

BROOKVALE OVAL REDEVELOPMENT CIVIL WORKS

GENERAL NOTES

- Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Engineer.
- Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
- Make smooth connection with all existing works.
- Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority, the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
- For all temporary batters refer to geotechnical recommendations.

REFERENCE DRAWINGS

1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev Date
MURRAY HASTINGS CONTOUR & DETAIL SURVEY	MDH1245-D-07		03.04.08
HASSELL	GA PLAN - CONCOURSE LEVEL 00_A1001	J	27.09.19

PIT SCHEDULE

Note: Grate size does not necessarily reflect pit size, refer pit type details, shown on detail sheets - **SKC20**
Final internal pit dimensions are to comply with AS3500

Type	Description	Cover (Clear Opening)	Number
A	Surface inlet pit	900 x 900 Class C galvanised mild steel grate hinged to frame	1,2,4,9,10
B	Junction pit	900 x 900 Class C cast iron cover with concrete infill	3,5,6
C	OSD tank pit	900 x 900 Class C cast iron cover with concrete infill	7,8

SITeworks NOTES

- All basecourse material to comply with RMS specification No 3051 and compacted to minimum 98% modified standard dry density in accordance with AS 1289 5.2.1.
- All trench backfill material shall be compacted to the same density as the adjacent material.
- All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1

KERBING NOTES

Includes all kerbs, gutters, dish drains, crossings and edges.

- All kerbs, gutters, dish drains and crossings to be constructed on minimum 75mm granular basecourse compacted to minimum 98% modified maximum dry density in accordance with AS 1289 5.2.1.
- Expansion joints (EJ) to be formed from 10mm compressible cork filler board for the full depth of the section and cut to profile. Expansion joints to be located at drainage pits, on tangent points of curves and elsewhere at 12m centres except for integral kerbs where the expansion joints are to match the joint locations in slabs.
- Weakened plane joints to be min 3mm wide and located at 3m centres except for integral kerbs where weakened plane joints are to match the joint locations in slabs.
- Broomed finished to all ramped and vehicular crossings, all other kerbing or dish drains to be steel float finished.
- In the replacement of kerbs -
Existing road pavement is to be sawcut 900mm from lip of gutter. Upon completion of new kerbs, new basecourse and surface is to be laid 900mm wide to match existing materials and thicknesses.
Existing allotment drainage pipes are to be built into the new kerb with a 100mm dia hole.
Existing kerbs are to be completely removed where new kerbs are shown.

STORMWATER DRAINAGE NOTES

- Stormwater Design Criteria :
(A) Average recurrence interval -
1:100 years for roof drainage to first external pit
1:20 years for paved and landscaped areas
(B) Rainfall intensities -
Time of concentration: 6 minutes
1:100 years = mm/hr
1:20 years = mm/hr
(C) Runoff coefficients -
Roof areas: $C_{ro} =$
Roads and paved areas: $C_{ra} =$
Landscaped areas: $C_{la} =$
- Pipes 300 dia and larger to be reinforced concrete Class "2" approved spigot and socket with rubber ring joints U.N.O.
- Pipes up to 300 dia may be sewer grade uPVC with solvent welded joints, subject to approval by the engineer.
- Equivalent strength VCP or FRP pipes may be used subject to approval.
- Precast pits may be used external to the building subject to approval by
- Enlargers, connections and junctions to be manufactured (fittings where pipes are less than 300 dia.
- Where subsol drains pass under floor slabs and vehicular pavements, unslopped uPVC sewer grade pipe is to be used.
- Grates and covers shall conform with AS 3996-2006, and AS 1428.1 for access requirements.
- Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O.
- Care is to be taken with invert levels of stormwater lines. Grades shown are not to be reduced without approval.
- All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.
- Subsol drains to be slopped flexible uPVC U.N.O.
- Adopt invert levels for pipe installation (grades shown are only nominal).

CONCRETE FINISHING NOTES

- All exposed concrete pavements are to be broomed finished.
- All edges of the concrete pavement including keyed and dowelled joints are to be finished with an edging tool.
- Concrete pavements with grades greater than 10 % shall be heavily broomed finished.
- Carborundum to be added to all stair treads and ramped crossings U.N.O.

SURVEY AND SERVICES INFORMATION

SURVEY

Origin of levels : CONTACT THE SURYOR
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM
Coordinate system : MGA
Survey prepared by : MURRAY HASTINGS
Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING

The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.

The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.

Taylor Thomson Whitting plans do not indicate the presence of any survey mark. the contractor is to undertake their own search.

BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from : **No boundary information received.**
Refer architect for boundary information and locations

Taylor Thomson Whitting makes no guarantees that the boundary or easement information shown is correct.

Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.

JOINTING NOTES

Vehicular Pavement Jointing

- All vehicular pavements to be jointed as shown on drawings.
- Keyed construction joints should generally be located at a maximum of 6m centres.
- Sawn joints should generally be located at a maximum of 6m centres or 1.5 x the spacing of keyed joints, where key joint spacing is less than 4m, with dowelled expansion joints at maximum of 30m centres.
- Provide 10mm wide full depth expansion joints between buildings and all concrete or unit pavers.
- The timing of the saw cut is to be confirmed by the contractor on site. Site conditions will determine how many hours after the concrete pour before the saw cuts are commenced. Refer to the specification for weather conditions and temperatures required.
- Vehicular pavement jointing as follows.

Pedestrian Footpath Jointing

- Expansion joints are to be located where possible at tangent points of curves and elsewhere at max 6.0m centres.
- Weakened plane joints are to be located at a max 1.5 x width of the pavement.
- Where possible joints should be located to match kerbing and / or adjacent pavement joints.
- All pedestrian footpath jointings as follows (uno).

BULK EARTHWORKS NOTES

- All bulk earthworks setout from grid lines U.N.O.
- Temporary batters slope as shown on plan.
- Excavated material may be used as structural fill provided,
(i) it complies with the specification requirements for fill material,
(ii) the placement moisture content complies with the Geotechnical Consultants requirements, and allows filling to be placed and proofrolled in accordance with the specification. Where necessary the Contractor must moisture condition the excavated material to meet these requirements.
- Compact fill areas and subgrade to not less than:

Location	Standard dry density (AS 1289 5.1.1)	Moisture (OMC)
Under building slabs on ground:	98%	±2%
Under roads and carparks:	98%	±2%
Landscaped areas:	95%	±2%

- Before placing fill, proof roll exposed subgrade with a 10 tonne minimum roller to test subgrade and then remove soft spots (areas with more than 3mm movement under roller).
Soft spots to be replaced with **select** fill U.N.O.
- Contractor shall place safety barriers around excavations in accordance with relevant safety regulations.
- For interpretation of bulk earthworks foot print line shown on the bulk earthworks drawings refer to the bulk earthworks construction legend.
- Bulk earthwork drawings are not to be used for detailed excavation.
- Refer to Geotechnical Report prepared by - Jeffrey and Katouskas Pty Ltd Ref: 24983Zrpt2 dated 5 July 2011

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with
(A) Local authority requirements,
(B) EPA - Pollution control manual for urban stormwater,
(C) LANDCOM NSW - Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control **drawings and notes** are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities.
The erosion and sediment control **plan** shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

- Prior to commencement of excavation the following soil management devices must be installed.
- Construct silt fences below the site and across all potential runoff sites.
- Construct temporary construction entry/exit and divert runoff to suitable control systems.
- Construct measures to divert upstream flows into existing stormwater system.
- Construct sedimentation traps/basin including outlet control and overflow.
- Construct turf lined swales.
- Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

SAFETY IN DESIGN

Contractor to refer to Appendix B of the Civil Specification for the Civil Risk and Solutions Register.

EXISTING SERVICES

Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.

EXISTING STRUCTURES

Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practicable possible from existing structure(s).

EXISTING TREES

Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel, site works to be carried out as far as practicable possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.

GROUNDWATER

Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.

EXCAVATIONS

Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and batters adequately supported to approval of Geotechnical Engineer.

GROUND CONDITIONS

Contractor to be aware of the site geotechnical conditions. Refer to geotechnical report by Jeffrey and Katouskas Pty Ltd (ref:24983Zrpt date:29 June 2011) for details.

HAZARDOUS MATERIALS

Existing asbestos products & contaminated material may be present on site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practices as per relevant authority to be adopted and appropriate PPE to be used when handling all hazardous materials. Refer to geotechnical/environmental report by Jeffrey and Katouskas Pty Ltd (ref:24983Zrpt date:29 June 2011) for details.

CONFINED SPACES

Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.

MANUAL HANDLING

Contractor to be aware manual handling may be required during construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing works.

WATER POLLUTION

Contractor to ensure appropriate measures are taken to prevent pollutants from construction works contaminating the surrounding environment.

SITE ACCESS/EGRESS

Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.

VEHICLE MOVEMENT

Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshal to supervise vehicle movements where necessary.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- if required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EXISTING SERVICES LEGEND

	S	Existing sewer
	W	Existing water
	E	Existing underground electrical
	EA	Existing aerial electrical
	T	Existing communications
	G	Existing gas
	SW	Existing stormwater

SITeworks LEGEND

	F22.20	Finished surface level
	F22.00	Finished contour
	K&G	Kerb and gutter
	KO	Kerb only
	FK	Flush kerb
	DD	Dish drain
	MK	Mountable kerb
	MK	Mountable integral kerb
	MK+TE	Mountable integral kerb with thickened edge
	IK+TE	Integral kerb with thickened edge
	TE	Thickened edge
	IK	Integral kerb
	IK+ED	Integral kerb with edge downturn
	K&T	Kerb and toe
	IL10.00	Stormwater pit, flow direction and line with
	600 Ø '2'	Invert level upstream
	Q=345 L/s	Pipe size and class
	IL9.65	Pipe grade
	Flow (Litres per second)	Invert level downstream
	GO	Grated drain
	IR	Intermediate riser with subsol drainage line (100 dia)
	FP	Flushing point with subsol drainage line (100 dia)
	DP	Down pipe
	RP	Rodding point
		Concrete enclosed stormwater line
		Stormwater line with pipe taper and flow direction
		Taper kerb to zero height over 500 mm
		Wheelstop
	RW#	Blockwork retaining wall
	RW#	Brickwork retaining wall
	DEJ	Dowelled expansion joint
	SJ	Sawn joint
	KJ	Keyed construction joint
	WPJ	Weakened plane joint
	EJ	Expansion joint
	TKJ	Tied keyed joint
		Grass catch drain
		Overland flow path
		Guard Rail

