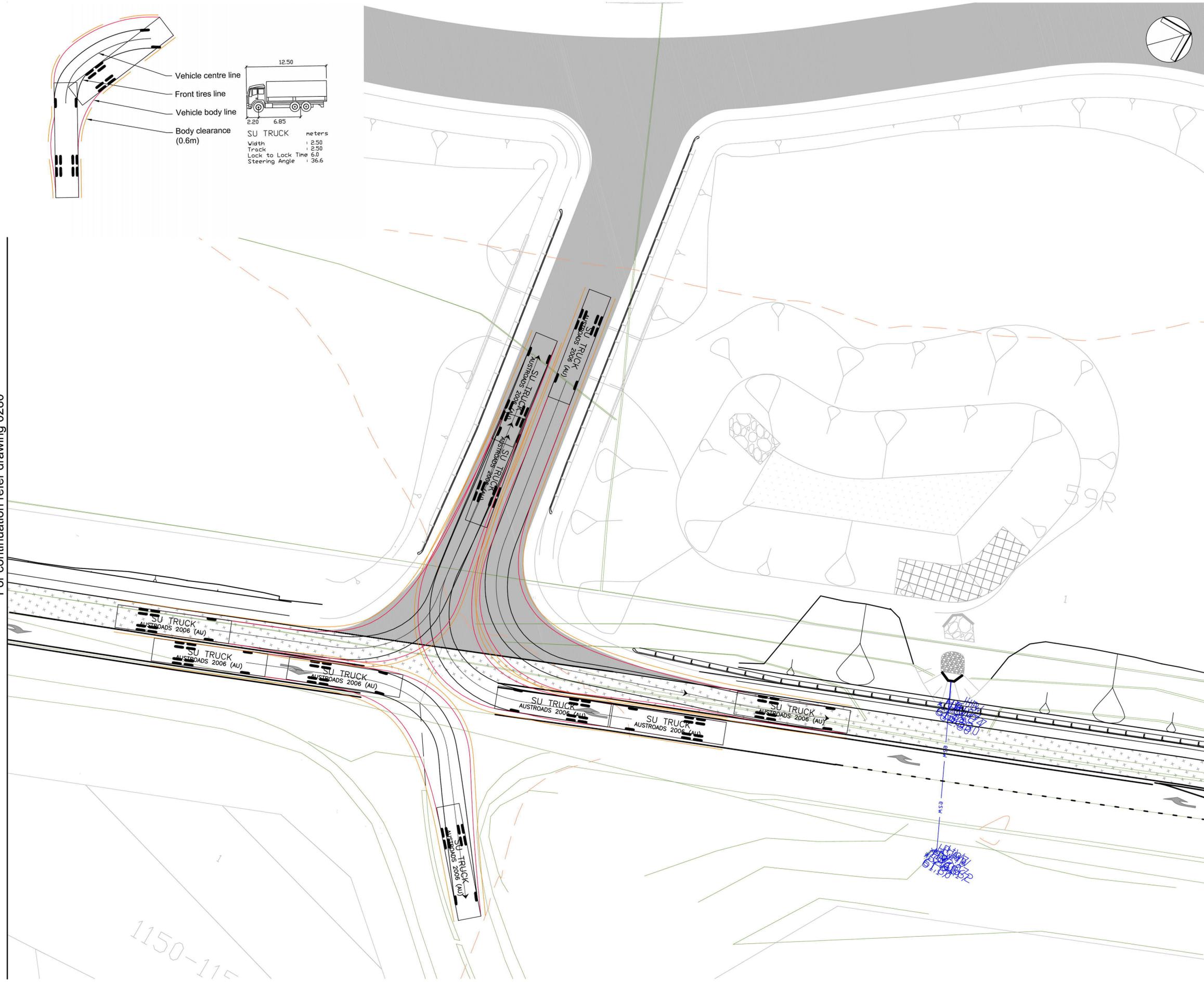
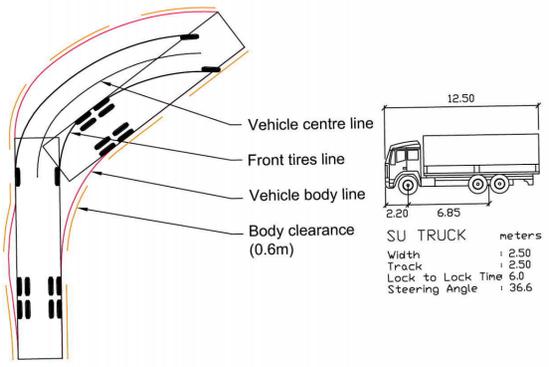
Drawing Number **MMD-322876-C-DR-00-EA-0280**



