SIMON DENT ASSOCIATES

Consulting Engineers to the Civil and Water Industry



SuDS Maintenance & Management Manual for North Stand at Worthing Football Club

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Compiled by Simon Dent B Eng (Hons) – Senior Partner

ISSUE	DATE	COMPILED	CHECKED
P1	26.06.2024	SAD	SDA

EXECUTIVE SUMMARY

- The site uses infiltration to convey storm water run-off from the roofs and hardstanding areas.
- The infiltration soakaway stores the peak 100 year + 45% climate change storm events.
- A planned SuDS management plan will be in place for the duration of the SuDS features.
- The SuDS system will have planned maintenance funds in place during its the lifetime for the protection and upkeep of the SuDS features.
- The design features and planned maintenance as described within this document provides sufficient information to discharge condition no. 5 of approval decision AWDM / 0351/24

1.0 PLANNING APPROVAL AND CONDITION

This manual has been prepared by Simon Dent Associates (SDA) for the client in response to the planning condition requesting a maintenance and management manual for the SuDS drainage systems serving the new North Stand at Worthing Football club.

The report responds to the requirement in the Approved Planning application AWDM/0351/24, condition no. 5 as stated below:-

The development hereby approved shall not be occupied until details of the maintenance and management of the sustainable drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The drainage scheme shall be implemented prior to the first occupation of the development hereby approved and thereafter managed and maintained in accordance with the approved details in perpetuity. The Local Planning Authority shall be granted access to inspect the sustainable drainage scheme for the lifetime of the development. The details of the scheme to be submitted for approval shall include:

i. a timetable for its implementation.

ii. details of SuDS feature and connecting drainage structures and maintenance requirements for each aspect including a drawing showing where they are located.

iii. a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime. This will include the name and contact details of any appointed management company.

***Reason:** To ensure that the development achieves a high standard of sustainability and ensure the flood risk is adequately addressed for each new dwelling and not increased in accordance with NPPF and Policies of Adur and Worthing Council.*

2.0 DESIGN REVIEW

- The storm water design was prepared by Simon Dent Associates in March 2024 for submission to the planning authority.
- The site proposal is for an additional stand measuring 90m x 6m located on the North touchline of the pitch along with additional toilet facilities.
- The storm water design collects all roofs from the new stand and toilet block and disposes to local shallow geocrate soakaways.
- Proposed external walkway surfaces are to drain direct to ground through a permeable block paving system.
- Silt/catch pits are used upstream on all inlets to the geocrate soakaways to mitigate silt migration and are detailed on the attached SDA drawings 200 & 201.
- All soakaways are detailed as geocrate wrapped in geotextile fleeces.
- All SuDS features are sized to offer the volume required to attenuate flows from the 100 year (1% AEP) storm event + 45% climate change.
- Rainfall data is derived using FEH 22 (Flood Estimation Handbook).
- The infiltration rates have been derived from site testing to BRE 365 and groundwater monitoring has taken place through winter months to ensure groundwater levels do not encroach on storage volumes and that all infiltration planes are a minimum of 1.0m above highest recorded groundwater levels.

3.0 SUDS AND DRAINAGE FEATURES

The works for the new North Stand are scheduled to be completed in August 2024. The planning condition is required to be discharged prior to occupation of the new stand.

The design of the roofs and surfaces follows the drainage hierarchy, as required by Building Regulations Doc H and CIRIA SuDS Manual C753, for storm water disposal by utilising infiltration techniques. SuDS components used are:-

- **Geocrate Soakaways** – These receive the roof water and infiltrate to drain. Run off enters rainwater downpipes and then enters the catchpits before being connected to the geocrate soakaway. The geocrate soakaway arrangement can be seen below in fig 1.

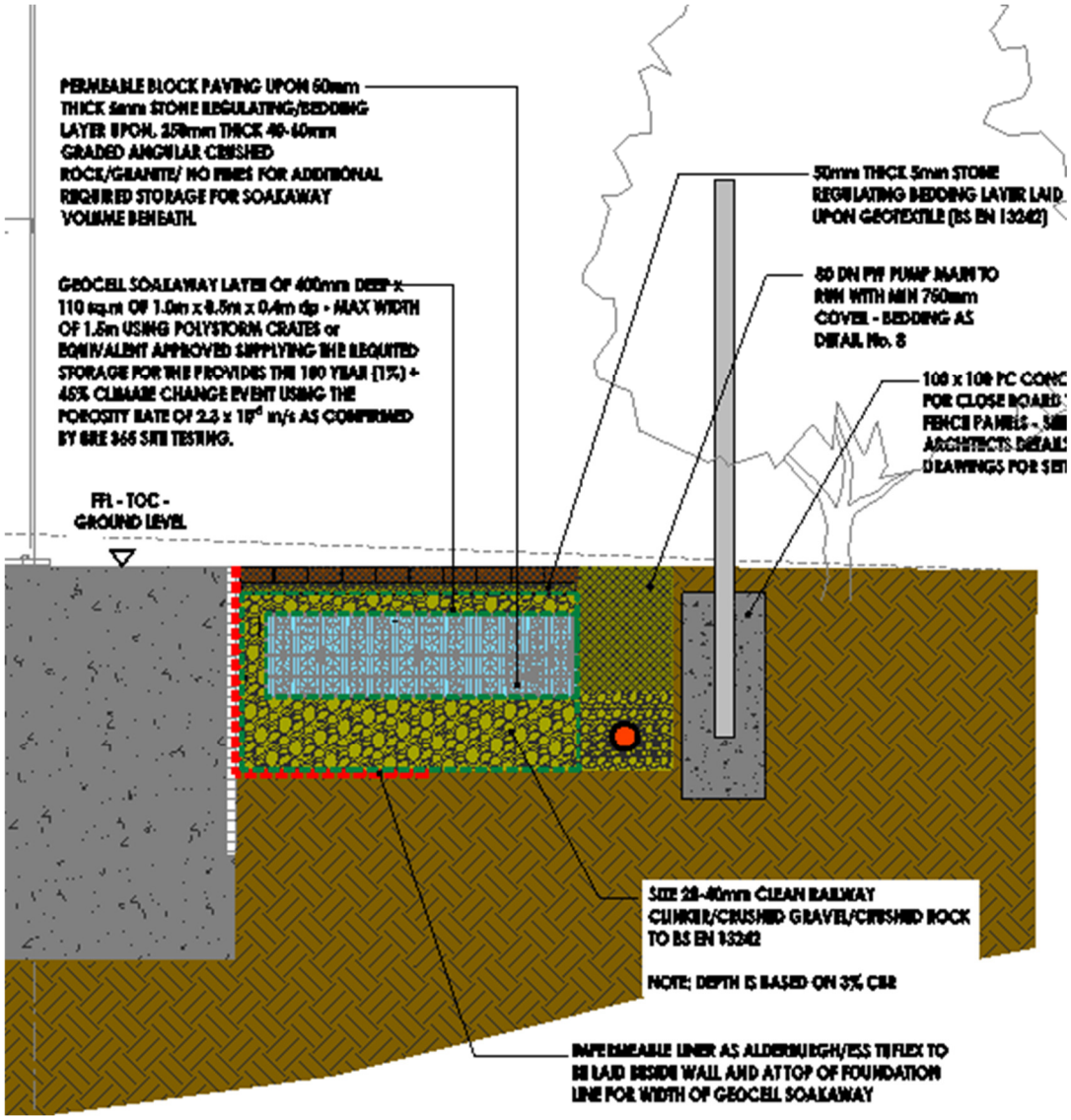


Fig 1 – Geocrate soakaway and permeable walkway construction

- **Catchpits** – These receive the rainwater downpipes and provide opportunity for settling of detritus before connection to the geocrate soakaways. Catchpit outlets are dipped to ensure no light detritus such as leaves and the like enter the geocrate soakway. The catchpit arrangement can be seen below in fig 2 and 3.