PAVEMENT LEGEND

	P1	125mm Thickness concrete (f _c =32MPa) with SL92 fabric (40 top cover) on 150mm Compacted thickness fine crushed rock (DGB 20)
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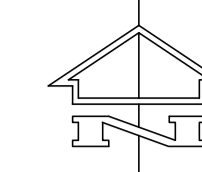
CIVIL DRAWING SCHEDULE

SKC01	Drawing No.	SKC01	Drawing Title	NOTES AND LEGEND SHEET
SKC02		SKC02		SURVEY EXTENT
SKC03		SKC03		OVERALL SITE WORKS PLAN
SKC04		SKC04		EROSION AND SEDIMENT CONTROL PLAN
SKC05		SKC05		STORM WATER AND SITE WORKS PLAN
SKC15		SKC15		BULK EARTHWORKS PLAN
SKC20		SKC20		DETAIL SHEET 1
SKC21		SKC21		DETAIL SHEET 2
SKC22		SKC22		FILTERRA BIORETENTION DETAIL

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Architect				Engineer				Project				Sheet Subject			
HASSELL LEVEL 2, PIER 8/9 23 HICKSON ROAD SYDNEY NSW 2000				TTW Structural Civil Traffic Façade				BROOKVALE OVAL REDEVELOPMENT, BROOKVALE				NOTES AND LEGEND SHEET			
Rev Description				Rev Description				Scale : A1				Drawn			
P3 ISSUE FOR DA				P2 DRAFT DA				NTS				AS			
P1 DRAFT DA				Rev Description				Job No				Drawing No			
Rev Description				Rev Description				191326				SKC01			
Rev Description				Rev Description				Plot File Created: Oct 22, 2019 - 2:18pm				Revision			
Rev Description				Rev Description				191326				P3			
Rev Description				Rev Description				Plot File Created: Oct 22, 2019 - 2:18pm				Revision			



EXISTING SERVICES LEGEND	
S	Existing sewer
W	Existing water
E	Existing underground electrical
EA	Existing aerial electrical
T	Existing communications
G	Existing gas
SW	Existing stormwater

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AT ORIGINAL SIZE

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P3	ISSUE FOR DA	LE	WW	22.10.19										
P2	DRAFT DA	SB	WW	27.09.19										
P1	FOR COORDINATION	DU	SP	02.07.19										

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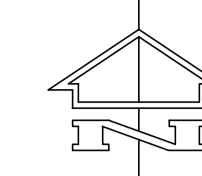
Project
**BROOKVALE OVAL
REDEVELOPMENT, BROOKVALE**

Sheet Subject
SURVEY EXTENT

Scale: A1
1:1000
Drawn: SP
Authorised: DU

Job No: 191326
Drawing No: SKC02
Revision: P3

Plot File Created: Oct 22, 2019 - 2:05pm



EXISTING SERVICES LEGEND	
S	Existing sewer
W	Existing water
E	Existing underground electrical
EA	Existing aerial electrical
T	Existing communications
G	Existing gas
SW	Existing stormwater

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AT ORIGINAL SIZE m

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P5	ISSUE FOR DA	LE	WW	22.10.19					
P4	DRAFT DA	SB	WW	21.10.19					
P3	DRAFT DA	SB	AS	01.10.19					
P2	DRAFT DA	SB	WW	27.09.19					
P1	FOR COORDINATION	DU	GG	09.07.19					

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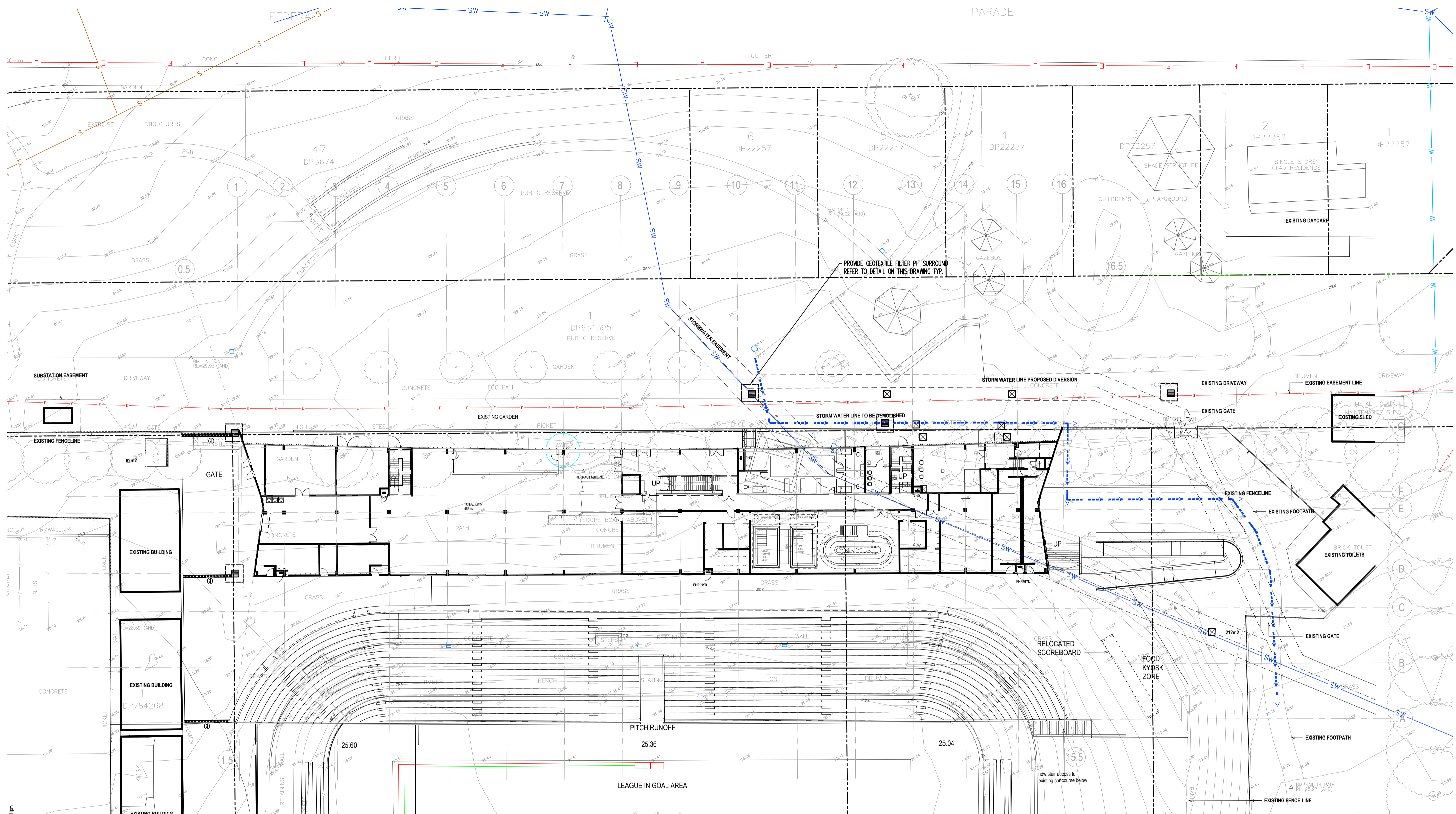
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Project
**BROOKVALE OVAL
REDEVELOPMENT, BROOKVALE**

Sheet Subject
OVERALL SITE WORKS PLAN

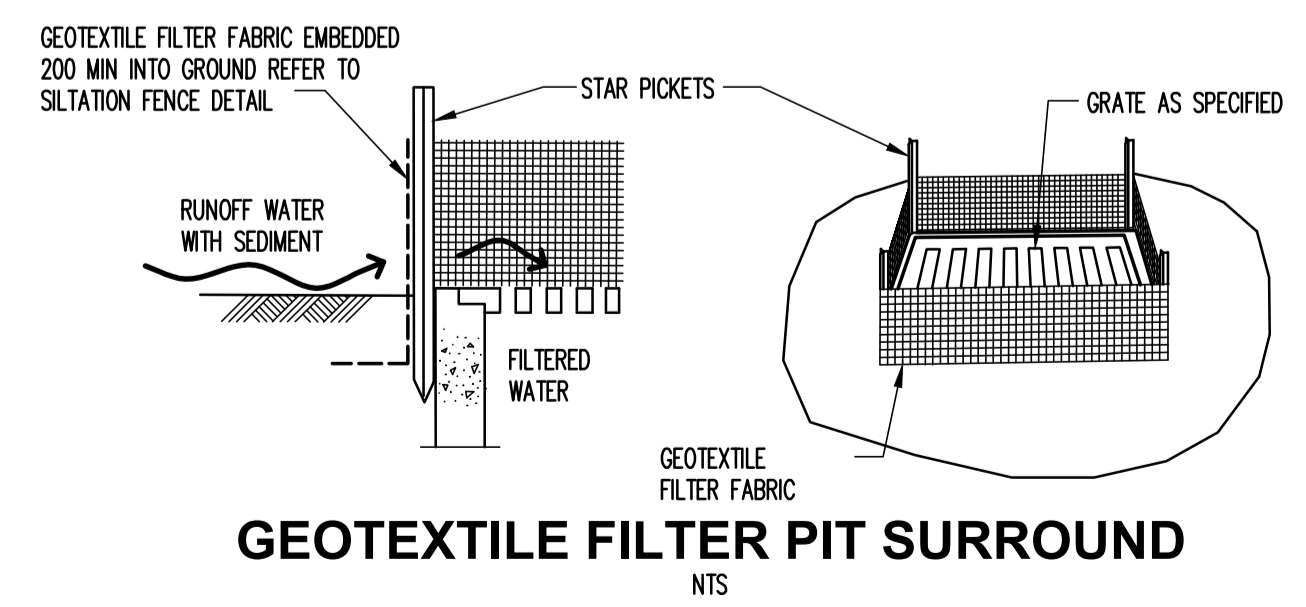
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191326	SKC03	P5

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Plot File Created: Oct 22, 2019 - 2:10pm



EROSION AND SEDIMENT CONTROL LEGEND

- Batter
- Siltation fence
- Stormwater pit with Geotextile filter surround
- Hay bale barriers
- Sandbag sediment trap
- Catch drain
- Overland flow path