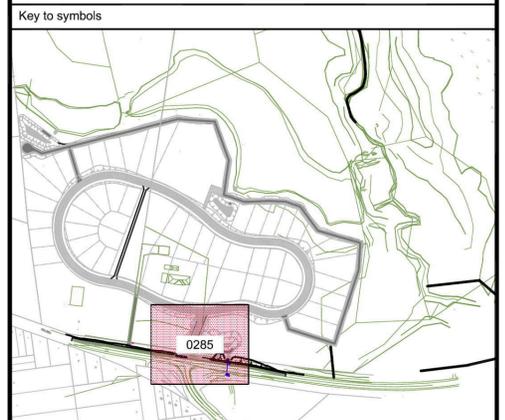
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For continuation refer drawing 0280



Notes



Key Plan
1:NTS

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	29.07.14	ADS	Issued for DA	GL	CJA
P1	24.07.14	ADS	Issued for information	GL	CJA

Designed	GL	Eng check	GL
Drawn	ADS	Coordination	CJA
Dwg check	GC	Approved	CJA

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Client
Fernhill Estate

Title
**Fernhill Estate
Roadworks Turning
Simulation Plan**

Scale at A1	1:200	Status	PRE	Rev	P2
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Drawing Number
MMD-322876-C-DR-00-EA-0285



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Notes

Key to symbols

New residential

Reference drawings

P2	29.07.14	ADS	Issued for DA	GL	CJA
P1	24.07.14	ADS	Issued for information	GL	CJA
Rev	Date	Drawn	Description	Ch'k'd	App'd