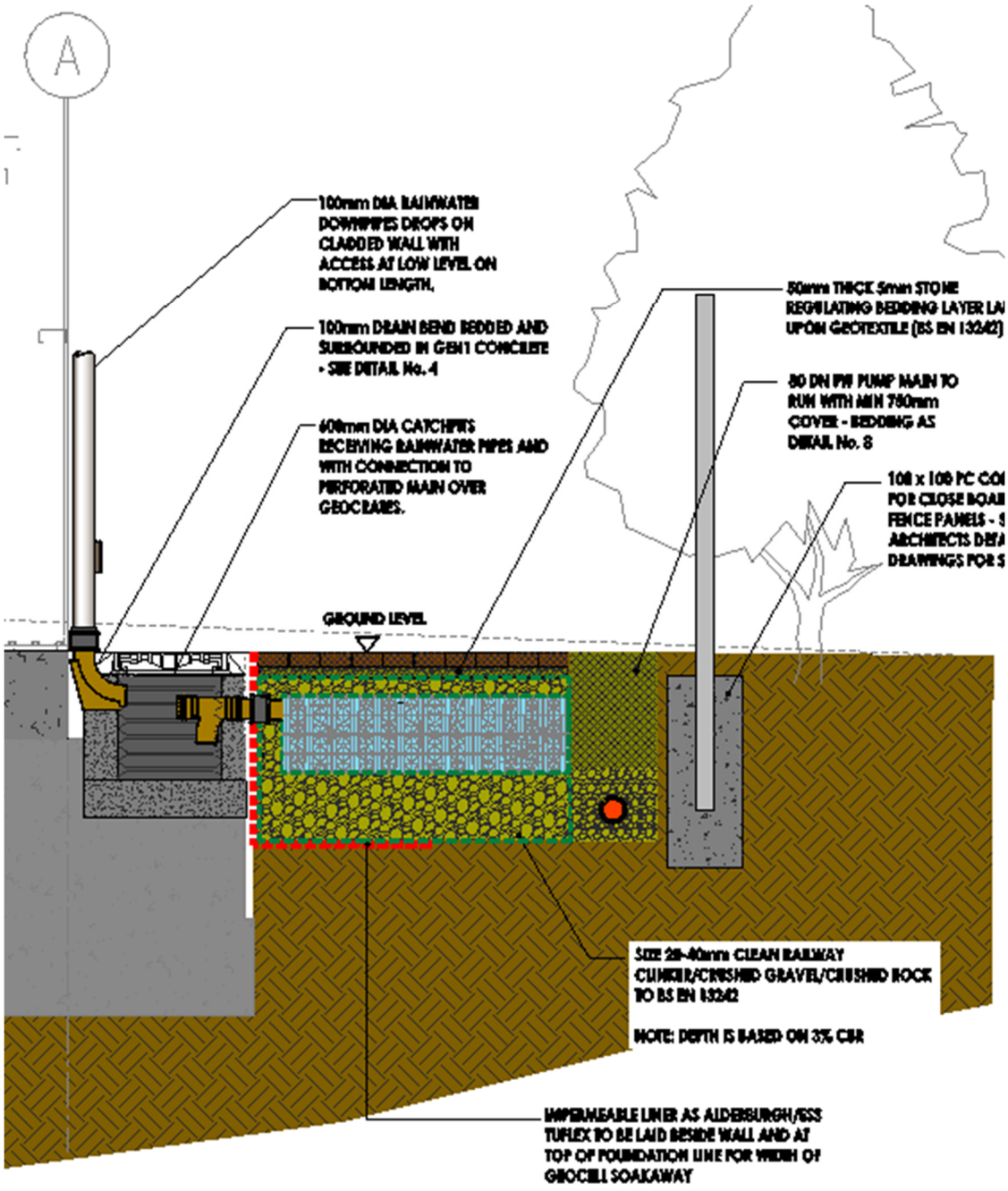


Fig 2 – Catchpits showing connections from rainwater pipes to the geocrate soakaway

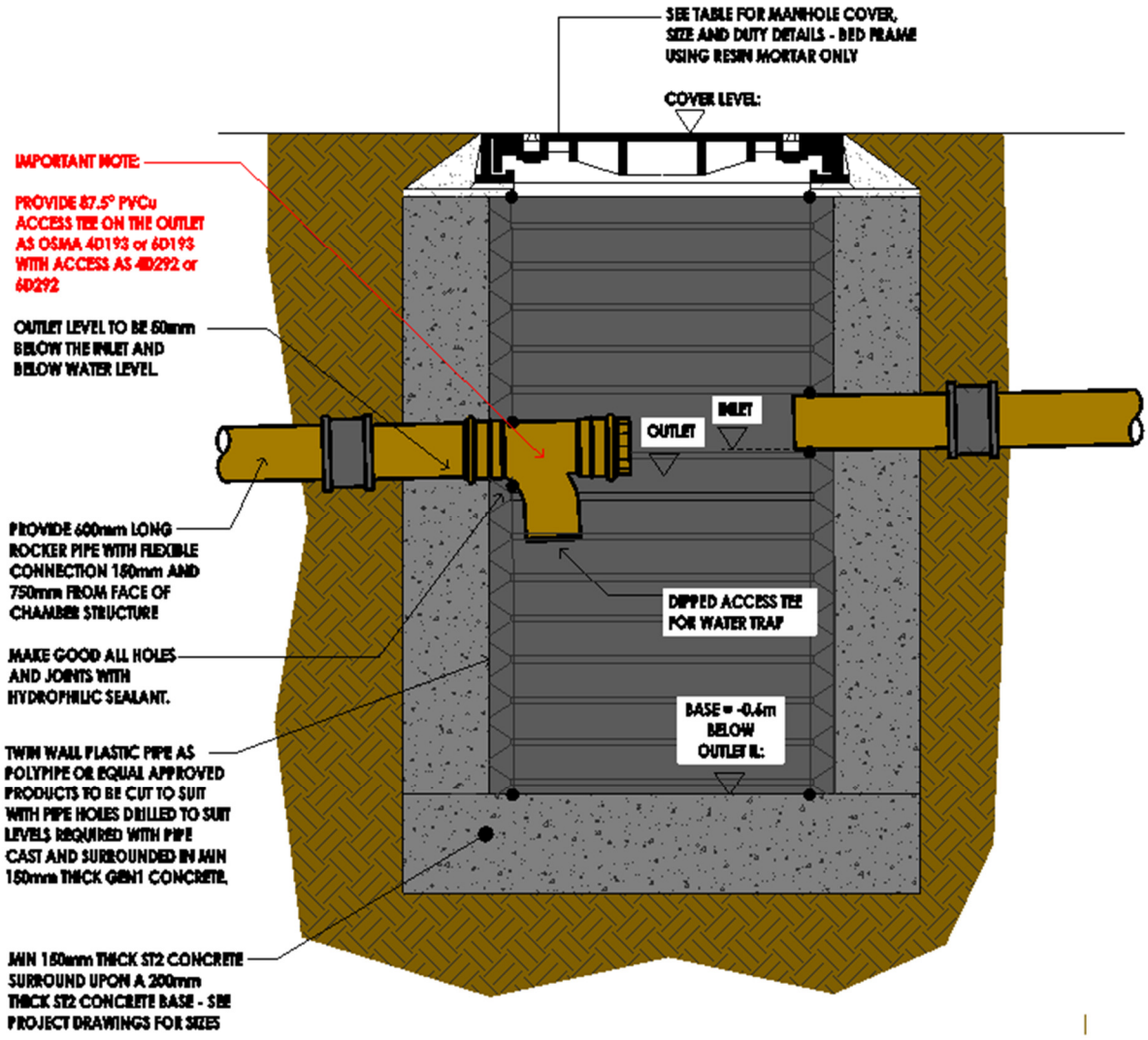


Fig 3 – Catchpit construction

- **Permeable Block Pavements** – These receive run off from surface areas and drain through the joints between blocks through a regulating layer and with gravel layer beneath. The arrangement can be seen above in fig 1 and 2.