SCALE 1:250
AT ORIGINAL SIZE

DEVELOPMENT APPLICATION
NOT TO BE USED FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P4	ISSUE FOR DA	LE	WW	22.10.19										
P3	DRAFT DA	SB	WW	01.10.19										
P2	DRAFT DA	SB	WW	27.09.19										
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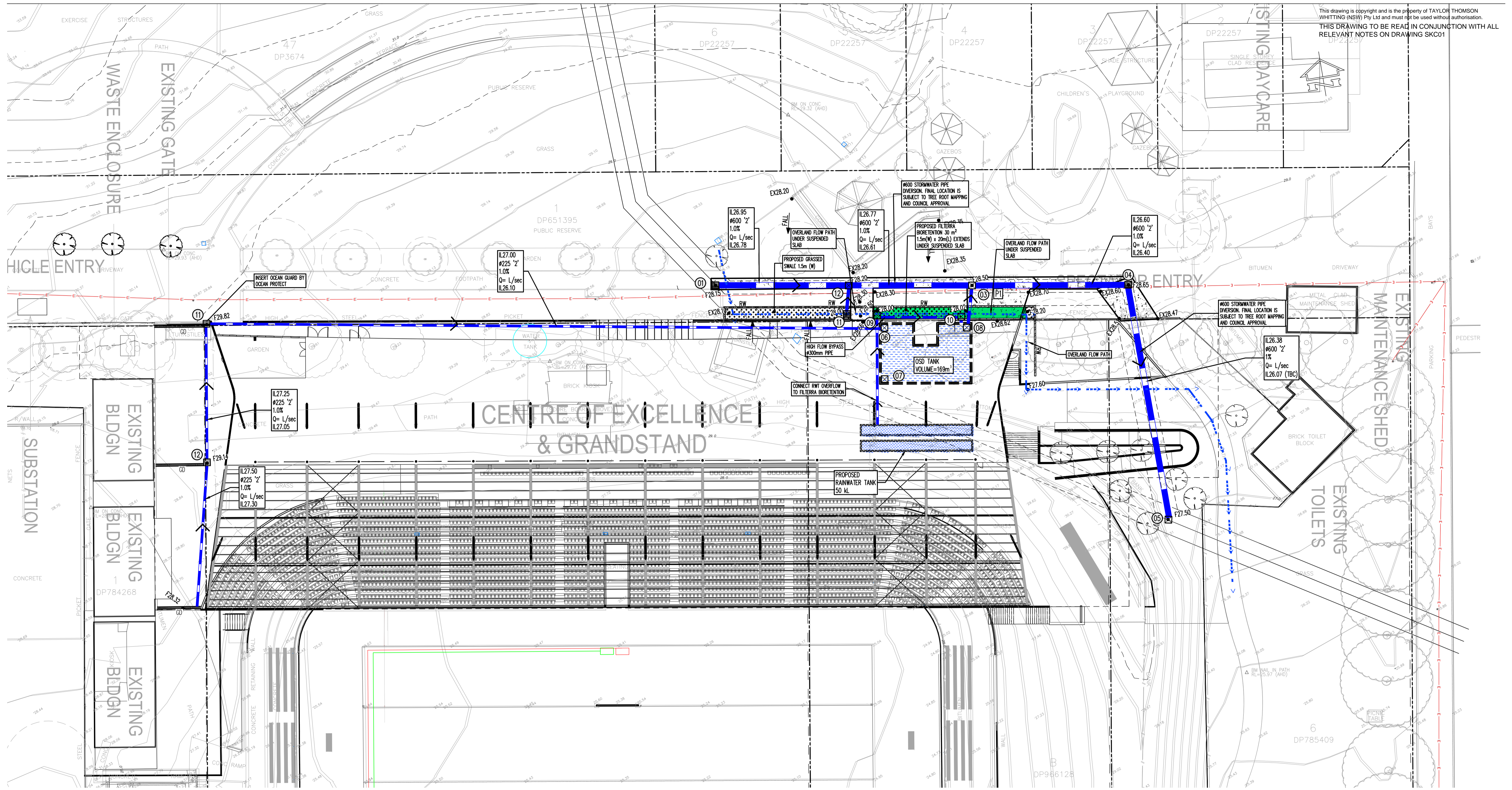
Architect
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Project
BROOKVALE OVAL REDEVELOPMENT, BROOKVALE

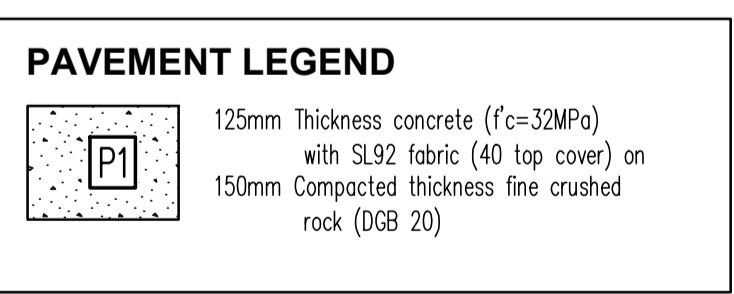
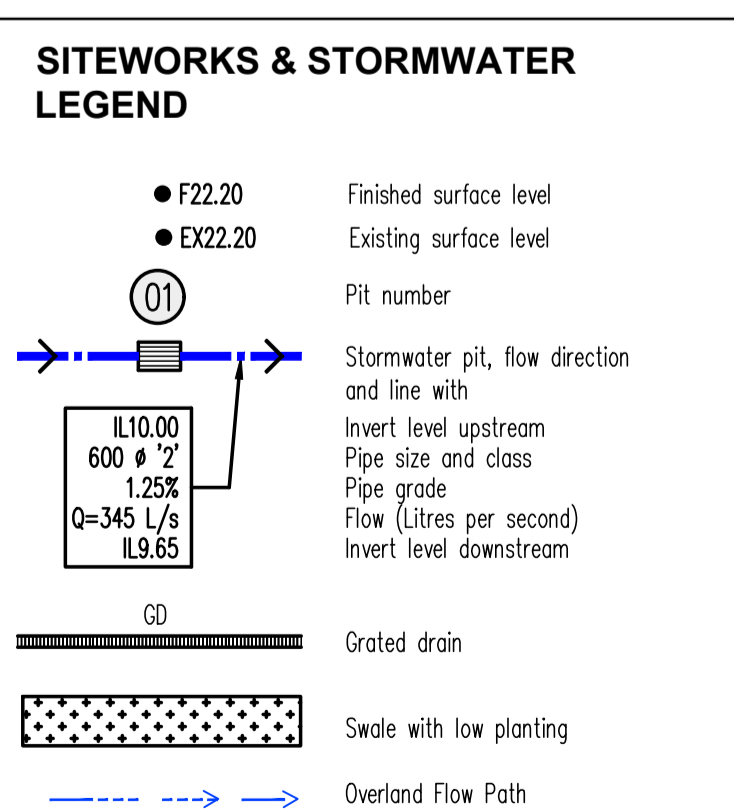
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EROSION AND SEDIMENT CONTROL PLAN

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Job No 191326	Drawing No SKC04	Revision P4
Plot File Created: Oct.22.2019 - 2:11pm		



PIT SCHEDULE
 Note: Grate size does not necessarily reflect pit size, refer pit type details, shown on detail sheets - SKC20
 Final internal pit dimensions are to comply with AS3500

Type	Description	Cover (Clear Opening)	Number
A	Surface inlet pit	900 x 900 Class C galvanised mild steel grate hinged to frame	1,2,4,9,10,11
B	Junction pit	900 x 900 Class C cast iron cover with concrete infill	3,5,12
C	OSD tank pit	900 x 900 Class C cast iron cover with concrete infill	7,8



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 AT ORIGINAL SIZE

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P6	FOR COORDINATION	SB	AS	10.10.19	P11	ISSUE FOR DA	LE	WW	22.10.19					
P5	FOR COORDINATION	SB	AS	08.10.19										
P4	DRAFT DA	SB	AS	01.10.19	P10	DRAFT DA	SB	WW	22.10.19					
P3	DRAFT DA	SB	WW	27.09.19	P9	DRAFT DA	SB	WW	21.10.19					
P2	FOR COORDINATION	DU	SP	27.09.19	P8	FOR COORDINATION	SB	AS	17.10.19					
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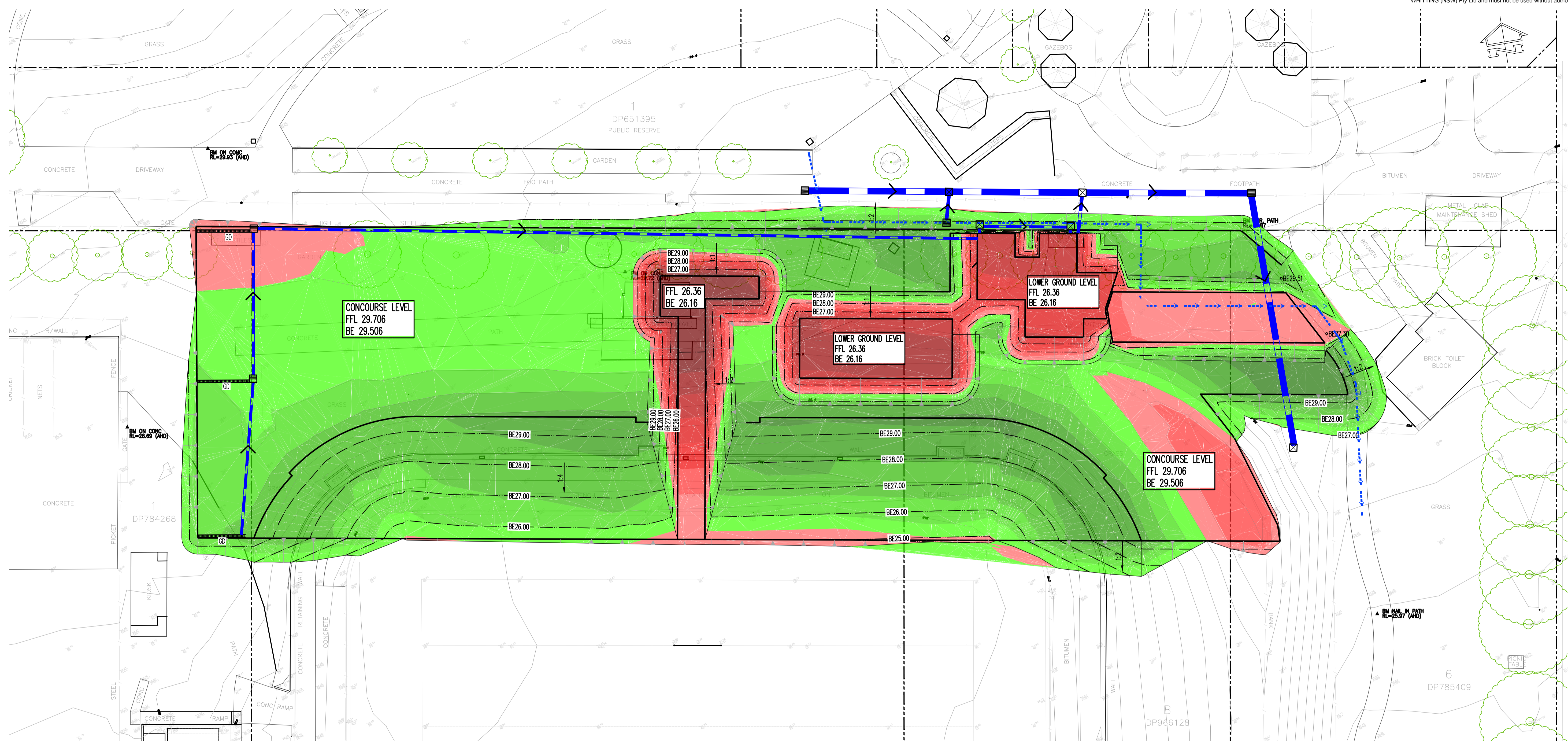
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Project
BROOKVALE OVAL REDEVELOPMENT, BROOKVALE

