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ARCH LAYOUT - 00303 EWP (21.10.2024)
SOILFIX- SF007 PROPOSED CONTOURS (05.07.2023)
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LEGEND

- LAND OWNERSHIP BOUNDARY
- ADOPTABLE FOUL
- ADOPTABLE SURFACE
- PRIVATE SURFACE
- PRIVATE FOUL
- RWP & SVP LATERALS (WITH 100mmØ CONNECTION)
- PROPOSED DITCH BED LEVEL
- FOUL WATER MANHOLE, BACKDROP
- PRIVATE FOUL WATER CHAMBER BACKDROP
- PRIVATE SURFACE WATER MANHOLE
- SURFACE WATER MANHOLE
- YARD GULLY (WITH 150mmØ OUTLET)
- ROAD GULLY (WITH 150mmØ OUTLET)
- HEADWALL
- ACO-DRAIN W/ 100Ø OUTLET PIPE
- PASSIVE GARDEN FILTER DRAIN
- RETAINING WALLS
- 100Ø ASPH OUTLET
- EXCEEDANCE FLOW PATHS
- WATERCOURSE FLOW PATHS
- EXISTING DITCH TO REMAIN
- PROPOSED DITCH TO BE INSTALLED
- EXISTING DITCH/CULVERT TO BE ABANDONED/FILLED
- PROPOSED CULVERTED WATERCOURSES
- ALL CULVERT MANHOLES TO BE SUMP TYPE
- IMPERMEABLE MEMBRANE

CALA HOMES STANDARD NOTES

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B	PRIVATE DRAINAGE TURNED ON	12.11.2024	LC	MW
A	FIRST ISSUE	12.11.2024	LC	MW
Rev	Description	Date	By	Chkd



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Project Name	LAND NORTH OF WATER LANE ANGMERING		
Title	DOMESTIC DRAINAGE PHASE 2 SITE WIDE LAYOUT		
Project Phase	DETAILED DESIGN		
Checked By	Checked Date	Drawn By	Drawn Date
MW	12.11.2024	LC	12.11.2024
Client Drawing No.	-	Scale	1:1000 (AT A1 SIZE)
PBA Drawing No.	189.5005.1513	Revision	B



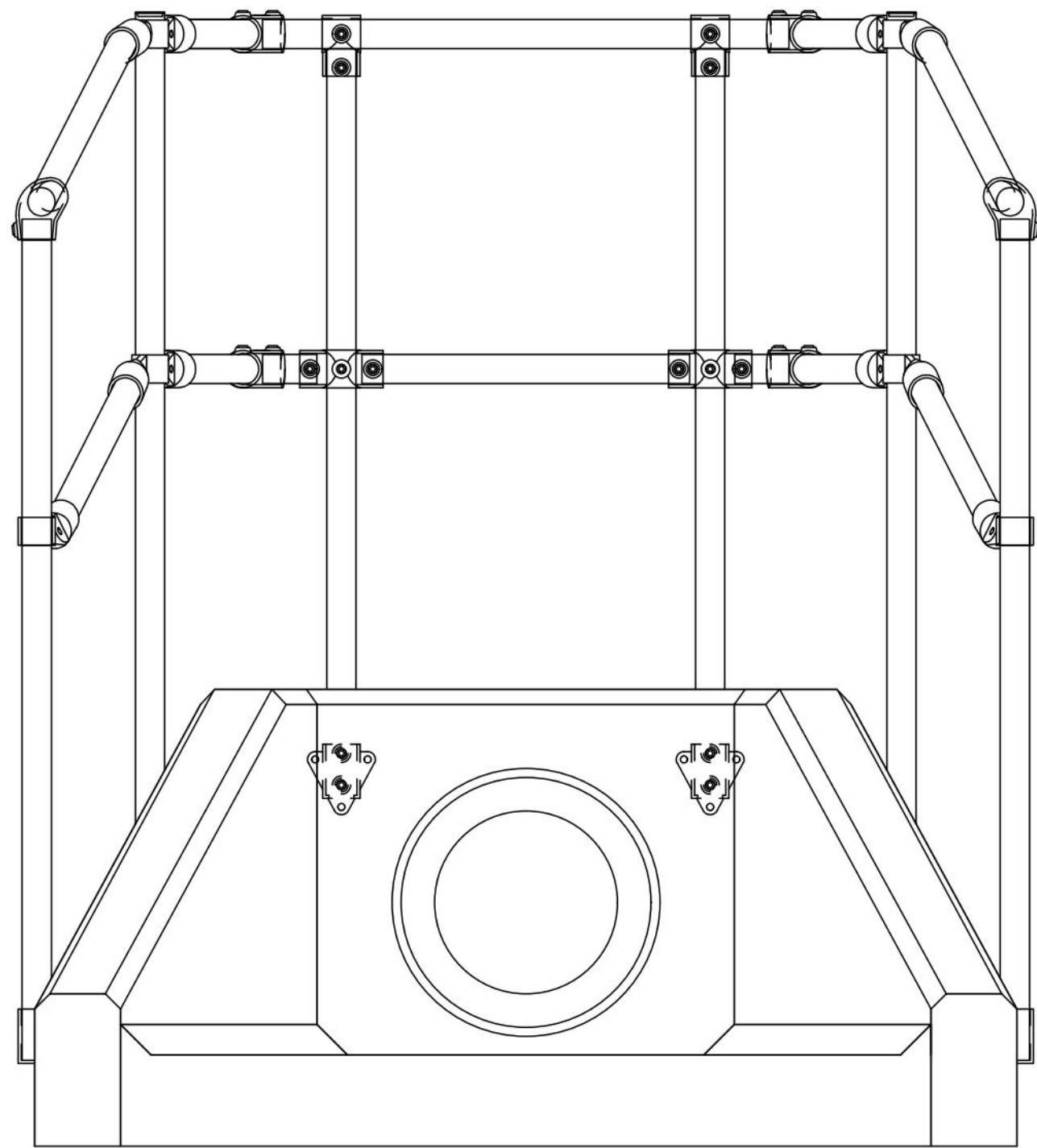
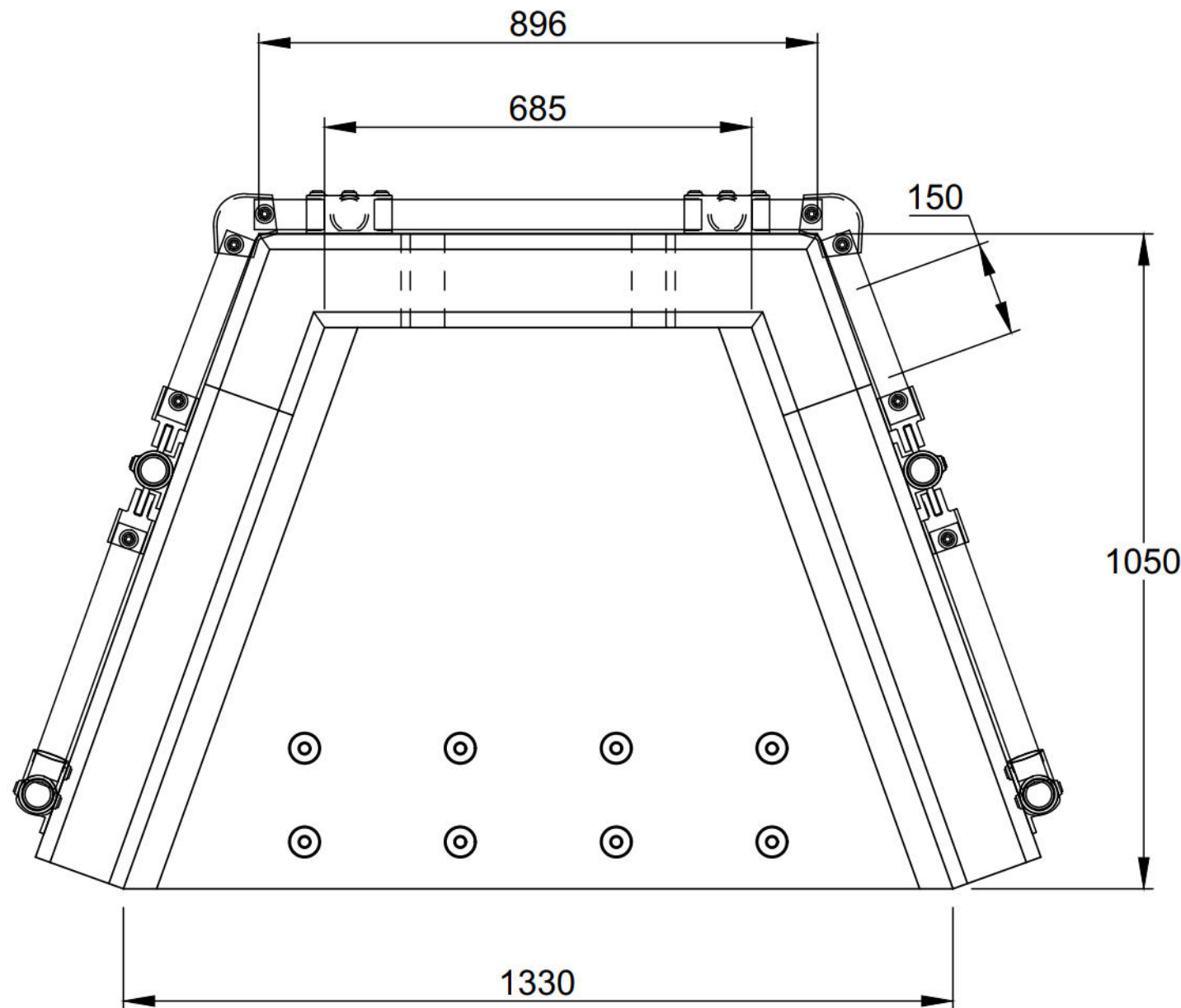
PROPOSED TREES ARE SHOWN AS GREEN, EXISTING TREES ARE IN THE TOPO AS GREY.

PIPES >450mm TO BE CONCRETE BS EN 1916:2002
CLASS 120. PIPES <=450mm TO BE PVC-U TO BS EN 13476-3 (FUNKIE HS OR SIMILAR APPROVED).

