

22 May 2020

Bonnie Simeonov
Senior Delivery Manager
Charter Hall
Email: bonnie.simeonov@charterhall.com.au

Dear Bonnie

Re: Aboriginal heritage advice for Horsley Drive Business Park Stage 2 State Significant Development Application (SSD 10404)

Our Ref: Matter 31471

Biosis Pty Ltd (Biosis) has been commissioned by Charter Hall to provide Aboriginal heritage advice for the proposed Horsley Drive Business Park Stage 2 State Significant Development Application (SSD 10404) at 5-25 Trivet Street and 130-156 Cowpasture Road, (Lots 17-22 DP 13961 and Lot 2 DP 1212087) Wetherill Park New South Wales (NSW) 2164 (the study area), (Figure 1 and Figure 2). The project involves bulk earthworks across the entirety of the study area, and the construction of a large warehouse facility in the southern portion of it (Figure 3). Biosis was previously engaged in 2016 by the Western Sydney Parklands Trust (WSPT) in order to complete an Aboriginal Cultural Heritage Assessment (ACHA) for the original SSD application (SSD 7664) for the project. The purpose of this advice is to supplement the original ACHA completed by Biosis and provide advice relating to Lot 17 DP 13961 (approximately 0.57 hectares), which was not included as a part of the original SSD application.

This letter of advice will present a summary of work completed to the within the study area, an updated search of the Aboriginal Heritage Information Management System (AHIMS) database to determine the presence or absence of registered Aboriginal sites within the study area, a supplementary survey of Lot 17 DP 13961, and recommendations to guide the proposed SSD application.

Previous work undertaken in the study area

Biosis was engaged by WSPT to complete an ACHA and Archaeological Report (AR) (Biosis Pty Ltd 2016a, Biosis Pty Ltd 2016b) in advance of the proposed Horsley Drive Business Park Stage 2 SSD application (SSD 7764). Biosis' assessment was undertaken in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010a) and the *Code of Practice for Archaeological Investigation of Aboriginal Objects In NSW* (DECCW 2010b) and included background research, Aboriginal consultation, and archaeological survey of the study area to inform an assessment of cultural and archaeological values within it.

The Aboriginal consultation process did not identify any specific cultural associations with the study area, but did note that it is located in close proximity to Prospect Hill and the Prospect area generally, which were of high cultural significance to the Aboriginal community, and that the local area was of spiritual and cultural significance (Biosis Pty Ltd 2016a, p.26)

Biosis' archaeological assessment did not identify any previously recorded Aboriginal sites within the study area. The results of Biosis' background research suggested that locally Aboriginal sites were likely to be identified in close proximity to sources of water, natural rises in the landscape, or in close proximity to

resource gathering areas. Predictive modelling undertaken by Biosis suggested that the potential existed for artefact sites, culturally modified trees, and potential archaeological deposits (PADs) to exist within the study area, as outlined in Table 1.

Table 1 Aboriginal site prediction statements (Biosis Pty Ltd 2016b, p.34)

Site type	Site description	Potential
Flaked stone artefact scatters and isolated artefacts	Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.	High: stone artefact sites have been previously recorded in the region across a wide range of landforms. They have a high potential to be present in undisturbed areas within the study area.
Potential Archaeological Deposits (PADs)	Potential sub surface deposits of cultural material.	High: PADs have been previously recorded in the region across a wide range of landforms in the local area. They have the potential to be present in undisturbed landforms.
Scarred trees	Trees with cultural modifications	Moderate: this is a common site type in the local area. The study area has been subject to extensive land clearance, but aerials show some stands of vegetation present within the study area, indicating the potential for this site type to be present.

The archaeological survey sampled all landforms within the study area, and targeted those areas considered to have higher potential to contain Aboriginal sites, such as areas in close proximity to water sources. It was noted that the Upper Canal is in close proximity to the study area, however this is not a natural water source, and was not considered to be indicative of the potential for Aboriginal sites to be present.

The survey did not identify any Aboriginal sites, being heavily hampered by poor ground surface visibility and disturbance. Overall visibility within the study area was low, a result of dense vegetation cover. Most areas of visibility present were typically caused by disturbance, such as excavation, and had removed or eroded the natural ground surface exposing clay subsoils. Evidence of modern land use activities such as furrows associated with cultivation were also noted in the study area. The southern portion of the study area was undergoing bulk earthworks at the time of assessment, and was not surveyed for this reason, but was assessed as being heavily disturbed. Biosis' effective survey coverage was best on crests and slope, covering 20.60% and 9.48% of each of these landforms respectively, with the remaining landforms showing 0% effective survey coverage.

The archaeological survey did not identify any Aboriginal sites or areas of archaeological potential. This was due in large part to the low ground surface visibility within the study area. When compared with a previous assessment undertaken immediately to the south of the site by Dominic Steele Consulting Archaeology (2012), it was found that the results of Biosis' assessment were largely consistent. Both assessments attributed this to the lack of raw material resources in the vicinity of the site, and the lack of major water sources in close proximity to it, with Biosis concluding:

“The distance of the site from a permanent watercourse would have made the study area unsuitable for the long term occupation, while the shallow top soils present on crests within study area and subsequent disturbances would be unlikely to preserve Aboriginal sites left by sporadic use. As such, the proposed works are unlikely to impact on any unknown Aboriginal sites as the entire study area has been assessed as having low archaeological potential” (Biosis Pty Ltd 2016b, p.48).

Background research

An extensive search of the AHIMS database was conducted on 14 January 2020 (Client service ID: 476549). The search identified 99 Aboriginal archaeological sites within a seven kilometre search area, centred on the proposed study area (Table 2). The search area remained the same as that of the previous Biosis (2016b) assessment, which also returned 99 results (Figure 4). The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports where available. These descriptions and maps were relied where notable discrepancies occurred.

Table 2 AHIMS Sites within the vicinity of the study area

Site type	Number of occurrences (n)	Frequency (%)
Aboriginal ceremony and dreaming, Artefact	2	2.02
Artefact	84	84.85
Artefact, Modified tree	1	1.01
Artefact, Modified tree, PAD	1	1.01
Modified tree	3	3.03
PAD	8	8.08
Total	99	100.00

A simple analysis of the Aboriginal cultural heritage sites registered within 7 kilometres of the study area indicates that the dominant site type is stone artefacts, present at 88 of the 99 identified sites (88.89%), followed by PADs, present at nine of 99 identified sites (9.09%). Culturally modified trees and Aboriginal ceremony and dreaming sites are comparatively less common, present at 5.05% and 2.02% of recorded sites respectively.

One new Aboriginal site, UC IA 17 (AHIMS#45-5-5047) has been registered in close proximity to the study area since the original assessment was completed in 2016. Based on a review of the AHIMS search data, it has been determined that this site consists of an isolated artefact, with its registered co-ordinates placing it outside of the study area within the easement of the Upper Canal.

Based on the results of the AHIMS search, it has been determined that there are no registered Aboriginal sites present within the study area.

Visual inspection

A visual inspection of Lot 17 DP 13961 was undertaken on 20 January 2020 by James Cole (Consultant Archaeologist, Biosis). The visual inspection consisted of a systematic survey of the study area to identify and record any Aboriginal archaeological sites visible on the surface or areas of Aboriginal archaeological potential and cultural sensitivity. The archaeological survey was conducted on foot. The methods used during the visual inspection conformed to Requirements 5 to 8 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b).

Lot 17 DP 13961 is located across an undulating landform, with the majority of the study area consisting of gentle slopes. The relative high points within the study area are along its eastern and western boundaries, sloping down toward its centre (Plate 1). Overall visibility within Lot 17 DP 13961 was variable. Areas of higher visibility (approaching 100%) were identified in exposures along existing vehicle tracks along the perimeter of the site, and in erosion scours within vegetated areas (Plate 2). The lot itself is presently used as a market garden, and extensive disturbance as apparent associated with this use (Plate 2 and Plate 3). This includes ploughing (with plough lines visible on existing aerial images), the establishment of tracks throughout the study area, the establishment of structures associated with market gardening within the study area (Plate 3), and landscape modification, including levelling works in the western part of the study area adjacent the Upper Canal curtilage (Plate 2), and the establishment of a small dam near the centre of the lot (Plate 4).

Overall, areas of exposure encompassed approximately 20% of the overall study area, with around 70% visibility within these areas, however, it should be noted that the disturbance associated with the establishment of tracks included the removal of topsoil profiles, exposing clay in some areas, and the introduction of road base, which obscured the ground surface in other areas. Overall survey coverage was around 14% with no Aboriginal objects being identified within Lot 17 DP 13961.

Biosis' assessment of potential for Lot 17 DP 13961 remains consistent with the remainder of the study area. Owing to the distance to reliable sources of water, combined with heavy disturbance associated with modern land use activities and shallow topsoil profiles, it is considered that there is a low potential for intact subsurface archaeological deposits to be present within the study area. The results of this survey are shown in Figure 5.

During the survey of Lot 17 DP 13961, the remainder of the study area was observed from its northern boundary to determine if and clear or obtrusive changes had occurred since the original survey was completed. The study area appeared to be in much the same condition, and is heavily vegetated.

Aboriginal heritage advice

Based on the results of this assessment, and a review of the proposed impacts within Lots 17-22 DP 13961 and Lot 2 DP 1212087, Biosis is of the opinion that there is a low potential for Aboriginal sites or areas of archaeological potential to be present within the study area. Therefore there is no requirement for further archaeological assessment in advance of the proposed works (Appendix 1). In Biosis' previous assessment (Biosis Pty Ltd 2016a, Biosis Pty Ltd 2016b), a number of recommendations were made relating to the identification of unexpected finds within the study area. Provision should be made during construction for the management of any unexpected Aboriginal objects which may be identified on site. Biosis has updated the relevant recommendations below:

Distribution of this letter report with to registered Aboriginal stakeholders

As per the recommendations from the original ACHA, the proponent should continue to inform the Aboriginal stakeholders about the management of management of Aboriginal cultural heritage sites within the study area throughout the life of the project. This includes the advice in this letter relating to Lot 17 DP 13961, which was not included as a part of the original SSD application. Therefore, this letter should be sent to the Aboriginal stakeholders who registered for the original ACHA completed by Biosis (Biosis Pty Ltd 2016a).

Discovery of unanticipated Aboriginal objects

All Aboriginal objects and places are protected under the *National Parks and Wildlife Act 1974* (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by the Environment, Energy and Science Group (EES) of the Department of Planning, Industry and Environment. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the EES and Aboriginal stakeholders.

Discovery of Aboriginal ancestral remains

Aboriginal ancestral remains may be found in a variety of landscapes in NSW, including middens and sandy or soft sedimentary soils. If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and EES' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by EES.

Please contact me if you have any enquiries.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Maggie Butcher', with a long, sweeping underline.

Maggie Butcher
Consultant Archaeologist

References

Biosis Pty Ltd 2016a, *Horsley Drive Business Park Stage 2 (SSD 7664) Aboriginal Cultural Heritage Assessment Report*, Report to Western Sydney Parklands Trust.

Biosis Pty Ltd 2016b, *Horsley Drive Business Park Stage 2 (SSD 7664) Archaeological Report*, Report for Western Sydney Parklands Trust.

DECCW 2010a, *Aboriginal Cultural Heritage Consultation Requirements for Proponents*, Department of Environment and Climate Change, Sydney NSW.

DECCW 2010b, *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, Department of Environment and Climate Change, Sydney NSW.

Dominic Steele Consulting Archaeology 2012, *Aboriginal and non-Aboriginal Archaeological & Cultural Heritage Assessment Horsley Drive Business Park The Horsley Drive & Cowpasture Road, Horsley Park, NSW.*, Report to Western Sydney Parklands Trust.

OEH 2011, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, Office of Environment and Heritage.

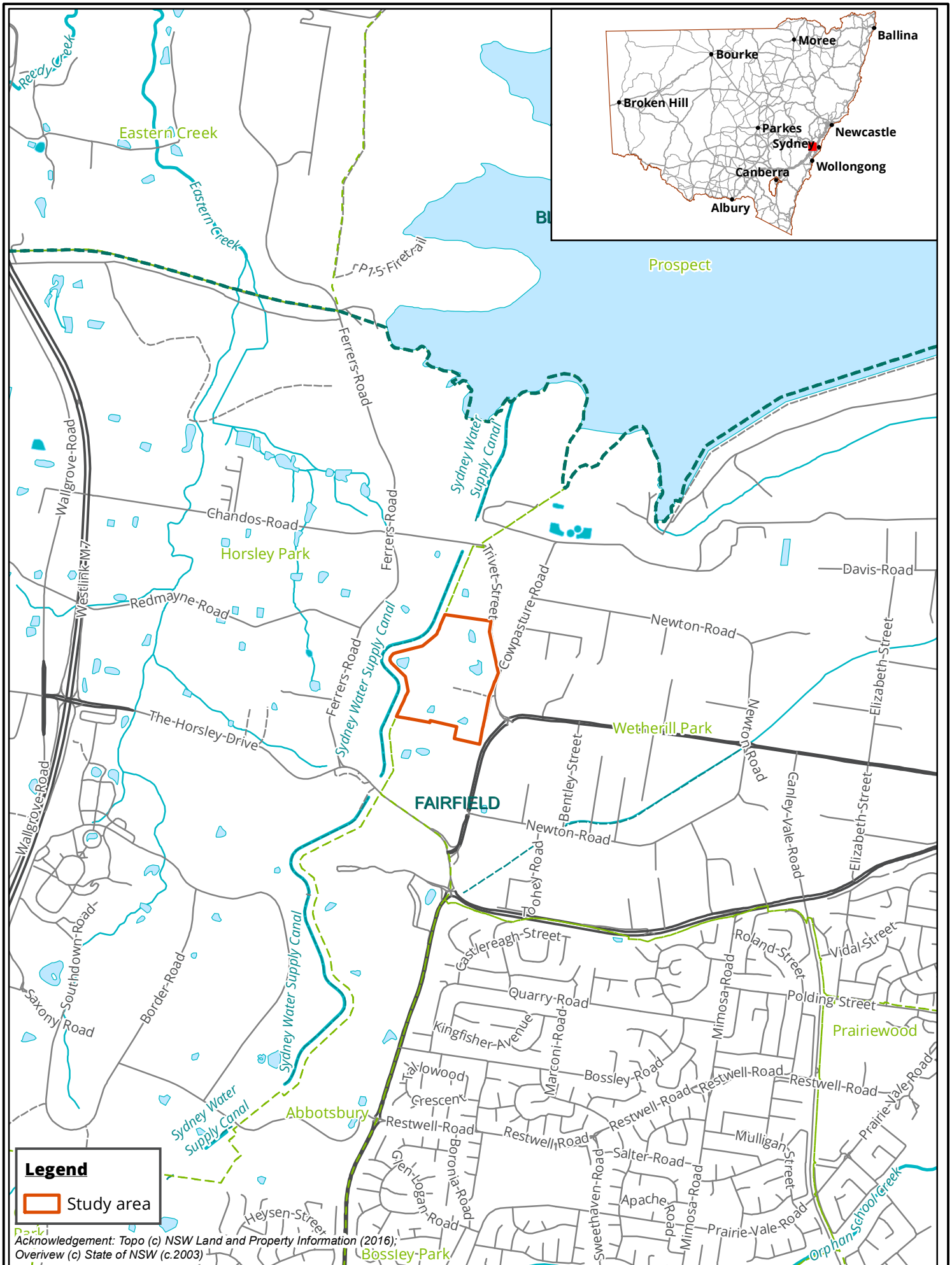
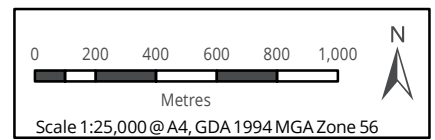
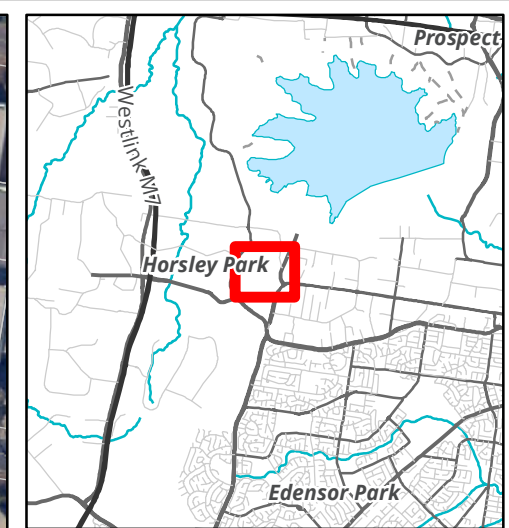


Figure 1 Location of the study area

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 Albury, Ballarat, Melbourne,
 Newcastle, Sydney, Wangaratta & Wollongong

Matter: 31471
 Date: 22 January 2020,
 Checked by: JAC, Drawn by: AEDM, Last edited by: amurray
 Location: P:\31400s\31471\Mapping\








Legend
 Study area
 Lot

Figure 2 Study area detail

0 50 100 150
 Metres
 Scale: 1:3,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 56

 Biosis Pty Ltd
 Albury, Ballarat, Melbourne,
 Newcastle, Sydney, Wangaratta & Wollongong

Matter: 31471
 Date: 22 January 2020,
 Checked by: JAC, Drawn by: AEDM, Last edited by: amurray
 Location: P:\31400s\31471\mapping\31471_F2_StudyArea

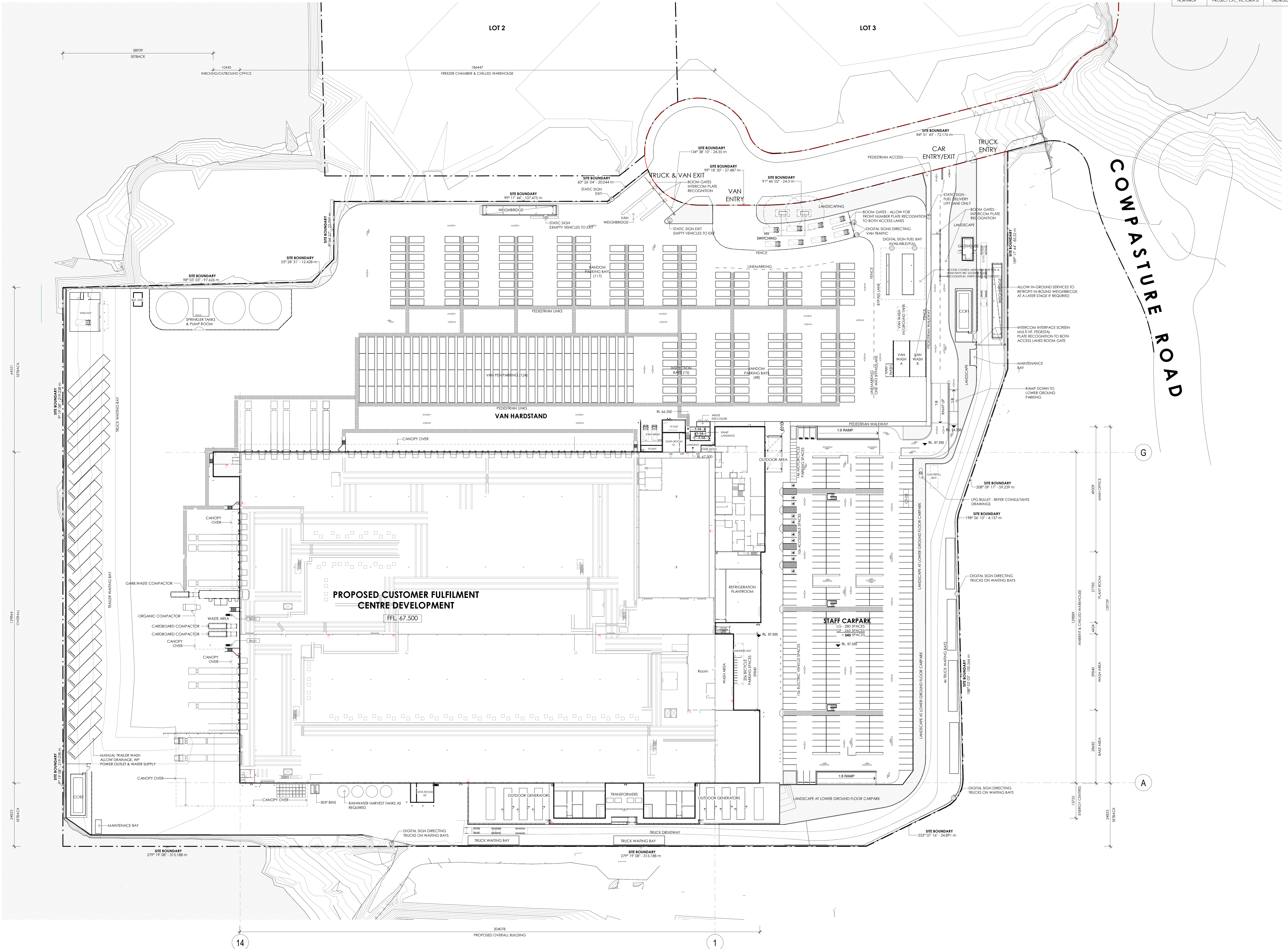
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OCADO	102289-OC-01-ZI-M3-Y-1600	23/03/2020
NORTHROP	PROJECT CIVC, VICTORIA ST	04/04/2020

THIS DRAWING AND DESIGN IS SUBJECT TO COPYRIGHT AND MAY NOT BE REPRODUCED WITHOUT PRIOR WRITTEN CONSENT. DETAIL DRAWINGS ARE TO BE TAKEN IN PREFERENCE TO MORE GENERAL DRAWINGS. ALL DIMENSIONS TO BE VERIFIED PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REFERRED TO THE ARCHITECT. USE FIGURED DIMENSIONS ONLY.