4.0 SUDS MAINTENANCE PLAN

Geocrate Soakaway & Catchpits – The soakways are of geocrate construction, wrapped in geotextile, located beneath the permeable walkway to the rear. They are shallow in design, only 400mm in depth.

The geocrates can allow jetting through the main channel from the catchpit entries and can have silt removed by tanker if required. Silt migration to the soakaway is mitigated using catchpits upstream of the inlets.

Maintenance for the geocrate and catchpits are shown below in table 2.

Schedule	Action	Frequency
Regular Maintenance	Jet and clean drainage pipelines. Remove silt within catcpits, grease covers and frames.	Twice a year
Remedial and replacement	Identify any drainage runs causing blockage and remediate to suit. Replacement of geocrate as required	As required. Every 35-50 years

Table 2 – Geocrate and catchpit maintenance schedule

Permeable Paving - The pavement is finished with interlocking blocks which, when abutted, provide open edge joints to allow water to infiltrate through to the gravel and substratum beneath. Maintenance for the paving is shown below in table 1 stratum beneath. Maintenance for the paving is shown below in table 1

Schedule	Action	Frequency
Regular Maintenance	Surfaces to be swept clear of debris, weed removal and surface weed treatment. Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Twice a year but monthly during winter months Twice a year
Remedial and replacement	Repair any damaged blocks and/or sub-base materials. Replacement of permeable blocks and stone	As required. Every 25 years

Table 1 – Permeable pavement maintenance schedule

5.0 FINANCIAL MANAGEMENT

Worthing Football Club have a proven history of maintaining the clubs building and assets dating back to 1886.

Financially the club has many official business partners which enable funds for maintenance therefore funds for SuDS maintenance and management is considered vital to the clubs future.

6.0 ASSESSMENT OF PLANNING CONDITION

This manual for the SuDS maintenance explains the process which is possible to ensure the designed and installed SuDS feature is maintained for future years.

The report responds to the requirement in the Approved Planning application AWDM/0351/24, condition no. 5, and is deemed satisfactory for the discharge of the condition for commencement of the construction.

7.0 CONTACT

For future assessment please use the following contact information and address when arranging to visit.

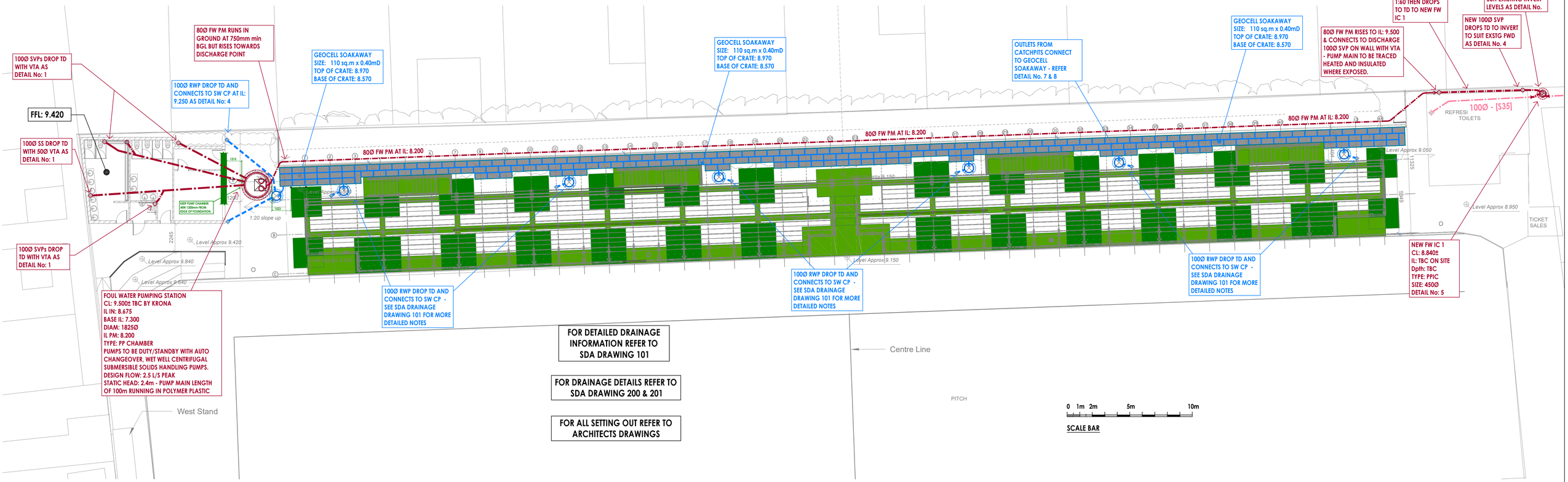
Keith Mitchell – Club Chairman

Worthing Football Club Woodside Road Worthing West Sussex BN14 7HQ

Email – keith.mitchell@worthingfc.com

Mob - 07925 337130

APPENDIX A SDA SITE DRAINAGE DRAWING - 100 REV P6



North Stand - Site Drainage (Scale 1:150)

ABBREVIATIONS / LEGEND

AAV	AIR ADMITTANCE VALVE
AC	ACCESS CHAMBER
ACC	ACCESS
ASBC	ASBESTOS CEMENT
AFFL	ABOVE FINISHED FLOOR LEVEL
BD	BACKDROP
BIG	BACK INLET GULLY
BGL	BELOW GROUND LEVEL
BR	BRANCH
BSSL	BELOW SLAB SOFFIT LEVEL
CE	CLEANING EYE
CI	CAST IRON
CL	COVER LEVEL
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FAI	FRESH AIR INLET
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FWG	FOUL WATER GULLY
FWS	FOUL WATER SEWER
GL	GROUND LEVEL
GT	GREASE TRAP
HL	HIGH LEVEL
IC	INSPECTION CHAMBER
IL	INVERT LEVEL
IT	INTERCEPTING TRAP
LL	LOW LEVEL
LWG	LIGHTWELL GULLY
MH	MANHOLE
ML	MID LEVEL
OD	OVERDRAIN
OTG	OPEN TOP GULLY
PE	POLYETHYLENE
PF	PITCH FIBRE
PM	PUMP MAIN
PP	POLYPROPYLENE
PPAC	POLYPROPYLENE AC
PPIC	POLYPROPYLENE IC
PCC	PRECAST CONCRETE
PVC	POLYVINYL CHLORIDE
RE	RODDING EYE
RG	ROAD GULLY
RWP	RAINWATER PIPE
SP	SOIL PIPE
SHG	SHOWER GULLY
STBIG	SEALED TOP BACK INLET GULLY
STP	SEWAGE TREATMENT PLANT
SVP	SOIL VENT PIPE
SS	STUB STACK
SWD	STORM WATER DRAIN
SWS	STORM WATER SEWER
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TBC	TO BE CONFIRMED
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UTL	UNABLE TO LIFT
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UTS	UNABLE TO SURVEY
VC	VITRIFIED CLAYWARE
VTA	VENT TO ATMOSPHERE
WC	WATER CLOSET
WHB	WASH HAND BASIN
WG	WASTE GULLY
WP	WASTE PIPE
WVP	WASTE VENT PIPE
YG	YARD GULLY

STORM WATER DESIGN STRATEGY

GENERAL - The drainage scheme shown is designed to conform with the design guidance given in 'SuDS Manual' CIRIA C753 & C697 using the drainage hierarchy of infiltration. .

STORM WATER - Contributing run off areas are:

The new North stand roof = 620 sq.m
The additional toilet and refreshment block roof area = 77 sq.m
The walkway to the rear = 148.5 sq.m

TOTAL CONTRIBUTING AREA = 845.5 sq.m

The site is located in flood zone 1 area for fluvial and tidal flooding but there is some recorded 'low risk' surface water flooding nearby.