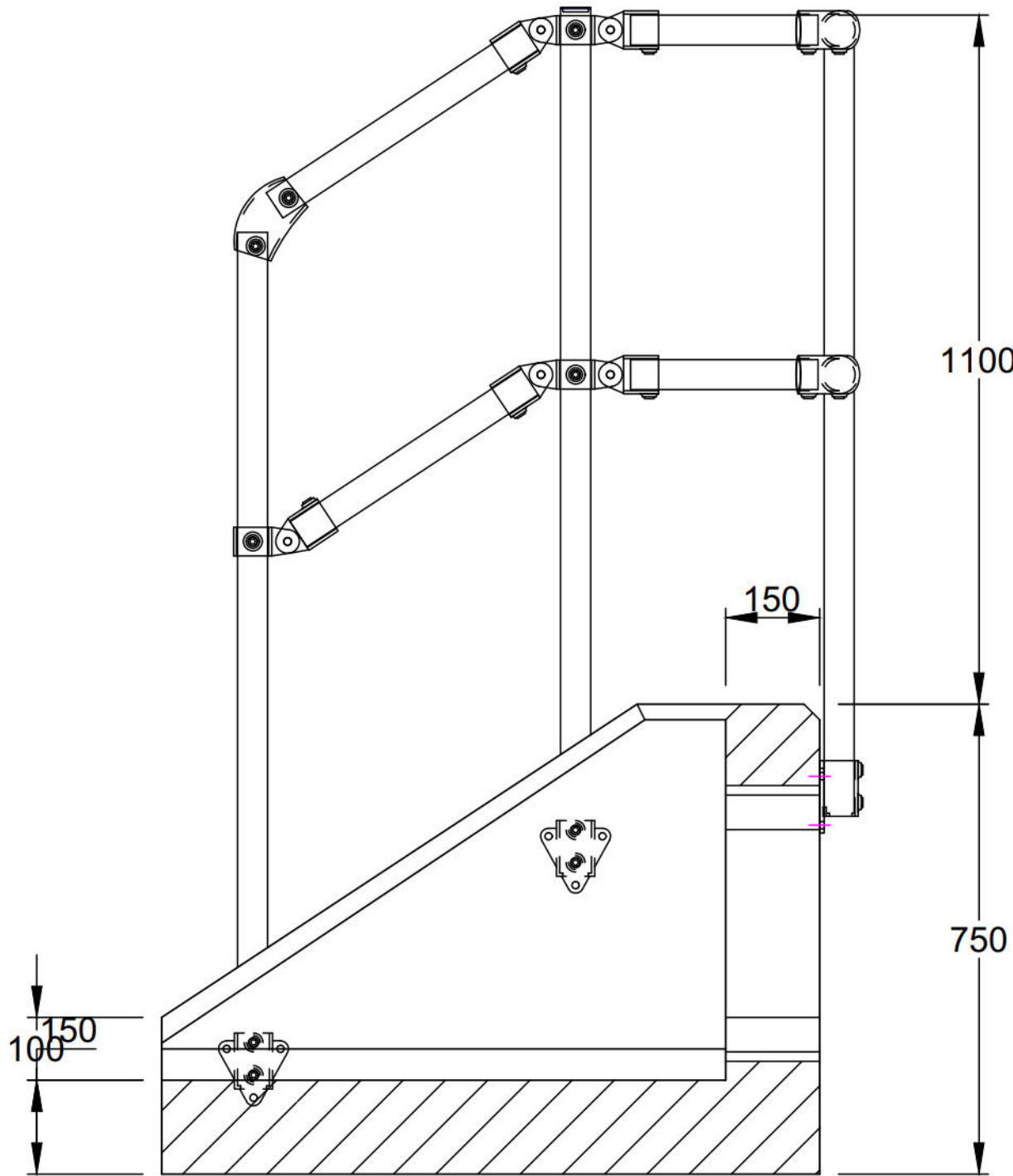
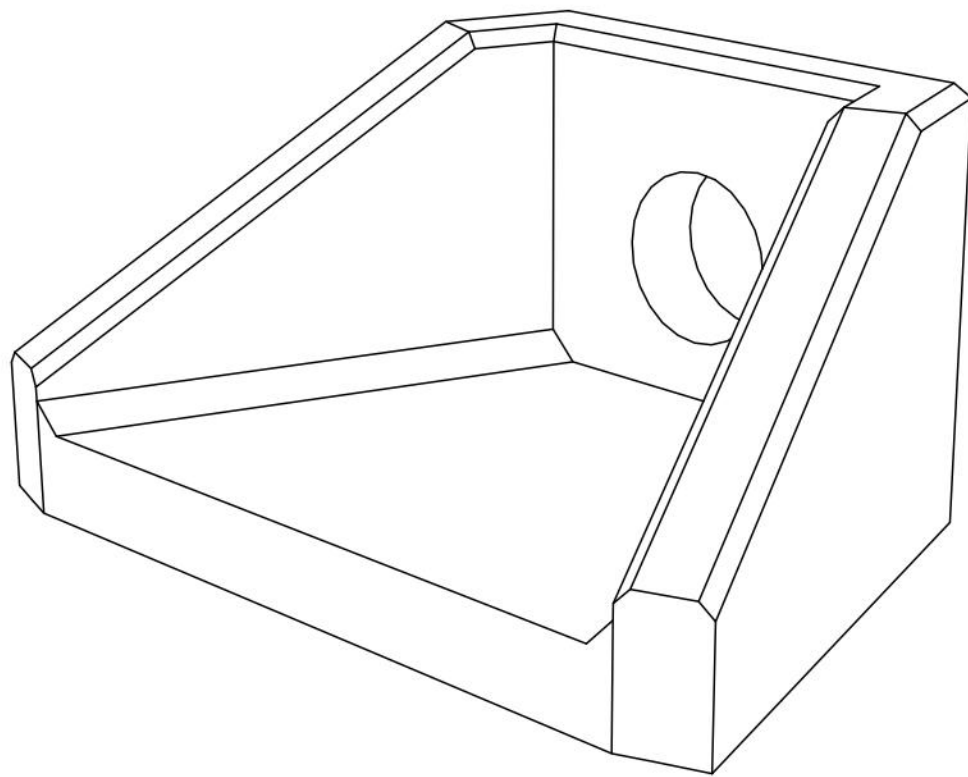
MANHOLE COVERS AND FRAMES SHOULD BE OF A TYPE SUITABLE FOR THE LOADS AND THE CONDITIONS WHERE THEY ARE TO BE USED. COVERS AND FRAMES SHOULD COMPLY WITH BS EN 124 AND SHOULD BE SELECTED AS FOLLOWS:

- CLASS A15: AREAS USED BY PEDESTRIANS AND PEDAL CYCLISTS.
- CLASS B125: FOOTWAYS, PEDESTRIAN AREAS, AND COMPARABLE AREAS, CAR PARKS OR CAR PARKING DECKS.
- CLASS C250: KERBSIDE CHANNELS OF ROADS.
- CLASS D400: CARRIAGEWAYS OF ROADS, HARD SHOULDERS AND PARKING AREAS FOR ALL TYPES OF ROAD VEHICLES

TYPE (2) HEADWALL



Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



NTS



NOTES:

- All dimensions in mm
- All measurements ± 1mm

Specification Information

- Opening in back wall cast to suit outside diameter of the pipework
- Invert level of pipe can be set to your specification

Headwall Installation

Units should be bedded on minimum 200mm thick well compacted Class 6A* selected well graded granular material.
*Manual of contract documents for Highway Works: Volume (MCHW1) specification for Highway Works, Series 600 (Nov.09).
Sit the headwall level or with a slight fall 1:50 from pipe to spill mouth.

Handling

- Weight of concrete is based on 2.4 tonne/m³+5% is recommended for sizing lifting equipment.
- All lifting points shall be used as specified below
- Unit to be lifted as per lifting diagram

Concrete

- Mix ref: Self-compacting DC4/DS4 Mix
- Lifting strength based on 2 cubes = 20N/mm²
- Characteristic 28 day cube strength = 50N/mm²
- Concrete provides Design Chemical Class 4 (DC4) to special Digest 1, Table F2.

Reinforcement

- Reinforcement to BS EN 13369
- Scheduling, dimensioning, bending & cutting to BS8666
- Cage to be machine tied with steel wire

Manufacture

- Manufacture to BS EN 15258:2008 precast concrete products - Retaining wall elements, Factory Production Control certificate number: 0086-CPR-650448 & BS EN 13369
- Tolerances to BS EN 13369 clause 4.3.1.1
- Finishing:

	Top	Sides	Base	Rear of back wall
Class	A	A	A	Self - Levelled
- Marking: Units shall be indelibly marked to show:
 - Mould reference code
 - De-mould date
 - Job reference number & unique product number
 - Unit weight (kg)

Design

- Concrete design to EC2
- Althon have designed the concrete units only, the site conditions should be assessed for suitability by the scheme designer
- Units are designed to withstand a vertical live load surcharge of 10kN/M²
- Weight of soil = 18kN/M³
- Angle of internal friction = 30 Deg.
- Design Life: >100 years

Min Cover	Cover Block Size (mm)	Min Cover	Max Cover
All Faces	55	50	60

Exposure Classification	Exposure induced by Carbonation	Corrosion induced by Chlorides	Freeze/thaw attack	Chemical attack
All Faces	XC3/4	XD3	XF4	XA3

Fabrication Specification

- Manufacture IAW EN 1090-2 EXC CLASS 1
- Material grade is to be: BS EN 10025 S275
- Welding carried out IAW EN 1090-2 PARA 7.5.4 - 7.5.18
- All fillet and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
- Ensure vertical flats are fully welded both sides where possible.
- All sharp edges and burrs are to be removed.
- Remove all weld splatter.
- Holes by punching are permitted with reaming.
- Galvanising is carried out after fabrication to BS EN:ISO 1461