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Client **Fernhill Estate**

Title **Fernhill Estate Existing Services Plan**

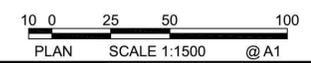
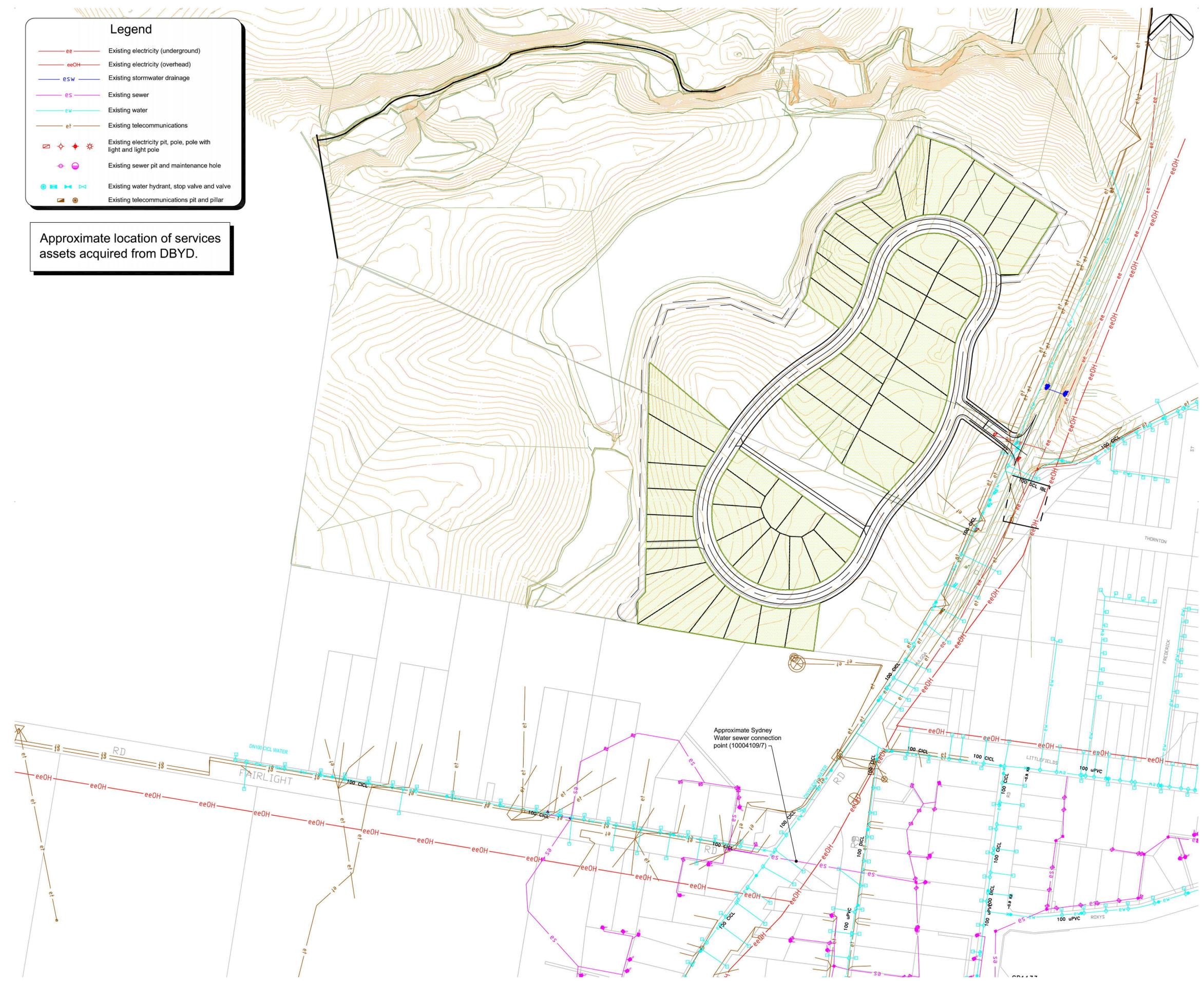
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Drawn	ADS	Coordination	CJA
Dwg check	GC	Approved	CJA
Scale at A1	1:1500	Status	PRE
		Rev	P2

Drawing Number **MMD-322876-C-DR-00-EA-0290**

Legend

- ee Existing electricity (underground)
- eeOH Existing electricity (overhead)
- esw Existing stormwater drainage
- es Existing sewer
- ew Existing water
- et Existing telecommunications
- Existing electricity pit, pole, pole with light and light pole
- Existing sewer pit and maintenance hole
- Existing water hydrant, stop valve and valve
- Existing telecommunications pit and pillar

Approximate location of services assets acquired from DBYD.



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Notes

Key to symbols

-  New residential
-  Sewer Treatment Plan
-  Pump Station
-  Indicative Padmount Substation location
-  RM Rising Main
-  HV Feeder
-  Indicative Proposed Power Pole Location

Reference drawings

P2	29.07.14	ADS	Issued for DA	GL	CJA
P1	24.07.14	ADS	Issued for information	GL	CJA
Rev	Date	Drawn	Description	Ch'k'd	App'd



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Client **Fernhill Estate**

Title **Fernhill Estate
Proposed Services Plan
Proposed Major Asset
Services Plan**