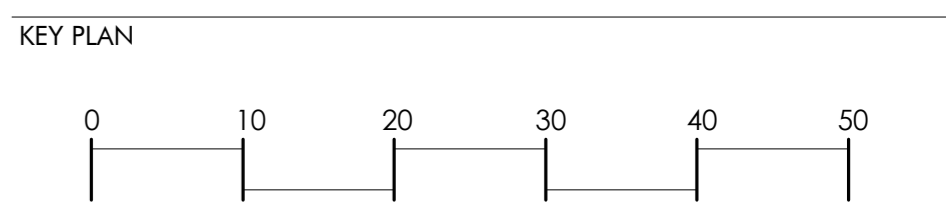


PRELIMINARY

ISSUE	AMENDMENT	DATE	CHKD
P 1	ISSUE FOR APPROVAL	01.05.20	SN
P 2	ISSUE FOR REVIEW/COMMENT	06.05.20	SN
P 3	ISSUE FOR REVIEW/COMMENT	12.05.20	SN



- GENERAL NOTES ALL DRAWINGS**
- ALL ARCHITECTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH CURRENT ARCHITECTURAL SPECIFICATION, PFR, AND ALL RELEVANT CONSULTANT DRAWINGS AND SPECIFICATIONS.
 - ORDER OF PRECEDENCE FOR DIMENSIONAL SETOUT, SPECIFICATIONS AND ARRANGEMENT OF FINISH WORKS ARE AS FOLLOWS:
SMALLER SCALE DRAWINGS AND DETAILS FOR FINISH OF WORKS TAKE PRECEDENCE OVER LARGER SCALE GENERAL ARRANGEMENT DRAWINGS.
- WHERE AN ITEM IS INDICATED BUT NOT NOTED, ANNOTATED OR SCHEDULED BUILDER IS TO CLARIFY ALL ITEMS.
- WHERE A CONFLICT ARISES BETWEEN A GENERAL ARRANGEMENT DRAWING AND A SMALLER SCALE DETAIL, THE BUILDER IS TO CLARIFY THE DETAIL.
- WHERE A CONFLICT ARISES BETWEEN THE PFR, SPECIFICATION AND ARCHITECTURAL DRAWINGS THE CONTRACTOR IS TO CLARIFY DRAWINGS WITH A FORMAN BIL.
 - ALL FINISHED SERVICES AND FINISH PENETRATIONS TO BE COORDINATED BY BUILDER, WHERE A CONFLICT ARISES BUILDER IS TO CONTACT THE SERVICES CONSULTANT FOR CLARIFICATION OF WORKS.
 - AT THE TIME OF ISSUE THIS DRAWING HAS BEEN PREPARED WITH ALL DUE CARE AND INTEGRITY TO ACCURATELY AND HONESTLY CONVEY WORKS. BUILDER ADVICE AND CONSULTANTS IN PROCESS SERVICES, PLEASE NOTE AT TIME OF ISSUE DRAWINGS MAY NOT REFLECT THE LATEST CONSULTANTS WORKS, CONSULTANT CHANGES, BUILDER ADVICE AND/OR CLIENT DECISIONS WHICH NORMALLY ISSUED BY BUILDER FOR INCORPORATION INTO ARCHITECTURAL WORKS.



CLIENT

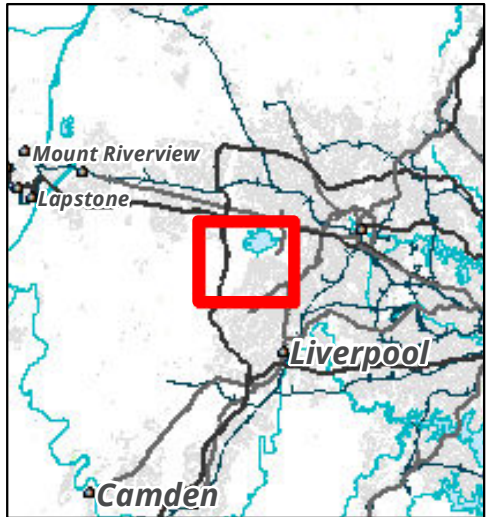
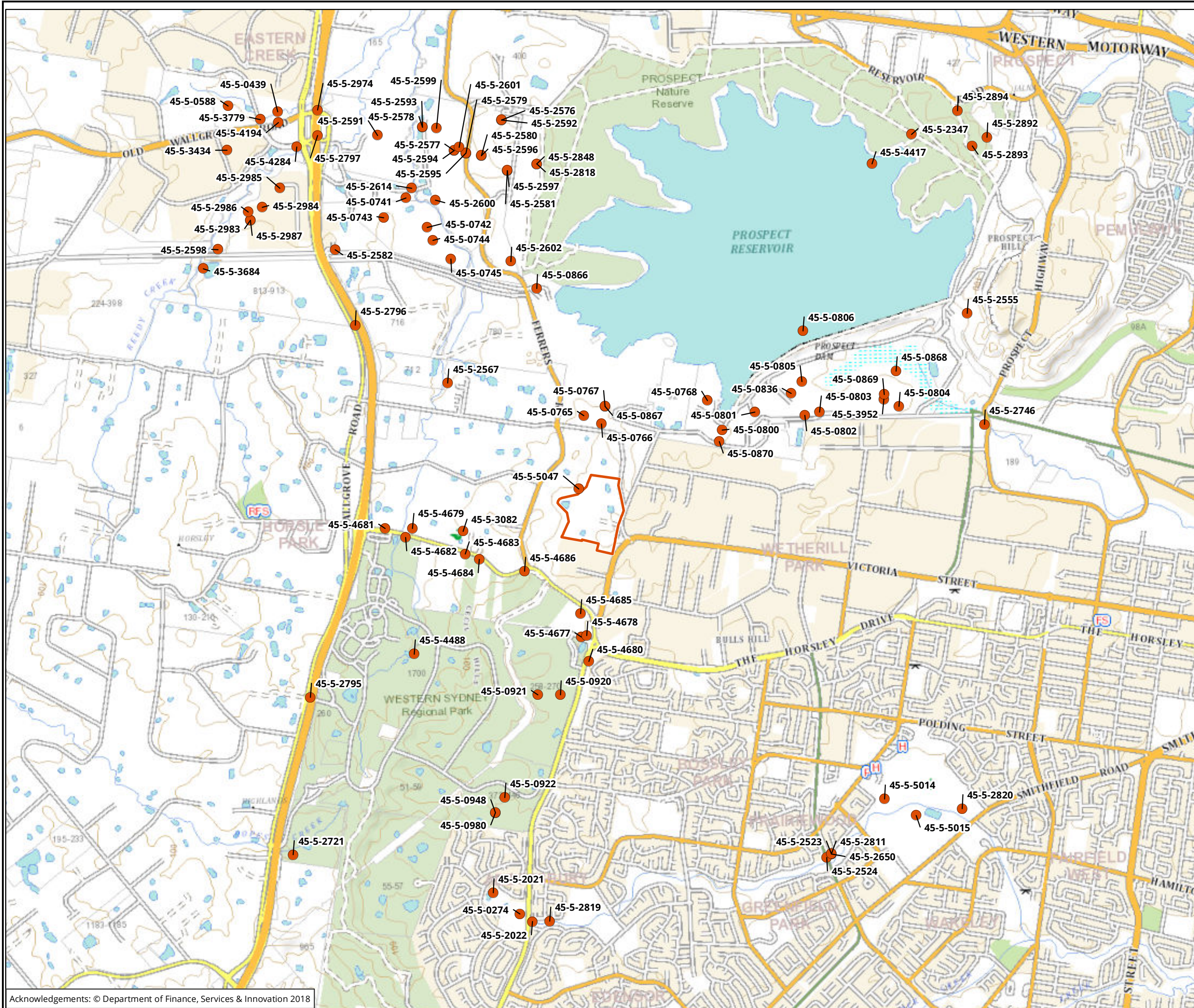
PROJECT
PROPOSED CUSTOMER FULFILMENT CENTRE
HORSLEY BUSINESS PARK, NSW 2164

DRAWING
OVERALL SITE PLAN

DATE	SCALE @ A0	DRAWN
08/05/20	1:500 @ A0	Author
PROJECT No.	DRAWING No.	ISSUE
4812	SK020	P3

SIDNEY	MELBOURNE	BRISBANE
7 Tavoy St Neutral Bay NSW 1580 AUSTRALIA P +61 2 9509 3344 F +61 2 9509 3338 W www.lefflersimes.com.au	Level 2, 27011 Bourke St Melb, VIC 3000 AUSTRALIA P +61 3 9554 6344 F +61 3 9554 6344 E info@lefflersimes.com.au	2/290 Bourke Street Spring Hill, QLD 4000 AUSTRALIA P +61 7 3133 5544 F +61 7 3813 1960 E info@lefflersimes.com.au

ACN: 091 043 992 ABN: 09 001 043 992



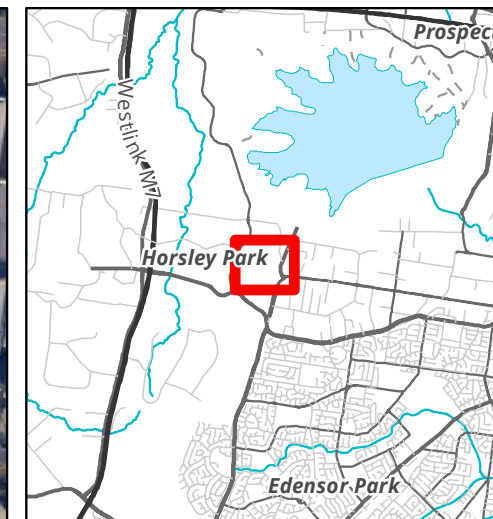
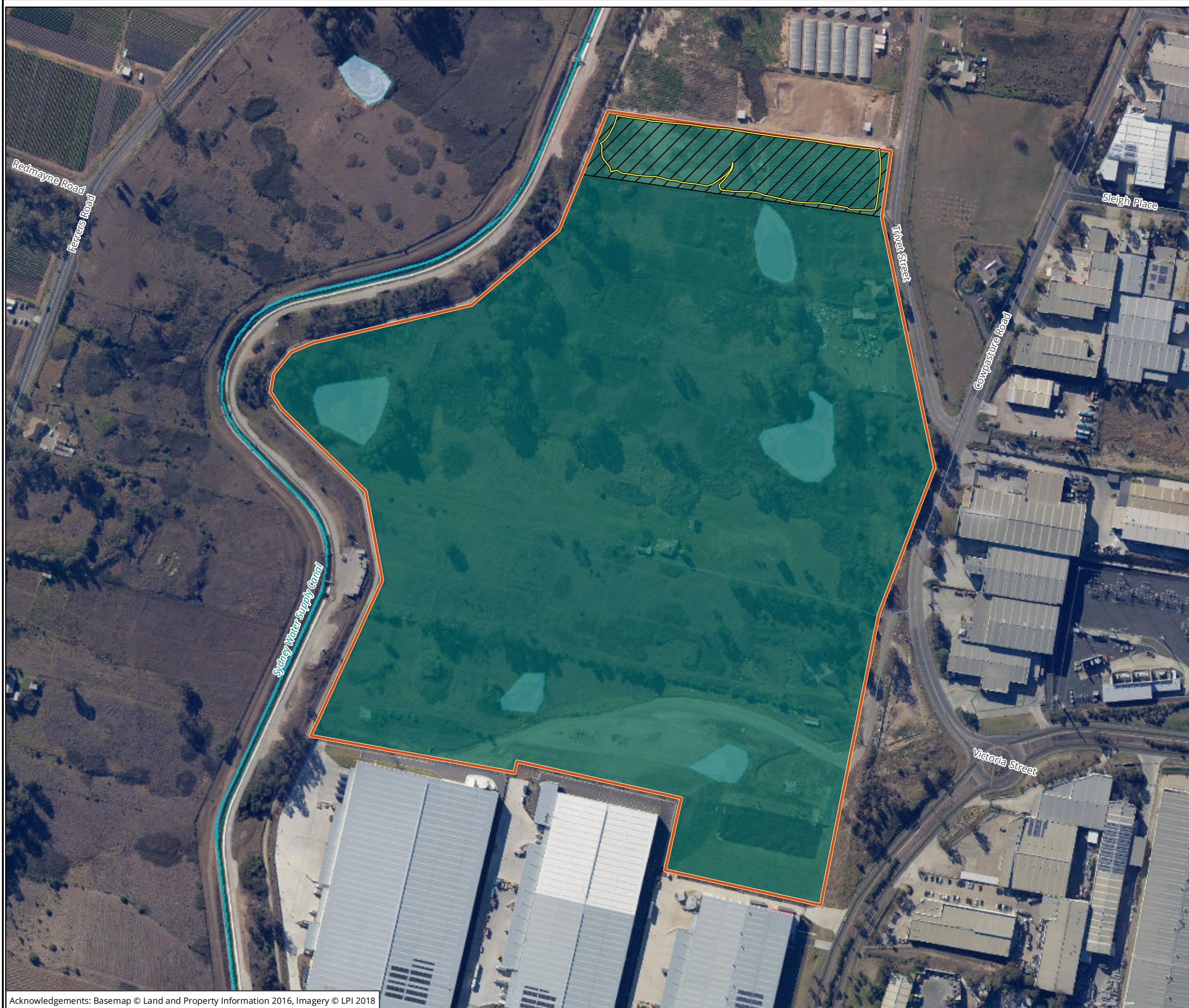
- Legend**
- Study area
 - AHIMS record

Figure 4 AHIMS search results in the vicinity of the study area




NOT TO BE MADE PUBLIC

0 500 1,000 1,500
 Metres
 Scale: 1:30,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 56

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 Newcastle, Sydney, Wangaratta & Wollongong



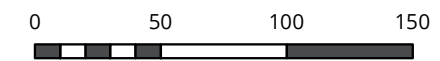
Legend

-  Study area
-  Survey area
-  Survey tracks

Archaeological potential

-  Low

Figure 5 Survey results



Scale: 1:3,000 @ A3
Coordinate System: GDA 1994 MGA Zone 56



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Newcastle, Sydney, Wangaratta & Wollongong

Matter: 31471
Date: 22 January 2020,
Checked by: JAC, Drawn by: AEDM, Last edited by: Iharley
Location: P:\31400s\31471\Mapping\31471_F5_SurveyResults



Plate 1 General landscape of the study area, view west-south-west



Plate 2 Area of exposure associated with vehicle tracks and landscaping, view south-west



Plate 3 Market gardening within the study area, view north



Plate 4 Small dam in the centre of the study area, view north-west

Appendix 1 Proposed development plans

PROPOSED DISTRIBUTION CENTRE

HORSLEY DRIVE BUSINESS PARK

WETHERILL PARK NSW

DRAWING LIST:

DRAWING NO.	DRAWING TITLE
C011492.18-DA 10	DRAWING LIST & GENERAL NOTES
C011492.18-DA 20	EROSION & SEDIMENT CONTROL PLAN
C011492.18-DA 25	EROSION & SEDIMENT CONTROL DETAILS
C011492.18-DA 40	DRAWING KEY PLAN
C011492.18-DA 41	CONCEPT STORMWATER PLAN - SHEET 1
C011492.18-DA 42	CONCEPT STORMWATER PLAN - SHEET 2
C011492.18-DA 43	CONCEPT STORMWATER PLAN - SHEET 3
C011492.18-DA 44	CONCEPT STORMWATER PLAN - SHEET 3
C011492.18-DA 45	CONCEPT STORMWATER DETAILS
C011492.18-DA 51	FINISHED LEVELS PLAN - SHEET 1
C011492.18-DA 52	FINISHED LEVELS PLAN - SHEET 2
C011492.18-DA 53	FINISHED LEVELS PLAN - SHEET 3
C011492.18-DA 54	FINISHED LEVELS PLAN - SHEET 4

GENERAL NOTES:

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G2 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- G3 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.
- G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G5 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- G6 ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

ELECTRONIC INFORMATION NOTES:

- 1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
- 2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
- 3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
- 4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

SURVEY NOTE:

EXISTING SITE LEVELS AND DETAILS BASED ON A PLAN OF SURVEY 160136A_02 BY MONTEATH & POWYS SURVEYORS 12.10.16 COORDINATES BASED ON MGA COORDINATES AS NOMINATED ON SURVEY DRAWING.

SAFETY NOTE:

EARTHWORKS TO SOUTHERN EXTENT OF SITE ARE LOCATED WITHIN AN ELECTRICAL EASEMENT & ASSOCIATED HIGH VOLTAGE TRANSMISSION LINES. ALL WORKS WITHIN THIS ZONE TO BE PERFORMED IN ACCORDANCE WITH THE RELEVANT SERVICE PROVIDERS GUIDELINES. THE CONTRACTOR IS TO ENSURE ALL NECESSARY OH&S MEASURES ARE ALLOWED FOR AND IMPLEMENTED DURING WORKS IN THIS ZONE.



 LOCALITY PLAN
NOT TO SCALE

FOR DEVELOPMENT APPLICATION

FOR DEVELOPMENT APPLICATION		29.01.20		A		AMENDMENTS		DATE		ISSUE		AMENDMENTS		DATE		ISSUE		 22-24 Junction Street, Forest Lodge NSW 2037 Ph: (02) 9556 2852 Fax: (02) 9556 2900 ACN 055 267 788		ARCHITECT  LEFFLER SIMES ARCHITECTS		DEVELOPER  Charter Hall		PROJECT PROPOSED DISTRIBUTION CENTRE HORSLEY DRIVE BUSINESS PARK WETHERILL PARK, NSW		 Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 9 Windmill Street Walsh Bay, Sydney NSW 2000 Tel: (02) 9251-7899 Fax: (02) 9241-3721 email: mail@costinroe.com.au ©		 Costin Roe Consulting		DRAWING TITLE DRAWING LIST & GENERAL NOTES		DRAWING No. C011492.18-DA10		ISSUE A	
AMENDMENTS		DATE		ISSUE		AMENDMENTS		DATE		ISSUE		AMENDMENTS		DATE		ISSUE		PRECISION COMMUNICATION ACCOUNTABILITY																	

EROSION CONTROL NOTES

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.

- SILT FENCES AND SILT FENCE RETURNS SHALL BE ERECTED CONVEX TO THE CONTOUR OF POND WATER.
- HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
- ALL TEMPORARY EARTH BERM, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
- CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ONGOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
- ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
- ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE EFFECTS LIABILITY PERIOD.
- ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
- ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200MM.
- ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
- AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
- ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
- ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
- ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
- ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FROM MOTOR VEHICLES.
- THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C011492.18-DA25.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (32.2mm).

APPROXIMATE AREA OF DISTURBED SITE = 19.3 Ha

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

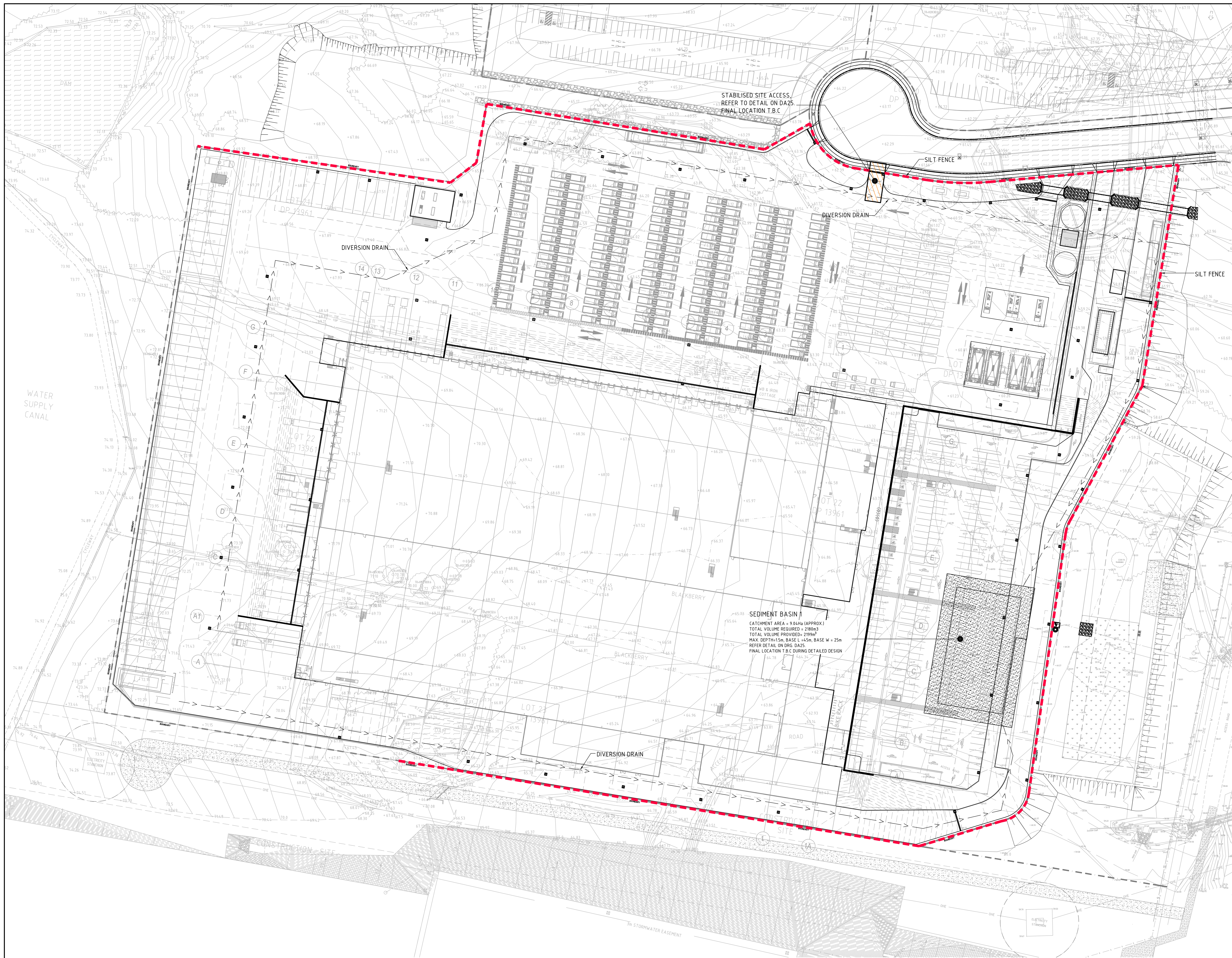
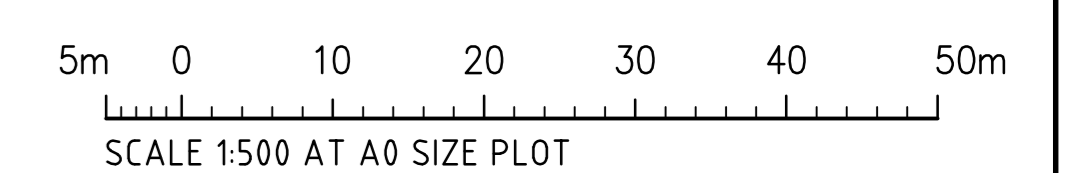
NOTES:

- ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
 - ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
- SOIL TYPE ASSESSED FROM GEOTECHNICAL REPORT PROVIDED BY PSM TITLED PSM 1869-009R DATED 10 MAY 2012.

LEGEND:

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS. TYPICAL (N.S.O.P.)