Handrail Specification

- Kee Klamp® Galvanised Size 8 Fittings
- Size 8 48.3mm OD 3.2mm Wall Thickness Galvanised Medium Duty Tube to BS EN 10255
- 360N/m Design Load at stated in BS 8118, BS 6180, BS 6399 & BS 7818, Civil Engineering Specification for the Water Industry (CESWI) 7th Edition Clause 2.60 Handrails & Balusters & The Engineering Equipment and Materials Users' Association (EEMUA) Publication 105 7th Edition Factory Stairways, Ladders and Handrails
- Other design loads available on request
- GRP/FRP Handrails also available

REV NO	DATE	DESCRIPTION
ADDRESS: ALTHON LIMITED VULCAN ROAD SOUTH NORWICH NR6 6AF TEL: 01603 488700 FAX: 01603 488598 EMAIL: sales@althon.co.uk WEBSITE: www.althon.co.uk PROPRIETARY & CONFIDENTIAL The information contained in this drawing is the sole property of Althon Limited. Any reproduction in part or as a whole without the written permission of Althon Limited is strictly prohibited.		
DRAWING TITLE / PROJECT:		
SFA6A Headwall 3 Sided Kee Klamp		
CLIENT:		
SCALE:	PAPER:	SHEET NO:
NTS	A3	01 OF 01
HEADWALL WEIGHT:		TOE WEIGHT:
941kg		N/A
PRODUCT NAME:		
SFA6A		
DRAWING No:		

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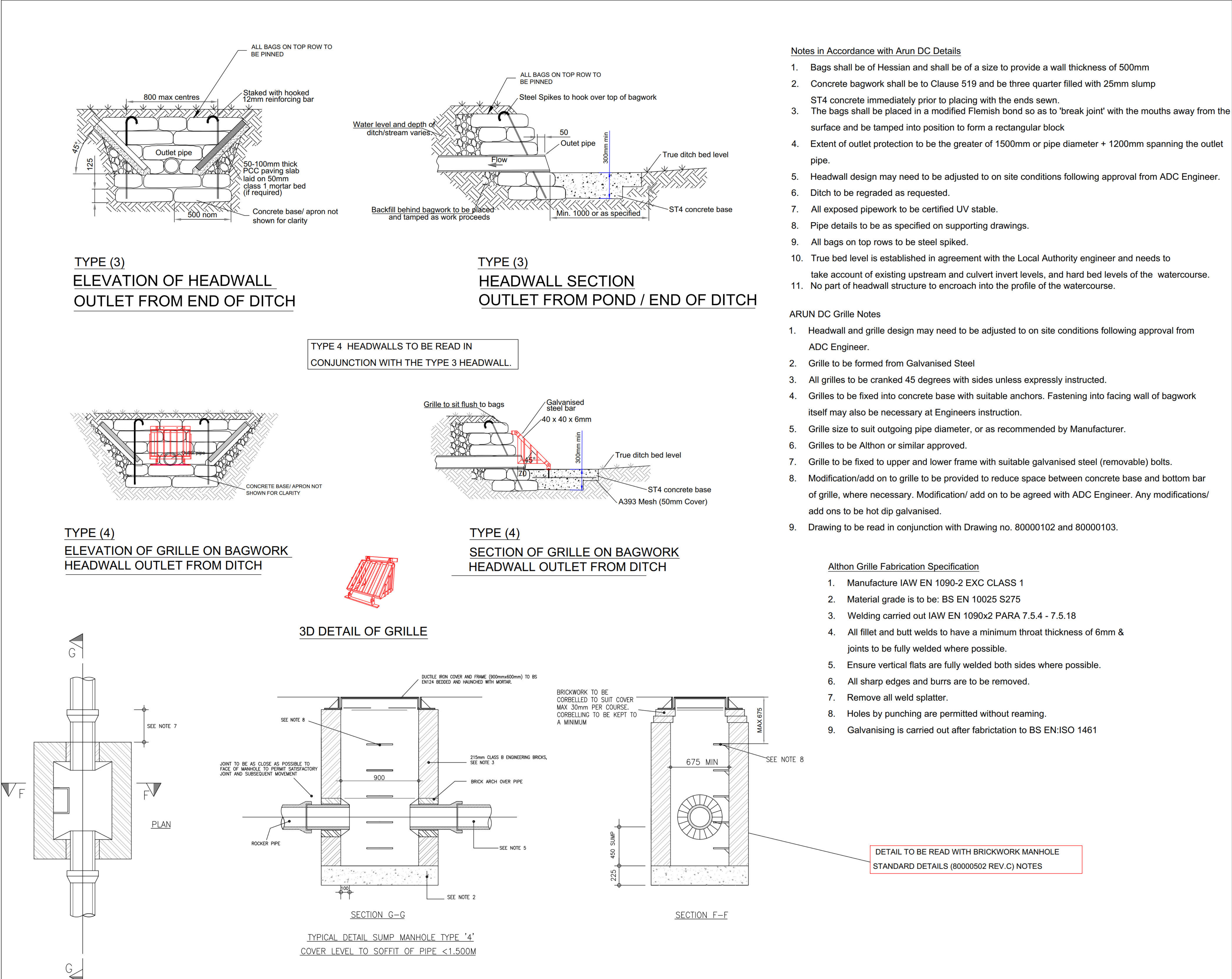
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Rev	Description	Date	By	Chkd
Paul Basham Associates Ltd The Bolby, Cambs Hill Estate, Fawham, PO16 8UT 01529 711 000 info@paulbashamassociates.com www.paulbashamassociates.com Client Project Name LAND NORTH OF WATER LANE ANGMERING Title ATHLON HEADWALL CONSTRUCTION DETAIL Project Phase DETAILED DESIGN Checked By NH Checked Date 22.03.23 Drawn By LC Drawn Date 22.03.23 Client Drawing No. - Scale NTS (AT A1 SIZE) PBA Drawing No. 189.5005.1526 Revision -				



Notes in Accordance with Arun DC Details

1. Bags shall be of Hessian and shall be of a size to provide a wall thickness of 500mm
2. Concrete bagwork shall be to Clause 519 and be three quarter filled with 25mm slump ST4 concrete immediately prior to placing with the ends sewn.
3. The bags shall be placed in a modified Flemish bond so as to 'break joint' with the mouths away from the surface and be tamped into position to form a rectangular block
4. Extent of outlet protection to be the greater of 1500mm or pipe diameter + 1200mm spanning the outlet pipe.
5. Headwall design may need to be adjusted to on site conditions following approval from ADC Engineer.
6. Ditch to be regraded as requested.
7. All exposed pipework to be certified UV stable.
8. Pipe details to be as specified on supporting drawings.
9. All bags on top rows to be steel spiked.
10. True bed level is established in agreement with the Local Authority engineer and needs to take account of existing upstream and culvert invert levels, and hard bed levels of the watercourse.
11. No part of headwall structure to encroach into the profile of the watercourse.

ARUN DC Grille Notes

1. Headwall and grille design may need to be adjusted to on site conditions following approval from ADC Engineer.
2. Grille to be formed from Galvanised Steel
3. All grilles to be cranked 45 degrees with sides unless expressly instructed.
4. Grilles to be fixed into concrete base with suitable anchors. Fastening into facing wall of bagwork itself may also be necessary at Engineers instruction.
5. Grille size to suit outgoing pipe diameter, or as recommended by Manufacturer.
6. Grilles to be Althon or similar approved.
7. Grille to be fixed to upper and lower frame with suitable galvanised steel (removable) bolts.
8. Modification/add on to grille to be provided to reduce space between concrete base and bottom bar of grille, where necessary. Modification/ add on to be agreed with ADC Engineer. Any modifications/ add ons to be hot dip galvanised.
9. Drawing to be read in conjunction with Drawing no. 80000102 and 80000103.

Althon Grille Fabrication Specification

1. Manufacture IAW EN 1090-2 EXC CLASS 1
2. Material grade is to be: BS EN 10025 S275
3. Welding carried out IAW EN 1090x2 PARA 7.5.4 - 7.5.18
4. All fillet and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
5. Ensure vertical flats are fully welded both sides where possible.
6. All sharp edges and burrs are to be removed.
7. Remove all weld splatter.
8. Holes by punching are permitted without reaming.
9. Galvanising is carried out after fabrictation to BS EN:ISO 1461

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OWC APPLICATION NOTES:

1. ALL EXISTING PIPEWORK/ MANHOLES/ HEADWALLS DEEMED TO BE CULVERTED WATERCOURSES THAT ARE TO BE ABANDONED WILL REQUIRE GRUBBING UP, OR FILLING IN CONCRETE WHERE POSSIBLE.
2. ABANDONED DITCHES TO BE FILLED WITH CLASS 2 COHESIVE FILL MATERIAL COMPACTED IN ACCORDANCE WITH TABLE 6-1 OF THE DMRS FOR GUIDANCE ON THE CORRECT METHOD OF COMPACTION. MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS VOLUME 1 'SPECIFICATION FOR HIGHWAY WORKS 600 SERIES'
3. ALL PIPES ARE TO CONNECT AT SOFFIT TO SOFFIT LEVEL. ALL CULVERTS ARE TO BE CONSTRUCTED OF CONCRETE - C50 GRADE
4. ALL DITCHES TO BE CLEANED OUT & DESILTED
5. ALL NEW CULVERTS TO BE CCTV SURVEYED AFTER INSTALLATION
6. REFER TO DRAWING 189.5005.204 FOR THE MANHOLE SCHEDULE OF THE OWC CULVERTS. CATCHPITS TO BE MINIMUM DEPTH OF 300mm
7. THE OWC APPLICATION PACK AND ASSOCIATED DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARUN DISTRICT COUNCIL CONSTRUCTION DETAILS AS FOLLOWS:
 - BRICKWORK MANHOLE STANDARD DETAILS (80000502 REV.C)
 - CONCRETE BAGWORK HEADWALL & RETAINING WALL STANDARD DETAIL (8000102 REV. B)
 - GRILLE DETAILS FOR CONCRETE BAGWORK & BRICK HEADWALLS (8000101 REV. B)
 - PIPE BEDDING AND CONNECTIONS STANDARD DETAILS (80000301 REV. C)

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Rev	Description	Date	By	Chkd
A	REVISED DETAILS TO ARUNS LATEST REV	15.05.2023	LC	NH

 Paul Basham Associates Ltd The Boltry, Cam's Hill Estate, Fawham, PO16 8UT 01529 711 000 info@paulbashamassociates.com www.paulbashamassociates.com			
			
Project Name LAND NORTH OF WATER LANE ANGMERING			
Title CULVERT HEADWALLS			
Project Phase DETAILED DESIGN			
Checked By NH	Checked Date 22.03.23	Drawn By LC	Drawn Date 22.03.23
Client Drawing No. -	Scale NTS	(AT A1 SIZE)	
PBA Drawing No. 189.5005.1527	Revision A		

Figure B 7
Typical manhole cover - Type A2

The diagram illustrates the construction of a manhole, divided into two main sections: a cross-section (top) and a plan view (bottom).