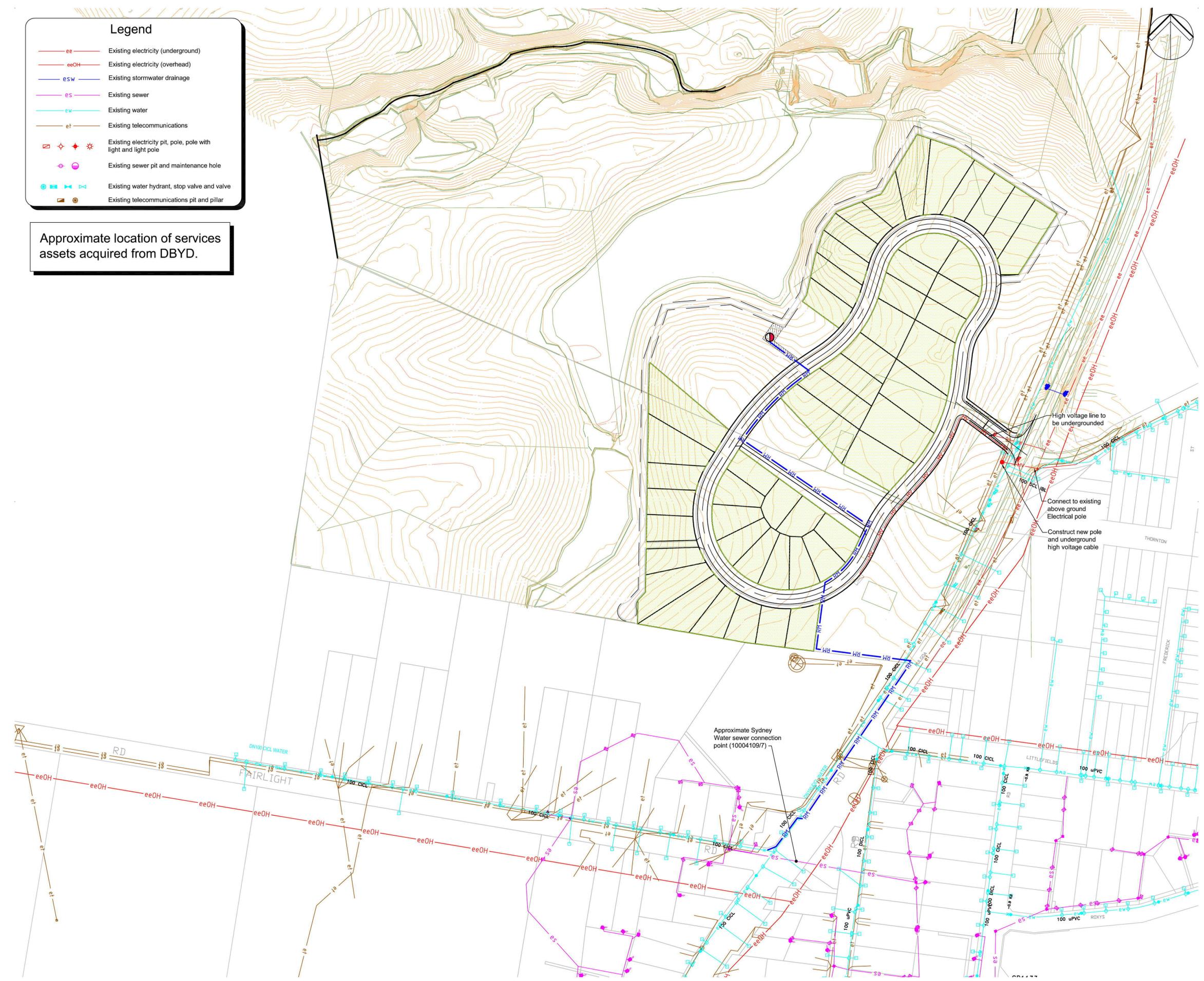
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Dwg check	GC	Approved	CJA
Scale at A1	1:1500	Status	PRE
		Rev	P2

Drawing Number **MMD-322876-C-DR-00-EA-0291**

Legend

-  Existing electricity (underground)
-  Existing electricity (overhead)
-  Existing stormwater drainage
-  Existing sewer
-  Existing water
-  Existing telecommunications
-  Existing electricity pit, pole, pole with light and light pole
-  Existing sewer pit and maintenance hole
-  Existing water hydrant, stop valve and valve
-  Existing telecommunications pit and pillar

Approximate location of services assets acquired from DBYD.



10 0 25 50 100
PLAN SCALE 1:1500 @ A1

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