The rainwater pipes off the roof will connect to downpipes which will connect to catchpits. From here pipes connect to the geocell soakaway beneath where discharge will be to ground.

The geocell soakway is sized to accept the 100 year + 45% climate change event with outgoing porosity rate established on site through BRE 365 testing as 2.3 x 10^{-5} m/s as provided by Ashdown site investigation report P16530 R16144 dated 28th March 2024.

The soakaway is situated adjacent the building edge but is shallow. The design utilises information shown in the CIRIA fact sheet dated September 2012., 'Using SuDS close to buildings This position of the soakway and proximity to building foundations is subject to clarification by in-situ oil investigation to check chalk dissolution features. As stated in the fact sheet, *'allowing water to soak into the ground close to foundations should always be done in consultation with a Geotechnical Adviser or Registered Ground Engineering Professional.'*

The fact sheet recommends that the ratio of impermeable roof area: soakway base area should not be greater than 10:1. The design achieves a ratio as follows: Contributing total area = 845.5 sq.m : Soakaway base area = 86m x 1.6m = 137.6 sq.m, thus ratio = 845.5/137.6 = just over 6:1.

DESIGN EXCEEDANCE FLOWS - Where design storms and attenuation volumes are exceeded, such flows will run to the existing artificial football pitch.

OWNERS SUDS DRAINAGE MAINTENANCE PLAN

Where attenuated volumes are provided in blanket construction which are inaccessible without conventional excavation, it is important to provide features on the drainage system which minimise silt migration.

- Clean permeable blocks/gravel containers of weeds twice a year.
- All rainwater pipes with shoes and gutters should be cleaned twice a year.
- Empty and clean the rainwater butts yearly.
- Remove weeds and debris from any raingardens, keep soil agitated and plants tended.
- The catchpit chambers should also be cleaned out and emptied regularly twice a year.
- All pipes should be cleaned/jetted once a year.

This is drawing is copyright and remains in the ownership of Simon Dent Associates (SDA)

This drawing should be read in conjunction with the design team's relevant documents, drawings & details.

Existing public & private utility services and drainage locations shown have been derived from non-intrusive survey techniques. Their location is not accurate and the contractor must satisfy himself using open excavation where the location of such plant and apparatus is critical in construction.

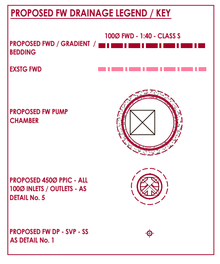
If the contractor has constructed from this drawing without necessary approvals from Local Planning Authorities, Building Control, Sewerage Undertakers, Environment Agency etc then any abortive work shall be at his own financial risk and not the responsibility of SDA.

If the contractor has constructed from this drawing whilst the drawing remains 'PRELIMINARY status, then any abortive work shall be at his own financial risk and not the responsibility of SDA.

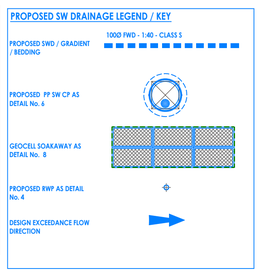
The contractor should NOT construct any works should there be any doubt with information shown from any of the source. ALWAYS USE GIVEN DIMENSIONS ONLY. ALWAYS ASK IF IN DOUBT.

ALWAYS PRINT THIS DRAWING IN COLOUR

PROPOSED FW DRAINAGE LEGEND / KEY



PROPOSED SW DRAINAGE LEGEND / KEY



OWNERS SUDS DRAINAGE MAINTENANCE PLAN

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THIS DRAWING IS PRELIMINARY AND IS SUBJECT TO BUILDING CONTROL APPROVAL AND MUST NOT BE USED FOR CONSTRUCTION UNTIL ALL RELEVANT APPROVALS HAVE BEEN GAINED

Rev	Description	Date	Chkd
P6	FW pump chamber levels altered to suit site groundwater levels. Reference to SDA drawing 101 added. Crate and pump main levels altered.	21/06/2024	SAD
P5	New stand layout and structure shown and drainage altered accordingly. FW pump station relocated. Pump main connection point altered to reduce dig. Pump main now in ground at rear. SW overdrian removed	10/06/2024	SAD
P4	Storm Water Strategy updated to include the porosity rates gained from in situ BRE 365 tests. SuDS maintenance plan highlighted.	05/04/2024	SAD
P3	Geocell soakway continuity shown. Inset added.	04/03/2024	SAD
P2	PLANNING ISSUE	02/03/2024	SAD
P1	PRELIMINARY ISSUE	28/02/2024	SAD

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Consulting Engineers
☒ Shoreham by Sea Office
☐ Gosport Office
simondent@live.co.uk
0754 658 3150

Client: Worthing Football Club, Woodside Road BN14 7HQ

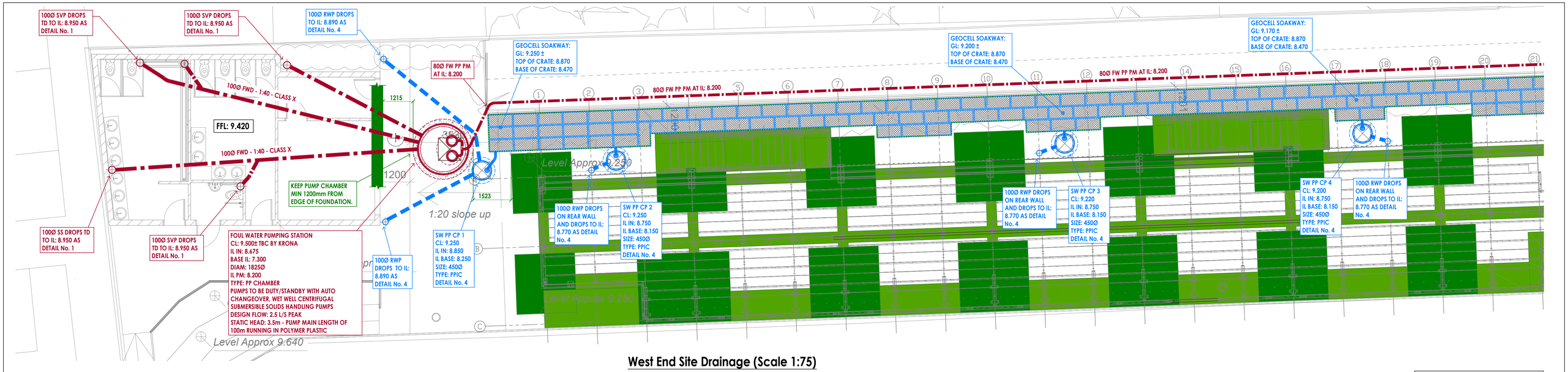
Project: Proposed North Stand and toilet block