Cross-section details:

- Top:** Mortar bedding and haunching to cover and frame to Clause E6.7. A 600 mm x 600 mm clear opening in the cover, which complies with Clause E2.32. The cover is a precast concrete slab complying with E2.30, supported by a corbel slab to E2.30.2.
- Inner Structure:** A shaft with a diameter of 1200 mm. The shaft is lined with precast concrete chamber sections complying with Clause E2.29, jointed with elastomeric or plastomeric seals. The sections are surrounded by a 150 mm thick concrete surround.
- Materials:** Minimum 1 course of Class B engineering bricks or precast concrete cover frame seating rings. In-situ GEN3 concrete complying with E4.1 and BRE Special Digest 1 is used for the shaft walls.
- Dimensions:** A 600 mm x 750 mm cover slab opening. A minimum height of 2000 mm is indicated for the shaft section.
- Other features:** Lifting holes in concrete rings to be pointed.

Plan view details:

- Bottom Section:** The bottom precast section to be built into base concrete minimum 75 mm thick. It features a benching slope to be 1:10 to 1:30.
- Construction Joint:** Indicated at the base of the precast section.
- Manhole Body:** DN/ID to Clause B5.2.12. The bottom is formed using channel pieces, creating self-cleaning toe holes where the channel exceeds 600 mm wide.
- Material:** In-situ GEN3 concrete complying with E4.1 and BRE Special Digest 1 is used for the base and bottom structure.

See Figure B.13 and
— Clause E6.6.2
for rocker pipe details

— Pipe joint with channel to be located minimum 100 mm inside face of manhole

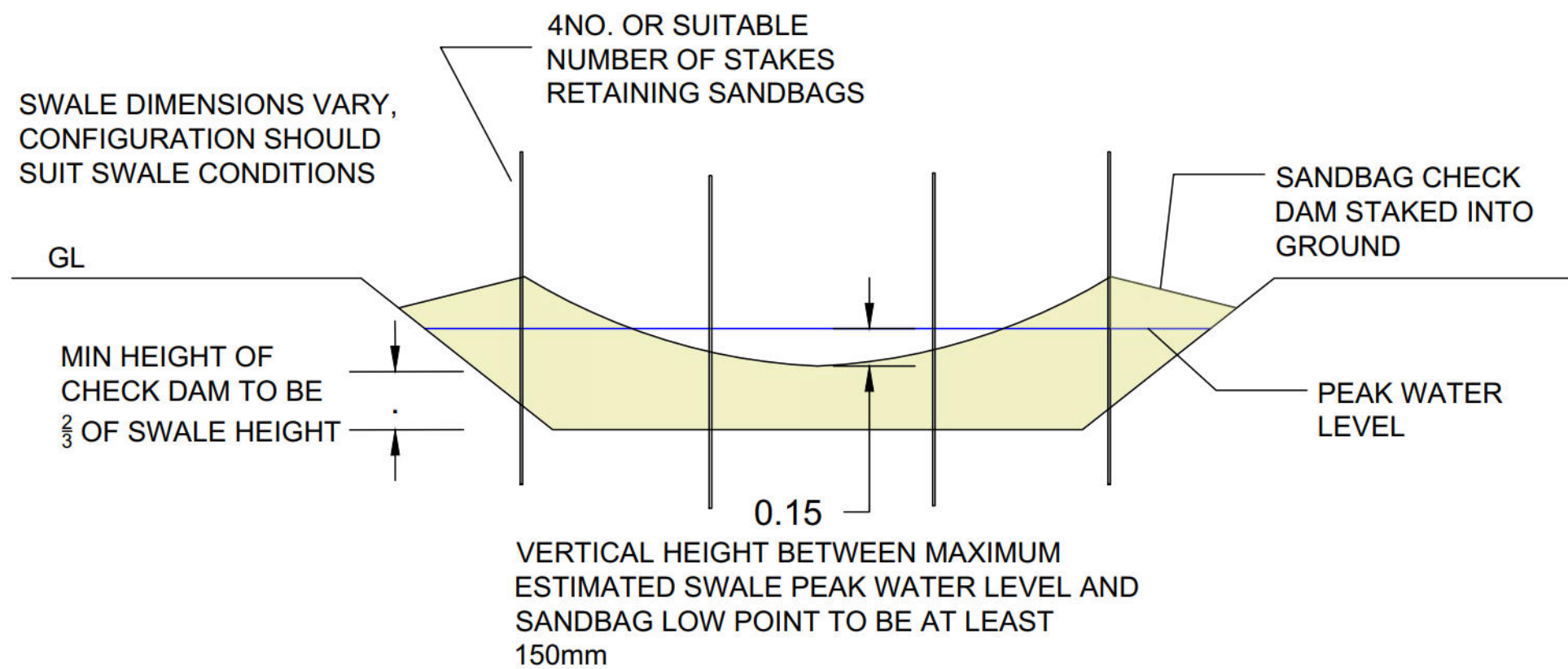
1. THIS DRAWING IS INTENDED TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS, DETAILS AND SPECIFICATIONS.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. ALL FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. DO NOT SCALE THIS DRAWING.
4. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

 **paulbasham**
associates

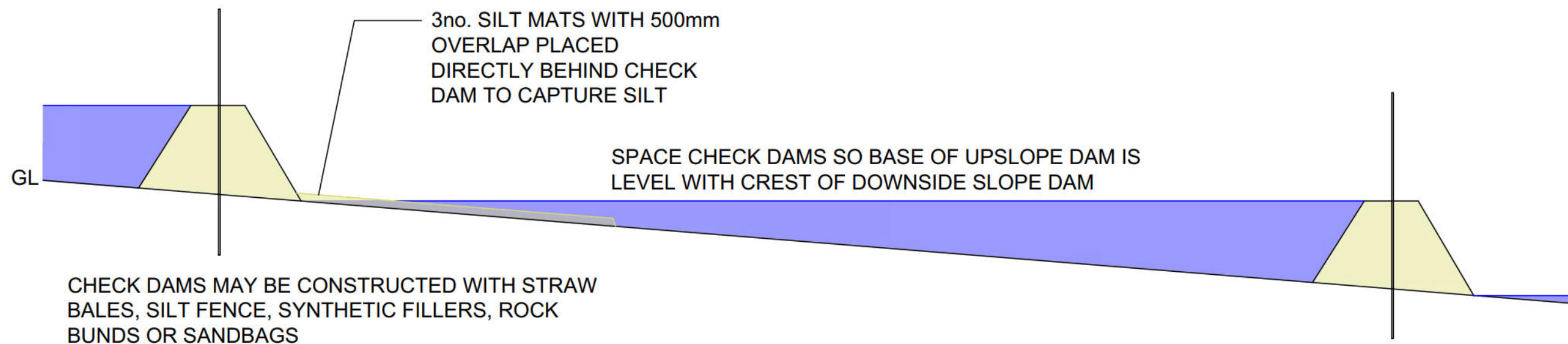
Paul Basham Associates Ltd
The Bothy, Cams Hall Estate, Fareham, PO16 8UT
01329 711 000
info@paulbashamassociates.com www.paulbashamassociates.com

Project Name OVAL RACEWAY, NORTH OF WATER LANE, ANGMERING	Title FIGURE B 7: TYPICAL MANHOLE COVER - TYPE A2	Date Created 30.07.2024	Drawn By LC	Approved By COH	Suitability Code -
		PBA Project Number 189.5005		Scale 1:20 (AT A3)	
Project Phase CONSTRUCTION	Client CALA HOMES	PBA Drawing No: 189.5005-1528			Revision B

X:\CURRENT PROJECTS\ANGMERING, WATER LANE NORTH - CA00303\03. TECHNICAL\08. WIP\02. IN-HOUSE DRAWINGS\303.1.SHC.0500 - SWALE SILT MANAGEMENT



1.1 SILT MANAGEMENT SWALE CHECK DAM
CROSS SECTION VIEW



1.2 SILT MANAGEMENT SWALE CHECK DAM
SIDE SECTION VIEW

NOTES:

- 1) THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER DOCUMENTS AND DRAWINGS INCLUDING STATUTORY UNDERTAKERS' ASSET RECORDS.
- 2) SWALE CONDITIONS AND DIMENSIONS VARY - THE CONFIGURATION OF CHECK DAMS SHOULD BE TAILORED FOR EACH SITE
- 3) CHECK DAMS AND SILT MATS SHOULD BE MAINTAINED TO REMOVE SILT BUILD UPS
- 4) THIS DESIGN IS EXPERIMENTAL AND SHOULD NOT BE USED AS A REPLACEMENT FOR OTHER PROVEN SILT MANAGEMENT MEASURES

P1	FIRST ISSUE	04.12.23	LP	MW
Rev.	Amendments	Date	Drig	Chk

Revisions



Project
SWALE SILT MANAGEMENT
CHECK DAMS

Drawing
STANDARD DETAIL

Scales NTS At original size A3

Date	DEC 2023	Drawn by	LP	Checked by	MW
------	----------	----------	----	------------	----

Status STANDARD DETAIL

Dwg. No. 303.1.SHC.0500 Rev. P1

Appendix C – CCTV Survey

CCTV Survey Report

Drain Condition
Reporting
Software
PT/430/0918



Prepared For

J Devine Civil Engineering Ltd
Southerns House
133 Church Hill Road
Sutton Surrey
SM3 8NE

Site

J Devine Ltd Co Cala Homes
Langmead Place
Angmering
West Sussex



AUDEZ DRAINAGE SERVICES LTD
Surveyor: John Mahoney



Total Defects for Project



Total DRB Grades for Project



J Devine Co Cala Homes Langmead Place Angmering West Sussex Storm Only Jan 26 - CCTV Survey Report : 25/01/26

Prepared by:

Name : AUDEZ DRAINAGE SERVICES LTD
 Contact : John Mahoney
 Location : 15 Rosebank Gardens
 Town : Northfleet
 Region : Kent
 Postcode : DA11 8RZ
 Email : [REDACTED]
 Web :
 Contact Number : [REDACTED]
 Surveyor : John Mahoney
 Valid Certification No :

Client Information

Client Name : J Devine Civil Engineering Ltd
 Contact :
 Location : Southernns House
 Town : 133 Church Hill Road
 Region : Sutton Surrey
 Postcode : SM3 8NE
 Tel :
 Mobile :
 Email :
 Fax :

Site Information

Site Name : J Devine Ltd Co Cala Homes
 Contact :
 Location : Langmead Place
 Town : Angmering
 Region : West Sussex
 Postcode :
 Tel :
 Mobile :
 Email :
 Fax :

Total Defects for Project



Total DRB Grades for Project



Report interpretation.