- DENOTES DIRECTION OF OVERLAND FLOW
- DENOTES SILT FENCE WITH CATCH DRAIN
- DENOTES SILT FENCE ONLY
- DENOTES DIVERSION DRAIN
- SGGP, SINGLE GRATED GULLY PIT
- S-JP, SEALED JUNCTION PIT
- K-IP, KERB INLET PIT
- FINISHED PAVEMENT CONTOUR (MAJOR) 1.00m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.25m INTERVALS



EROSION AND SEDIMENT CONTROL PLAN
SCALE 1:500

FOR DEVELOPMENT APPLICATION

FOR DEVELOPMENT APPLICATION	29.01.20	A
AMENDMENTS	DATE	ISSUE

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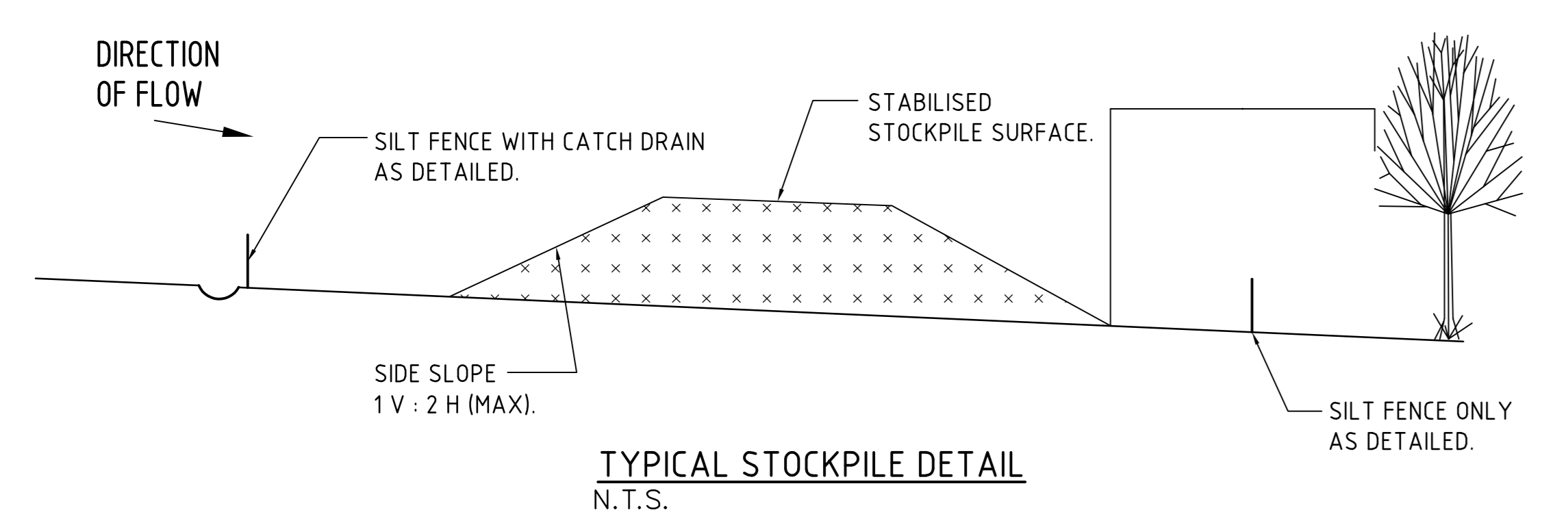
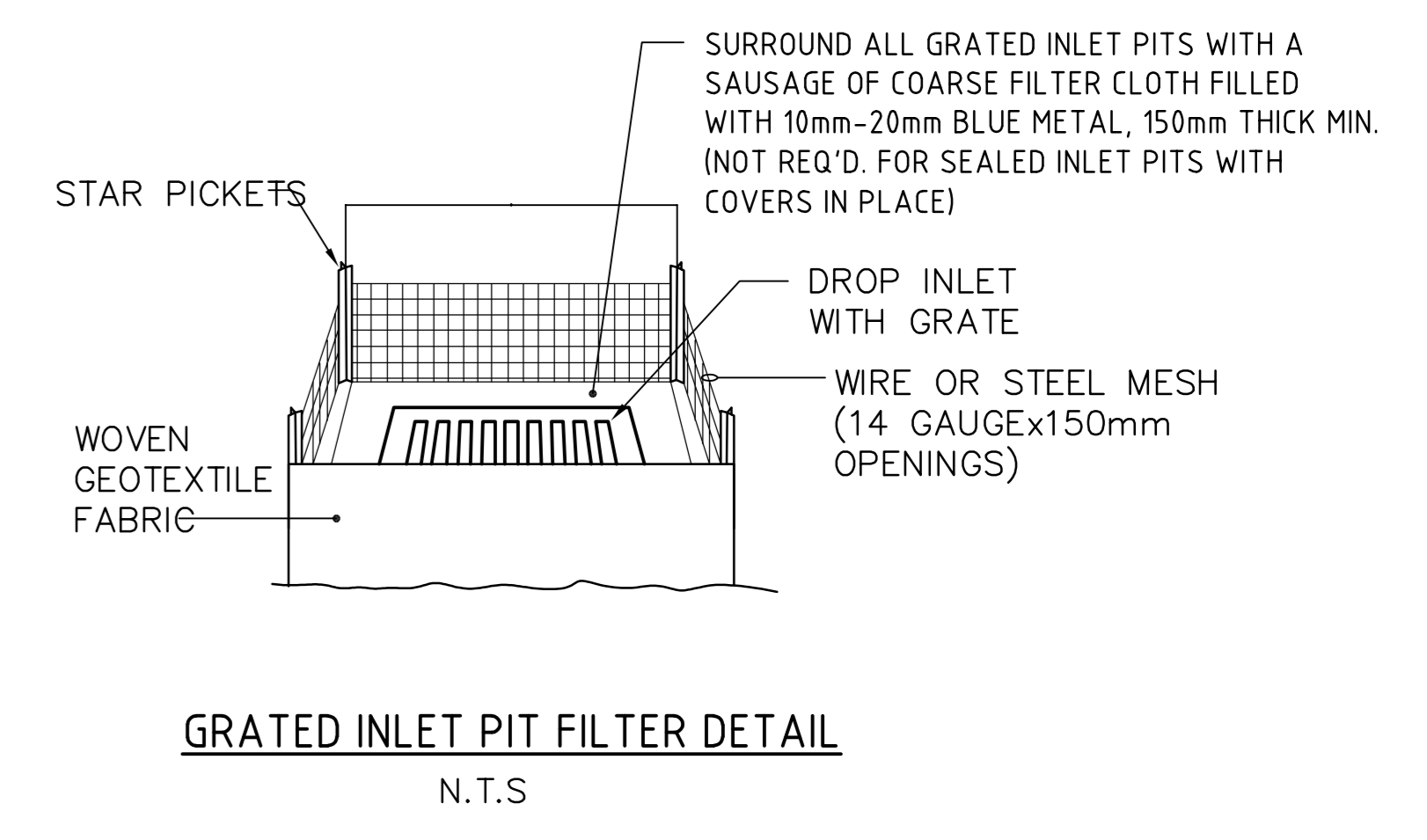
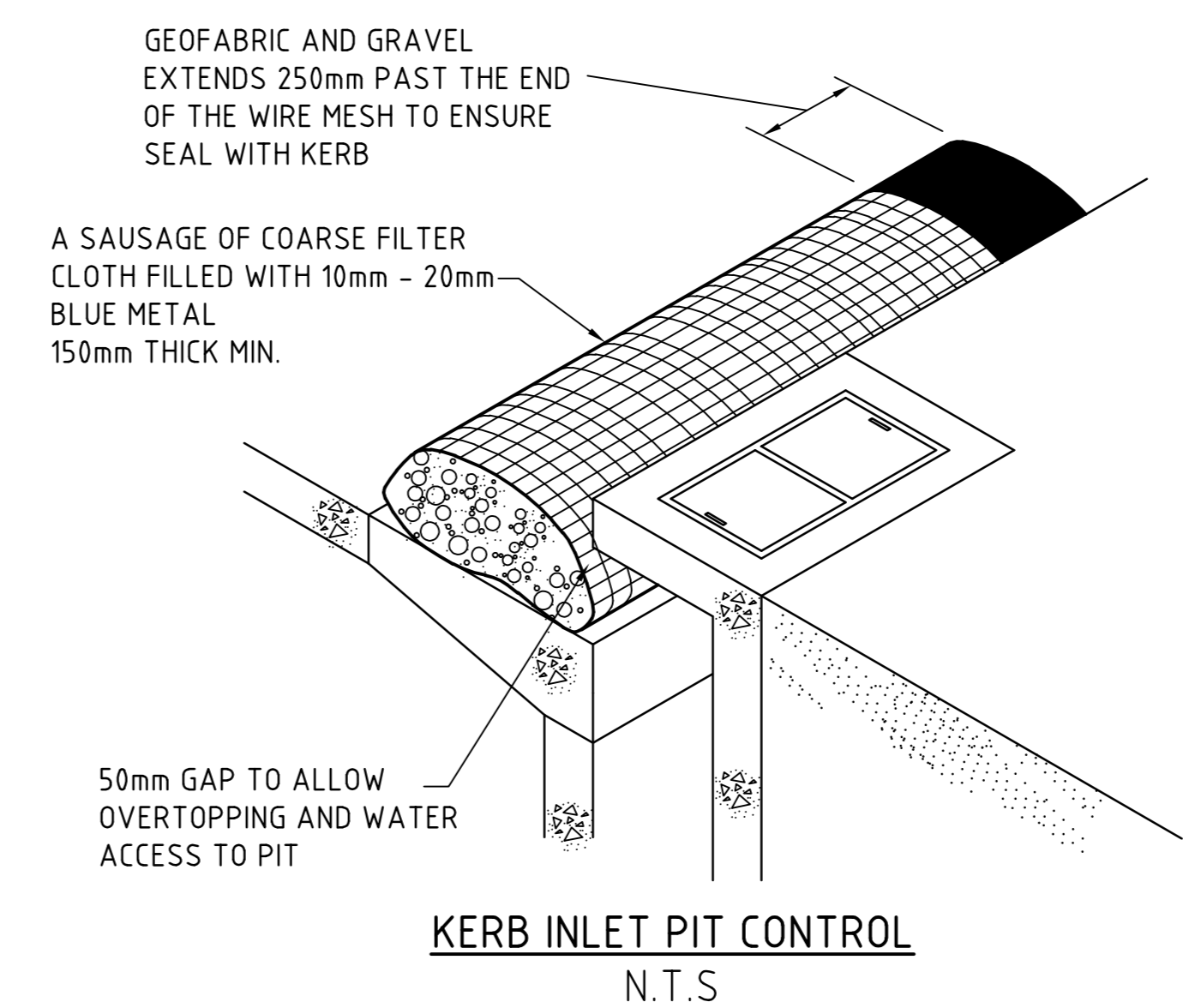
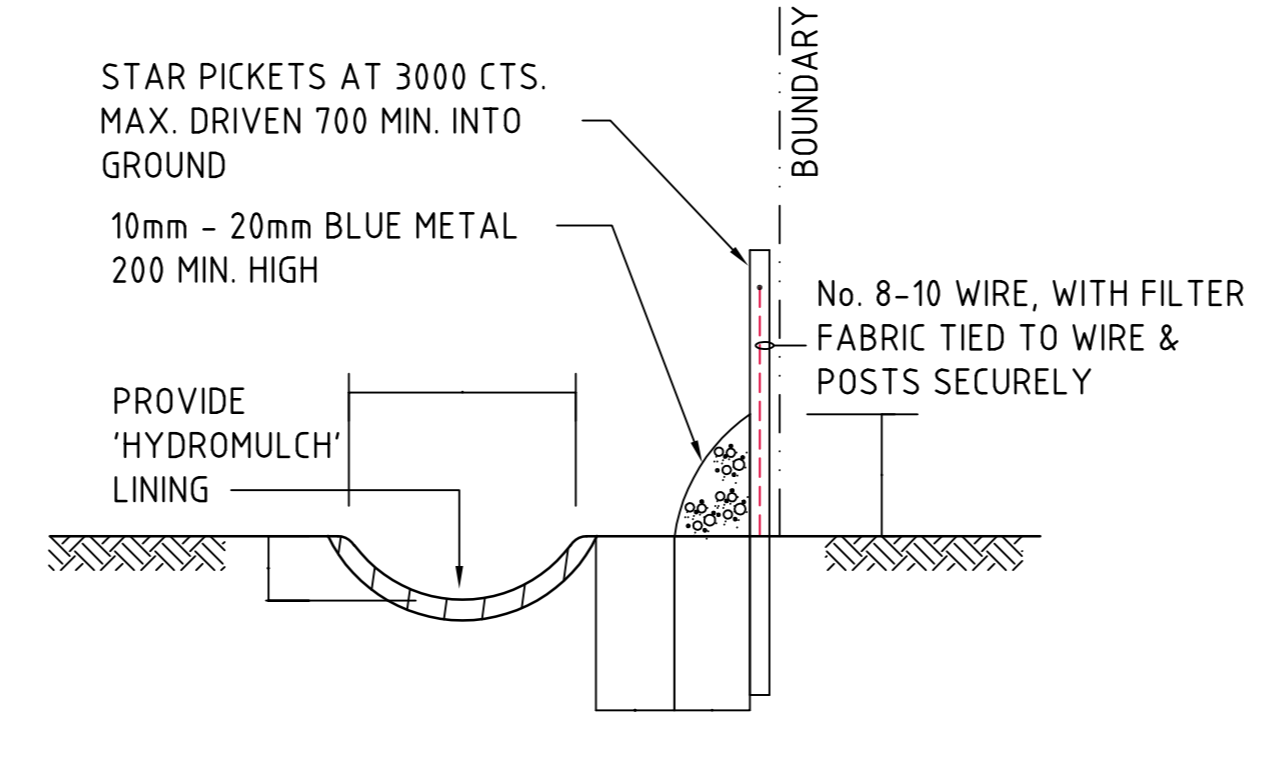
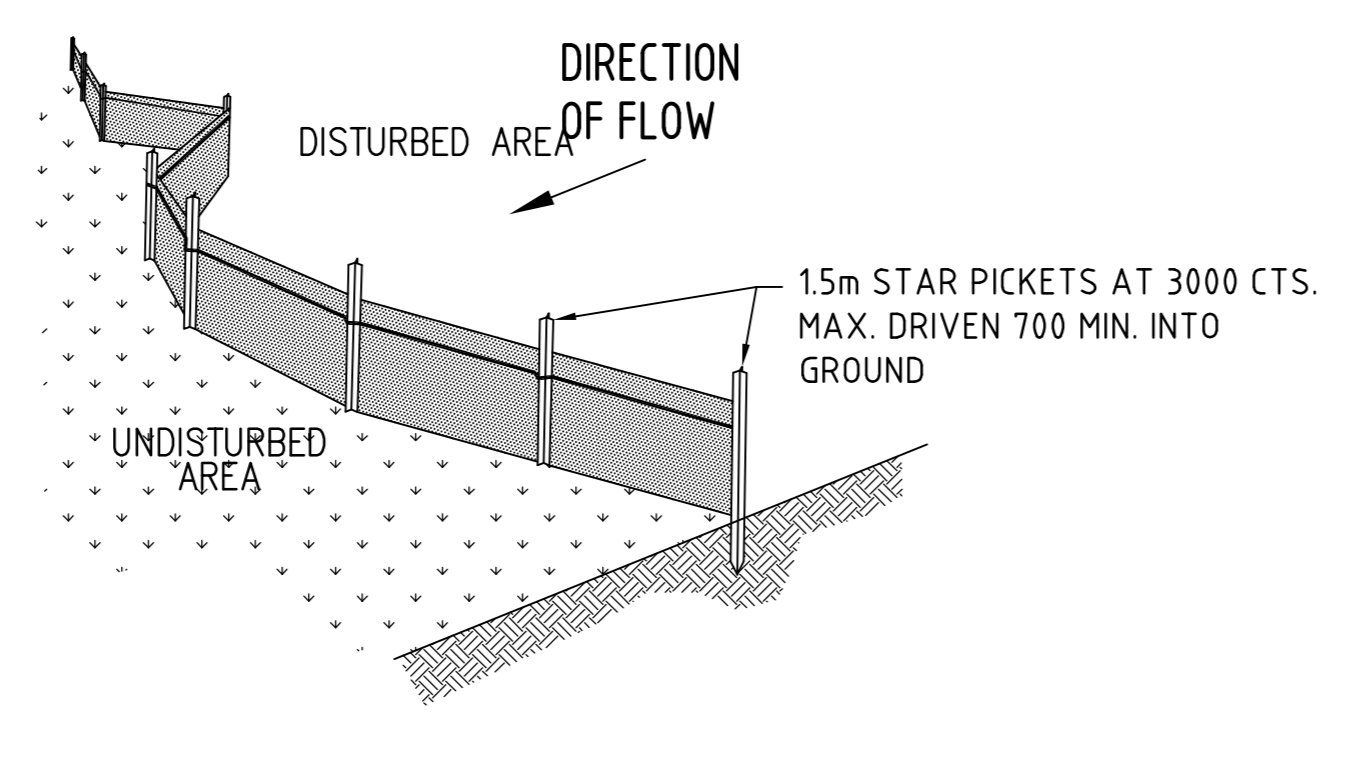
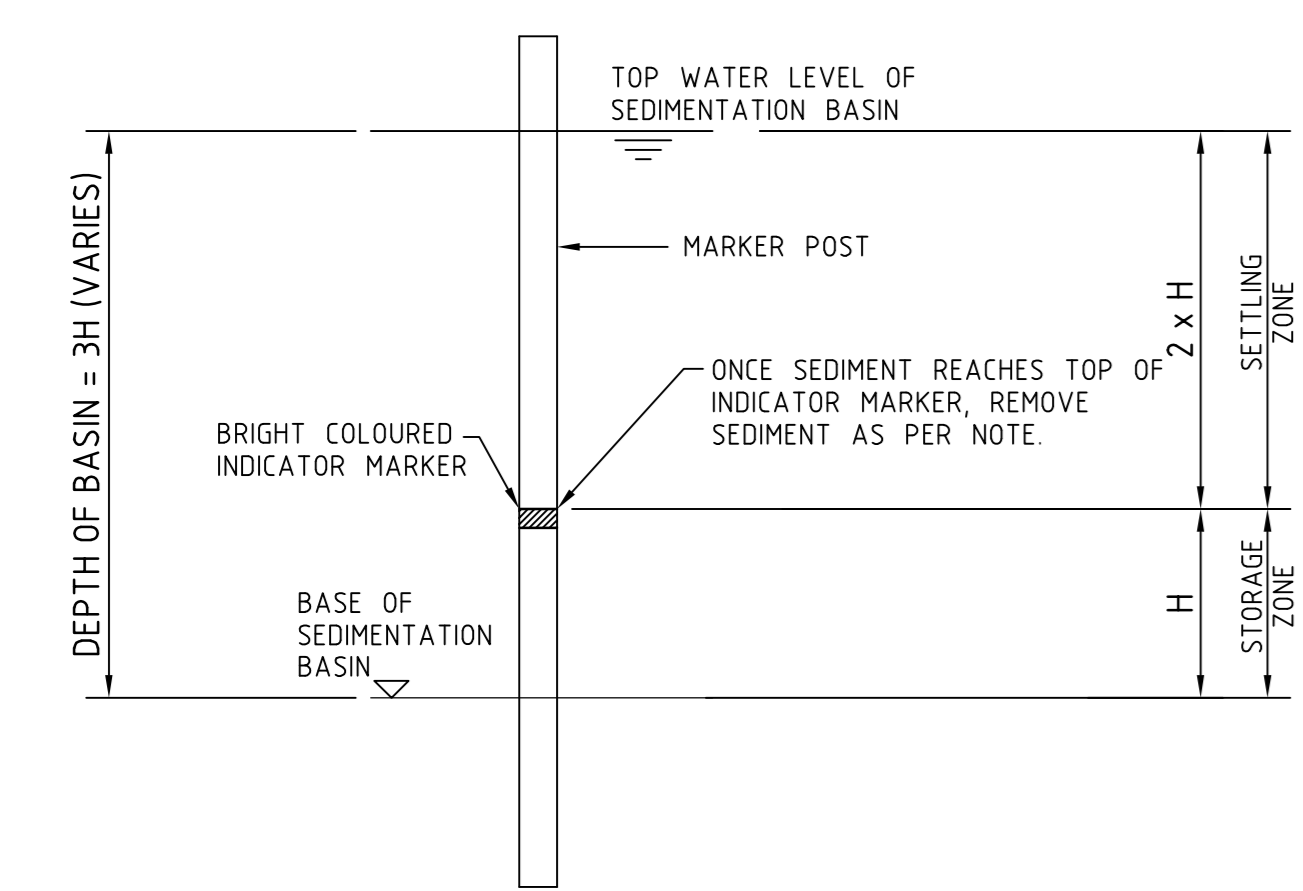
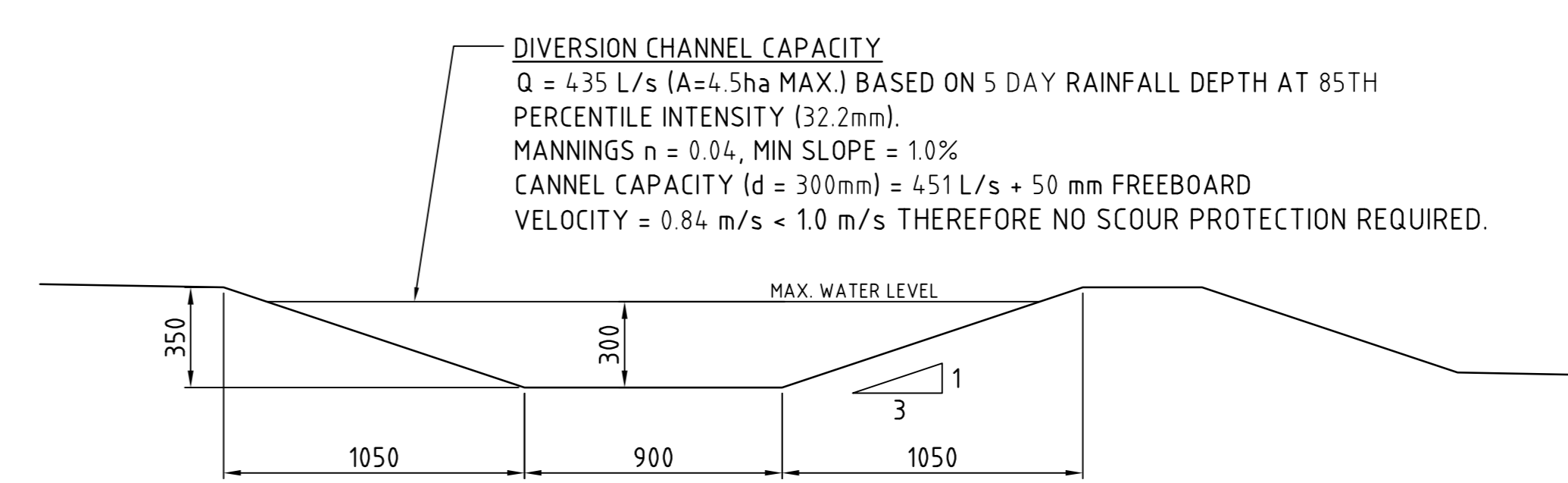
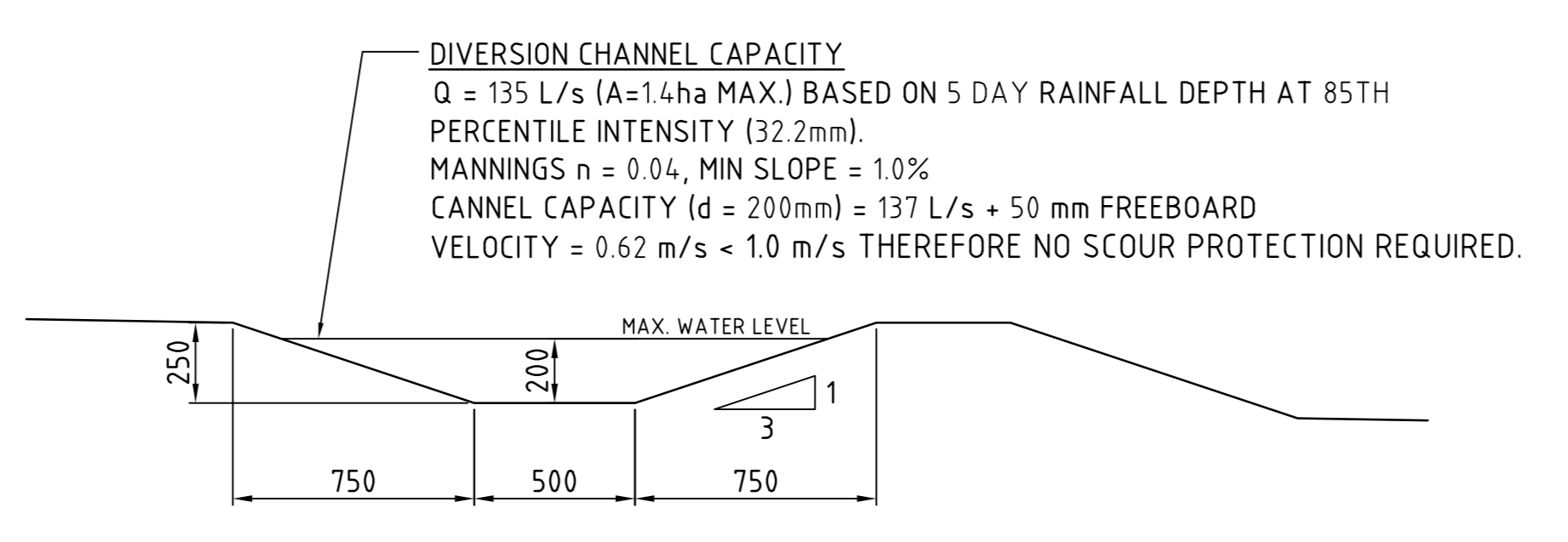
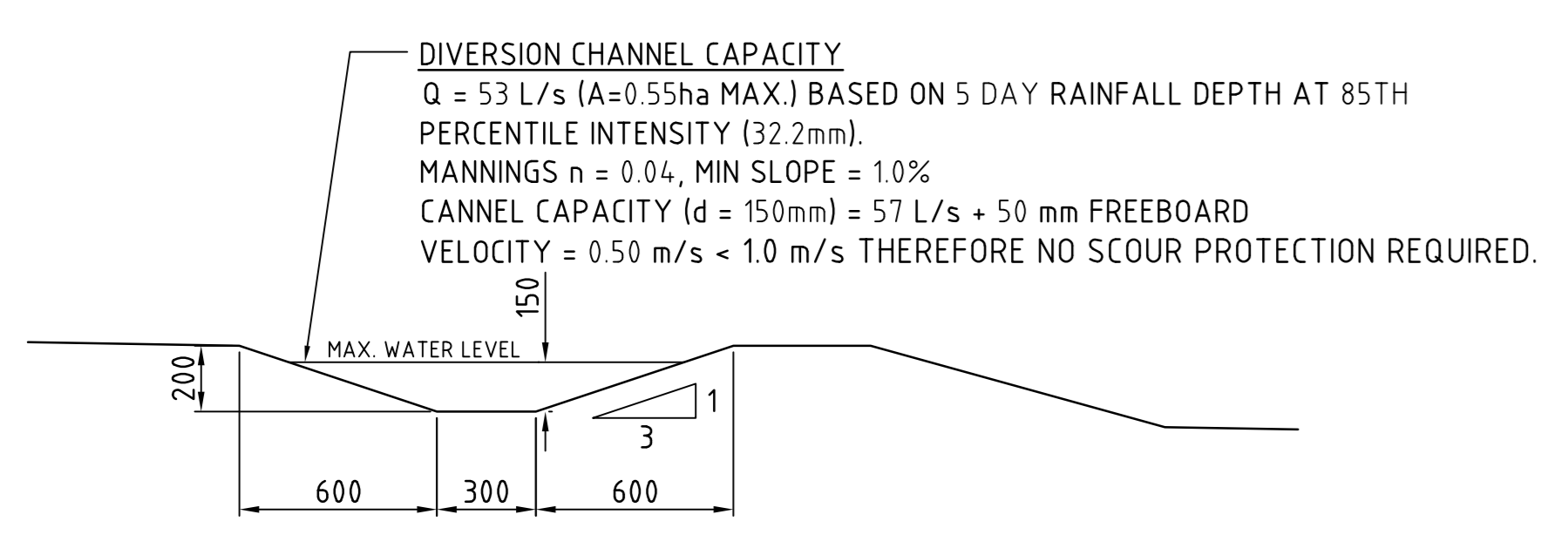
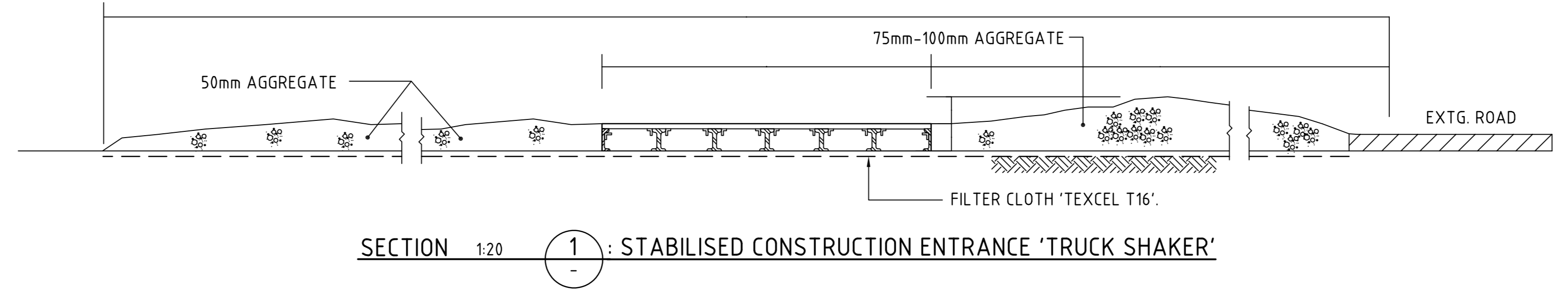
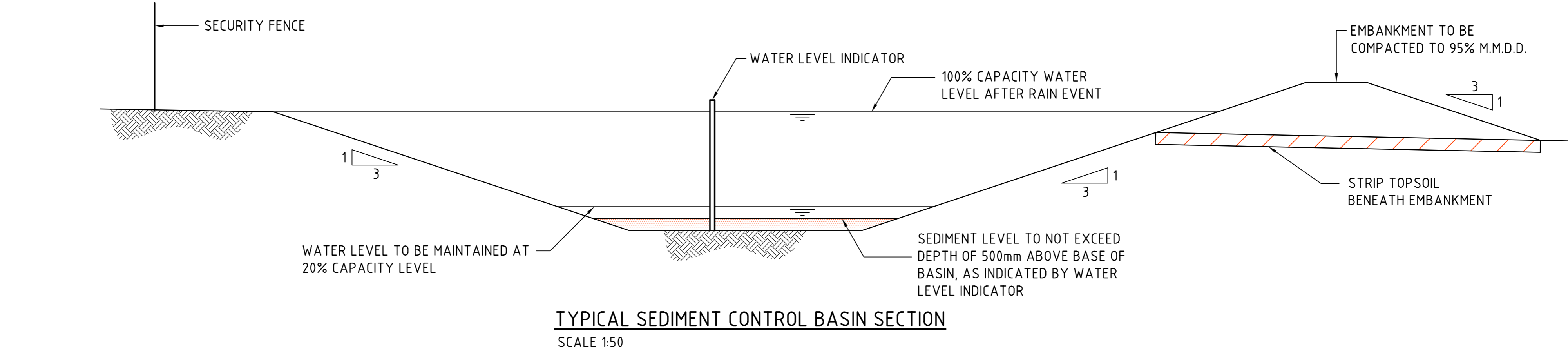
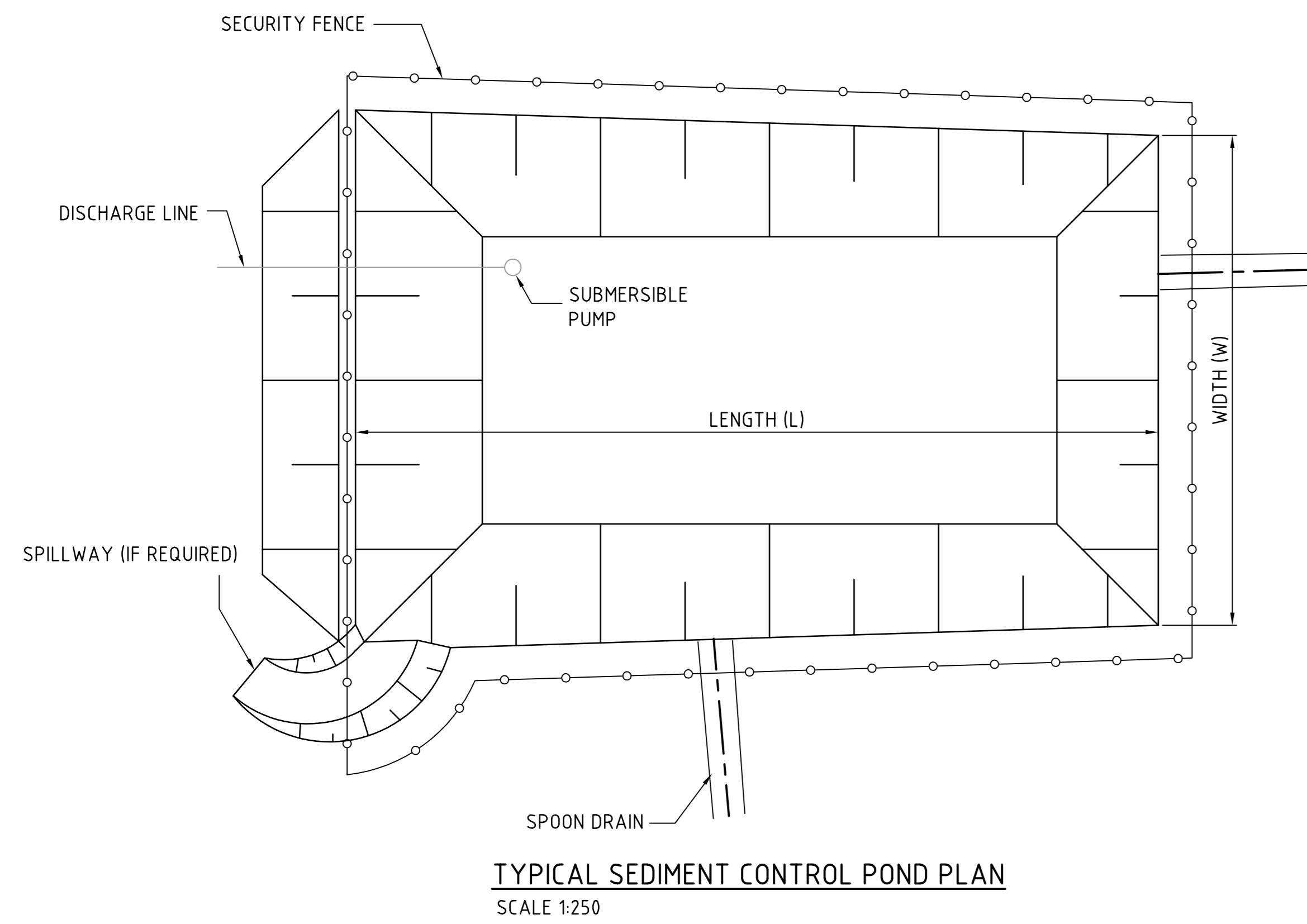
DEVELOPER
Charter Hall