Drawing title: Proposed Site drainage

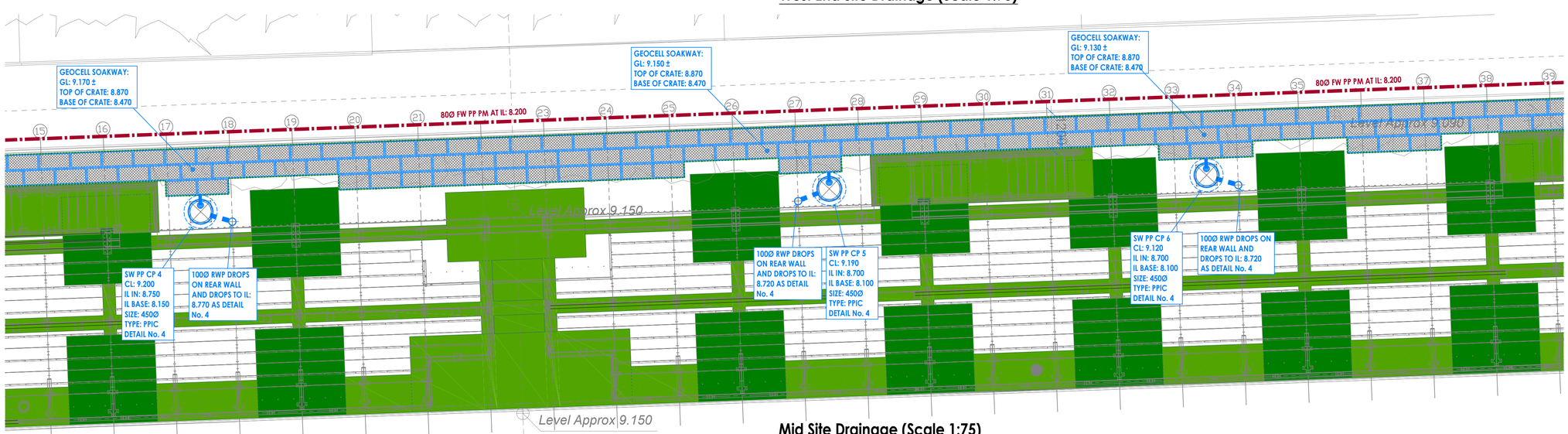
Drawing status: PRELIMINARY

Project no	Scales	Drawing no	Rev
1869	A1 - 1:150 A3 - 1:300	100	P6

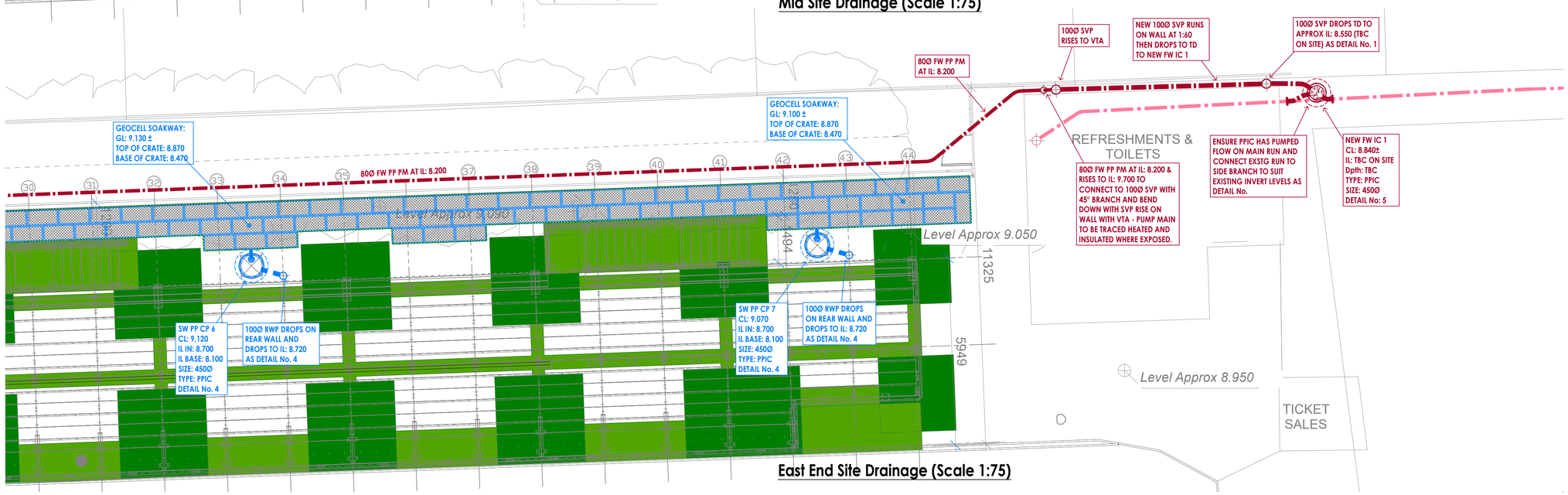
APPENDIX B SDA SITE DETAILED DRAINAGE - 101 REV P1



West End Site Drainage (Scale 1:75)



Mid Site Drainage (Scale 1:75)



East End Site Drainage (Scale 1:75)

FOR ALL SETTING OUT REFER TO ARCHITECTS DRAWINGS

0 1m 2m 5m 10m

SCALE BAR

THIS DRAWING IS PRELIMINARY AND IS SUBJECT TO BUILDING CONTROL APPROVAL AND MUST NOT BE USED FOR CONSTRUCTION UNTIL ALL RELEVANT APPROVALS HAVE BEEN GAINED

FOR DRAINAGE DETAILS REFER TO SDA DRAWING 200 & 201

ABBREVIATIONS / LEGEND

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WG	WASTE GULLY
WP	WASTE PIPE
WVP	WASTE VENT PIPE
YG	YARD GULLY

Rev	Description	Date	Chkd
P2	Pump station dimensions added as recently issued. Pump benching indicated.	27/06/2024	SAD
P1	PRELIMINARY ISSUE	21/06/2024	SAD

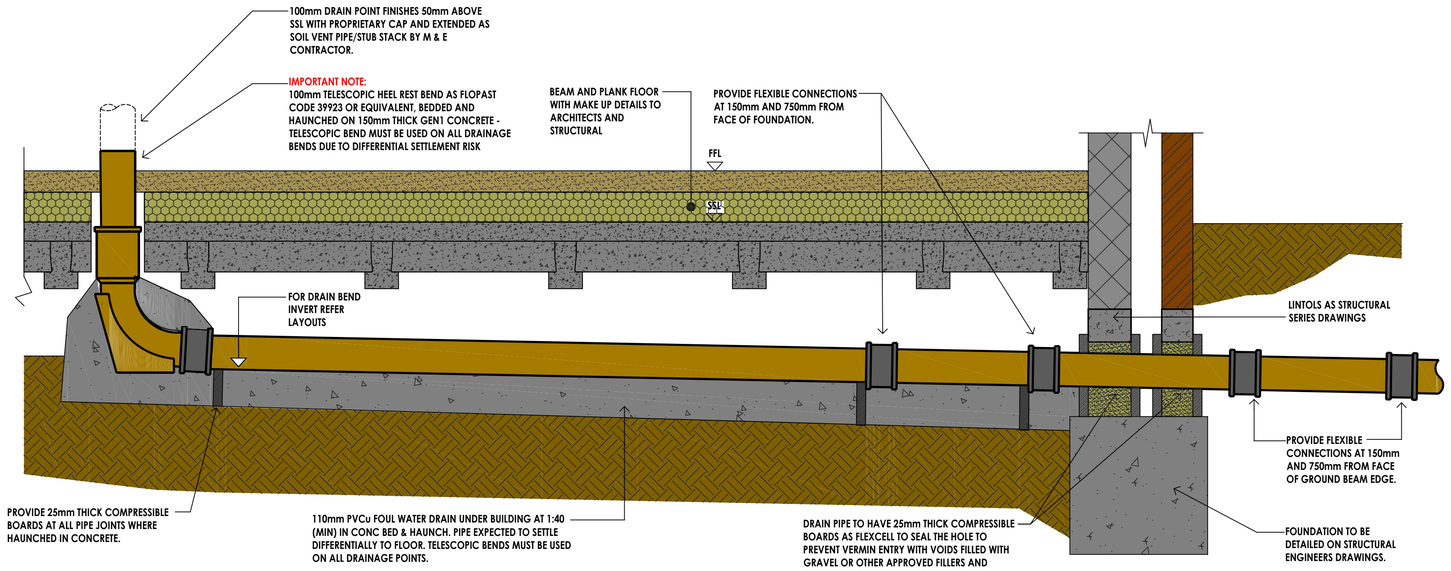
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☒ Shoreham by Sea Office
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simondent@live.co.uk
0754 658 3150