Overview:

Each section of the drainage system is allocated a score indicating areas that require attention. These areas are detailed in the Overview section on the following page and also at the bottom right of the first few pages. We use colour coding as an indicator of severity. Additional information concerning rehabilitation options/recomendations is included in the Overview page, which can also be used as an, "at a glance" indication of system condition. More in depth information for each section, Including images can be found later in the report. Grade indicators are as follows:

Grade A: Drain is serviceable no recommendations required

Grade B: There is an issue that might require remedial works

Grade C: There is a defect that requires remedial works, the drain is not serviceable.

Observations:

Each section of drainage reported on (manhole to manhole for example), contains detailed information about that drain and any observations made concerning condition are detailed below the header section. The observations are colour coded and given a severity score, with more significant defects being given a higher score, using a scale from 1 to 5 as detailed below:

Severity 1 to 2: These defects may require remedial monitoring

Severity 3: These defects probably require some form of remedial works

Severity 4 to 5: Defects that will require remedial repair or replacement

General:

The information provided is relevant at the time of survey. The coding system in this report is based on the Manual of Sewer Condition Classification, 5th edition (MSCC5) domestic codes (BS EN 13508-1:2003). This is the official standard for the water industry.

The severity system is based on significant experience in general practice and the 1 -5 grades represent the severity of individual defects: 5 representing a more serious defect.

Please feel free to contact us for further explanation or pricing for remedial works required.

Total Defects for Project



Total DRB Grades for Project



Overview

Section: 1 From: S101 To: S102		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 2 From: S102 To: S103		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 3 From: S104 To: S103		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 4 From: S105 To: S104		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 5 From: S105 To: S106		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 6 From: S106 To: S107		Purpose of Inspection: Investigation of known structural or service defects	Grade B	DRB Grade: B Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			
Section: 7 From: S107 To: S108		Purpose of Inspection: Investigation of known structural or service defects	Grade A	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel			

Total Defects for Project



Total DRB Grades for Project



Section: 8 From: S108 To: HW		Purpose of Inspection: Investigation of known structural or service defects	DRB Grade: A Pipe Size: 450 Material: Concrete Use: Surface Water
MH	Cover Benching Channel	Grade A	

Total Defects for Project



Total DRB Grades for Project



Site: Langmead Place , Angmering

Section 1

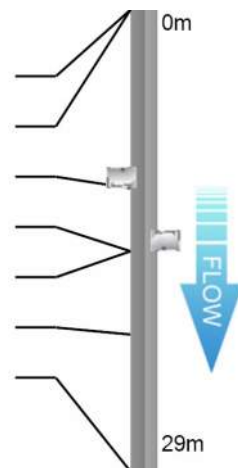
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S101	Finish Node Ref: S102	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	29.0	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole				
00.00m	WL	Water level 0%			0:00:00	
11.21m	JN	Junction 01 : 0mm Diameter			0:00:46	
15.17m	JN	Junction 10 : 0mm Diameter			0:01:00	
15.17m	DER	Settled deposits coarse 5%	0_4		0:01:00	
20.40m	DER	Settled deposits coarse 5%	0_5		0:01:21	
29.00m	MHF	Finish node type, manhole				



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 1

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S101	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
11.21m	0:00:46	JN	Junction at 01 o'clock: 0mm Diameter	
15.17m	0:01:00	JN	Junction at 10 o'clock: 0mm Diameter	
15.17m	0:01:00	DER	Settled deposits coarse: 5% Cross sectional area loss - Severity 3	Image Provided - Ref: 0_4
20.40m	0:01:21	DER	Settled deposits coarse: 5% Cross sectional area loss - Severity 3	Image Provided - Ref: 0_5
29.00m		MHF	Finish node type, manhole S102	

Total Defects for section



DRB Grade for Section



Site: Langmead Place , Angmering

Section 2

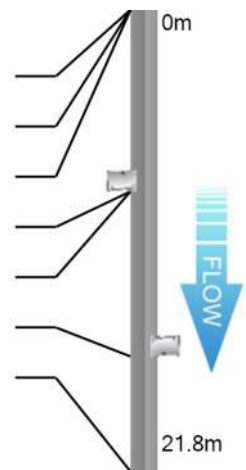
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S102	Finish Node Ref: S103	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	21.8	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole				
00.00m	WL	Water level 0%			0:00:00	
00.00m	DER	S1 Settled deposits coarse 5%	S1	1_2	0:00:00	
08.58m	DER	F1 Settled deposits coarse 5%	F1	1_-2	0:00:00	
08.58m	JN	Junction 01 : 0mm Diameter			0:00:37	
16.37m	JN	Junction 11 : 0mm Diameter			0:01:06	
21.80m	MHF	Finish node type, manhole				



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 2

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S102	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	S1 DER	Settled deposits coarse 0m - 8.58m: 5% Cross sectional area loss - Severity 3	Image Provided - Ref: 1_2 
08.58m	0:00:00	F1 DER	Settled deposits coarse Defect End: 5% Cross sectional area loss - Severity 3	
08.58m	0:00:37	JN	Junction at 01 o'clock: 0mm Diameter	
16.37m	0:01:06	JN	Junction at 11 o'clock: 0mm Diameter	
21.80m		MHF	Finish node type, manhole S103	

Total Defects for section



DRB Grade for Section



Site: Langmead Place , Angmering

Section 3

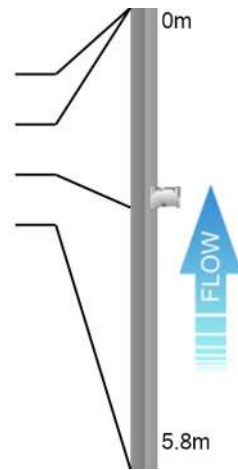
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S104	Finish Node Ref: S103	Direction: U	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	05.8	

Position	Code	Description	CD	Pic	Video Ref
00.00m	MH	Start node type, manhole			
00.00m	WL	Water level 0%			0:00:00
02.51m	JN	Junction 11 : 0mm Diameter			0:00:11
05.80m	MHF	Finish node type, manhole			



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 3

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S103	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
02.51m	0:00:11	JN	Junction at 11 o'clock: 0mm Diameter	
05.80m		MHF	Finish node type, manhole S104	

Total Defects for section



DRB Grade for Section



Site: Langmead Place , Angmering

Section 4

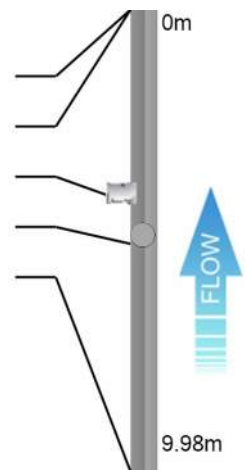
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
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Start Node Ref: S105	Finish Node Ref: S104	Direction: U	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	10.0	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole				
00.00m	WL	Water level 0%			0:00:00	
04.19m	JN	Junction 01 : 0mm Diameter			0:00:20	
05.06m	JN	Junction 12 : 0mm Diameter			0:00:24	
09.98m	MHF	Finish node type, manhole				



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 4

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S105	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
04.19m	0:00:20	JN	Junction at 01 o'clock: 0mm Diameter	
05.06m	0:00:24	JN	Junction at 12 o'clock: 0mm Diameter	
09.98m		MHF	Finish node type, manhole S104	

Total Defects for section

DRB Grade for Section



Site: Langmead Place , Angmering

Section 5

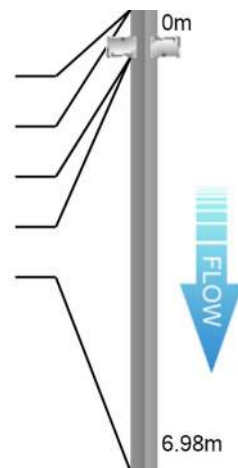
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S105	Finish Node Ref: S106	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	07.0	

Position	Code	Description	CD	Pic	Video Ref
00.00m	MH	Start node type, manhole			
00.00m	WL	Water level 0%			0:00:00
00.72m	JN	Junction 11 : 0mm Diameter			0:00:07
00.72m	JN	Junction 01 : 0mm Diameter			0:00:07
06.98m	MHF	Finish node type, manhole			



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 5

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S105	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.72m	0:00:07	JN	Junction at 11 o'clock: 0mm Diameter	
00.72m	0:00:07	JN	Junction at 01 o'clock: 0mm Diameter	
06.98m		MHF	Finish node type, manhole S106	

Total Defects for section

DRB Grade for Section



Site: Langmead Place , Angmering

Section 6

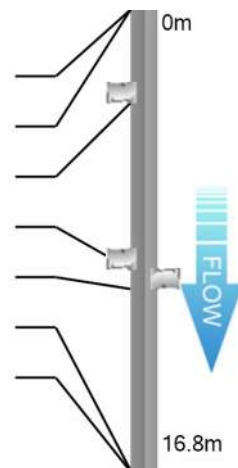
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S106	Finish Node Ref: S107	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	16.8	