PROJECT
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HORSLEY DRIVE BUSINESS PARK
WETHERILL PARK, NSW

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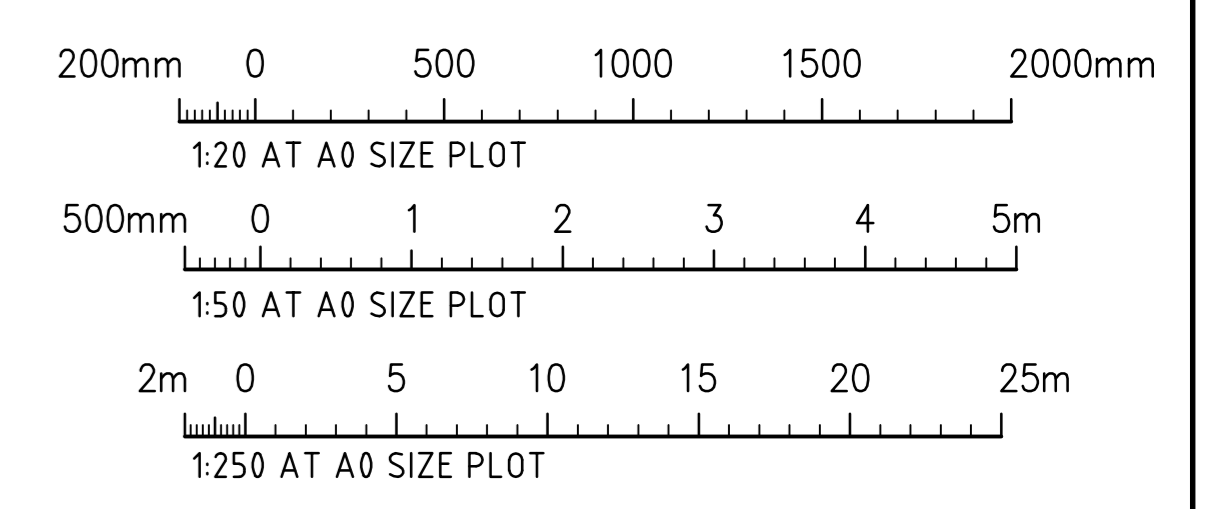
DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN
DRAWING No. **C011492.18- DA20** ISSUE **A**



- STOCKPILE NOTES**
1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
 2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1V:2H MAX.
 3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
 4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, SUITABLY STABILISE OR COVER THE STOCKPILES.
 5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.

- NOTES:**
- ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.
 - MINIMISE DISTURBED AREAS.
 - ROADS & FOOTPATHS TO BE SWEEPED DAILY.
 - 12m TURF TO BE PLACED BEHIND KERBS.
 - DUST MINIMISATION CONTROL BY WATERING TO BE IMPLEMENTED BY SITE MANAGER AS REQUIRED OR AS DIRECTED BY THE EPA.

NOTE: ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.



FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
FOR DEVELOPMENT APPLICATION	29.01.20	A			

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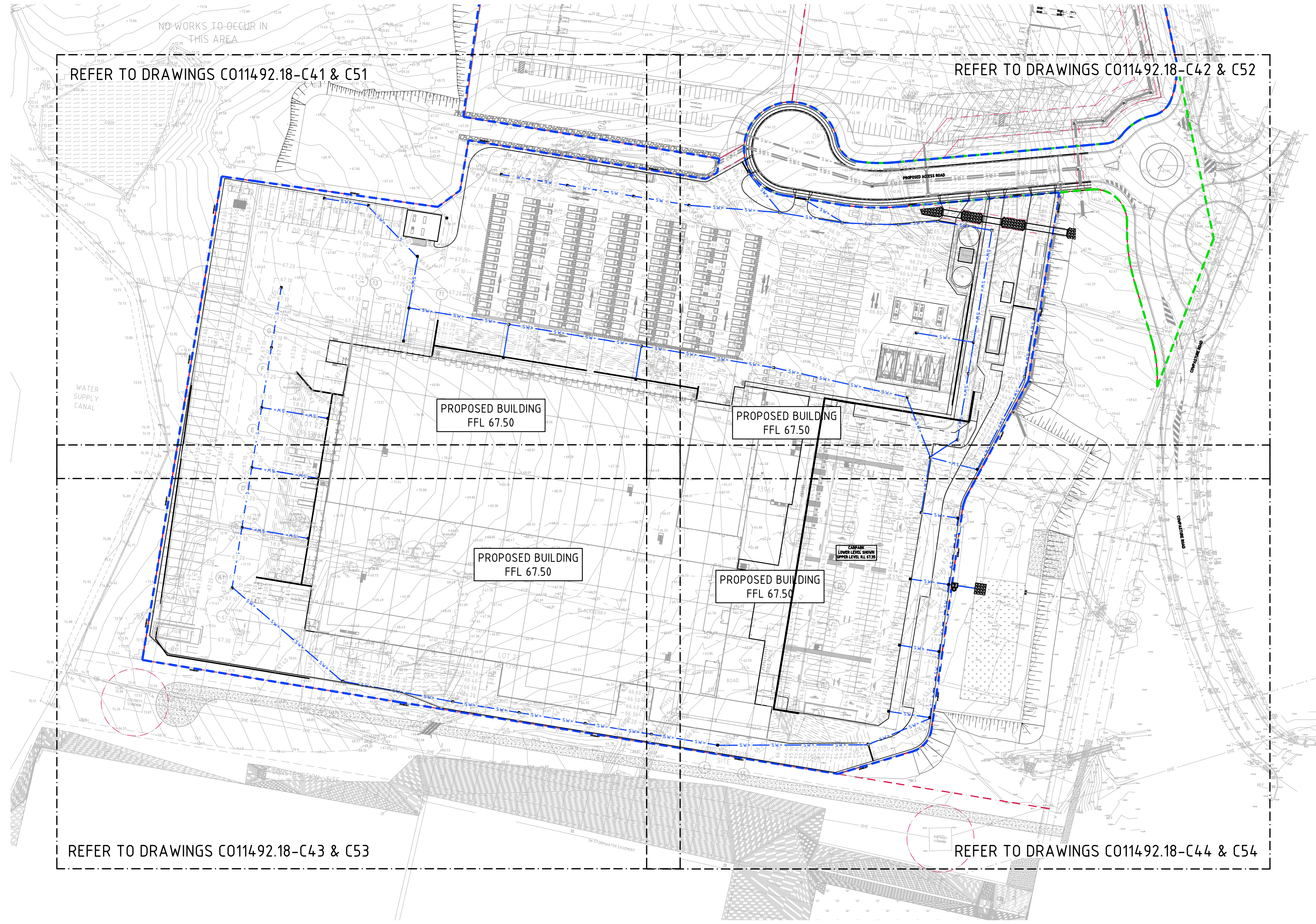
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DRAWING TITLE
EROSION & SEDIMENT CONTROL DETAILS

DRAWING No: **Co114.92.18- DA25** ISSUE **A**



PIT SCHEDULE

PIT No.	GRATE RL	TYPE	SIZE	COMMENT
PIT 1/1	67.05	SGGP	900x900	
PIT 1/2	67.05	SGGP	900x900	
PIT 1/3	67.05	SGGP	900x900	
PIT 1/4	67.05	SGGP	900x900	
PIT 1/5	67.05	SGGP	900x900	
PIT 1/6	67.05	SGGP	900x900	
PIT 1/7	67.13	SGGP	1200x1200	
PIT 1/8	66.05	SGGP	1200x1200	
PIT 1/9	66.05	SGGP	1200x1200	
PIT 1/10	66.05	SGGP	1200x1200	
PIT 1/11	66.05	SGGP	1200x1200	
PIT 1/12	66.05	SGGP	1200x1200	
PIT 1/13	64.07	SGGP	1200x1200	
PIT 1/14	63.50	SGGP	1200x1200	
PIT 1/15	63.55	SGGP	1200x1200	
PIT 1/16	63.55	SGGP	1200x1200	
PIT 1/17	66.15	SGGP	900x900	
PIT 1/18	66.15	SGGP	900x900	
PIT 1/19	66.15	SGGP	900x900	
PIT 1/20	63.80	SGGP	900x900	
PIT 1/21	63.80	SGGP	900x900	
PIT 1/22	63.80	SGGP	900x900	
PIT 1/24	63.80	SGGP	1200x1200	
PIT 1/25	66.75	SGGP	900x900	
PIT 1/26	66.75	SGGP	900x900	
PIT 1/27	NOT USED			
PIT 1/28	66.45	SGGP	900x900	
PIT 1/30	66.45	SGGP	900x900	
PIT 1/31	66.45	SGGP	900x900	
PIT 1/32	66.19	SGGP	900x900	
PIT 1/33	65.89	SGGP	900x900	
PIT 1/34	65.95	SGGP	1200x1200	
PIT 1/35	65.70	SGGP	1200x1200	
PIT 1/36	65.57	SGGP	1200x1200	
PIT 1/37	65.80	SGGP	1200x1200	
PIT 1/38	65.30	SGGP	1200x1200	
PIT 1/39	65.30	SGGP	1200x1200	
PIT 1/40	63.70	SGGP	1200x1200	
PIT 1/41	66.80	SGGP	900x900	
PIT 1/42	63.80	SGGP	1500x1500	
PIT 1/43	63.55	SGGP	1200x1200	
PIT 1/44	66.17	SGGP	900x900	
PIT 1/45	66.95	SGGP	1200x1200	
PIT 1/46	65.48	SGGP	900x900	
PIT 1/47	65.07	SGGP	900x900	
PIT 1/48	63.55	SGGP	900x900	
PIT 1/49	67.45	SJP	900x900	
PIT 1/50	66.90	SGGP	900x900	
PIT 1/51	67.30	SJP	900x900	
PIT 1/52	67.30	SJP	900x900	
PIT 1/53	67.19	SJP	900x900	
PIT 1/54	66.40	SGGP	900x900	
PIT 1/55	66.40	SGGP	900x900	

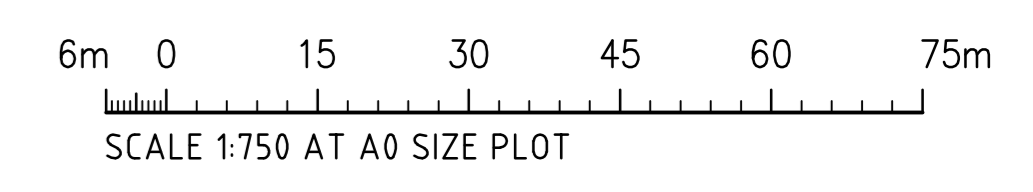
STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS 3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS.
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F_c 32 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
13. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
14. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
15. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
16. MIN. 600 COVER TO PIPE OVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
17. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
18. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
19. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

FINISHED LEVELS PLAN NOTES:

1. LEVELS DATUM IS A.H.D.
2. ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN.
3. THE MAJOR CONTOUR INTERVAL IS 0.5m
4. THE MINOR CONTOUR INTERVAL IS 0.1m.
5. MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
6. MAXIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
7. MAXIMUM RAMP GRADES ARE TO BE 1:12 (8.3%) U.N.O. ON PLAN
8. PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGES GRADE EXCEED 1:20 (5%).
9. PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H.
10. ALL BATTER SLOPES WITH GRADES AT OR EXCEEDING 1V:6H ARE TO BE TURFED IMMEDIATELY, OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
11. ALL FOOTPATHS ARE TO FALL AWAY FROM THE BUILDING AT 2.5% NOMINAL GRADE.
12. ALL PAVEMENTS ARE TO BE SET AT 50mm BELOW THE FINISHED FLOOR LEVEL OF THE WAREHOUSE AND OFFICE AREAS.