Client	Worthing Football Club, Woodside Road BN14 7HQ
Project	Proposed North Stand and toilet block
Drawing title	Proposed Site drainage
Drawing status	PRELIMINARY

Project no	Scales	Drawing no	Rev
1869	A1 - 1:75 A3 - 1:150	101	P2

APPENDIX C SDA DRAINAGE DETAILS SHEET 1 - 200 REV P2

FOR ALL GENERAL NOTES SEE SDA DRAWING No. 100



DETAIL No. 1 - INTERNAL DRAIN POINT UNDER TOILET BLOCK BUILDING

NOMINAL INTERNAL DIA DN (mm)	ASSUMED EXTERNAL DIA Bc (mm)	ASSUMED MAX. PERMISSIBLE TRENCH WIDTH Bd (mm)	DIMENSION 'Y' FOR UNIFORM SOILS (mm)
100	130	550	150
150	190	600	150

NOMINAL MAXIMUM AGGREGATE SIZE OF STONE (mm) TO BS 882 GRADING

PIPE BORE (mm)	AGGREGATE TYPE	GRANULAR BEDDING CLASS 'B' or 'S'
100	SINGLE SIZE GRADED	10 N/A
150	SINGLE SIZE GRADED	10 or 14 5 - 14

NOTES:
1. 25mm EXPANSION JOINT MATERIAL TO FULL AREA OF CONCRETE BED & SURROUND AT ALL PIPE JOINTS
2. FINAL FORMATION TO BE DISHED TO GIVE FULL DEPTH OF CONCRETE BED AROUND PIPE COLLAR.
3. WHEN USING CONCRETE REFER TO THE SOIL REPORT FOR SULPHATE CONTENT.
4. ALL TRENCH FILL MATERIAL MUST BE INERT.
5. CONTRACTOR TO SUPPLY GRADING CERTIFICATES FOR ALL GRANULAR MATERIAL TO PROJECT MANAGER FOR APPROVAL.

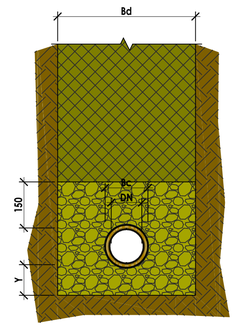
25mm EXPANSION JOINT MATERIAL TO FULL AREA OF CONCRETE BED & SURROUND AT ALL PIPE JOINTS

FINAL FORMATION TO BE DISHED TO GIVE FULL DEPTH OF CONCRETE BED AROUND PIPE COLLAR

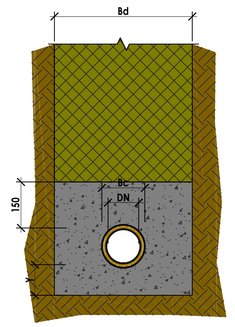
BACKFILL WITH APPROVED AS DUG SELECTED MATERIAL, WELL COMPACTED IN NO LESS THAN 200mm THICK LAYERS - REMOVE ALL VEGETATION AND STONES AND DEBRIS.

PIPE BEDDING GRANULAR MATERIAL - SEE TABLE

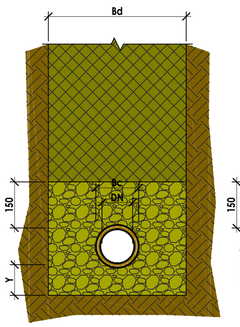
150mm THICK GRADE GEN1 MASS CONCRETE SURROUND



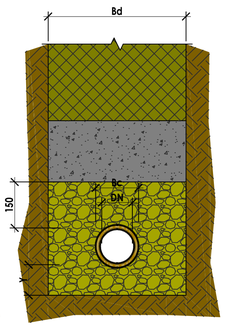
CLASS S BEDDING DETAIL (GRANULAR BED & SURROUND - WHERE GREATER THAN 0.9m - BEDDING FACTOR = 2.5)



CLASS A BEDDING DETAIL (CONCRETE BED & SURROUND - WHERE COVER LESS THAN 0.9m - BEDDING FACTOR = 4.5)



CLASS S BEDDING DETAIL (GRANULAR BED & SURROUND - WHERE GREATER THAN 0.9m - BEDDING FACTOR = 2.5)

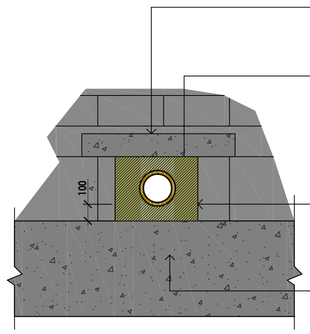


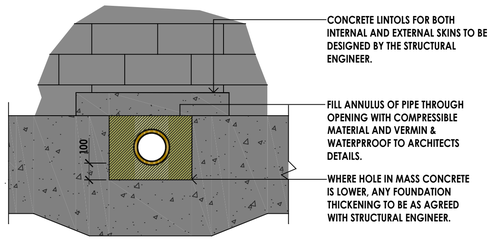
CLASS A BEDDING DETAIL (CONCRETE BED & SURROUND - WHERE COVER LESS THAN 0.9m - BEDDING FACTOR = 4.5)

DETAIL No. 2A - EXTERNAL DRAINAGE RIGID PIPE BEDDING DETAILS - VITRIFIED CLAYWARE & CONCRETE PIPES

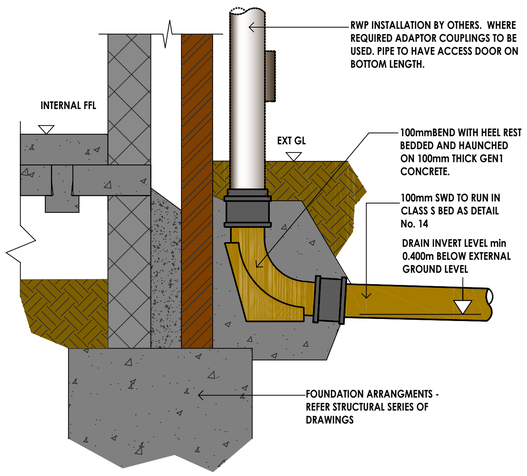
DETAIL No. 2B - EXTERNAL DRAINAGE FLEXIBLE PIPE BEDDING DETAILS - PLASTIC & DUCTILE IRON PIPES