Position	Code	Description	CD	Pic	Video Ref
00.00m	MH	Start node type, manhole			
00.00m	WL	Water level 0%			0:00:00
03.39m	JN	Junction 01 : 0mm Diameter			0:00:17
09.45m	JN	Junction 01 : 0mm Diameter			0:00:42
10.16m	JN	Junction 11 : 0mm Diameter			0:00:45
16.76m	OB	Other obstacles 20%	5_5		0:01:28
16.80m	MHF	Finish node type, manhole			



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 6

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S106	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
03.39m	0:00:17	JN	Junction at 01 o'clock: 0mm Diameter	
09.45m	0:00:42	JN	Junction at 01 o'clock: 0mm Diameter	
10.16m	0:00:45	JN	Junction at 11 o'clock: 0mm Diameter	
16.76m	0:01:28	OB	Other obstacles: 20% Cross sectional area loss - Severity 3	Image Provided - Ref: 5_5 
16.80m		MHF	Finish node type, manhole S107	

Total Defects for section



DRB Grade for Section



Site: Langmead Place , Angmering

Section 7

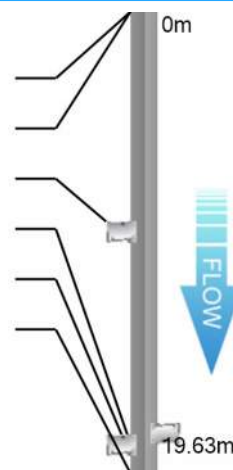
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S107	Finish Node Ref: S108	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

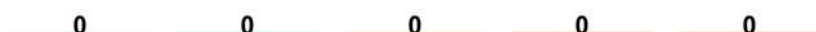
Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	19.6	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole				
00.00m	WL	Water level 0%			0:00:00	
09.80m	JN	Junction 01 : 0mm Diameter			0:00:37	
18.36m	JN	Junction 11 : 0mm Diameter			0:01:08	
18.87m	JN	Junction 01 : 0mm Diameter			0:01:10	
19.63m	MHF	Finish node type, manhole				



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 7

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S107	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
09.80m	0:00:37	JN	Junction at 01 o'clock: 0mm Diameter	
18.36m	0:01:08	JN	Junction at 11 o'clock: 0mm Diameter	
18.87m	0:01:10	JN	Junction at 01 o'clock: 0mm Diameter	
19.63m		MHF	Finish node type, manhole S108	

Total Defects for section



DRB Grade for Section



Site: Langmead Place , Angmering

Section 8

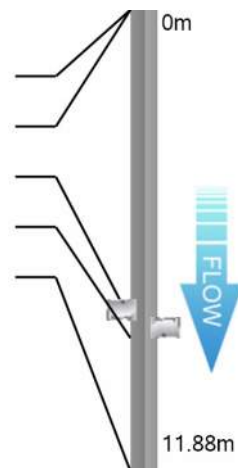
Client: J Devine Civil Engineering Ltd	Location (Street Name): Langmead Place	City/Town/Village Angmering	Cust Job Ref.	Surveyors Name: John Mahoney	Date: 25/01/2026
---	---	--------------------------------	---------------	---------------------------------	---------------------

Start Node Ref: S108	Finish Node Ref: HW	Direction: D	Height/Dia: 450
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: CO	Cleaned N

Node Type	Cover Condition	Benching Condition	Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	11.9	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole				
00.00m	WL	Water level 0%			0:00:00	
07.99m	JN	Junction 01 : 0mm Diameter			0:00:33	
08.45m	JN	Junction 11 : 0mm Diameter			0:00:34	
11.88m	MHF	Finish node type, manhole				



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 8

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole S108	
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
07.99m	0:00:33	JN	Junction at 01 o'clock: 0mm Diameter	
08.45m	0:00:34	JN	Junction at 11 o'clock: 0mm Diameter	
11.88m		MHF	Finish node type, manhole HW	

Total Defects for section



DRB Grade for Section



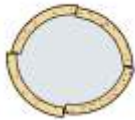
A guide to defects and other observations in drainage systems

More detailed information can be found in the National Standard (BS EN 13508-1:2003) and in the Manual of Sewer Condition Classification (MSCC) 5th Edition, written by the Water Research Centre (WRc).

Use	
Code	Description
C	Combined
F	Foul
S	Surface Water
T	Trade Effluent
W	Culverted Watercourse
Z	Other

Common Materials	
Code	Description
VC	Vitrified Clay
PVC	Polyvinyl Chloride
CO	Concrete
CI	Cast Iron
PF	Pitch Fibre
PE	Polyethylene
DI	Ductile Iron

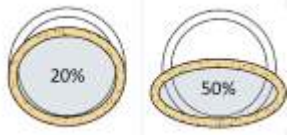
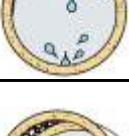
Start Node	Description	Finish Node
MH	Manhole	MHF
IC	Inspection Chamber	ICF
GY	Gulley	GYF
RE	Rodding Eye	REF
SK	Soakaway	SKF
BN	Buchan Trap	BNF
BR	Major Connection without Ref	BRF
CP	Catch Pit	CPF
OC	Other Special Chamber	OCF
OF	Outfall	OFF
OS	Oil Separator	OSF
WR	Winner Trap	WRF
LH	Lamphole	LHF

Code	Observation	Description	Attributes	
B	Broken	Pieces pipe have visibly moved	Defined by clock references. Associated with deformity in rigid pipe	
CC CL CM CR	Cracks	Cracks are break lines that are not visibly open	Defined by clock reference position/s. Longitudinal and radiating cracks attract only one clock reference	
CN	Connection	Lateral pipe has been connected after original construction	Described by clock reference position and diameter	

Total Defects for section

DRB Grade for Section



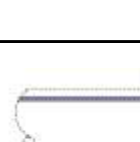
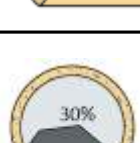
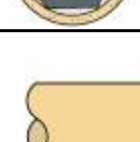
CX(I)	Defective Connection (Intruding)	Defective by intrusion or damage due to factors including: cracks, fractures, obstruction, position etc	Described by clock reference position and diameter (+ % intrusion)	
CU	Loss of Vision	Lens of camera is obscured by debris, water etc. Operator is unable to see drain clearly	"W" can be added if loss of vision is due to water	
D	Deformed	Pipe has lost its structure	Described by percentage loss of height or width. Recorded in 5% increments	
DEE	Deposits Encrustation	Eg. Attached scale deposits evident	Described by clock referenced position and percentage loss of cross-sectional area (5% increments)	
DEG	Deposits Grease	Attached grease deposits evident	Described by clock referenced position and percentage loss of cross-sectional area (5% increments)	
DER DES	Deposits Coarse/Fine	Settled deposits on the invert of the pipe.	Described by percentage loss of height or diameter. Recorded in 5% increments.	
FC FL FM FR	Fractures	Fractures are visibly open. Pieces of pipe have not moved	Defined by clock reference position/s. Longitudinal and radiating fractures attract only one clock reference	
H	Holes	Section of pipe fabric is missing	Defined by clock reference location. Normally two clock references	
I	Infiltration	Water is infiltrating the pipe, normally via a joint but could be via another defect	Can be described in Remarks using terms such as Seeper, Dripper and Runner	
JDL	Joint Displaced Large	Pipe has moved at joint, perpendicular to axis of pipe	More than 1.5 times the pipe wall thickness must be visible	

Total Defects for section

DRB Grade for Section

0 0 0 0 0

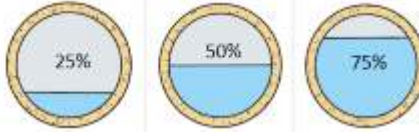


JDM	Joint Displaced Medium	Pipe has moved at joint, perpendicular to axis of pipe	Between 1 and 1.5 times the pipe wall thickness must be visible	
JN	Junction	Lateral pipe was installed at construction	Described by clock reference position and diameter	
JX	Defective Junction	Lateral pipe was installed at construction but is defective in some way	Joint can be defective due to factors including: cracks, fractures, obstruction, position etc	
LD LU LL LR	Line Deviation	LD = Line Down, LU = Line Up, LL = Line Left, LR = Line Right. Not related to CIPP lining.	Additional modifiers are added: Q = Quarter (22.5), H = Half (45), F = Full (90). In degrees.	
LC	Lining Changes	If the drain is lined, the lining material has changed	Position of lining material change	
MC	Material Change	The pipe material has changed	Position of change is noted. Type of material change can be defined	
OB	Obstruction/Obstacle	An obstruction or obstacle is affecting the flow through the pipe	Described in percentage loss of cross-sectional area	
OJL	Open Joint Large	Pipe has moved at joint, along the axis of pipe	More than 1.5 times the pipe wall thickness must be visible	
OJM	Open Joint Medium	Pipe has moved at joint, along the axis of pipe	Between 1 and 1.5 times the pipe wall thickness must be visible	
PC	Pipe Length Changes	Length of individual pipe changes	New length described at this position	

Total Defects for section

DRB Grade for Section



R	Roots	Evidence of root ingress	Roots will normally infiltrate via bad joints, cracks, fractures, breaks etc	
REM	Remark	General remark	Used for additional information	
S	Surface Damage	This might include corrosion, spalling and chemical attack	Position only. Additional information can be added in Remarks	
SA	Survey Abandoned	Used when a survey cannot continue for any reason	The reason for abandoning a survey should be noted in the remarks area	
SC	Shape Changes	Dimension of drain changes	Diameter dimension change recorded. Second dimension is recorded for no circular pipe changes	
SR	Sealing Ring	Sealing ring intrudes into pipe at joint	Described by clock reference position	
V	Vermin	Evidence of Vermin in pipe	Can also be used for evidence within manhole etc	
WL	Water Level	Used to record changes in water level. Always shown at the beginning of every survey, if dry noted as 00.	Described by percentage of height or diameter. Recorded in 5% increments	
XP	Collapsed	Drain is suffering from complete loss of structural integrity. Always followed by SA - Survey Abandoned	Percentage loss of cross-sectional area is recorded. Other related structural defects are not recorded	

Appendix D – Sub-Contractor Quality Policy Declaration

Quality Policy

J Devine Civil Engineering Ltd recognises that the disciplines of Quality, are an integral part of its management function. We believe that maintaining and continuously improving our quality standards is the key that underpins sustainable business practices.