Sheet Subject
STORM WATER AND SITE WORKS CONCEPT PLAN

Scale	Drawn	Authorised
A1	SP	SB
Job No	Drawing No	Revision
191326	SKC05	P11
Plot File Created: Oct 22, 2019 - 2:20pm		



Reference: SKC15.dwg - USER: wendy - Plot File Created: Oct 22, 2019 - 2:13pm

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AT ORIGINAL SIZE

Surface Analysis: Elevation Ranges					
Number	Color	Minimum Elevation (m)	Maximum Elevation (m)	2D Area (m ²)	Volume (m ³)
1	Black	-4.500	-4.000	98.6	28.1
2	Black	-4.000	-3.500	40.0	59.9
3	Dark Red	-3.500	-3.000	50.3	81.6
4	Red	-3.000	-2.500	135.2	130.3
5	Red	-2.500	-2.000	118.1	191.2
6	Red	-2.000	-1.500	180.6	270.7
7	Red	-1.500	-1.000	127.2	342.5
8	Red	-1.000	-0.500	255.7	434.7
9	Red	-0.500	0.000	502.2	606.4
10	Light Green	0.000	0.500	1431.9	1700.5
11	Light Green	0.500	1.000	966.1	1165.3
12	Light Green	1.000	1.500	1091.5	621.6
13	Light Green	1.500	2.000	642.1	175.3
14	Light Green	2.000	2.500	101.7	7.2

BULK EARTHWORKS NOTES

- All bulk earthworks setout from grid lines U.N.O.
- Temporary batters slope as showing on plan.
- Excavated material may be used as structural fill provided,
 - it complies with the specification requirements for fill material,
 - the placement moisture content complies with the Geotechnical Consultants requirements, and allows filling to be placed and proffered in accordance with the specification. Where necessary the Contractor must moisture condition the excavated material to meet these requirements.
- Compact fill areas and subgrade to not less than:

Location	Standard dry density (AS 1289 5.1.1.)	Moisture (OMC)
Under building slabs on ground:	98%	±2%
Under roads and carparks:	98%	±2%
Landscaped areas:	95%	±2%
- Before placing fill, proof roll exposed subgrade with a 10 tonne minimum roller to test subgrade and then remove soft spots (areas with more than 3mm movement under roller). Soft spots to be replaced with select fill U.N.O.
- Contractor shall place safety barriers around excavations in accordance with relevant safety regulations.
- For interpretation of bulk earthworks foot print line shown on the bulk earthworks drawings refer to the bulk earthworks construction legend.
- Bulk earthwork drawings are not to be used for detailed excavation.
- Refer to Geotechnical Report prepared by - Jeffery and Katauskas Pty Ltd Ref: 249837pt2 dated 5 July 2011

BULK EARTHWORKS LEGEND

Batter
 ● BE22.00 Bulk earthworks spot level
 - - - BE22.00 Bulk earthworks contour level
 BE 22.00 Bulk earthworks platform level

BULK EARTHWORKS QUANTITIES

CUT = -1710m³
 FILL = 3590m³
 NET = 1880m³ (FILL)

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P4	ISSUE FOR DA	LE	WW	22.10.19										
P3	DRAFT DA	SB	WW	01.10.19										
P2	DRAFT DA	SB	WW	27.09.19										
P1	FOR COORDINATION	DU	WW	10.09.19										

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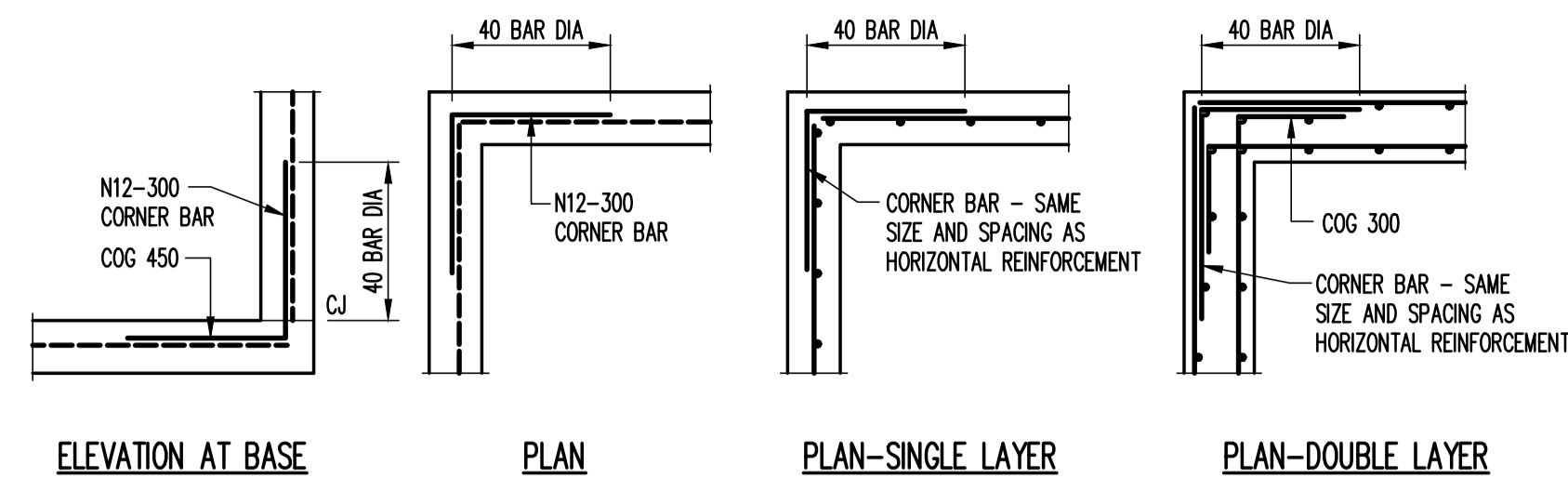
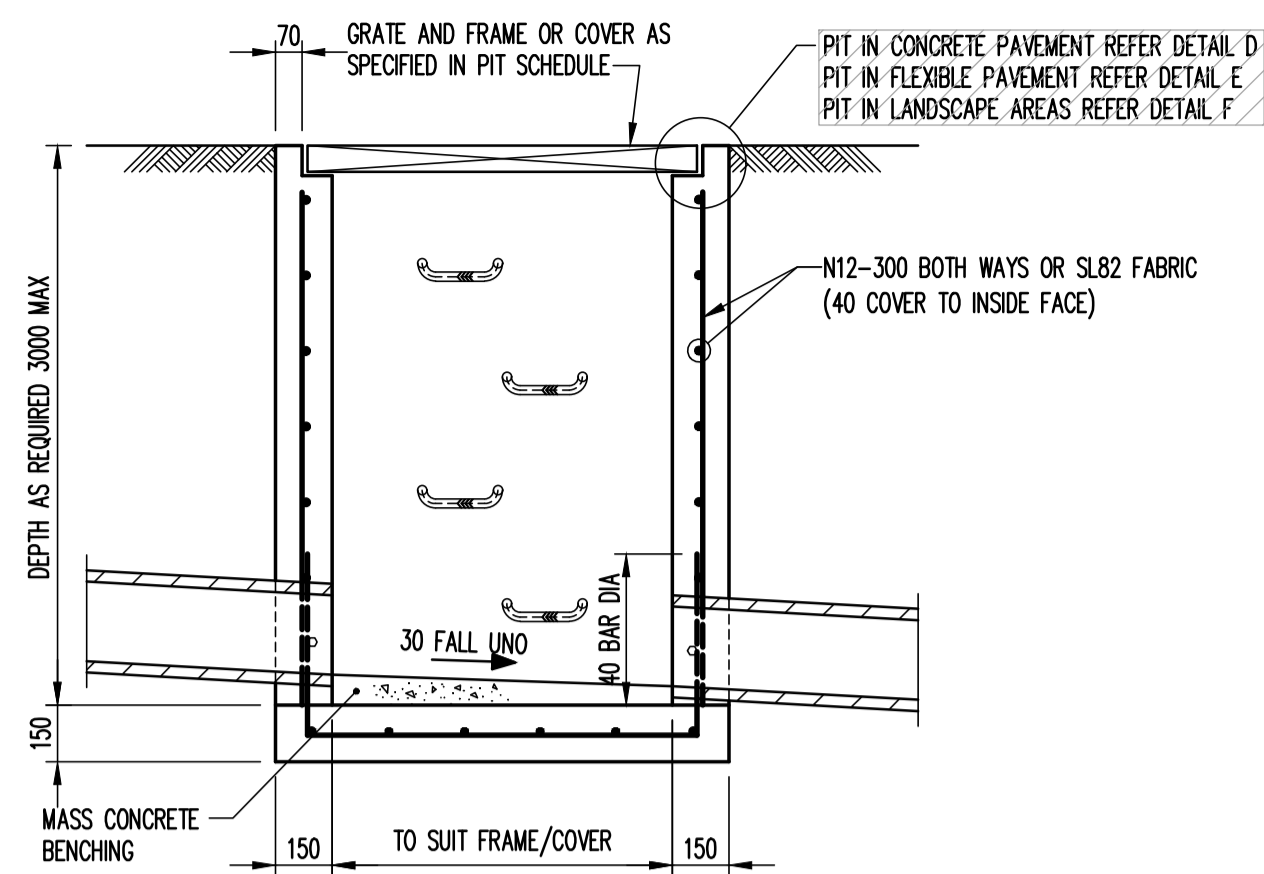
Project
BROOKVALE OVAL REDEVELOPMENT, BROOKVALE