DRAWING KEY PLAN
SCALE 1:750



FOR DEVELOPMENT APPLICATION

FOR DEVELOPMENT APPLICATION	29.01.20	B
FOR INFORMATION ONLY	20.12.19	A
AMENDMENTS	DATE	ISSUE
AMENDMENTS	DATE	ISSUE

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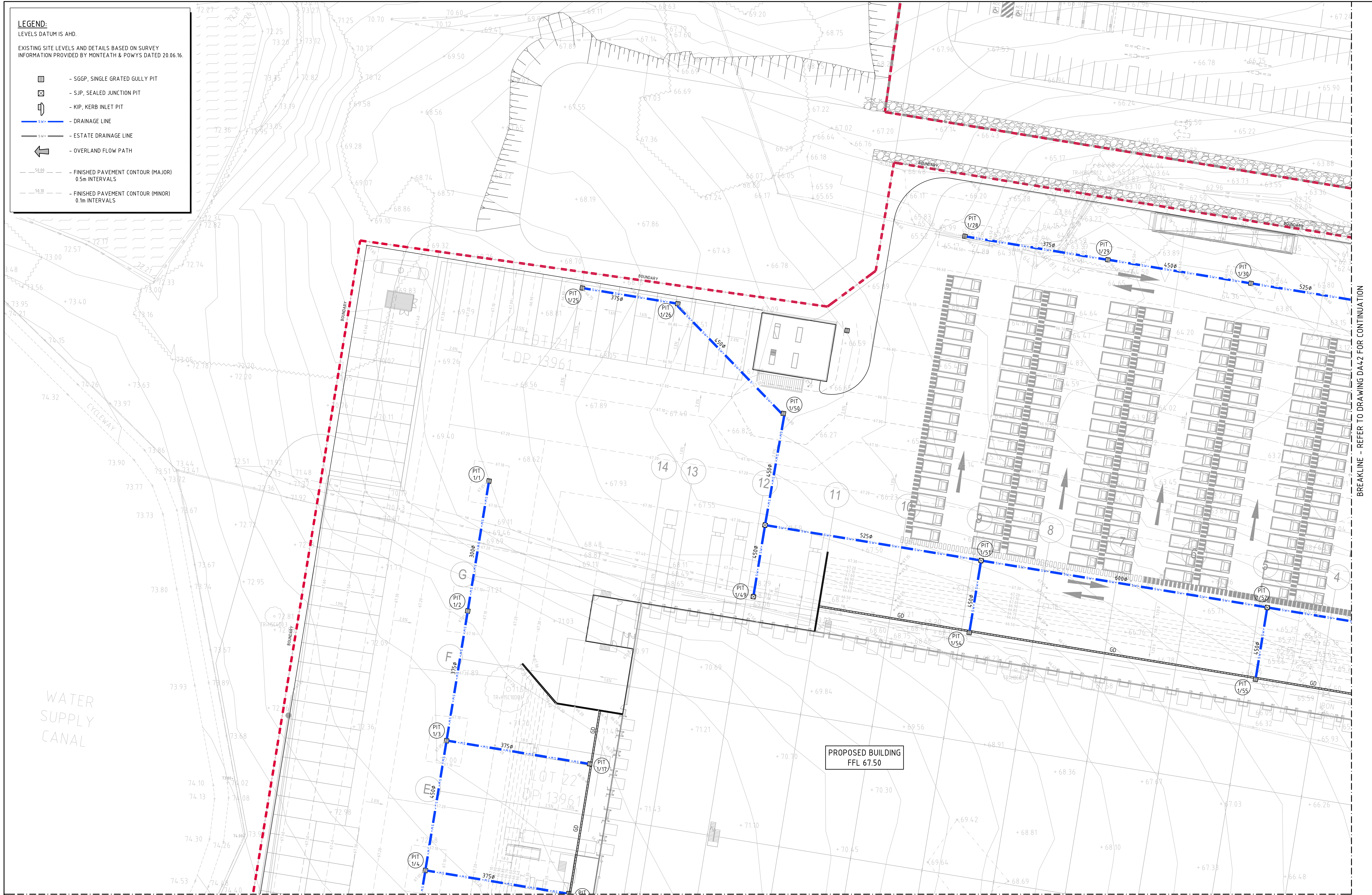
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DRAWING TITLE
DRAWING KEY PLAN
DRAWING No. **C011492.18- DA40** ISSUE **B**

LEGEND:
LEVELS DATUM IS AHD.

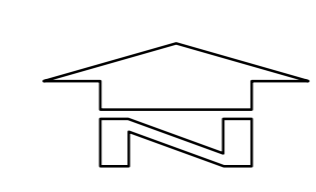
EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- ESTATE DRAINAGE LINE
- OVERLAND FLOW PATH
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS



BREAKLINE - REFER TO DRAWING DA43 FOR CONTINUATION

BREAKLINE - REFER TO DRAWING DA42 FOR CONTINUATION



CONCEPT STORMWATER PLAN - SHEET 1
SCALE 1:250

FOR DEVELOPMENT APPLICATION

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE PLOT

AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
FOR DEVELOPMENT APPLICATION	29.01.20	B			
FOR INFORMATION ONLY	23.12.19	A			

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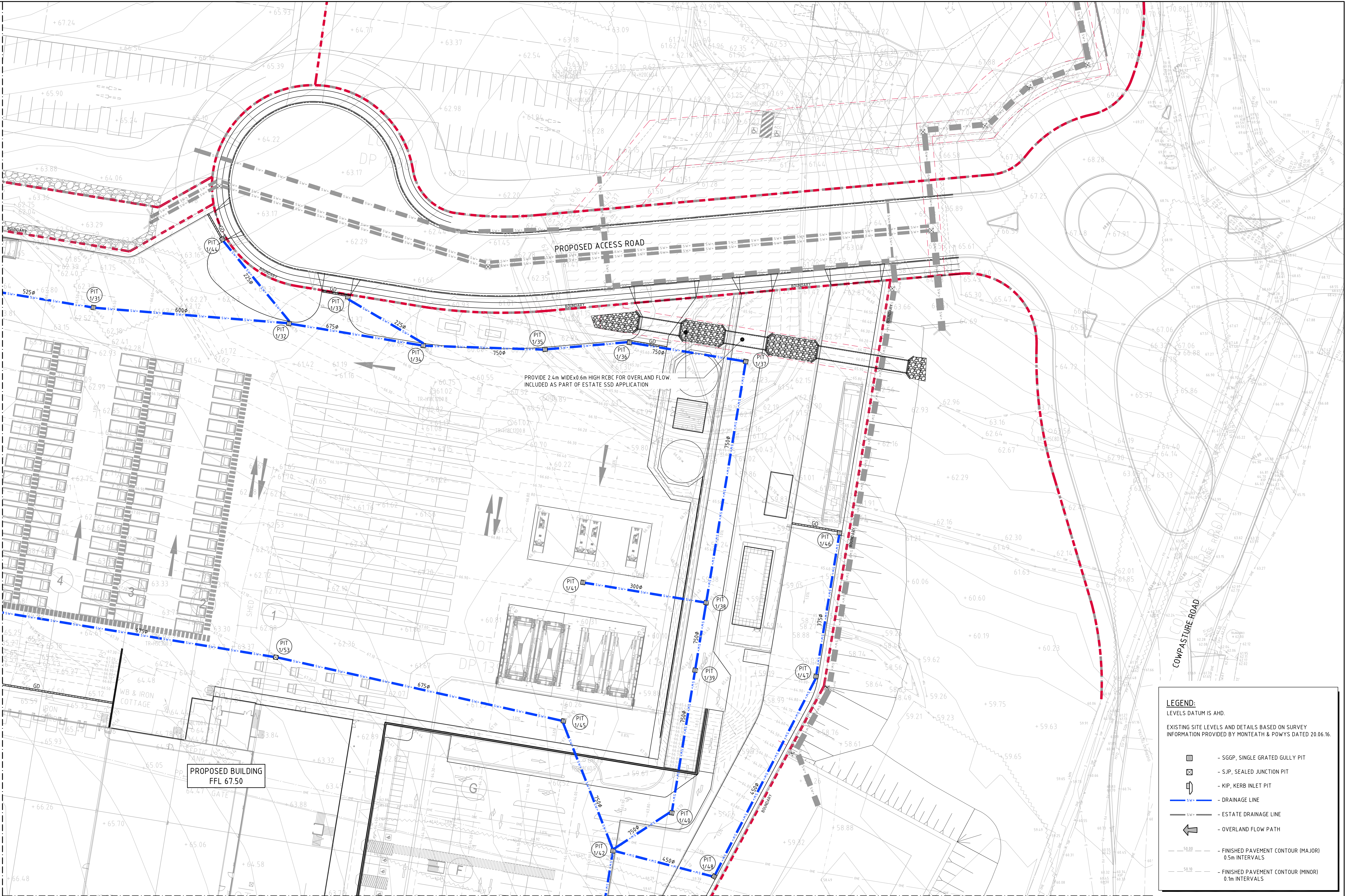
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DRAWING TITLE
CONCEPT STORMWATER PLAN
SHEET 1
DRAWING No: C0114.92.18 - DA41
ISSUE B

BREAKLINE - REFER TO DRAWING DA41 FOR CONTINUATION



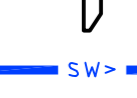
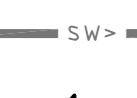






PROVIDE 2.4m WIDE x 0.6m HIGH RCBC FOR OVERLAND FLOW. INCLUDED AS PART OF ESTATE SSD APPLICATION

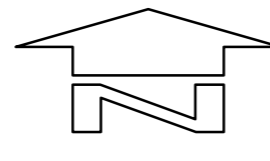
PROPOSED BUILDING
FFL 67.50

LEGEND:
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16.

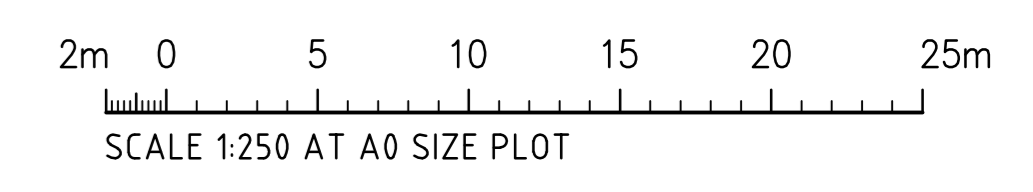
-  - SGGP, SINGLE GRATED GULLY PIT
-  - SJP, SEALED JUNCTION PIT
-  - KIP, KERB INLET PIT
-  - DRAINAGE LINE
-  - ESTATE DRAINAGE LINE
-  - OVERLAND FLOW PATH
-  - FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
-  - FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

BREAKLINE - REFER TO DRAWING DA44 FOR CONTINUATION



CONCEPT STORMWATER PLAN - SHEET 2
SCALE 1:250

FOR DEVELOPMENT APPLICATION



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AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	

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DRAWING TITLE
CONCEPT STORMWATER PLAN
SHEET 2
DRAWING No: C0114.92.18- DA42



LEGEND:
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- ESTATE DRAINAGE LINE
- OVERLAND FLOW PATH
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

CONCEPT STORMWATER PLAN - SHEET 3
SCALE 1:250

FOR DEVELOPMENT APPLICATION

2m 0 5 10 15 20 25m
SCALE 1:250 AT A0 SIZE PLOT

FOR DEVELOPMENT APPLICATION	29.01.20	B
FOR INFORMATION ONLY	22.12.19	A
AMENDMENTS	DATE	ISSUE

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DEVELOPER
Charter Hall

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HORSLEY DRIVE BUSINESS PARK
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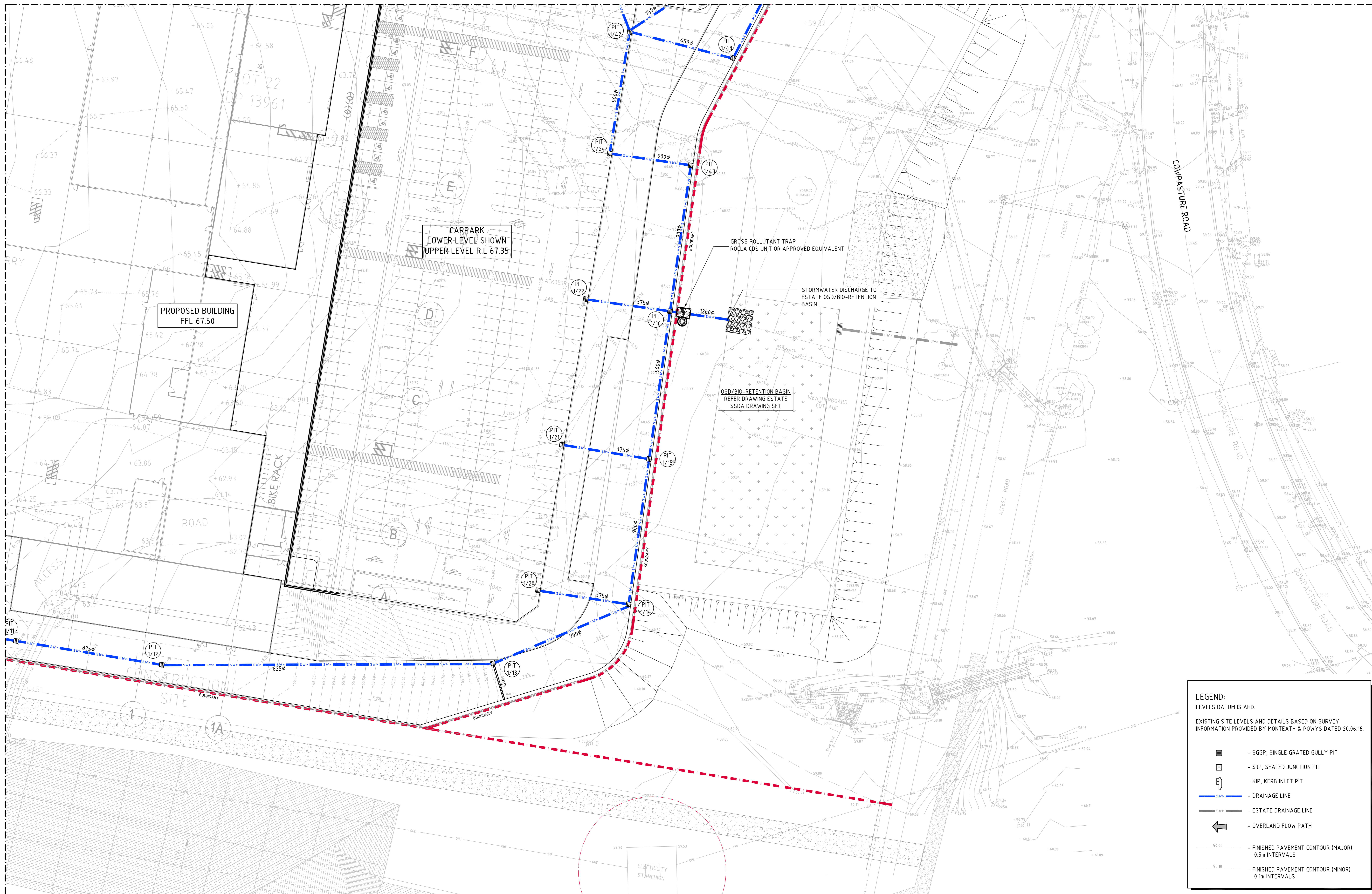
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DRAWING TITLE
CONCEPT STORMWATER PLAN SHEET 3
DRAWING No: **Co114.92.18- DA43** ISSUE **B**

BREAKLINE - REFER TO DRAWING DA42 FOR CONTINUATION

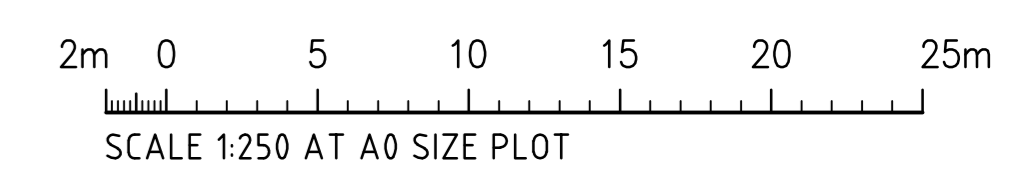
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LEGEND:
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POW'S DATED 20.06.16.

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- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- ESTATE DRAINAGE LINE
- OVERLAND FLOW PATH
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CONCEPT STORMWATER PLAN - SHEET 4
SCALE 1:250

FOR DEVELOPMENT APPLICATION

AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
FOR DEVELOPMENT APPLICATION	29.01.20	B			
FOR INFORMATION ONLY	20.12.19	A			