We strive to ensure that quality is at the heart of decision making within the Company and that all employees have a sound understanding of the importance of our management systems, their continuous improvement and their direct effect to our continuing success.

Our Commitment

- Maintaining compliance with our clients' requirements and expectations.
- Create an environment of excellence and continuous improvement.
- Annual measurement of targets and objectives.
- Continually develop a sustainable business.

Responsibilities

Our Managing Director (MD) is responsible for quality for the business and is supported by an HSEQ manager. The MD has made sure competent advice is available across the business to enable the business to continually improve and meet our customers' needs and expectations.

We describe more detailed specific responsibilities for all levels of the business within Annex SL 5.3.

Our Approach

- We have a management system for quality that is externally certified to ISO 9001 which is integrated with our systems for managing health & safety and the environment where possible.
- Systematic control of our processes and activities.
- Utilisation of well-managed resources.
- Aspiring to achieve high levels of quality in all communications.
- Providing information, instruction, training and supervision to ensure the highest standards are achieved throughout the business.
- Reporting and reviewing set performance targets.
- Working to formalised procedures, designed to eliminate deficiencies.

Review

This policy shall be reviewed on an annual basis and as and when necessary to reflect changes in relevant compliance obligations.

Nigel Jordan
Managing Director
Date: January 2025

Appendix E – Visqueen Membrane Delivery Note & Test Certificate

Visqueen High Performance Urban Drainage Geomembrane

Features & benefits

- Used in stormwater attenuation systems and as an impermeable membrane in permeable paving systems
- Dual jointing methods - depending upon the specification, lap joints can be taped or heat welded

Product description

Visqueen High Performance Urban Drainage Geomembrane is a robust thermoplastic geomembrane, black in colour, 1mm thick and supplied in single wound rolls (not folded), 1.4m x 50m.

Approvals and standards

- Conforms to the SUDS specification requirements of Appendix C of CIRIA C697 and C753
- Suitable for use as an impermeable membrane in a permeable paving systems to BS 7533-13:2009 (System C - no infiltration)
- Visqueen certified with Quality Management System ISO 9001:2015
- Visqueen certified with Occupational Health and Safety System ISO 45001:2018
- Visqueen certified with Environmental Management System ISO 14001:2015

Usage

Visqueen High Performance Urban Drainage Geomembrane is used for the wrapping of underground stormwater attenuation crates in heavy duty situations (high water table), and as an impermeable membrane placed on top of the subgrade formation level and to the sides of the sub-base within a permeable paving system.

Regarding attenuation systems, Visqueen High Performance Urban Drainage Geomembrane is recommended when the depth of tank is more than 3 crates, as the product offers excellent welding characteristics and therefore the joints can resist hydrostatic pressure. The product can be used with taped joints but it is only advised if the tank has a depth of 2 crates or less.

The product is also used in applications such as containment and cut-off trenches, lagoons, canals and artificial lakes.

System components

- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m
- Visqueen Top Hat Units
- Visqueen TreadGUARD 300, 2m x 75m
- Visqueen 100mm Double Sided Butyl Tape, 100mm x 15m
- Visqueen NF-Detailing Strip, 300mm x 10, 500mm x 10m
- Visqueen NF-150 Lap Tape, 150mm x 10m

Storage and handling

Visqueen High Performance Urban Drainage Geomembrane should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen High Performance Urban Drainage Geomembrane can be cut with a sharp retractable safety knife or robust scissors.

Hand rollers are required during lap joint formation and sealing detailing. Typical hand rollers include 40mm silicone pressure roller and 6mm brass penny pressure roller.

Consult the project specification to ensure the correct method of lap joint formation for the project is followed (welded or taped).

Installation

Visqueen High Performance Urban Drainage Geomembrane should be clean and dry at the time of jointing. The membrane exhibits superior welding properties making it ideal for on-site welding of joints and this method should be employed wherever possible. When welding, the overlap in the geomembrane is typically 100mm and when hand welding, a 35mm weld is normally achieved. When hand welding, a roller must be used.

In certain applications the sealing of laps can be achieved using tapes. When taping joints, overlap by at least 150mm, bond with Visqueen 100mm Double Sided Butyl Tape and seal lap joints with Visqueen NF-150 Lap Tape. All lap joints should be pressed and rolled to ensure a completely sealed joint is achieved.

Visqueen High Performance Urban Drainage Geomembrane is recommended when the depth of tank is more than 3 crates, as the product offers excellent welding characteristics and therefore the joints can resist hydrostatic

Visqueen High Performance Urban Drainage Geomembrane

pressure. The product can be used with taped joints but it is only advised if the tank has a depth of 2 crates or less.

Where the geomembrane lap joints are being welded, pipe penetrations should be sealed with welded geomembrane. Alternatively VisqueenPro Detailing Strip or Visqueen NF-Detailing Strip can be used to seal pipe penetrations.

Where the geomembrane lap joints are being taped, Visqueen Preformed Top Hat Units should be used for sealing pipe penetrations. The base of the top hat and the upstand should be bonded using Visqueen 100mm Double Sided Butyl Tape and sealed with Visqueen NF-150 Lap Tape. The upstand should be secured with the supplied jubilee clip. Alternatively VisqueenPro Detailing Strip or Visqueen NF-Detailing Strip can be used to seal pipe penetrations.

If the geomembrane is punctured or perforated a patch of the same material should be lapped at least 150mm beyond the limits of the puncture and bonded using the same technique as employed for the geomembrane lap joints. Alternatively a patch can be formed using VisqueenPro Detailing Strip or Visqueen NF-Detailing Strip lapped at least 150mm beyond the extents of the puncture.

When used as a liner for stormwater attenuation crates, ensure that the base of the trench is level and free from voids or protrusions. Blind the substrate with minimum 100mm sand blinding, level and compact. When installing the geomembrane, it should be protected on the external face with Visqueen TreadGuard 300 protection layer. Visqueen UDG Corner Protection Units (unit dimension 150mm x 150mm x 150mm) should be positioned at the external corners of the crate system. Due to the robust nature of the geomembrane, in normal service conditions it does not require covering with a protective layer on the internal face, however care should still be taken to ensure that it is not punctured, stretched or displaced when positioning the crates.

When used in a System C permeable paving application, the geomembrane should be laid on a smooth continuous blinded subgrade free from irregularities such as voids or protrusions, or alternatively the blinding can be replaced with a layer of Visqueen TreadGuard 300 protection.

Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane. The membrane should be covered immediately after installation to prevent damage from following trades, ultraviolet light, etc.

Usable temperature range

It is recommended that Visqueen High Performance Urban Drainage Geomembrane and all associated system components should not be installed below 5°C.

Additional information

For additional detailing information, contact Visqueen Technical Services [REDACTED]

The information in this datasheet was correct at the time of publication. It is the user's responsibility to obtain the latest version of the datasheet as it is updated on a regular basis. The information contained in the latest datasheet supersedes all previously published editions.

Visqueen High Performance Urban Drainage Geomembrane

Visqueen High Performance Urban Drainage Geomembrane data table

Property	Test method	Units	Compliance criteria	Result
Colour				Black
Length	BS EN 1848-2	m	0	50
Width	BS EN 1848-2	m	0	1.4
Thickness	BS EN 1849-2	mm	+/-20%	1
Mass	BS EN 1849-2	g/m ²	-1	974
Tensile strength - MD	BS EN 12311	N/mm ²	MLV	22
Tensile strength - CD	BS EN 12311	N/mm ²	MLV	20
Tensile elongation - MD	BS EN 12311	%	MLV	799
Tensile elongation - CD	BS EN 12311	%	MLV	848
Joint strength	BS EN 12317-2	N	MLV	515
Watertightness to 60kPa for 24 hours	BS EN 1928	-	Pass/Fail	Pass
Resistance to impact	BS EN 12691	mm	MLV	600
Resistance to static loading	BS EN 12730	kg	MDV	-20
Resistance to nail tear - MD	BS EN 12310-1	N	MLV	705
Resistance to nail tear - CD	BS EN 12310-1	N	MLV	745
Durability - heat ageing	BS EN 1296	-	Pass/Fail	Pass
Durability - chemical resistance	BS EN 1847	-	Pass/Fail	Pass
Resistance to low temperature	BS EN 495-5	°C	MDV	-40
Water vapour transmission - resistance	BS EN 1931	MNs/g	MDV	1171
Water vapour permeability	BS EN 1932	g/m ² /day	MDV	0.11
Reaction to fire	BS EN 13501-1	Class	MDV	F
Chemical resistance - acids	BS EN 14414-A	-	Pass/Fail	Pass
Chemical resistance - alkalis	BS EN 14414-B	-	Pass/Fail	Pass
Chemical resistance - organic solvents	BS EN 14414-C	-	Pass/Fail	Pass
Chemical resistance - visual defects	BS EN 14414	-	Pass/Fail	Pass
Resistance to leaching - hot water	BS EN 14415-A	-	Pass/Fail	Pass
Resistance to leaching - aqueous alkaline liquids	BS EN 14415-B	-	Pass/Fail	Pass
Resistance to leaching - organic alcohols	BS EN 14415-C	-	Pass/Fail	Pass
Resistance to leaching - visual defects	BS EN 14415-A	-	Yes/No	No

Health and safety information

Refer to the Visqueen High Performance Urban Drainage Geomembrane safety datasheet (SDS).

About Visqueen

Visqueen is a leading provider of construction membrane technologies and design-based solutions for ground gas, structural waterproofing, damp proofing and fire protection.

We offer complete support at every stage of the specification, including the supply chain process. As the UK's principal technical authority, we are best placed to ensure that the principal designer and contractor specify the most technically suited, durable, and competitive solution to guarantee their project is protected for the lifetime of the building.

Visqueen is at the forefront of advanced membrane technology and innovation in the construction industry,

Visqueen High Performance Urban Drainage Geomembrane

earning the trust and loyalty of specifiers throughout the UK and Europe.