Sheet Subject
BULK EARTHWORK PLAN

Scale: A1 1:250 Drawn: WW Authorised: SB

Job No: 191326 Drawing No: SKC15 Revision: P4

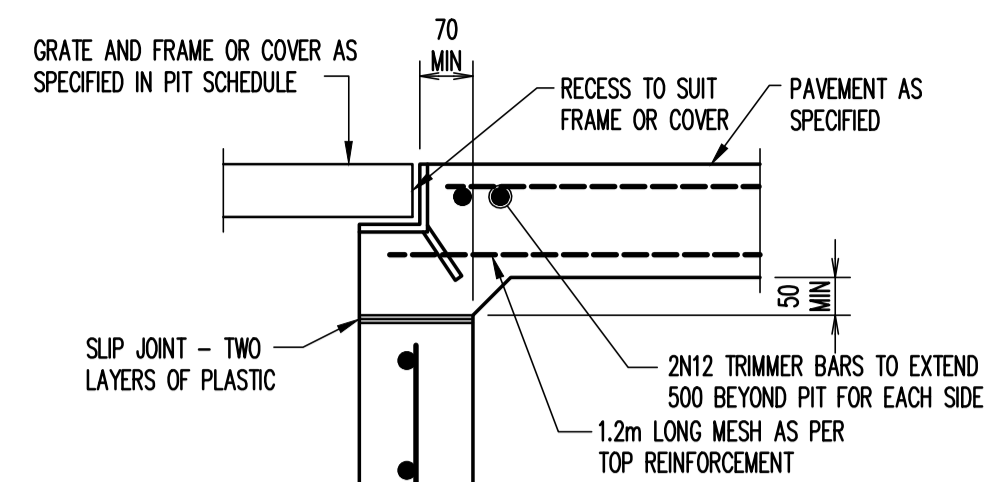
Plot File Created: Oct 22, 2019 - 2:13pm



PIT CORNER DETAILS

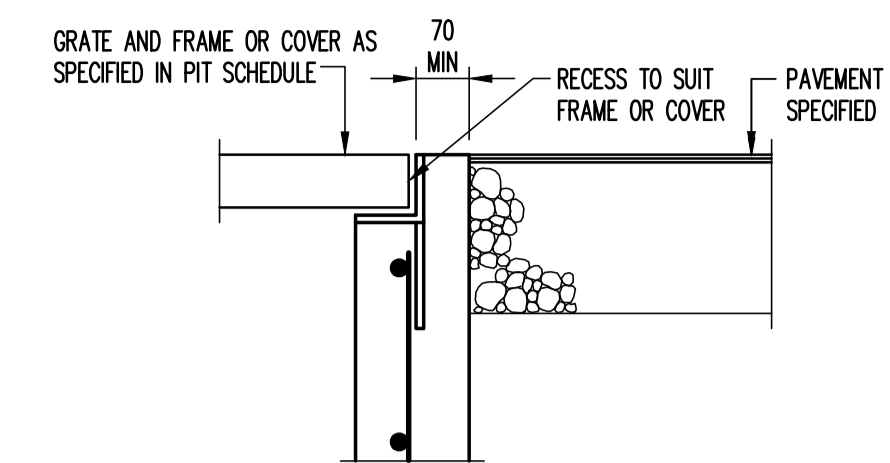
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DESIGNER TO VERIFY
EXTENT OF DETAILING



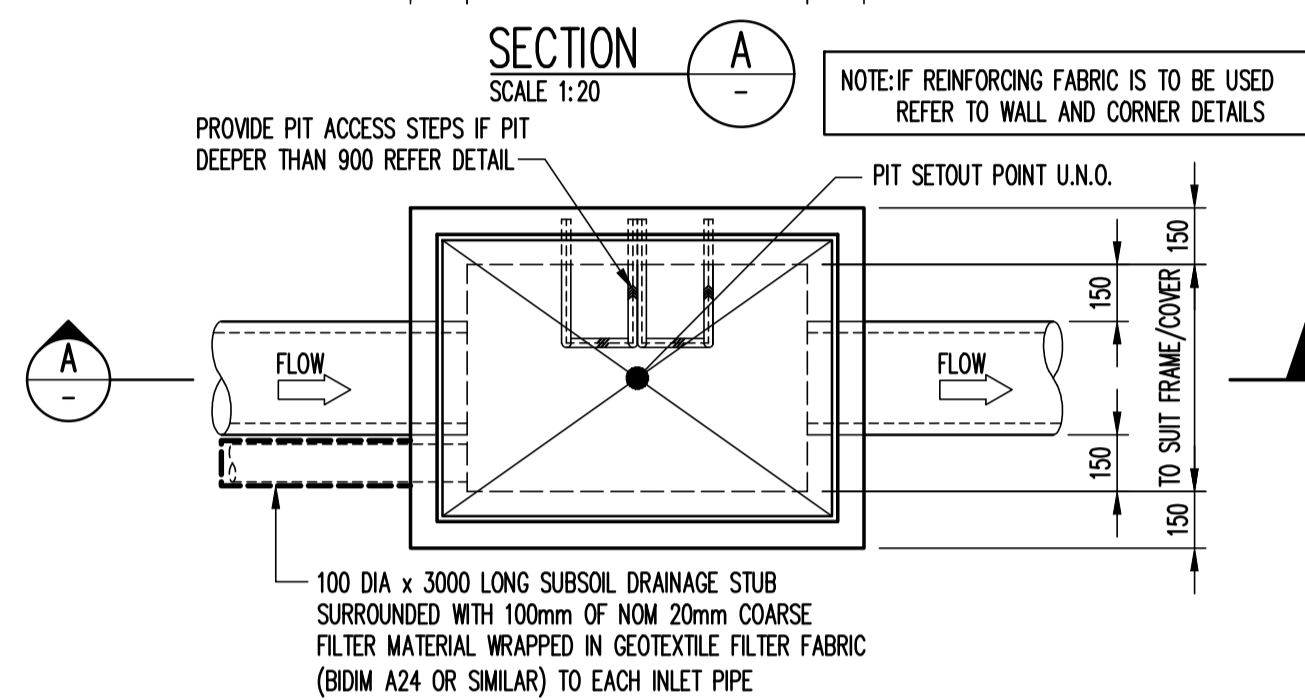
DETAIL D

SCALE 1:10



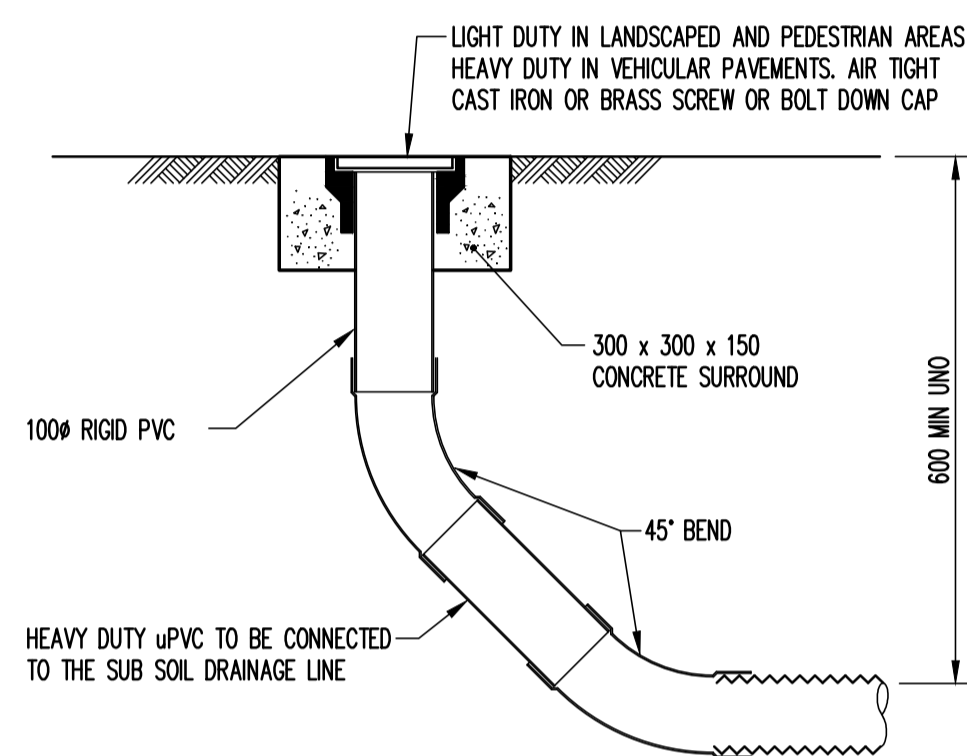
DETAIL E

SCALE 1:10



PIT TYPE A & B

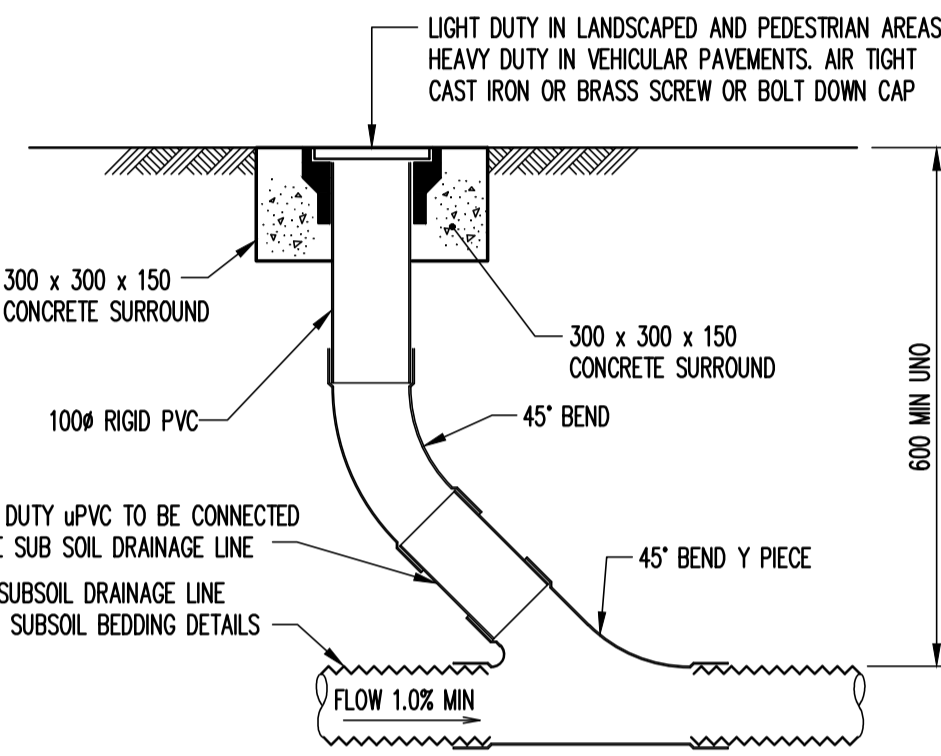
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FLUSHING POINT (FP)