DETAIL No. 2B - EXTERNAL DRAINAGE FLEXIBLE PIPE BEDDING DETAILS - PLASTIC & DUCTILE IRON PIPES

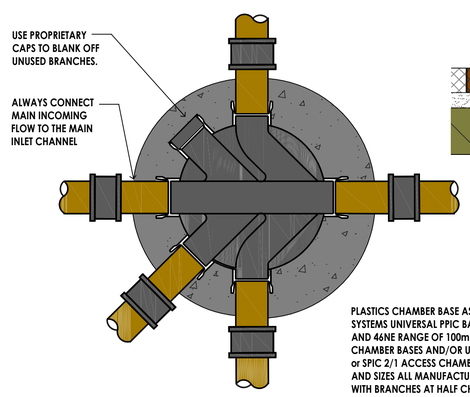




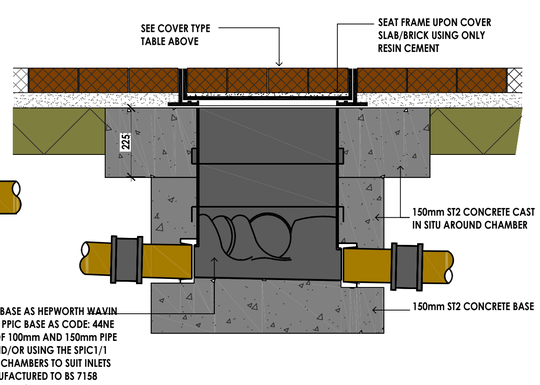
DETAIL No. 3 - DRAINAGE PASSING OVER/THROUGH MASS CONCRETE FOUNDATION



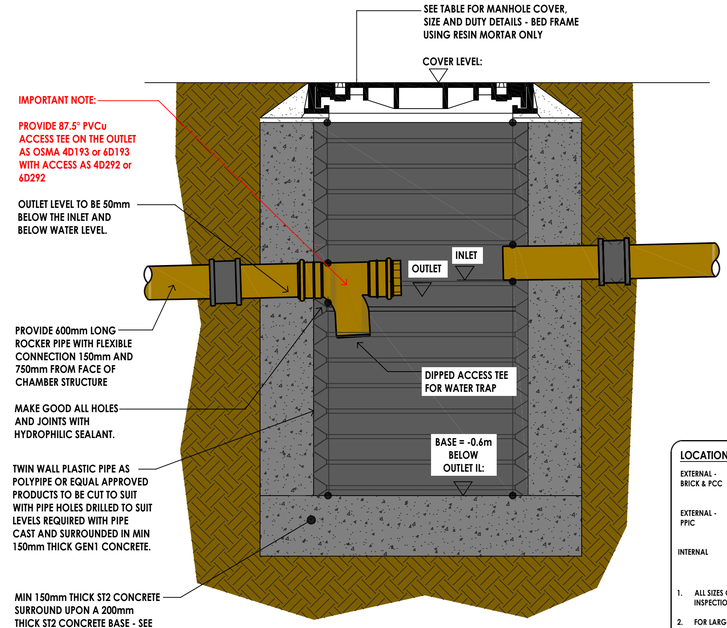
DETAIL No. 4A - EXTERNAL RAINWATER PIPE



CHAMBER PLAN



DETAIL No. 6 - POLYPROPYLENE INSPECTION CHAMBER (PPIC)



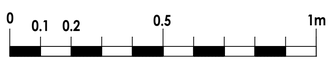
DETAIL No. 5 - POLYPROPYLENE STORM WATER CATCHPIT (PP SWCP)

GENERAL SIZING OF CHAMBER (SEE PROJECT DRAWINGS FOR ACTUAL SIZES)

DEPTH	INT SIZE
< 1.0m	750Ø
1.0 - 1.5m	900Ø
> 1.5m	USE PCC SW CP DETAIL

LOCATION	FINISH	DUTY	COVER TYPE
EXTERNAL - BRICK & PCC	PAVED	FACTA B	600mm SQUARE RECESSED COVER AS SAINT GOBAIN STEELWAY 'BRIPAVE' RANGE
EXTERNAL - PPIC	BLACKTOP	D400	450mm SQUARE SLIDE OUT COVER AS SAINT GOBAIN 'INTER-AX'
INTERNAL	TILED/VINYL	FACTA B	900 x 600 COVER TO BE 'HOWE GREEN' AIR AND WATER TIGHT AS 7500 SERIES.

1. ALL SIZES OF CLEAR OPENINGS SHOULD BE AT LEAST SIZE OF INSPECTION CHAMBER FOR 300Ø PPACs AND 450Ø PPICs.
2. FOR LARGER CONCRETE AND BRICK MANHOLE CHAMBERS MIN SIZE SHOULD BE 700 x 700 - REFER TO MH DATA BOX ON PROJECT DRAWINGS



SCALE BAR

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This drawing should be read in conjunction with the design team's relevant documents, drawings & details.

Existing public & private utility services and drainage locations shown have been derived from non-intrusive survey techniques. Their location is not accurate and the contractor must satisfy himself using open excavation where the location of such plant and apparatus is critical in construction.

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ALWAYS PRINT THIS DRAWING IN COLOUR

Rev	Description	Date	Chkd
P2	PRELIMINARY ISSUE	10/06/2024	SAD
P1	PLANNING ISSUE	02/03/2024	SAD

SIMON DENT ASSOCIATES
Civil - Infrastructure - SuDS - Flood Risk - Drainage - Rainwater - Sanitation - Public Health
Consulting Engineers
☒ Shoreham by Sea Office
☐ Gosport Office
simondent@live.co.uk
0754 658 3150

Client: Worthing Football Club, Woodside Road BN14 7HQ

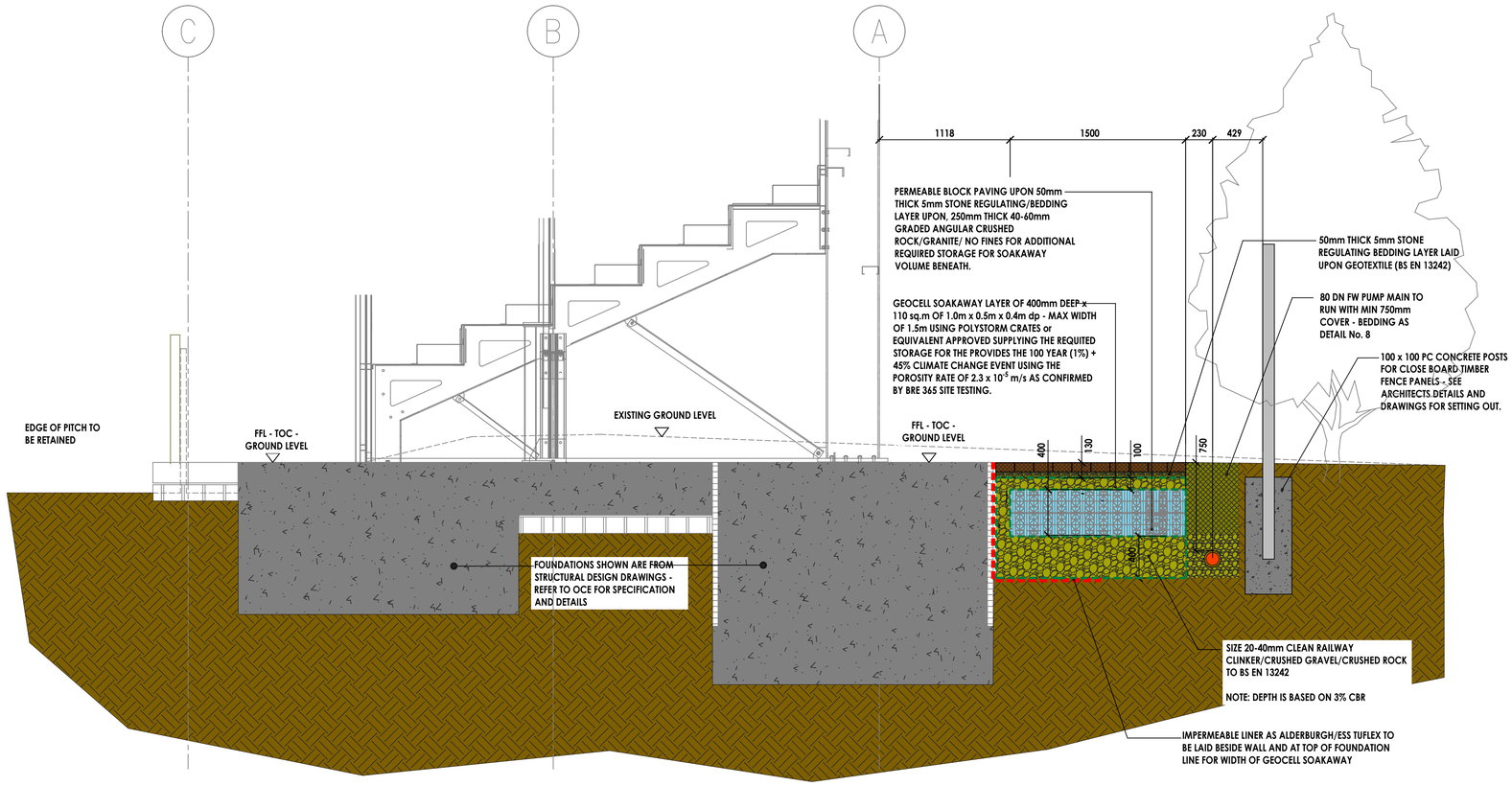
Project: Proposed North Stand and toilet block