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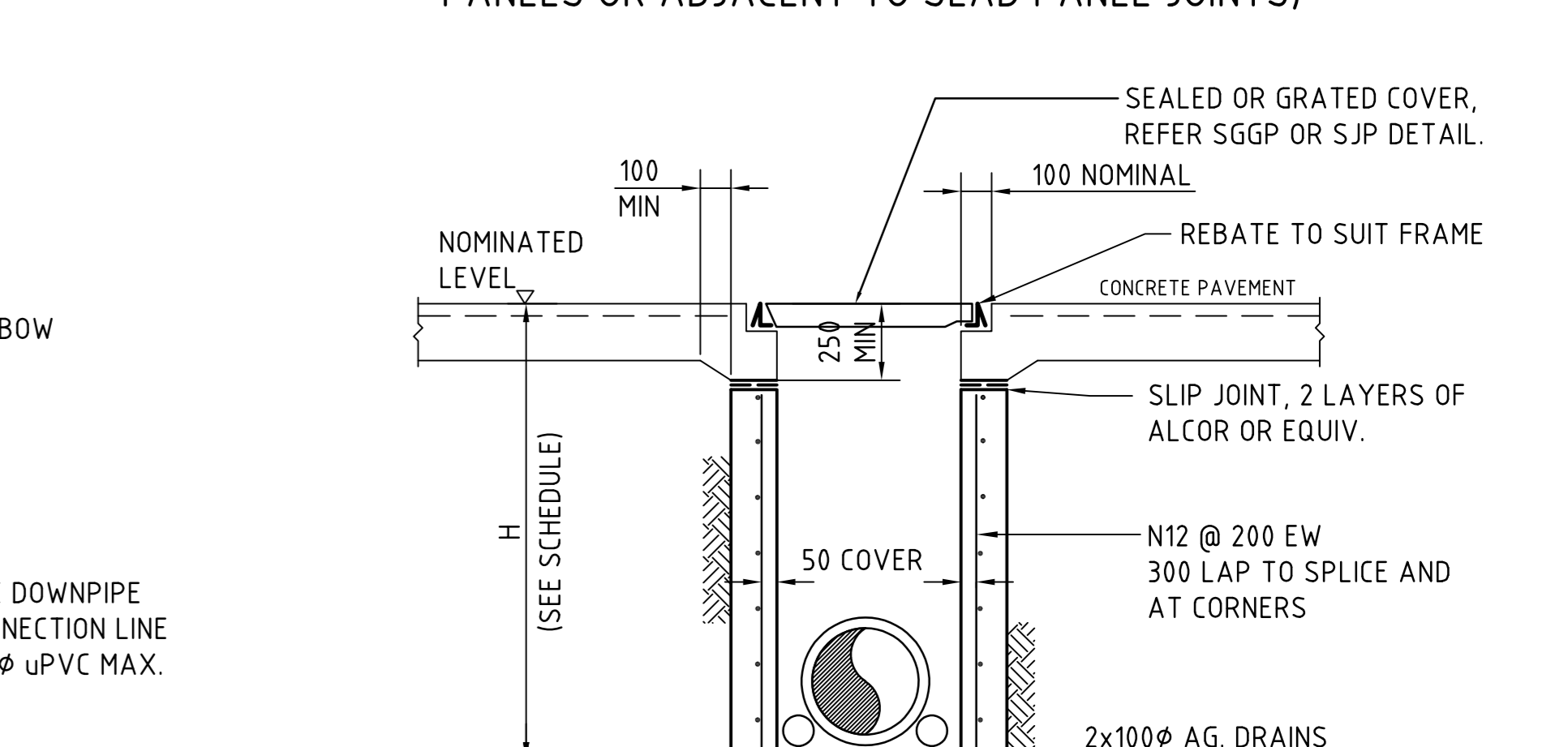
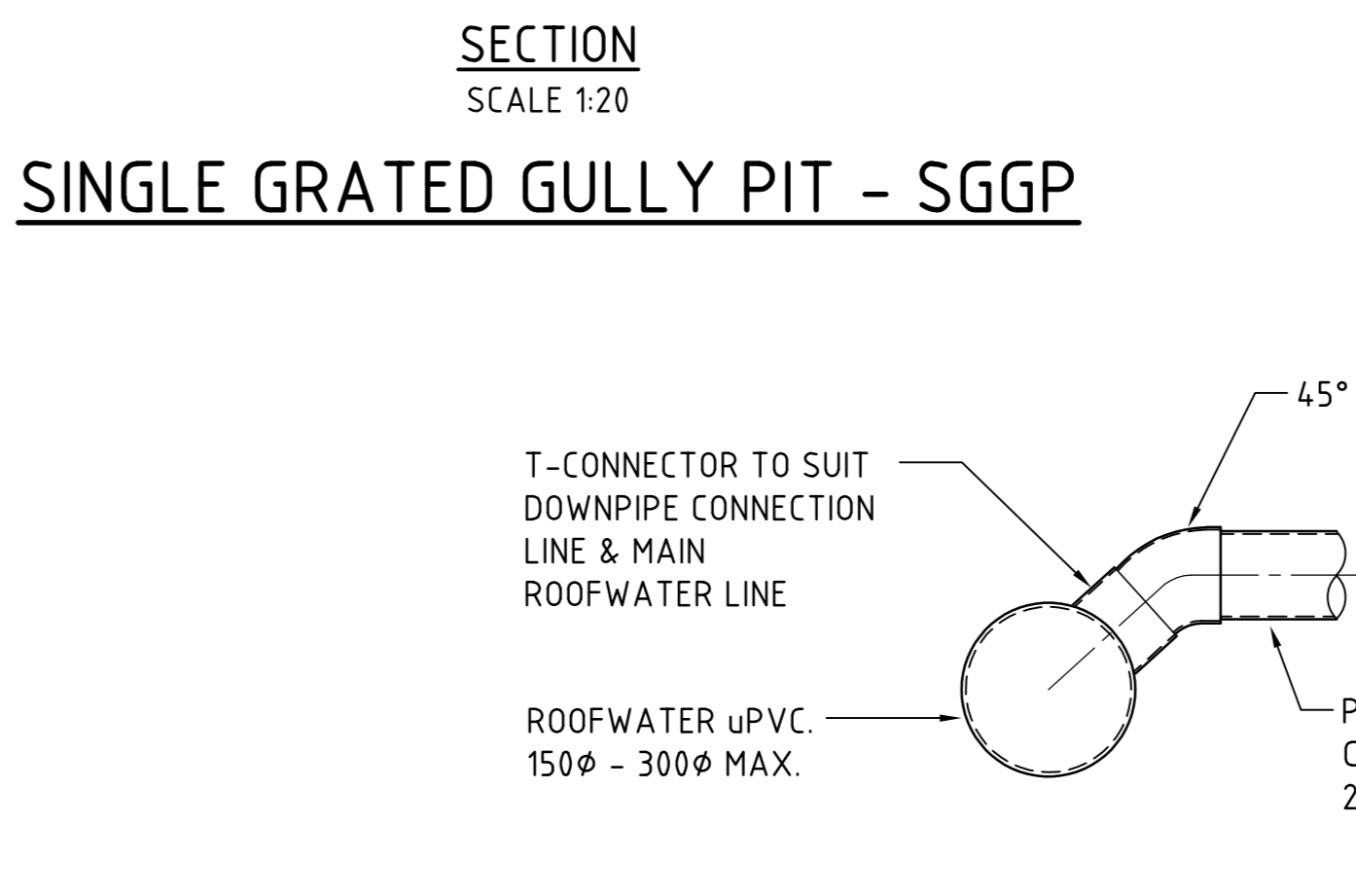
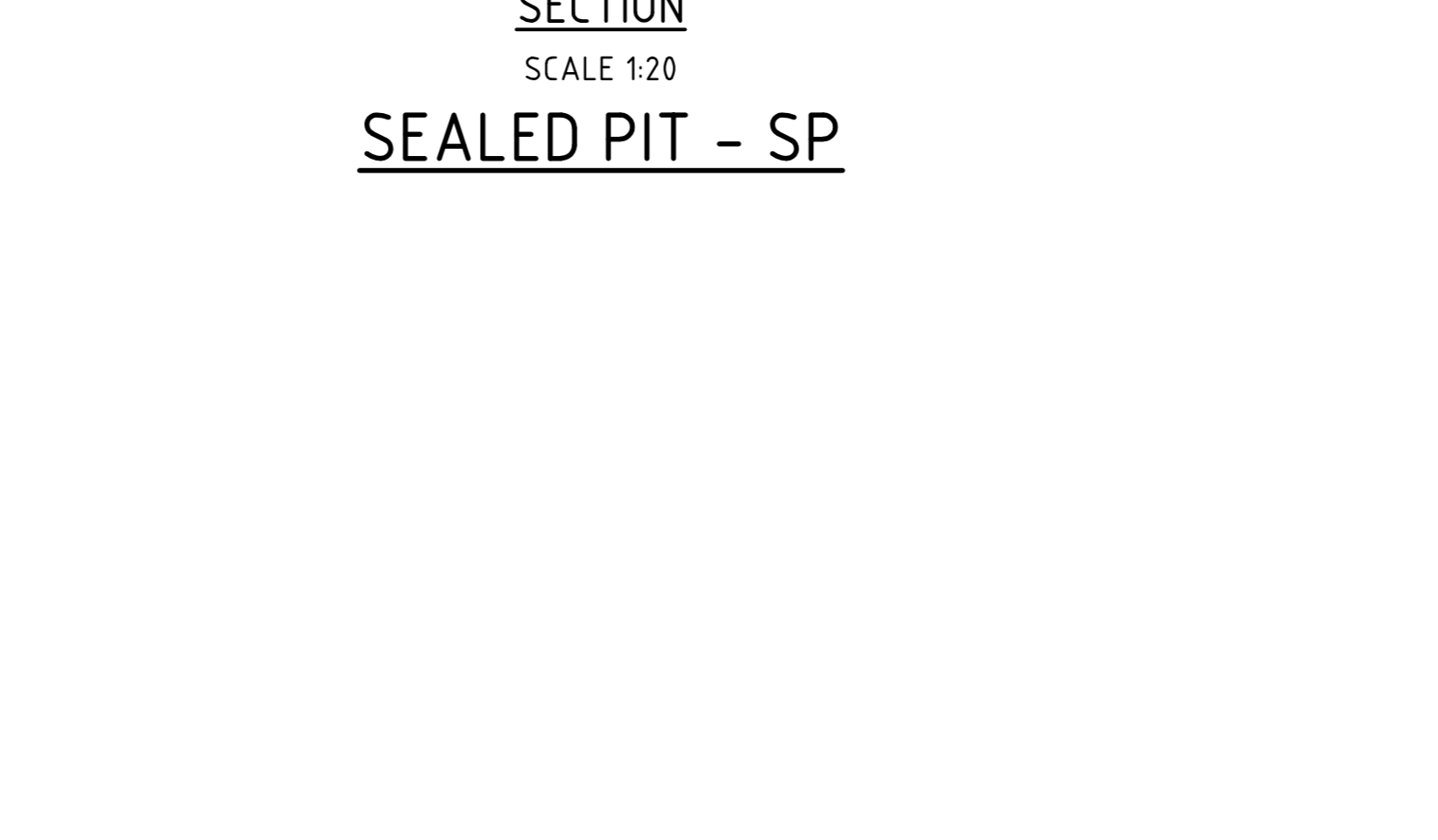
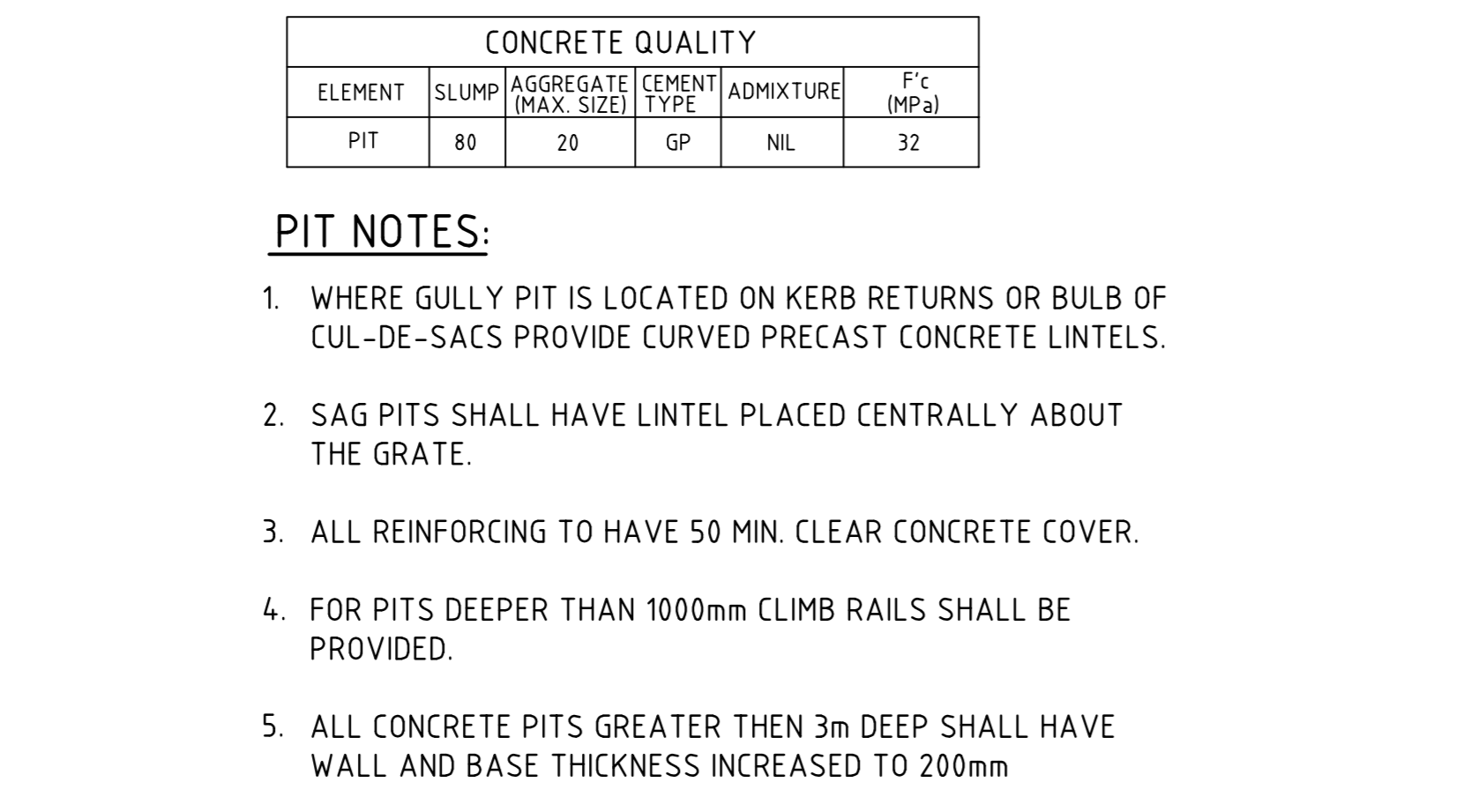
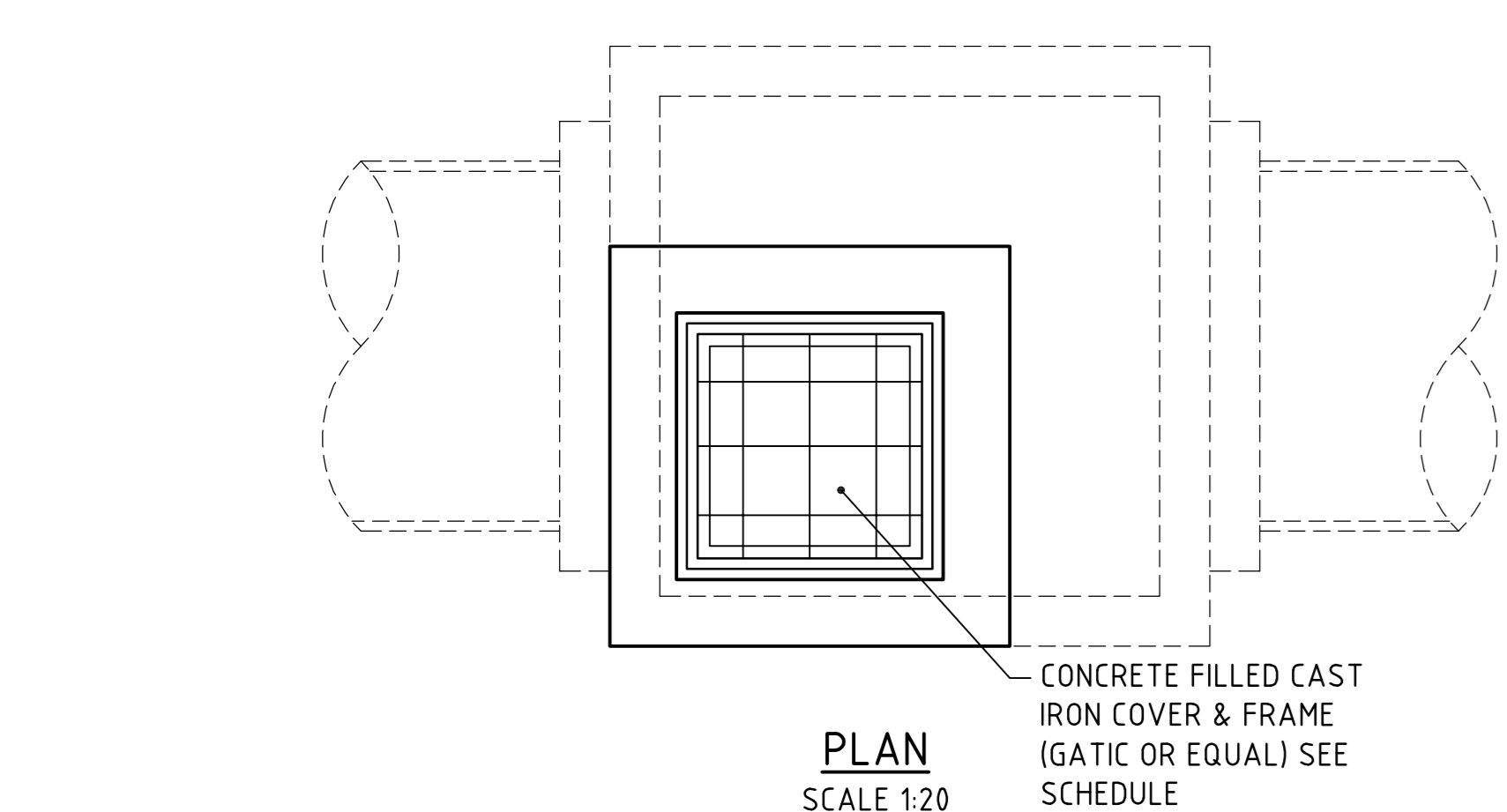
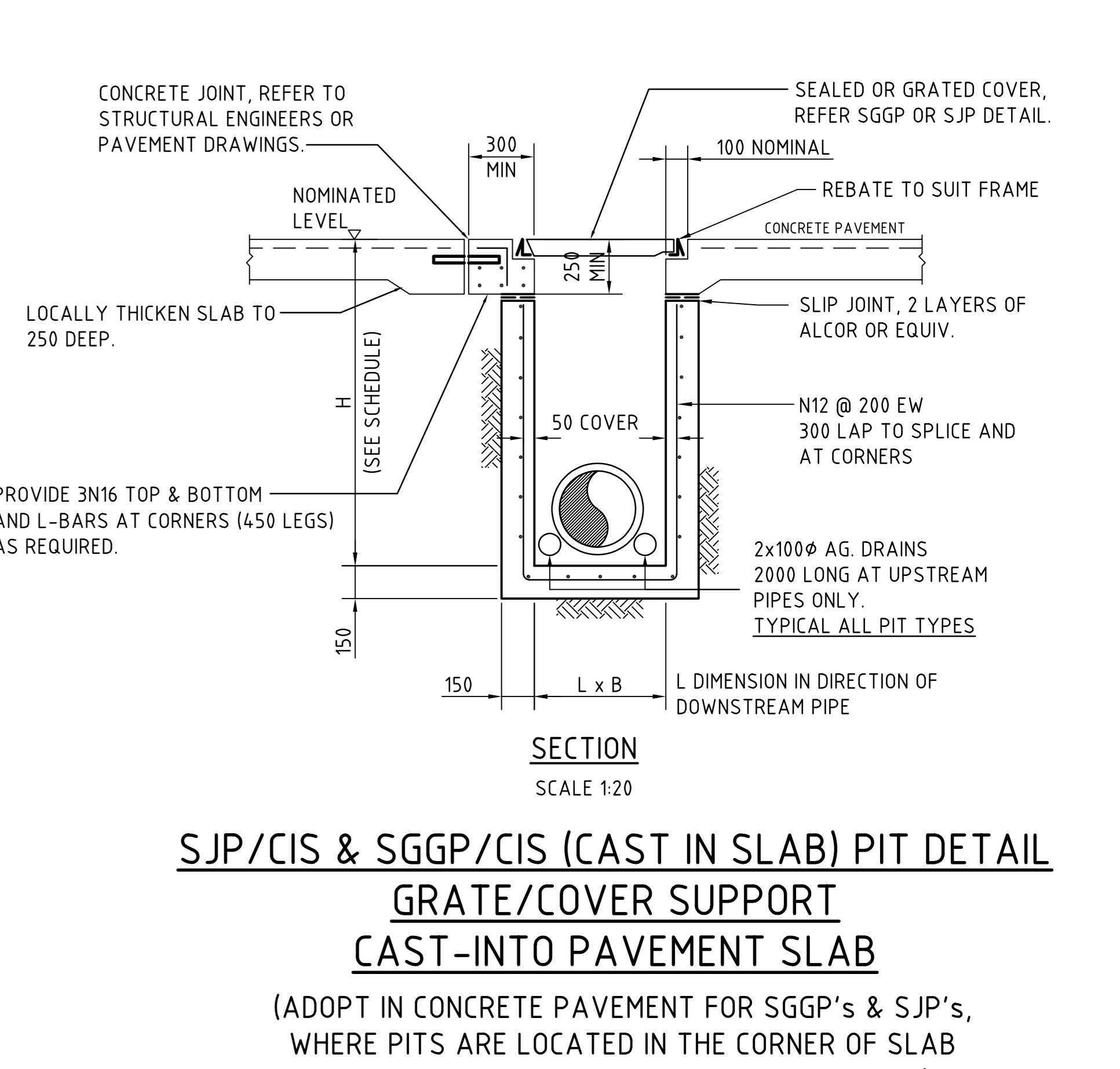
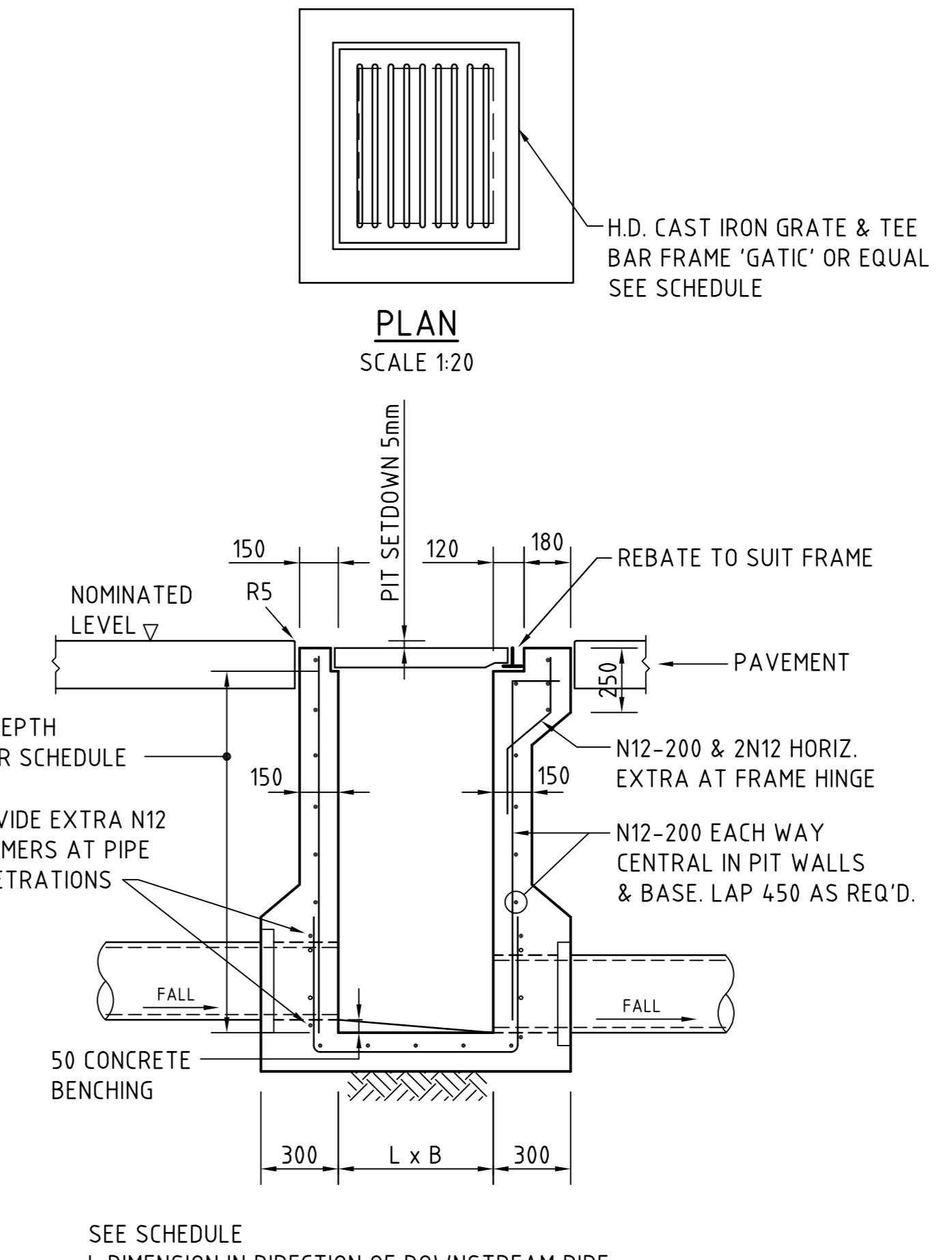
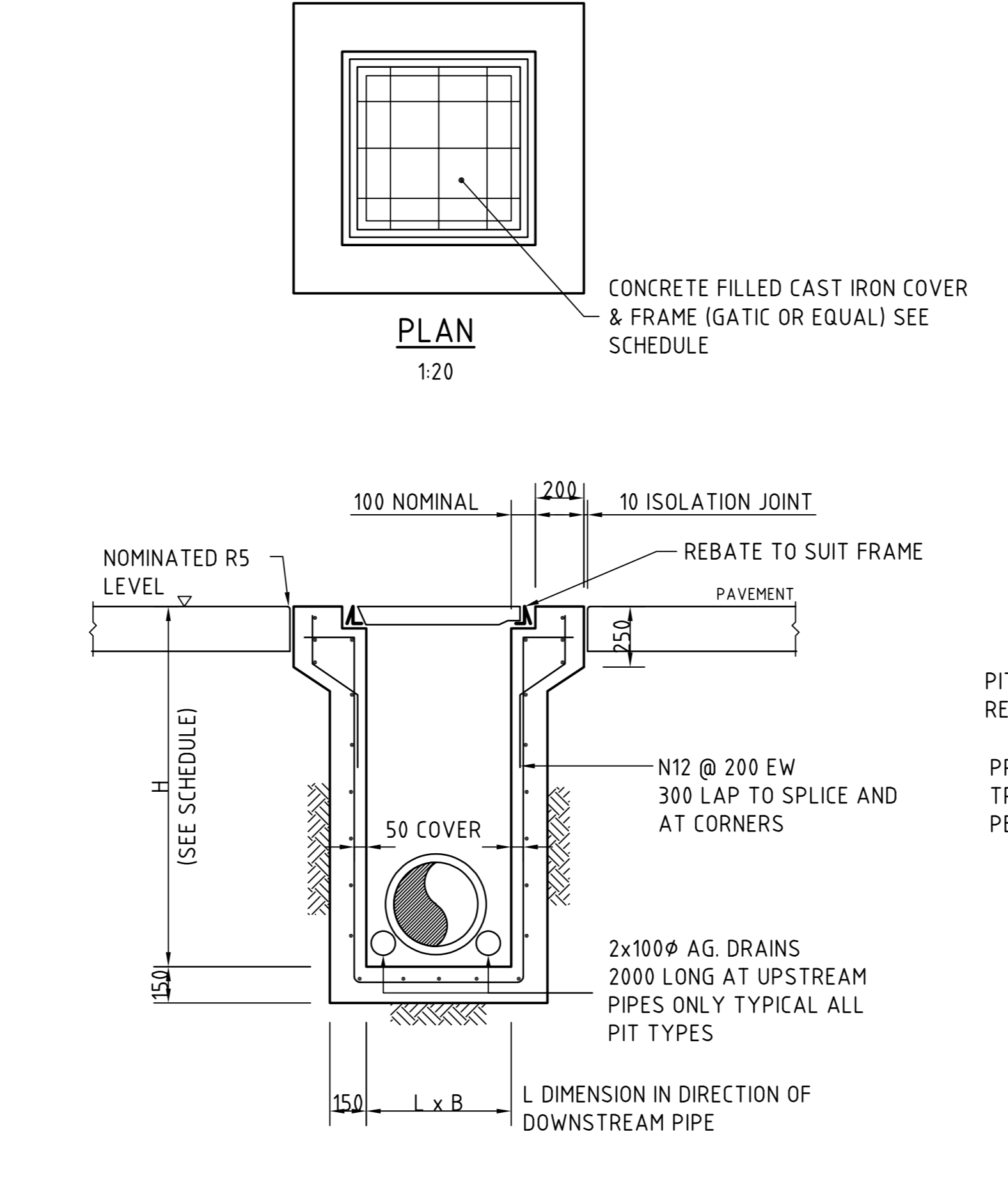
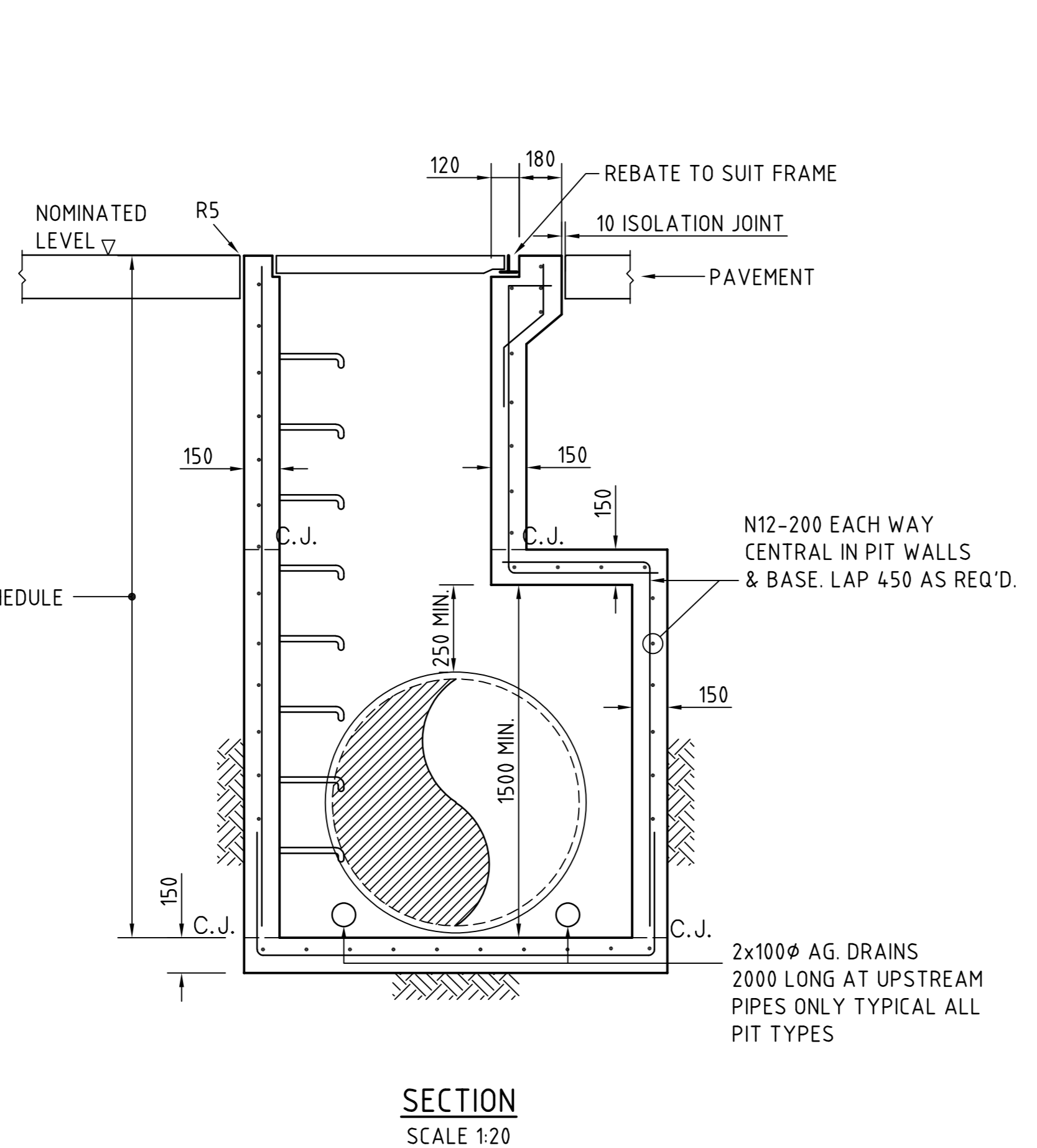
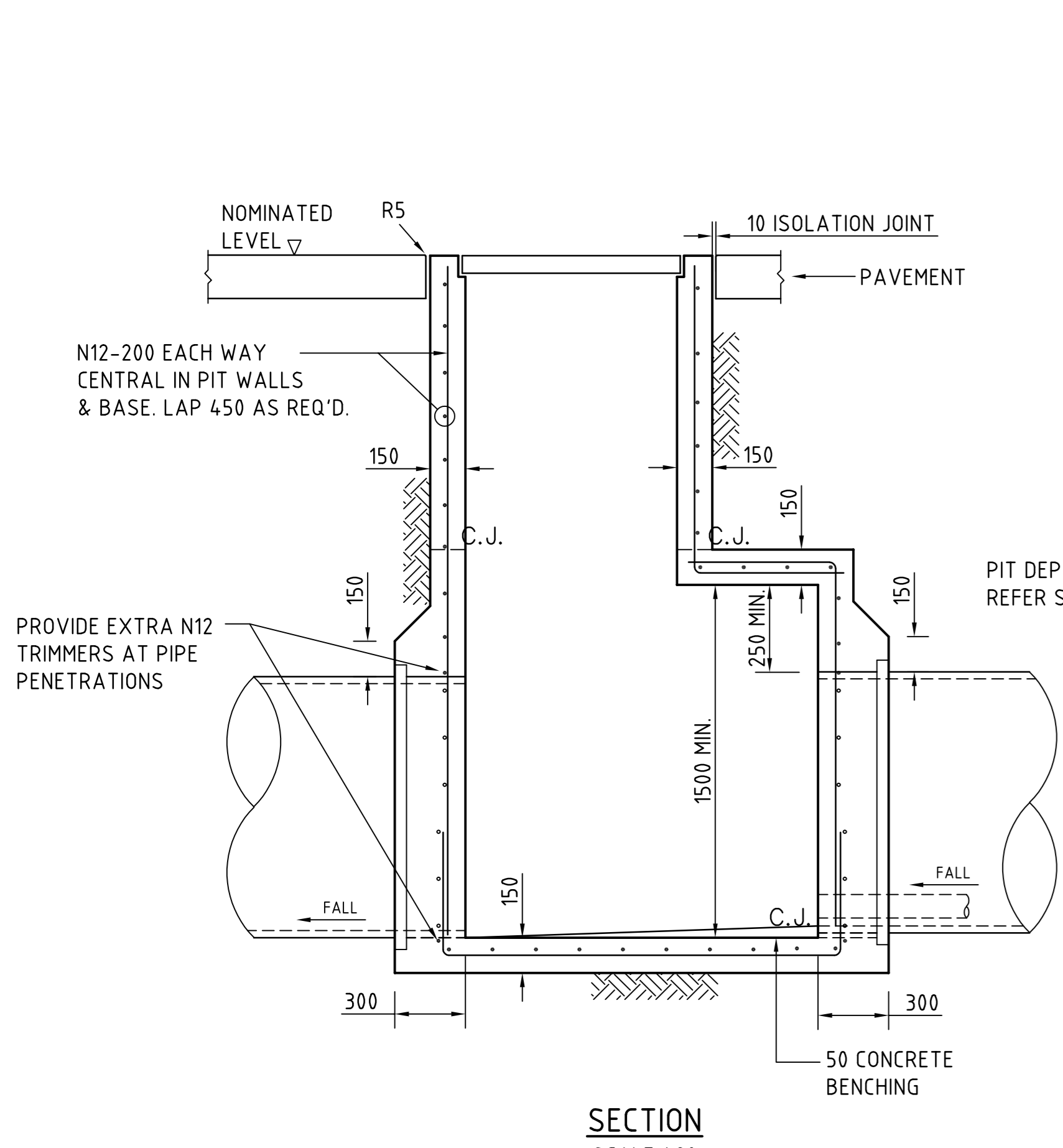
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Charter Hall