SCALE 1:10

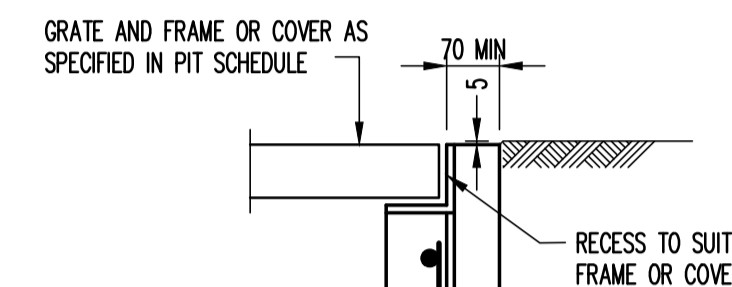
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



INTERMEDIATE RISER (IR)

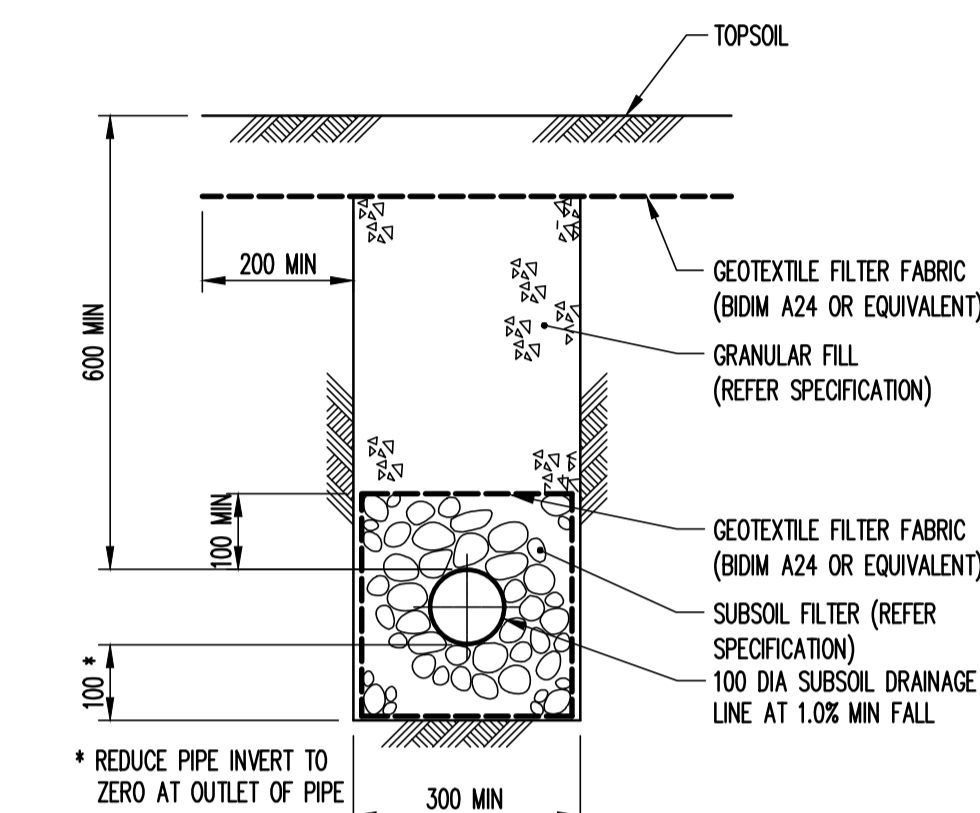
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NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED



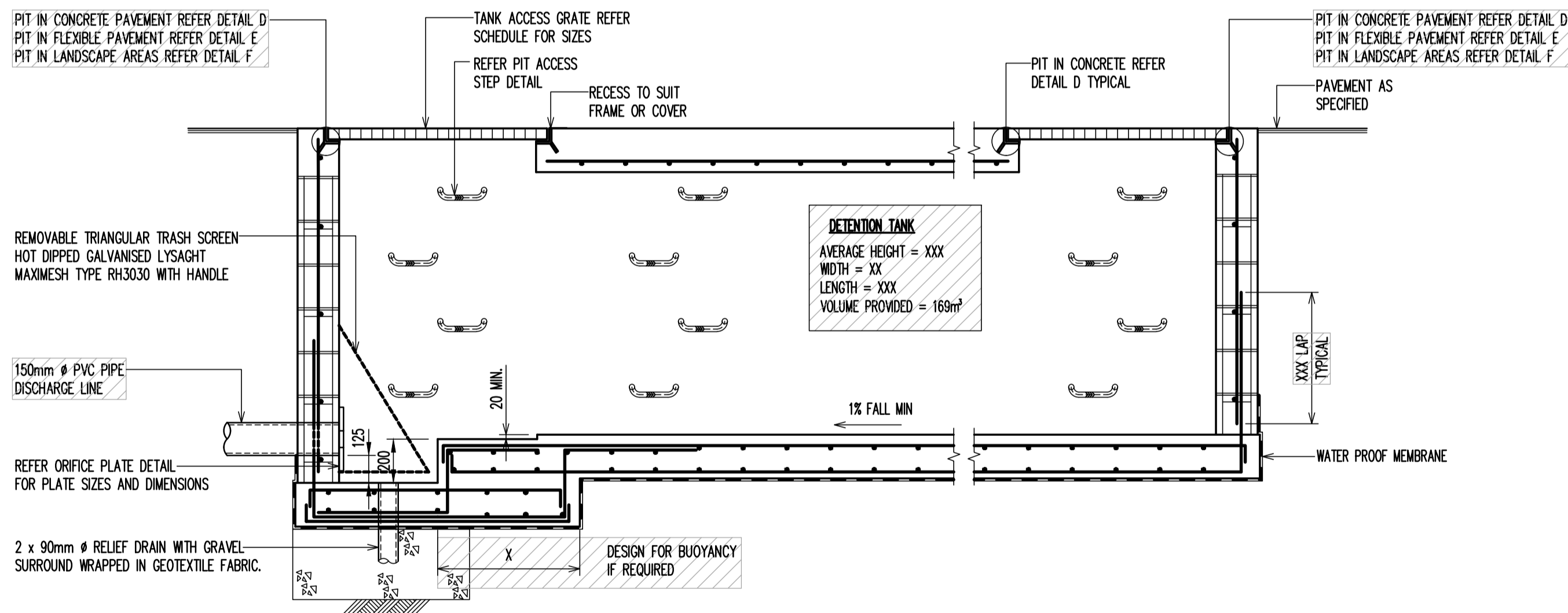
DETAIL F

SCALE 1:10



SUBSOIL IN LANDSCAPED AREAS

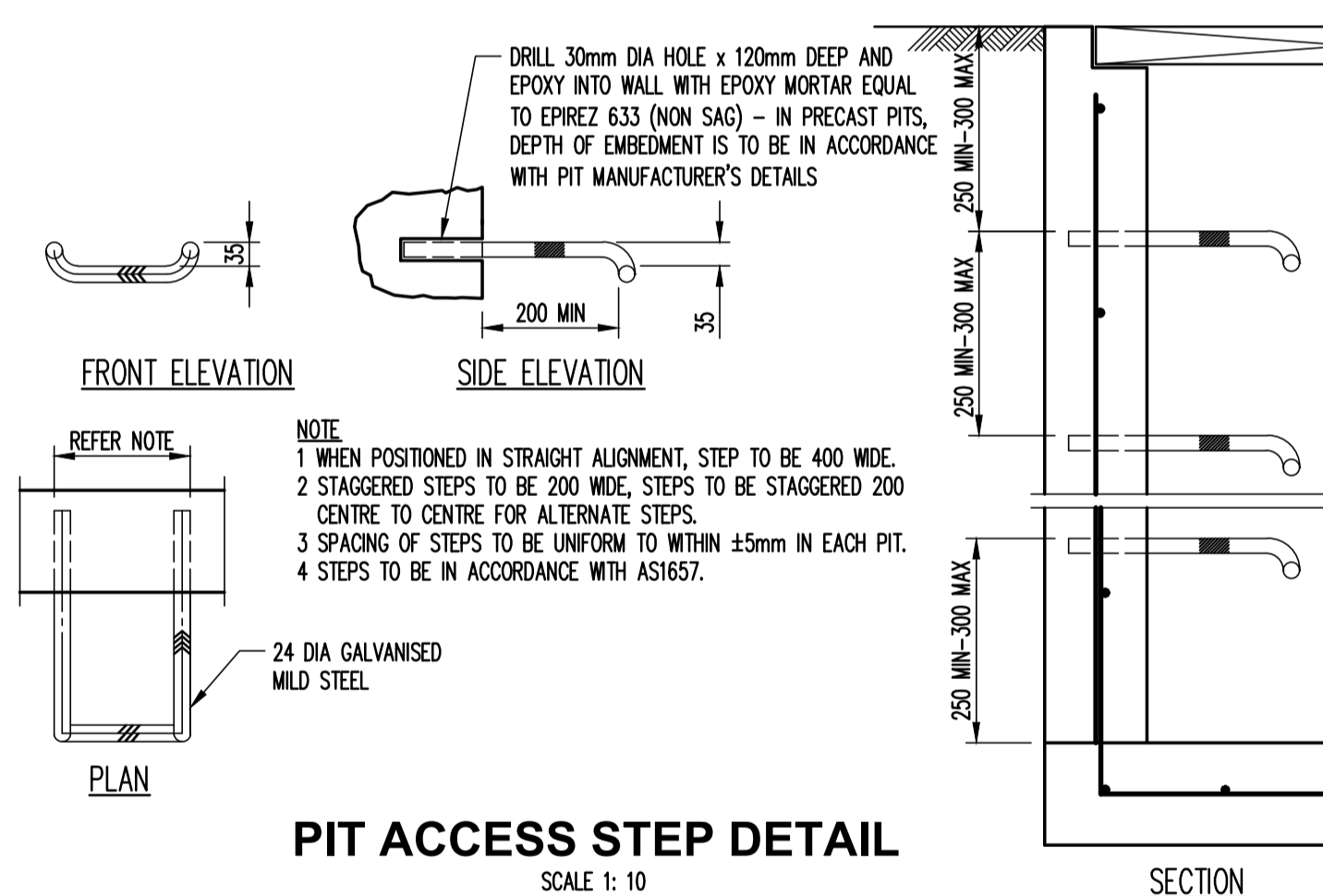
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SECTION THROUGH DETENTION TANK