For more information, visit [visqueen.com](https://www.visqueen.com) or contact our sales office at [REDACTED]

Complete Range, Complete Solution



Passive Fire Protection



Gas Protection



Damp Proof Membrane



Air and Vapor Control



Stormwater



Damp Proof Course



Temporary Protection

Visqueen Technical Support

Visqueen offer a comprehensive full nationwide technical support. Our team of CSSW qualified technical support managers provide on site design-based solutions for specifiers, contractors and builders merchants, and will ensure that from design stage to installation the project is fully risk assessed and the specification is approved by all stakeholders.

Our Technical Office, can design, prepare and manage CAD detailing, together with assisting in quantity take offs, while offering advice on technical installations and product selection.

Competency & Design

Visqueen promotes competency in building design by ensuring that its technical team possesses the necessary skills, knowledge, experience, and ethical practices. The company adopts the "golden thread of information," ensuring all project data is digitally secure and accessible throughout a building's lifecycle. This approach aligns with the Building Safety Act and aims to foster accountability and compliance with evolving regulations, providing clients with confidence in the safety and reliability of their projects.

Visqueen CPD Seminars

Visqueen's CPD Seminars offer insights into Building Regulations, Standards, and industry guidance related to damp proofing, hazardous ground gas protection, and structural waterproofing. These one-hour seminars are tailored for construction design professionals and delivered by our Technical Support Managers. Visit our website to book a free CPD.

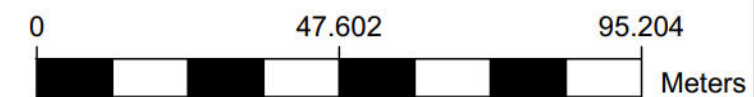
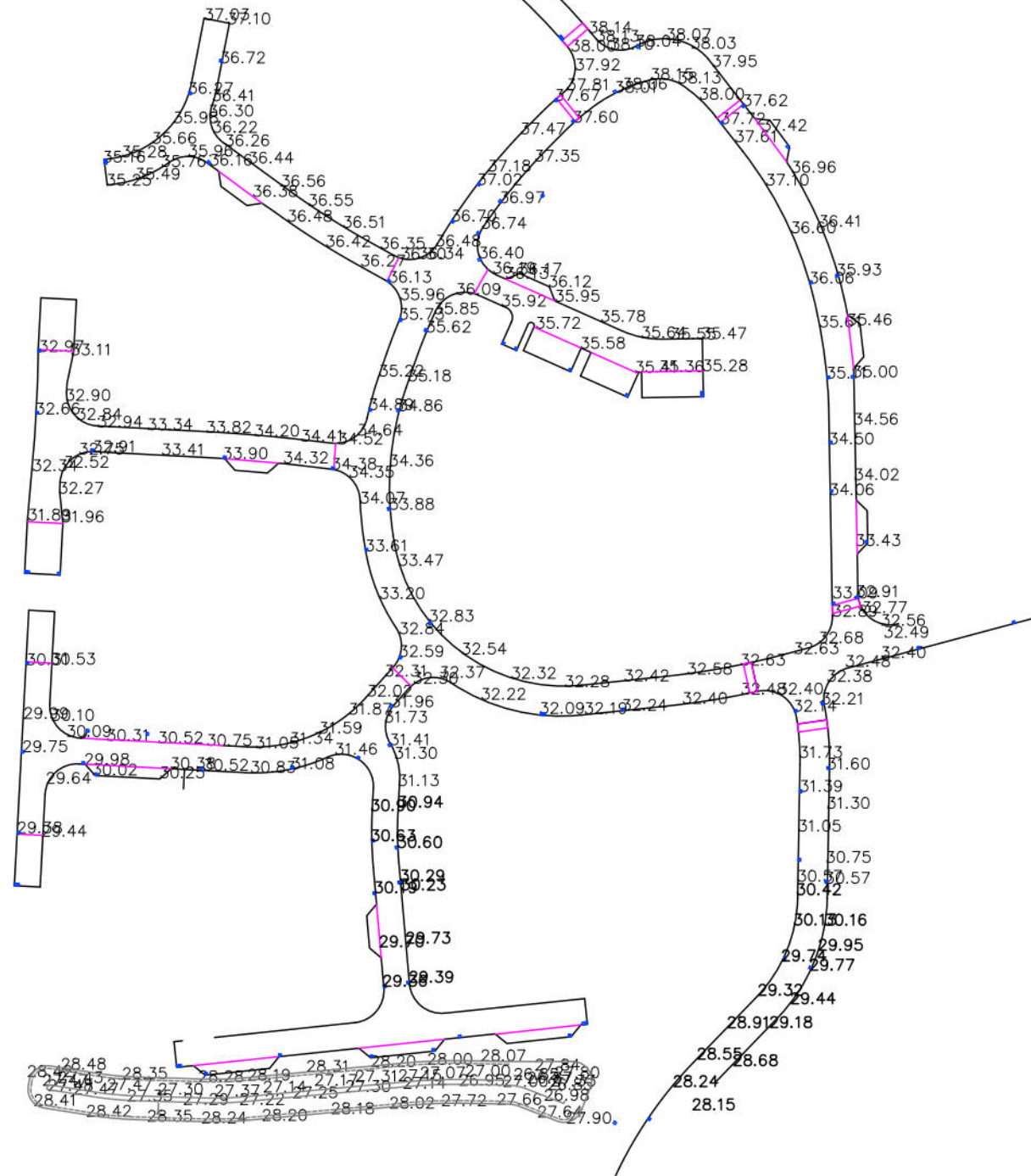
Visqueen Contract Design Services

Visqueen Contract Design Services offers a bespoke design service led by our team of Certified Surveyors in Structural Waterproofing (CSSW), providing experienced and specialised waterproofing design expertise for complex projects. We provide comprehensive support throughout the entire project, ensuring that all work meets the requirements of warranty providers and adheres to the highest standards of quality, reliability and current legislation.

Visqueen Training Academy

Based at our Derbyshire facility, the Visqueen Training Academy offers a variety of training programs across the UK. These include one-day product awareness sessions for distributors and builders' merchants, and intensive two-day courses for hands-on product installation training. Contact us for more information.

Appendix F – Road and Swale As-Built Survey



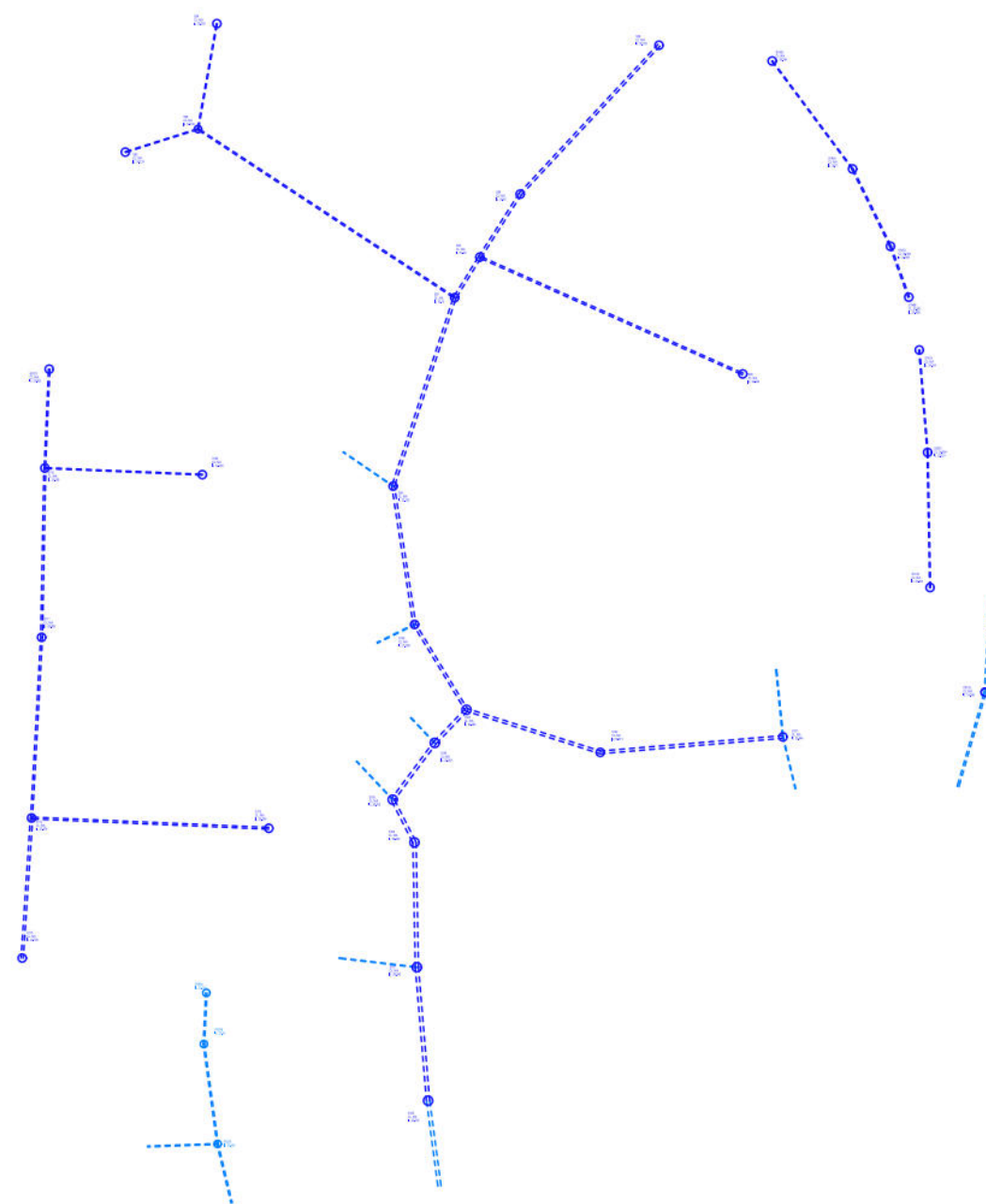
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Scale:	1:XXX
Revision:	A
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Appendix G – Surface Water As-Built Survey



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Appendix H – Manhole Photos and Main Drainage Checksheets