Drawing title: Drainage details - sheet 1

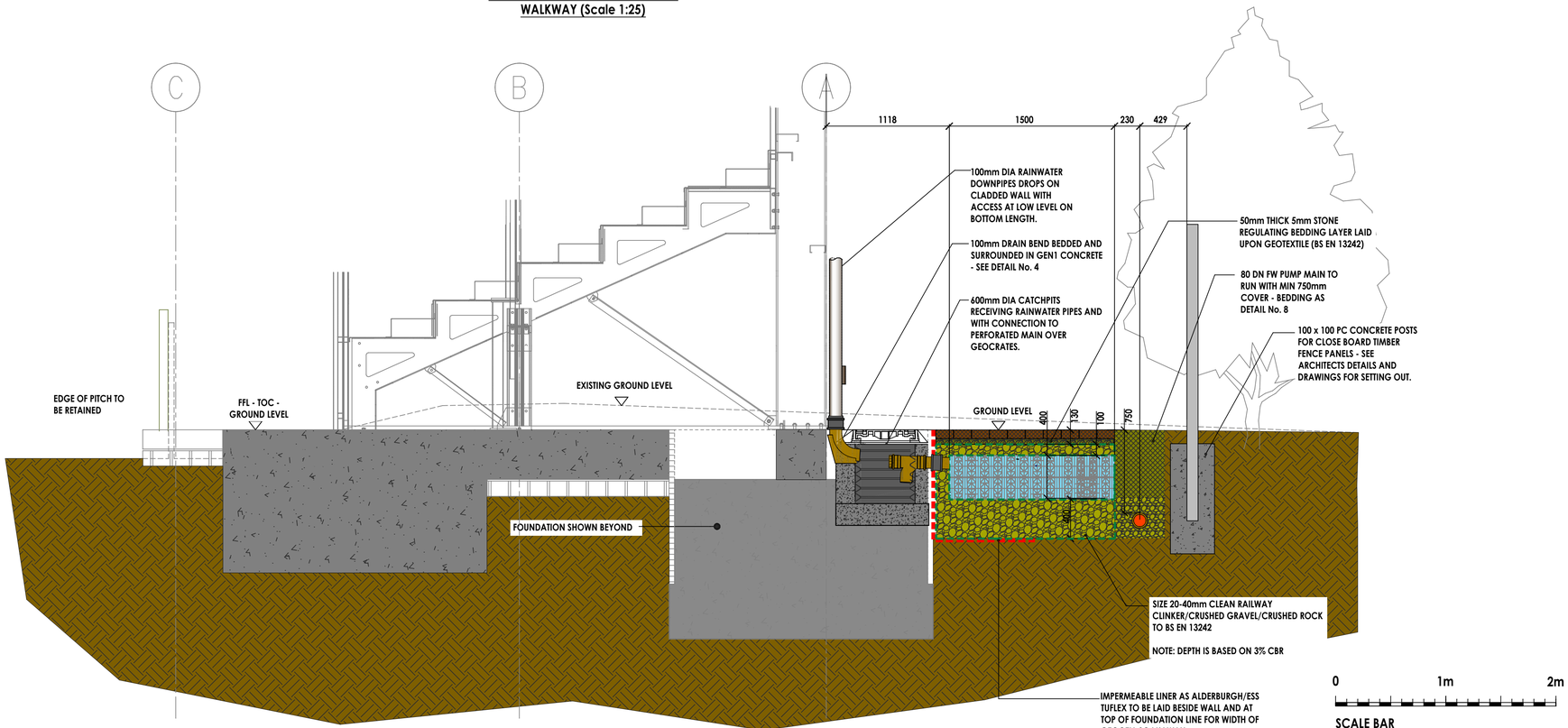
Drawing status: PRELIMINARY

Project no	Scales	Drawing no	Rev
1869	A1 - 1:10 A3 - 1:20	200	P2

APPENDIX D SDA DRAINAGE DETAILS SHEET 2 - 201 REV P3



DETAIL No. 7 - PERMEABLE PAVEMENT AND GEOCELL SOAKWAY BENEATH WALKWAY (Scale 1:25)



DETAIL No. 8 - RAINWATER DROP AND CONNECTION TO MAIN OVER DRAIN AND SOAKAWAY (Scale 1:25)

FOR ALL GENERAL NOTES SEE SDA DRAWING No. 100

Rev	Description	Date	Chkd
P3	Detail no. 7 updated and detail no. 8 added with setting out for discussion/agreement with team	10/06/2024	SAD
P2	Detail no. 7 updated to include the porosity rates gained from in situ BRE 365 tests.	05/04/2024	SAD
P1	PLANNING ISSUE	02/03/2024	SAD

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simondent@live.co.uk
0754 658 3150

Client: Worthing Football Club, Woodside Road BN14 7HQ

Project: Proposed North Stand and toilet block

Drawing title: Drainage details - Sheet 2

Drawing status: **PRELIMINARY**

Project no	Scales	Drawing no	Rev
1869	A1 - 1:25 A3 - 1:50	201	P3

APPENDIX E POLYSTORM GEOCRATES INFORMATION

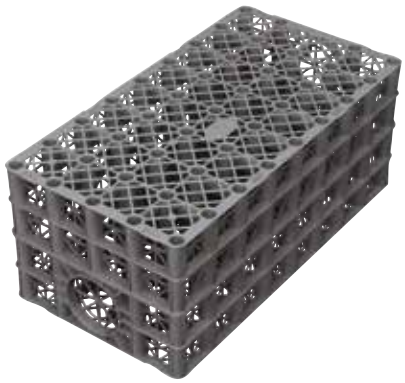
Polystorm Modular Cell

Data Sheet

PRODUCT INFORMATION | **ISSUE 3 - JAN 2016**

Product code: PSM1

The Polystorm cell made of virgin material, has a 44 tonnes/m² compressive strength. It is ideally suited for retention, attenuation or infiltration under trafficked or loaded areas at greater depths, such as car parks, housing and commercial developments.
An efficient and versatile solution for SuDS compliance, it is hard-wearing, lightweight and provides a 95% void ratio for maximum water capture.



Key Benefits

- Compressive strength of 44 tonnes/m²
- Ideal for retention, attenuation or infiltration applications with a suitable geomembrane or geotextile
- Designed for trafficked and loaded conditions
- BBA approved
- Visual and maintenance access can be achieved when used in conjunction with Polystorm Access & Inspect
- Can be used as part of a value engineered hybrid system with Polystorm Xtra & Polystorm Lite
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- 100% recyclable
- 50 years creep limited life expectancy

Technical Support

Detailed guidance and assistance is available.
For further information, please contact our Technical Team on **+44 (0) 1509 615100** or email **civils@polypipe.com**

BBA BRITISH BOARD OF AGREMENT
CERTIFICATE No. 06/4297

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m³
Unit weight	9kg
Unit storage volume	0.19m³ (190 litres)
Void ratio	95%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	Maximum 440kN/m² **
Lateral	Maximum 63kN/m² **
SHORT TERM DEFLECTION	
Vertical	83kN/m² per mm
Lateral	4.2kN/m² per mm
OTHER PROPERTIES	
Maximum burial depths:	
Light trafficked	3.7m***
Non-trafficked	3.8m***

* Each unit includes 4 Clips and 2 Shear Connectors.

** Compressive strength at yield, maximum recommended value for design purposes.

*** Based on ground conditions being dense sand and gravel with no groundwater present using the calculation methodology detailed within CIRIA C680 (2008). Where ground conditions differ please consult our water management solutions technical department on +44 (0) 1509 615100.

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