SCALE 1:20

DESIGNER TO VERIFY
EXTENT OF DETAILING



PIT ACCESS STEP DETAIL

SCALE 1:10

Filename: SKC20.dwg - USER: wsh/ym - Plot File Created: Oct 22, 2019 - 2:13pm

DEVELOPMENT APPLICATION

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Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	ISSUE FOR DA	LE	WW	22.10.19										
P1	DRAFT DA	SB	WW	27.09.19										

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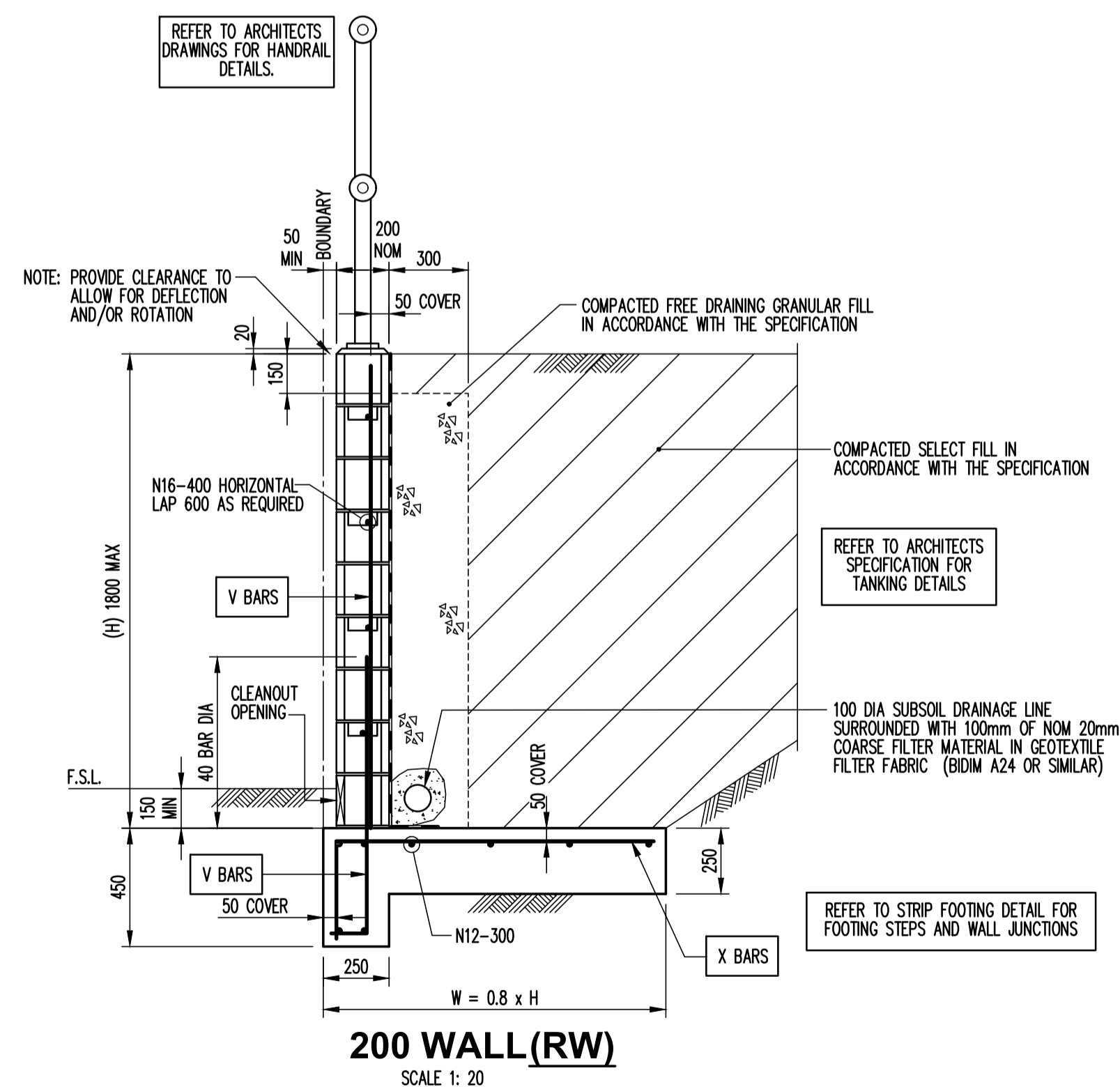
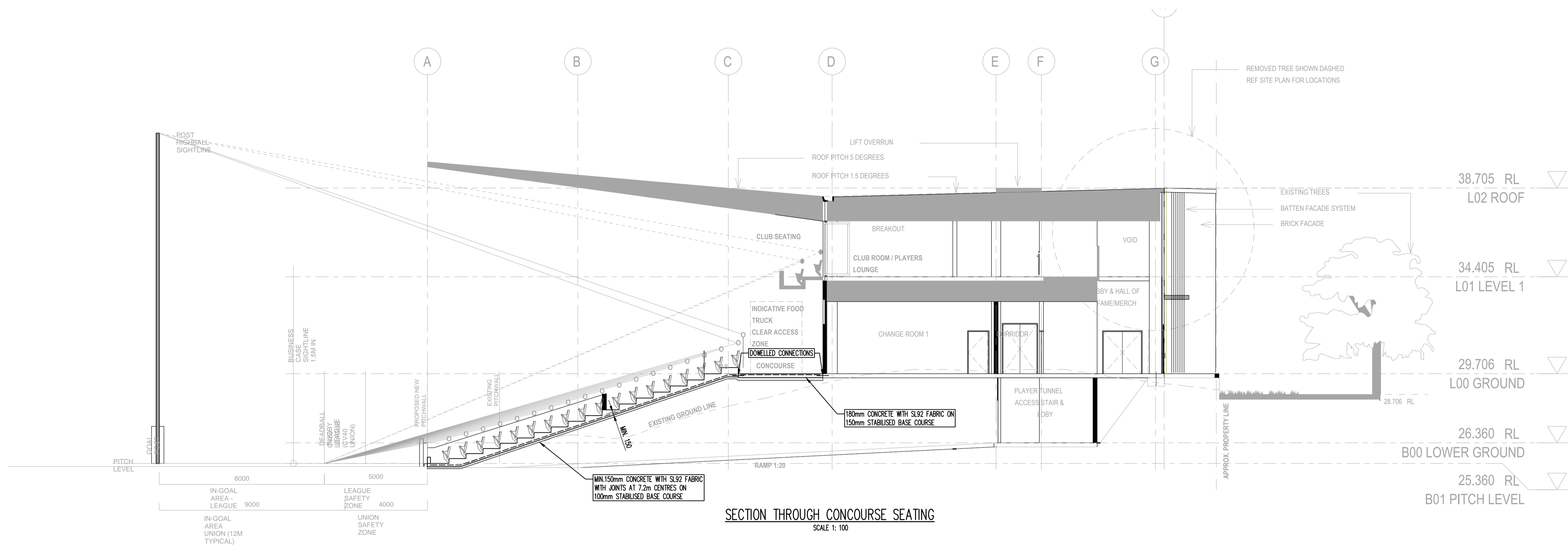
Project
BROOKVALE OVAL
REDEVELOPMENT, BROOKVALE

Sheet Subject
DETAILS SHEET 1

Scale: A1 Drawn: AS SHOWN Authorised: AS SB

Job No: 191326 Drawing No: SKC20 Revision: P2

Plot File Created: Oct 22, 2019 - 2:13pm



DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Filename: SKC21.dwg - USER: wshlye - Plot File Created: Oct 22, 2019 - 2:14pm

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	ISSUE FOR DA	LE	WW	22.10.19										
P1	DRAFT DA	SB	WW	02.10.19										

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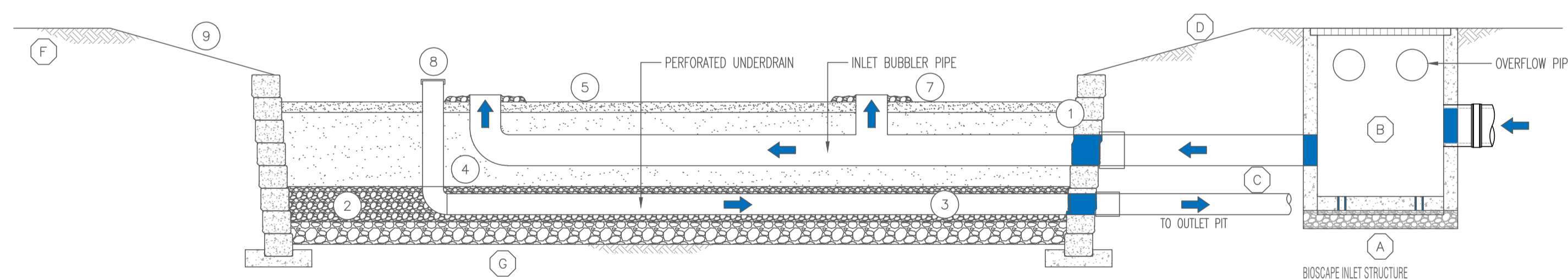
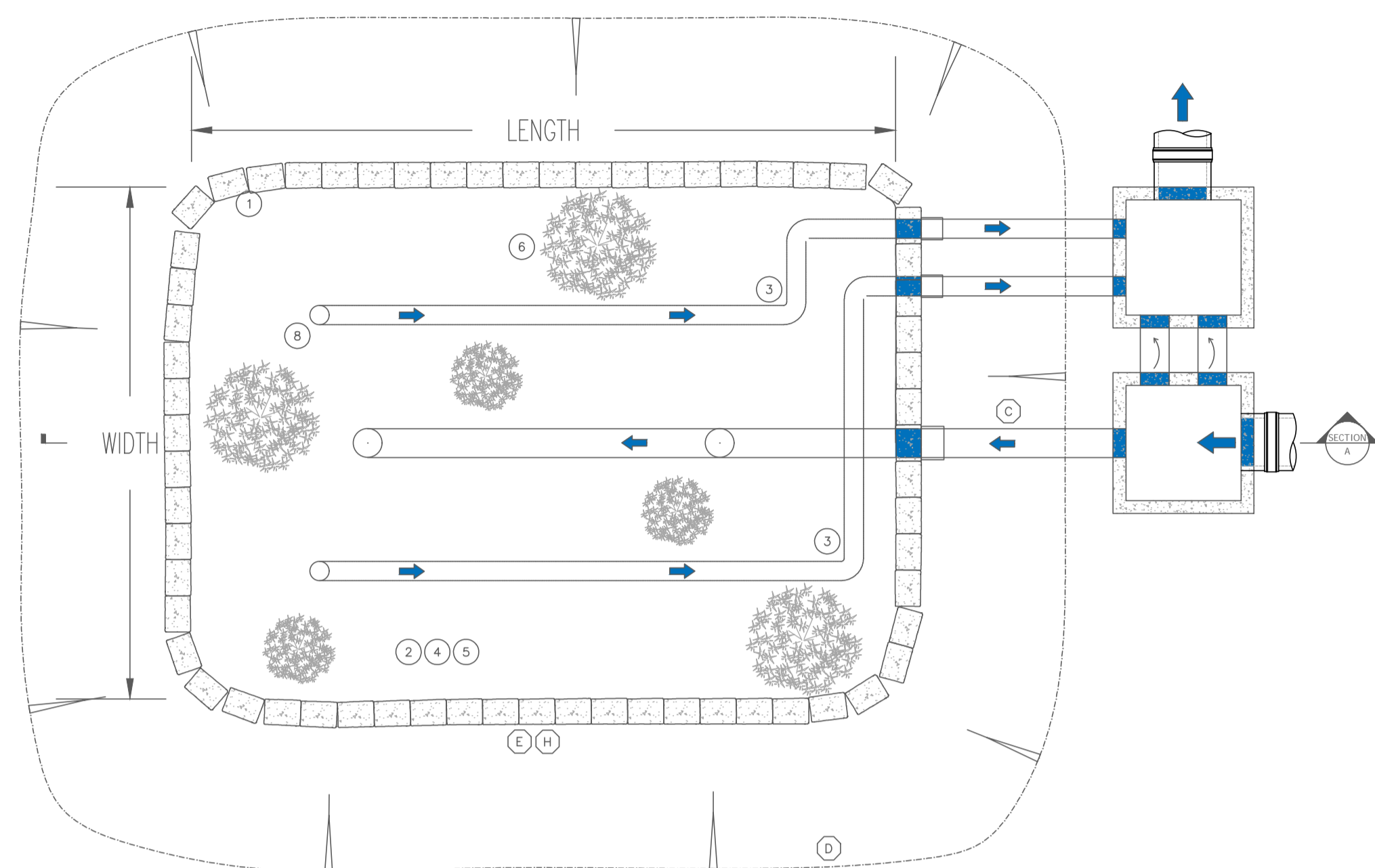
Engineer
TTW Structural Civil Traffic Façade
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Project
BROOKVALE OVAL REDEVELOPMENT, BROOKVALE