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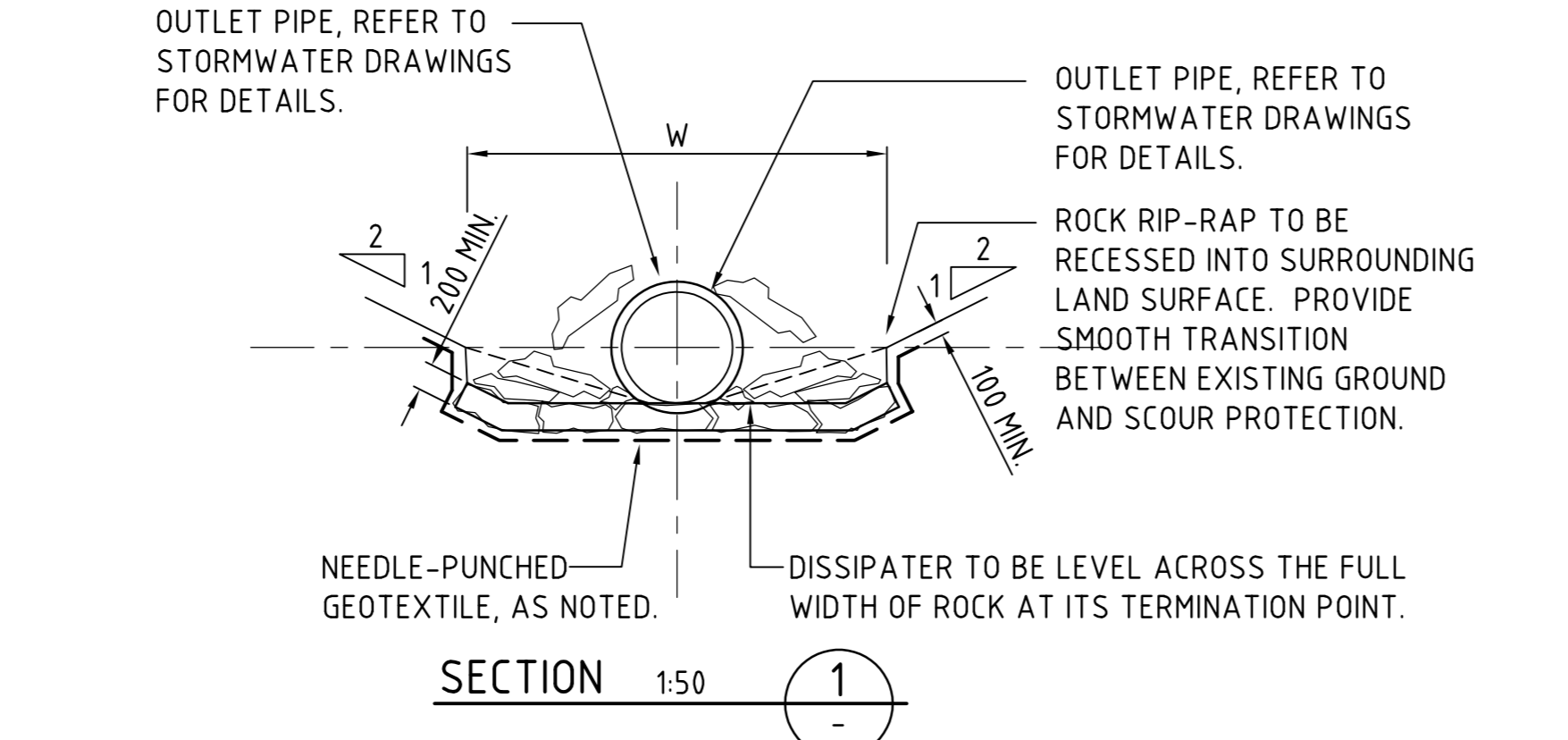
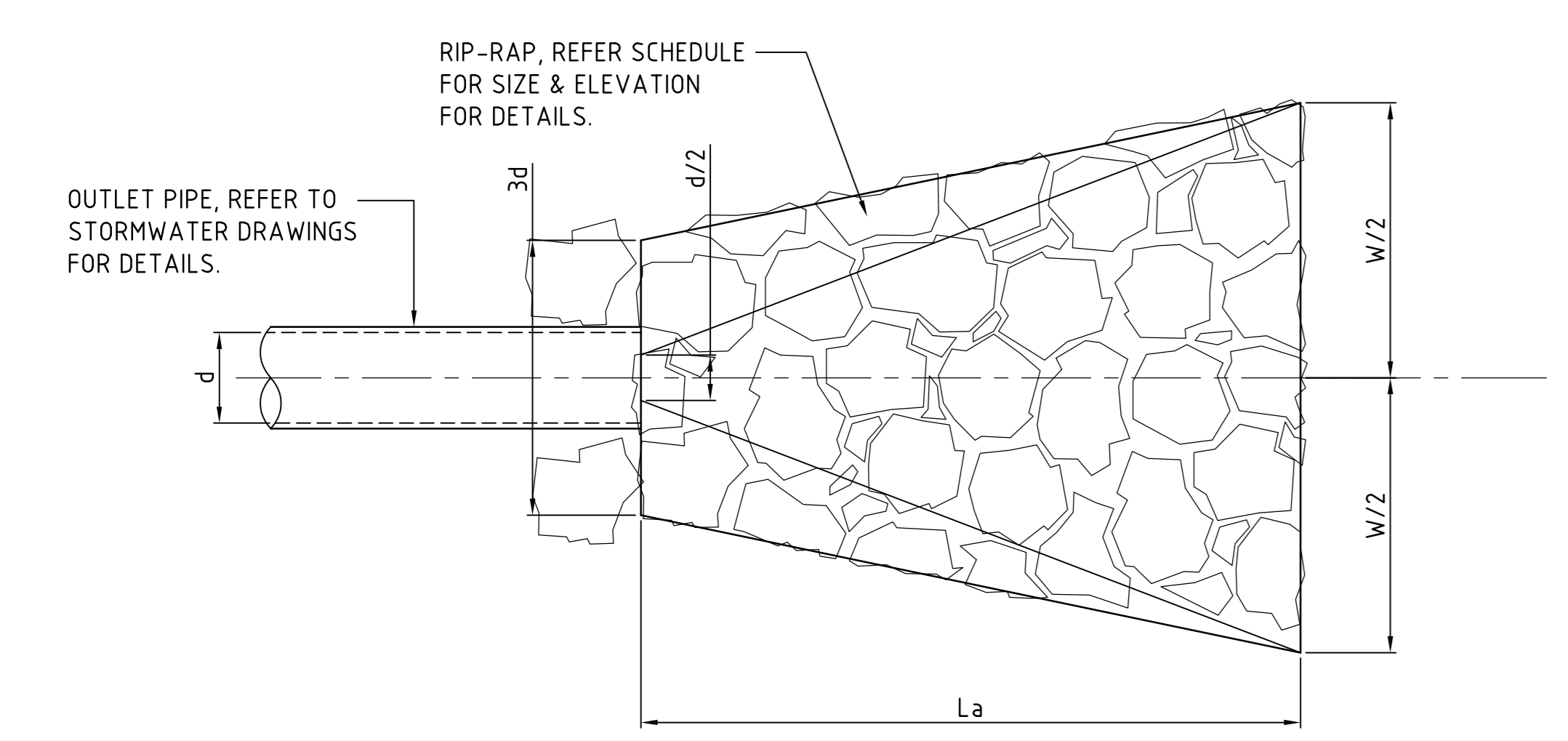
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**CONCEPT STORMWATER PLAN
SHEET 4**
DRAWING No: **Co114.92.18- DA44** ISSUE **B**



CONCRETE QUALITY					
ELEMENT	SUMP	AGGREGATE	CEMENT	ADMIXTURE	F/C (MPa)
PIT	80	20	GP	NL	32

- PIT NOTES:**
- WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
 - SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
 - ALL REINFORCING TO HAVE 50 MIN. CLEAR CONCRETE COVER.
 - FOR PITS DEEPER THAN 1000mm CLIMB RAILS SHALL BE PROVIDED.
 - ALL CONCRETE PITS GREATER THEN 3m DEEP SHALL HAVE WALL AND BASE THICKNESS INCREASED TO 200mm

TAPERED SEALED JUNCTION PIT - SJP

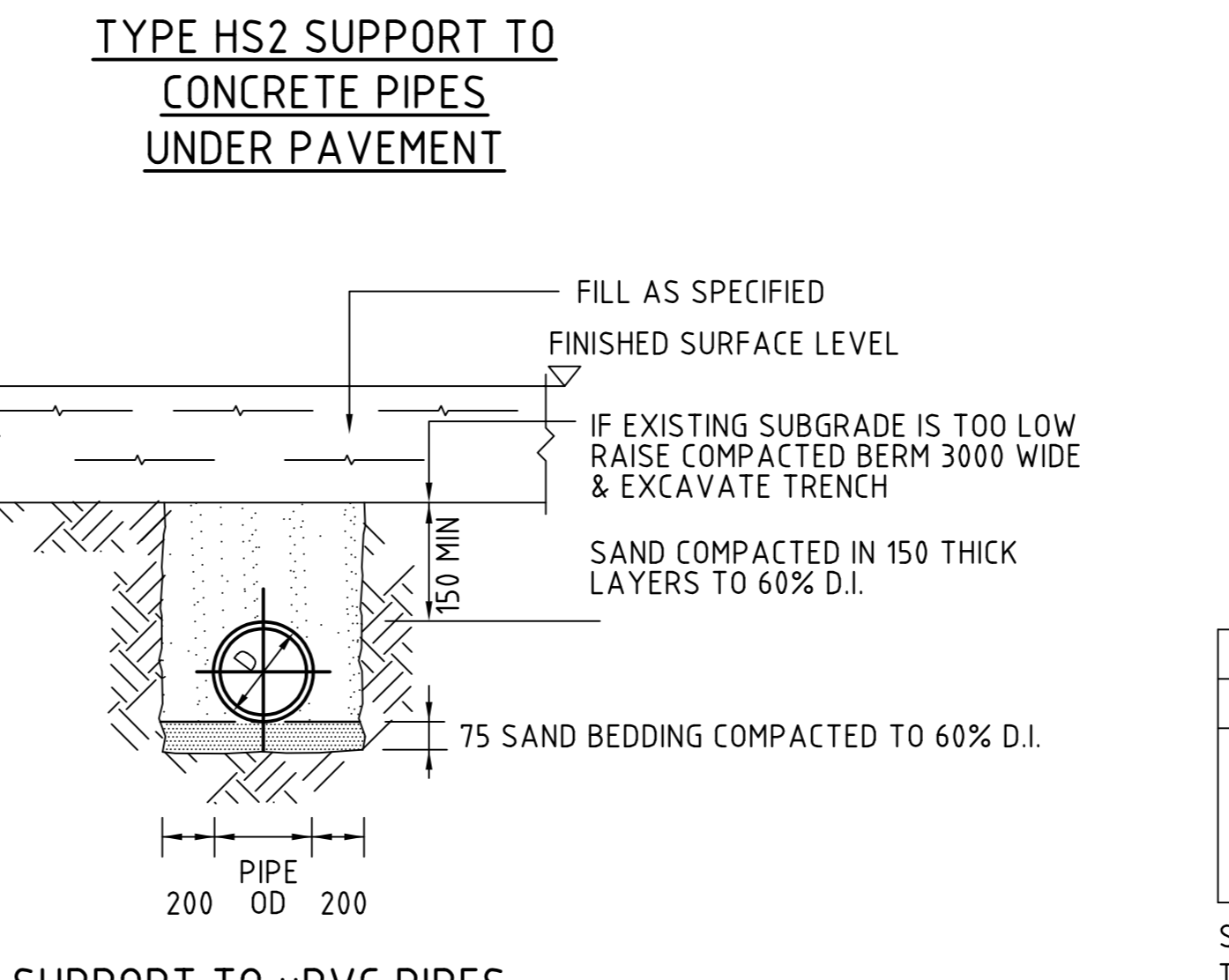
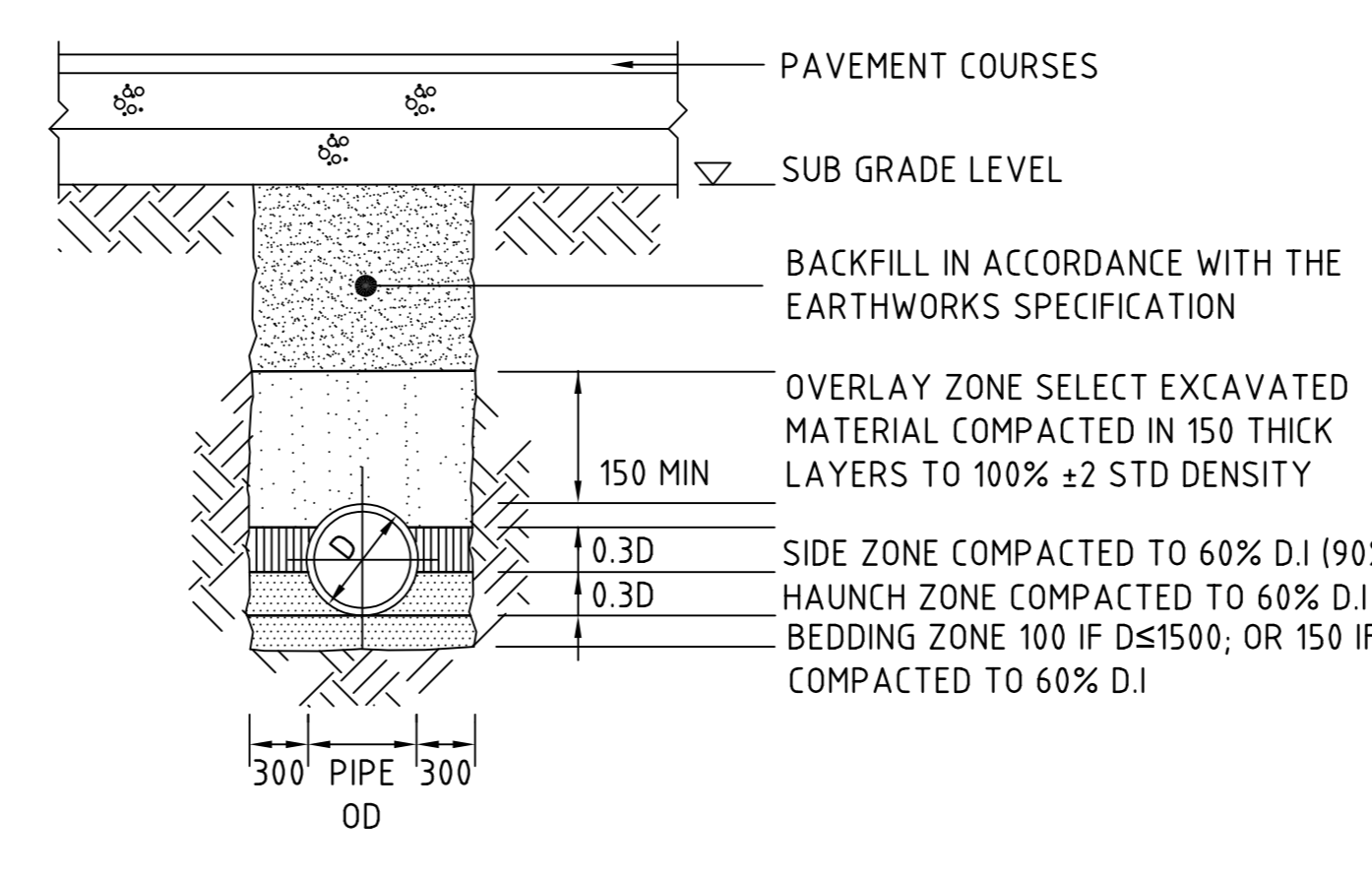


- DISSIPATER NOTES:**
- ALIGN STRUCTURE EVENLY WITH BANK.
 - LOCATE STRUCTURE AT INVERT LEVEL OF STREAM AND POINT IN A DOWNSTREAM DIRECTION.
 - PIPE TO REST ON, AND BE PACKED IN, BY RIP-RAP (SIZE AS NOTED).
 - DISCHARGE INTO STREAM WHERE BEDROCK IS PRESENT, OTHERWISE SCOUR PROTECT AS REQUIRED.
 - SCOUR PROTECT THE OPPOSITE BANK AS REQUIRED. SCOUR PROTECTION TO BE PROVIDED WHERE OPPOSITE BANK IS WITHIN 12-14 TIMES THE PIPE DIAMETER.
 - RIP-RAP TO CONSIST OF ANGULAR RUN-OF-QUARRY ROCK (d50=300mm MINIMUM) AS NOTED IN THE SCHEDULE. RIP-RAP TO BE MINIMUM THICKNESS OF RIP-RAP LAYER TO BE 1.6x AVERAGE ROCK SIZE (d50).
 - RIP-RAP IS TO BE PLACED OVER A 200mm LAYER OF 140mm COBBLES OVER NEEDLE-PUNCHED GEOFAB A44.
 - PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE FINISHED RIP-RAP SURFACE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS.
 - GAPS IN RIP-RAP TO BE HAND PACKED WITH TOPSOIL & PLANTED WITH NATIVE SEDGES & RUSHES TO PROVIDE. THE INTENT IS FOR THERE TO BE NO VOIDS BETWEEN RIP-RAP BOULDERS.
 - ENSURE THE FINISHED ROCK SURFACE BLENDS WITH THE SURROUNDING GROUND LEVELS. NO OVERFALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
 - ENSURE THAT STORMWATER FROM SURROUNDING GROUND IS FREE TO ENTER THE STRUCTURE WITHOUT CAUSING UNDESIRABLE PONDING OR SCOUR.