Sheet Subject
DETAILS SHEET 2

Scale	Drawn	Authorised
AS SHOWN	AS	SB
Job No 191326	Drawing No SKC21	Revision P2
Plot File Created: Oct 22, 2019 - 2:14pm		

NOT FOR CONSTRUCTION



SITE SPECIFIC REQUIREMENTS		
COUNT	DESCRIPTION	INSTALLED BY
	FILTERRA SURFACE AREA (m ²)	OCEAN PROTECT
	MULCH VOLUME (m ³)	OCEAN PROTECT
	FILTERRA MEDIA DEPTH (mm)	OCEAN PROTECT
	VOLUME OF UNDERDRAIN STONE (m ³)	OCEAN PROTECT
	FILTERRA LINER (m)	OCEAN PROTECT

PLANTING SCHEDULE	
COUNT	FILTERRA BIOSCAPE SYSTEM PLANT PALETTE

GENERAL NOTES

- CONTRACTOR SHALL CONTACT OCEAN PROTECT TO COORDINATE DELIVERY AND INSTALLATION OF FILTERRA BIOSCAPE SYSTEM. OCEAN PROTECT ACTIVATION CAN ONLY OCCUR ONCE CONTRACTOR RESPONSIBILITIES ARE COMPLETE.
- PERFORM FILTERRA BIOSCAPE SYSTEM EXCAVATION ONLY AFTER ALL THE CONTRIBUTING DRAINAGE AREAS ARE PERMANENTLY STABILISED. DO NOT CONSTRUCT FILTERRA BIOSCAPE SYSTEM IN AN AREA PREVIOUSLY USED AS EROSION AND SEDIMENT CONTROL FACILITIES. DO NOT STOCKPILE MATERIALS OR STORE EQUIPMENT IN THIS AREA. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT CONSTRUCTION-RELATED EROSION RUNOFF FROM ENTERING THE FILTERRA MEDIA BAY.
- FILTERRA SHALL BE INSTALLED OFFLINE AS EARLY AS POSSIBLE AFTER SITE STABILISATION TO ALLOW FOR SOIL MATURITY AND SYSTEM ESTABLISHMENT.
- CONTRACTOR SHALL COORDINATE WITH OCEAN PROTECT BEFORE THE FILTERRA BIOSCAPE SYSTEM IS EXCAVATED TO MINIMISE THE TIME BETWEEN EXCAVATION AND COMPLETION OF THE FILTERRA BIOSCAPE SYSTEM. ONCE EXCAVATED, ANY STANDING WATER THAT ACCUMULATES IN THE EXCAVATED AREA MUST BE REMOVED BY THE CONTRACTOR BEFORE OCEAN PROTECT CAN COMMENCE THE FILTERRA BIOSCAPE SYSTEM. ANY ADDITIONAL EXCAVATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE ACCESS TO THE EXCAVATED AREA(S) FOR OCEAN PROTECT TO USE DURING THE CONSTRUCTION OF THE FILTERRA BIOSCAPE SYSTEM(S). ACCESS SHALL NOT PROHIBIT LIGHT DUTY EQUIPMENT THAT MAY BE USED TO INSTALL THE COMPONENTS (STONE, MEDIA, ETC). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RE-STABILIZATION THAT MAY BE REQUIRED AFTER THE FILTERRA BIOSCAPE SYSTEM INSTALLATION/ACTIVATION.
- OCEAN PROTECT AND/OR ITS REPRESENTATIVES SHALL BE RESPONSIBLE FOR THE LIST ENTITLED 'OCEAN PROTECT INSTALLATION RESPONSIBILITIES'.
- NO FLOW SHALL ENTER THE FILTERRA SYSTEM UNLESS OCEAN PROTECT HAS ACTIVATED THE SYSTEM AND CONFIRMED ESTABLISHMENT.

CONTRACTOR WORKS AND INSTALLATION RESPONSIBILITIES

- CONTRACTOR TO PLACE FILTERRA INLET STRUCTURE ON BEDDING AS SPECIFIED BY THE ENGINEER. OCEAN PROTECT SUGGESTS AS A MINIMUM TO USE 150MM BEDDING STONE ON COMPACTED SUB-GRADE TO 90% DENSITY. UNSUITABLE MATERIAL SHALL BE REPLACED AS ADVISED BY THE ENGINEER.
- CONTRACTOR SHALL PROVIDE AND INSTALL DRAINAGE ITEMS TO, FROM AND INCLUDING THE INLET AND OUTLET STRUCTURES AS PER THE APPROVED SITE PLANS.
- OCEAN PROTECT CAN PROVIDE COUPLERS AT THE FILTERRA INTERFACE FOR CONNECTION TO THE INLET DIVERSION PIPES. ALL DRAINAGE TO AND FROM THE FILTERRA MUST ALLOW FOR POSITIVE FLOW.
- CONTRACTOR TO PROVIDE BATTER ACCORDING TO DIMENSION AND SLOPE SHOWN ON PLANS. SLOPE FROM SHOULDER TO FILTERRA BIOSCAPE SYSTEM SURFACE PERIMETER SHALL NOT EXCEED 3:1. TURF IS REQUIRED TO STABILISE SIDE SLOPES SHOWN ON DETAIL AND ON PLAN SHEETS.
- CONTRACTOR TO EXCAVATE MEDIA AREA CORRESPONDING TO THE SIZE OF THE FILTERRA BIOSCAPE SYSTEM SURFACE AREA AS SHOWN ON DETAIL AND ON PLAN SHEETS.
- CONTRACTOR SHALL EXCAVATE VERTICALLY FROM BOTTOM OF UNDERDRAIN STONE OR DRAINAGE STONE IF REQUIRED, TO ELEVATION OF MULCH AS SHOWN ON THIS DETAIL.
- CONTRACTOR TO CONFIRM DEPTH OF EXCAVATION. IF THE EXCAVATION HAS BEEN MADE TOO DEEP AND ADDITIONAL UNDERDRAIN STONE NEEDS TO BE USED TO RAISE THE BASE OF THE FILTERRA, THIS COST SHALL BE TAKEN ON BY THE CONTRACTOR.

OCEAN PROTECT SUPPLY AND INSTALLATION RESPONSIBILITIES

- GEOTEXTILE FABRIC ALONG THE PERIMETER OF THE FILTERRA BIOSCAPE SYSTEM EXCAVATION.
- UNDERDRAIN STONE. TYPICALLY 250MM THICK (50MM UNDER THE PIPING 150MM AROUND THE PIPING AND 50MM ABOVE THE PIPING)
- 150mm UNDERDRAIN PIPING UNLESS OTHERWISE APPROVED BY OCEAN PROTECT, ASSOCIATED PIPING AND FITTINGS/ELBOWS TO CONNECT TO THE PIPING/FITTING(S) THAT IS PROVIDED BY CONTRACTOR (SEE CONTRACTOR INSTALLATION RESPONSIBILITIES THIS DETAIL).
- 530mm FILTERRA MEDIA.
- 75mm DOUBLE SHREDDED HARDWOOD MULCH OVER ENTIRE FILTERRA BIOSCAPE SYSTEM SURFACE AREA.
- PLANTINGS OF PLANTS SELECTED BY ENGINEER THAT MATCH OCEAN PROTECTS APPROVED PLANTING LIST.
- RIPRAP APRON AROUND ALL FLOW ENTRY POINTS AS DESIGNED AND INDICATED ON THIS DETAIL.
- CLEAN-OUT ADAPTER, PLUG AND PIPING.
- COMMISSIONING THE SYSTEM



PHONE: 1300 354 722

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OCEAN PROTECT
FILTERRA BIOSCAPE SYSTEM
WITH BIOSCAPE INLET STRUCTURE
SPECIFICATION DRAWING

DEVELOPMENT APPLICATION

NOT TO BE USED FOR CONSTRUCTION

Filename: SKC22.dwg - User: wshy - Plot File Created: Oct 22, 2019 - 2:16pm

LAST MODIFIED: 11-10-19

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	ISSUE FOR DA	LE	WW	22.10.19										
P1	DRAFT DA	SB	LE	11.10.19										

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Project
**BROOKVALE OVAL
REDEVELOPMENT, BROOKVALE**

Sheet Subject
**FILTERRA BIORETENTION
DETAILS**

Scale: A1
AS SHOWN

Drawn
LE

Authorised
SB

Job No
191326

Drawing No
SKC22

Revision
P2

Plot File Created: Oct 22, 2019 - 2:16pm