DISSIPATER SCHEDULE				
DISCHARGE POINT	d	La	W	RIP-RAP
OUTLET TYPE 1	1200	5000	3500	500

STORMWATER OUTLET DISSIPATER

SCALE 1:50

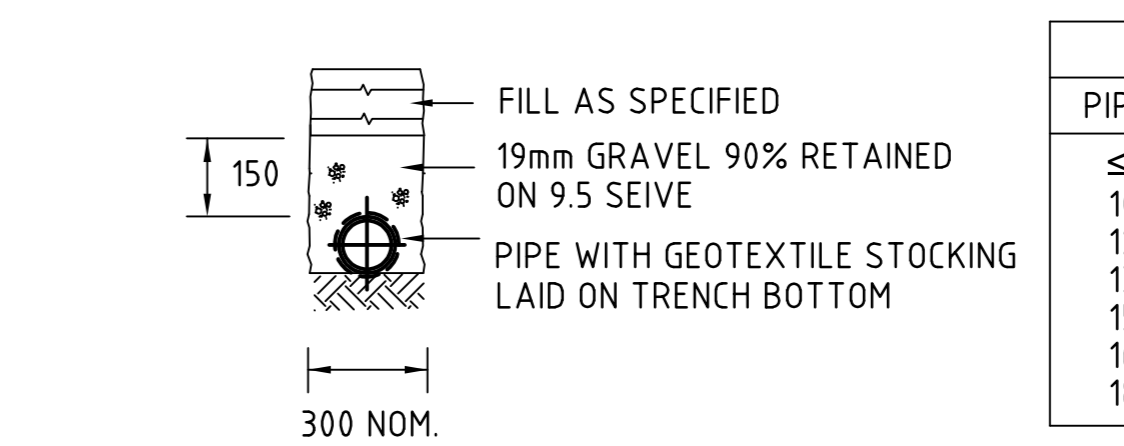


DOWNPIPE CONNECTION DETAILS

SCALE 1:20

- DOWN PIPE CONNECTION TO uPVC PIPE**
- PROPRIETARY T-PIECE CONNECTORS SHALL BE USED TO WHERE DIRECT CONNECTIONS ARE REQUIRED TO uPVC PIPES.
 - ALL JOINTS TO BE SEALED WITH SOLVENT WELDED JOINTS.
 - THE PVC PIPE SHALL NOT PROTRUDE BEYOND THE INNER SURFACE OF THE STORMWATER PIPE.

TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS



SUPPORT TO AG DRAIN

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
75	100
9.5	100 TO 50
2.36	100 TO 30
0.5 TO 15	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725

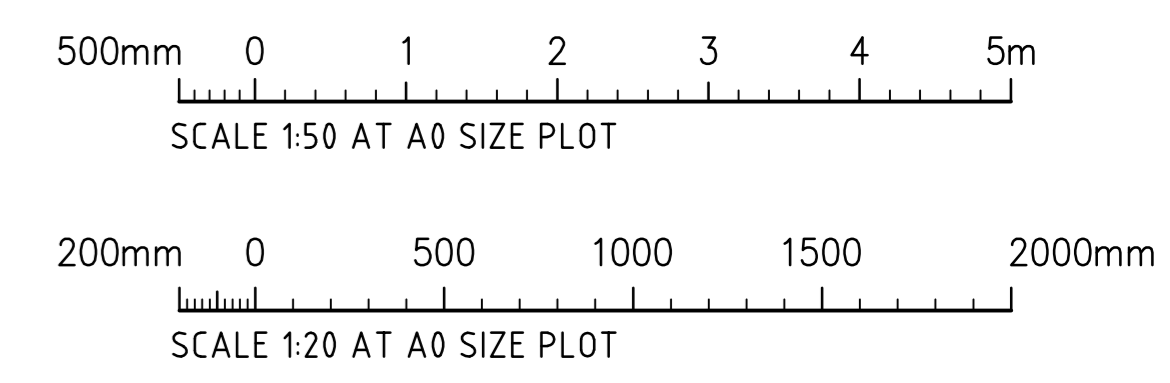
SIDE ZONE WIDTH	
PIPE SIZE	l (mm)
≤900φ	150
1050φ	175
1200φ	200
1350φ	225
1500φ	250
1650φ	275
1800φ	300

REFER TO ENGINEER FOR TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800φ

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE	WEIGHT PASSING(%)
19	100
2.36	100 TO 50
0.60	90 TO 20
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

PIPE LAYING DETAILS

1:20



FOR DEVELOPMENT APPLICATION	29.01.20	A
AMENDMENTS	DATE	ISSUE

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


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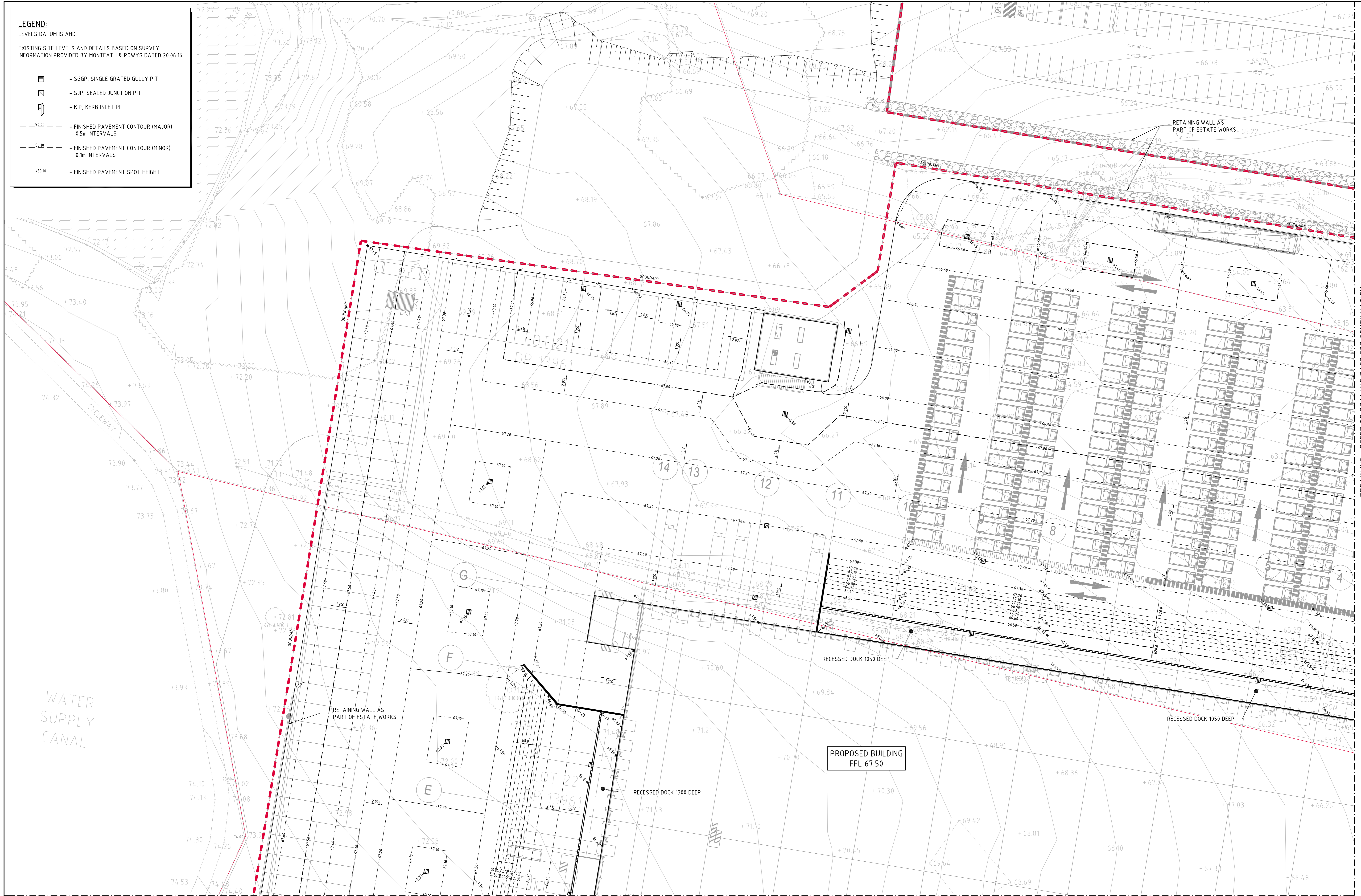
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DRAWING TITLE
CONCEPT STORMWATER DETAILS

DRAWING No
Co114.92.18- DA45

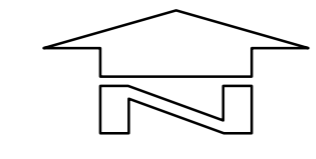
ISSUE
A

- LEGEND:**
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-  - SGGP, SINGLE GRATED GULLY PIT
 -  - SJP, SEALED JUNCTION PIT
 -  - KIP, KERB INLET PIT
 -  -59.00 - FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
 -  -59.10 - FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
 -  -59.10 - FINISHED PAVEMENT SPOT HEIGHT



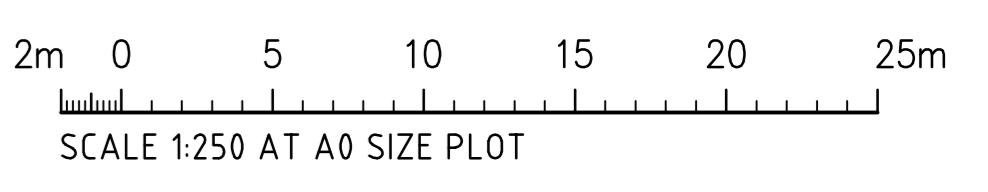
BREAKLINE - REFER TO DRAWING DA53 FOR CONTINUATION

BREAKLINE - REFER TO DRAWING DA52 FOR CONTINUATION



FINISHED LEVELS PLAN - SHEET 1
SCALE 1:250

FOR DEVELOPMENT APPLICATION



AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
FOR DEVELOPMENT APPLICATION	29.01.20	B			
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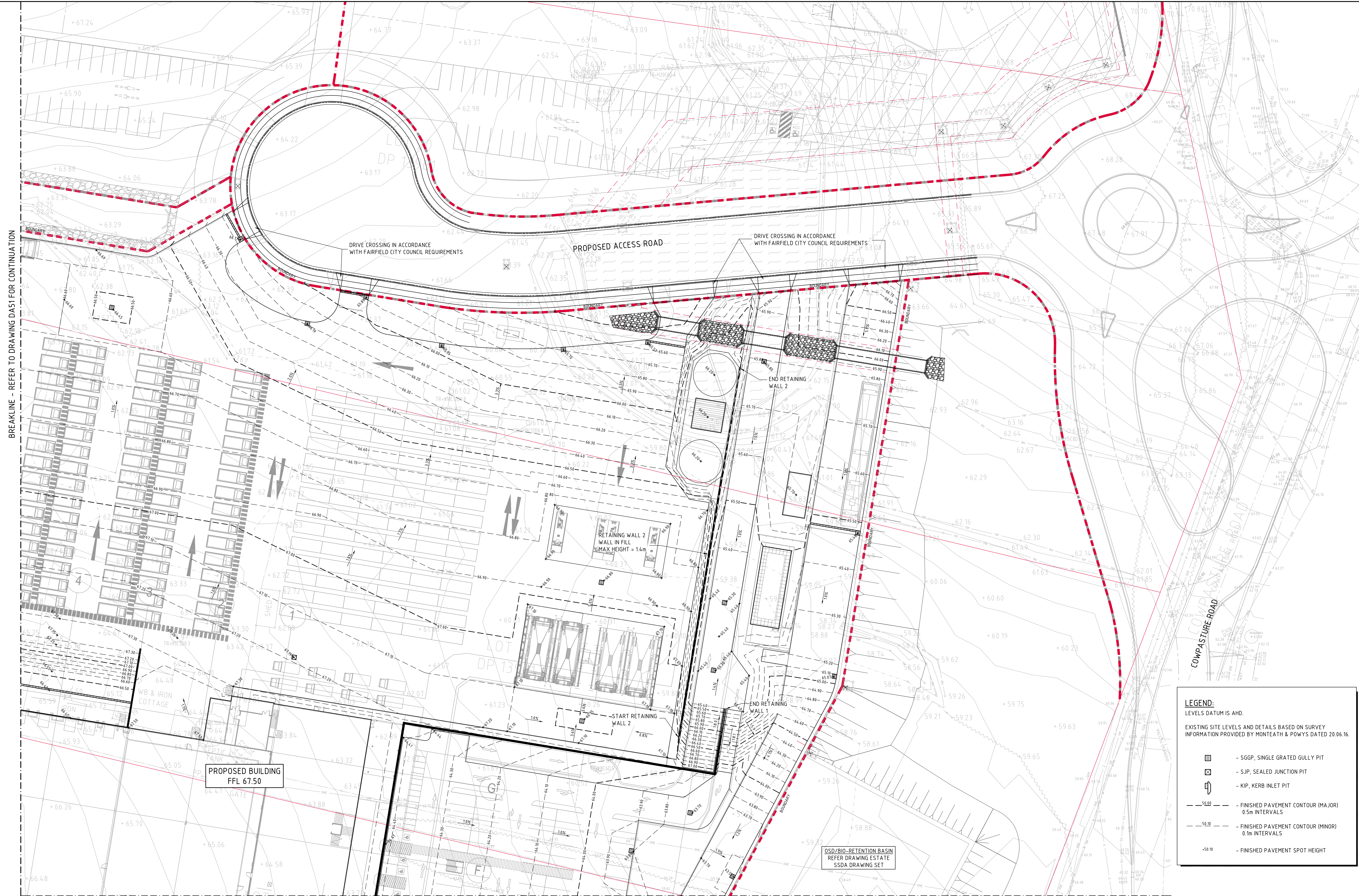
DEVELOPER
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DRAWING TITLE
FINISHED LEVELS PLAN SHEET 1
DRAWING No: C0114.92.18 - DA51

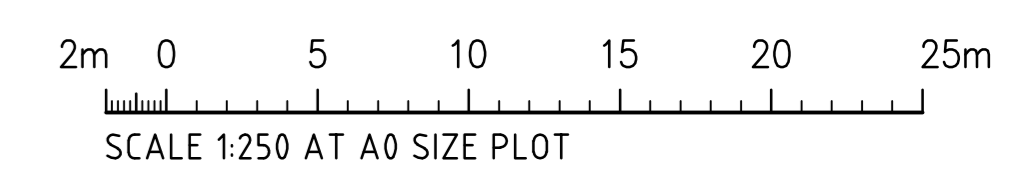


BREAKLINE - REFER TO DRAWING DA51 FOR CONTINUATION

BREAKLINE - REFER TO DRAWING DA54 FOR CONTINUATION

LEGEND:
 LEVELS DATUM IS AHD.
 EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS DATED 20.06.16.

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FINISHED LEVELS PLAN - SHEET 2
 SCALE 1:250

FOR DEVELOPMENT APPLICATION

FOR DEVELOPMENT APPLICATION	29.01.20	B
FOR INFORMATION ONLY	20.12.19	A
AMENDMENTS	DATE	ISSUE

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DRAWING TITLE
**FINISHED LEVELS PLAN
 SHEET 2**
 DRAWING No: **Co114.92.18- DA52** ISSUE **B**

BREAKLINE - REFER TO DRAWING DA51 FOR CONTINUATION

BREAKLINE - REFER TO DRAWING DA54 FOR CONTINUATION



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- FINISHED PAVEMENT SPOT HEIGHT

FINISHED LEVELS PLAN - SHEET 3
 SCALE 1:250

FOR DEVELOPMENT APPLICATION

3m STORMWATER EASEMENT
 SCALE 1:250 AT A0 SIZE PLOT

FOR DEVELOPMENT APPLICATION	29.01.20	B
FOR INFORMATION ONLY	23.12.19	A
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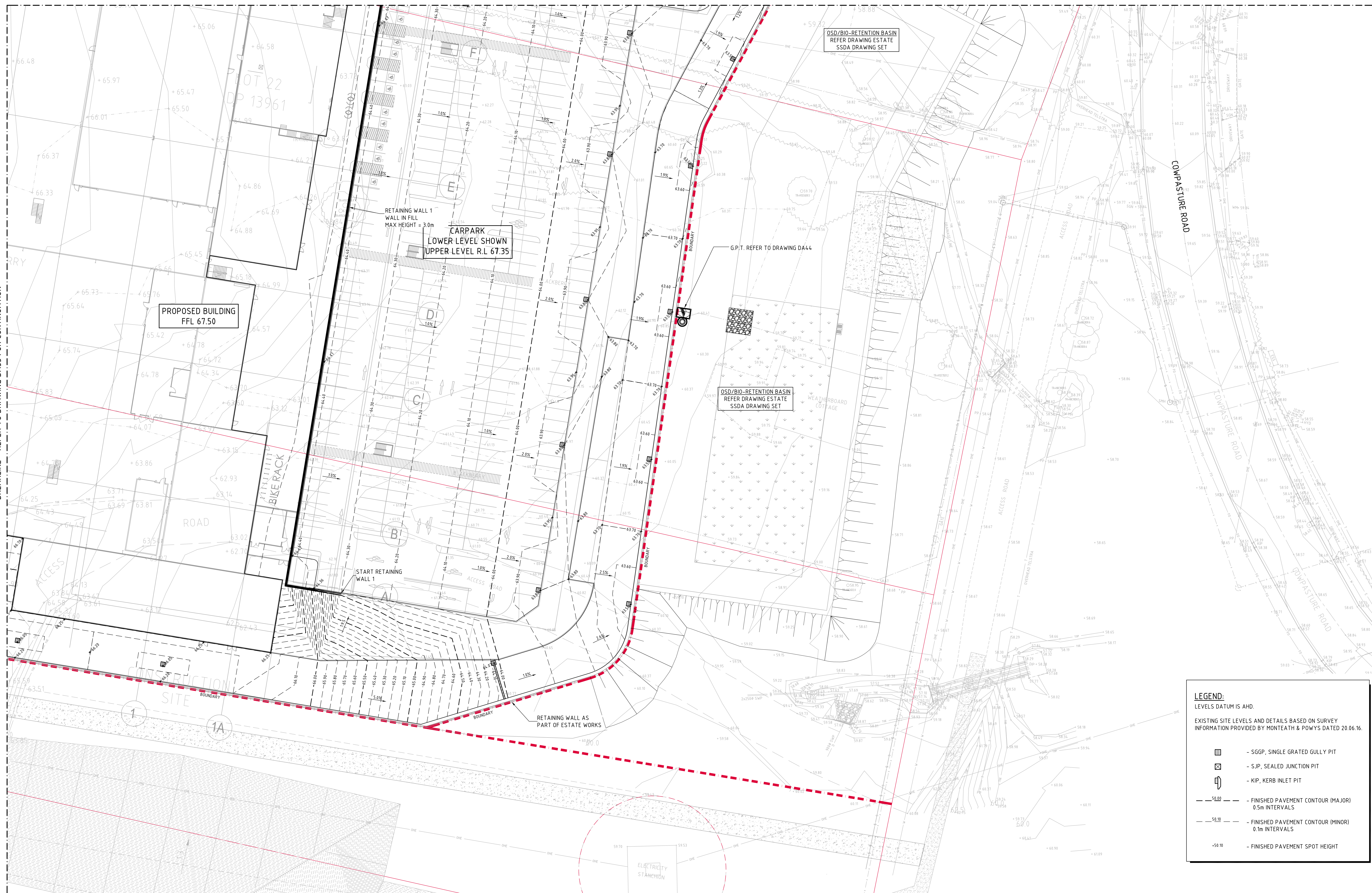
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DRAWING TITLE
FINISHED LEVELS PLAN SHEET 3
 DRAWING No: **Co114.92.18- DA53** ISSUE **B**

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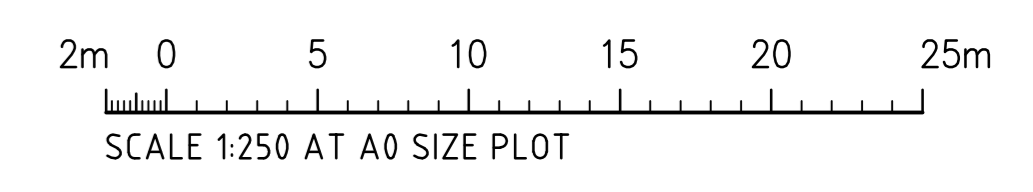


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FINISHES LEVELS PLAN - SHEET 4
SCALE 1:250



FOR DEVELOPMENT APPLICATION

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DRAWING TITLE
**FINISHED LEVELS PLAN
SHEET 4**
DRAWING No: Co114.92.18- DA54