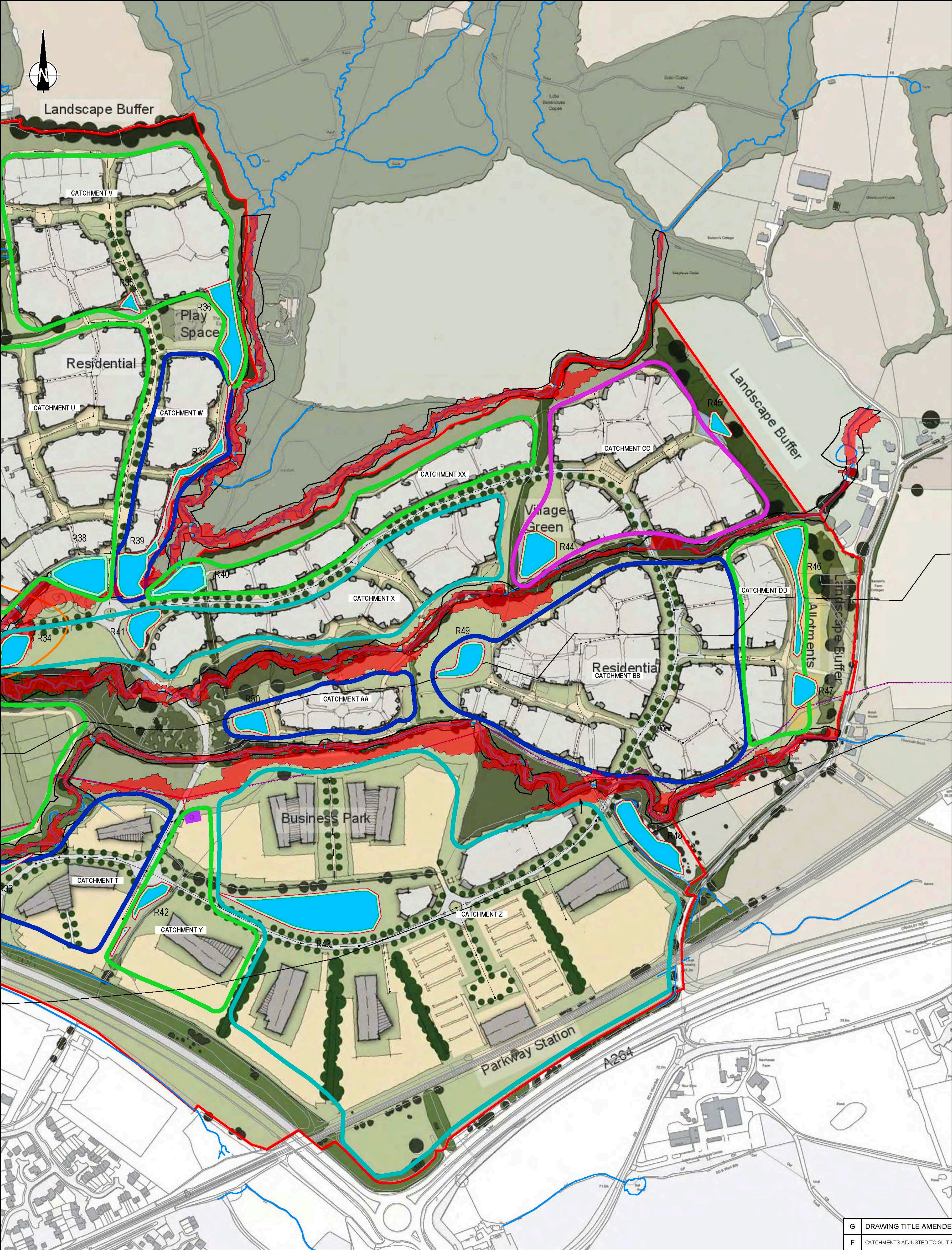




NOTES

1. DRAWING BASED ON BDB DESIGN MASTERPLAN DRG. No. 2153A-160.

2. AREA OF STATIC WATER/BASE OF TANKS IS 53184m².

KEY

1 IN 100 YEAR PLUS CLIMATE CHANGE FLOOD EXTENT

NOTIONAL CORE AREA OF GREAT CRESTED NEWTS

PROPOSED POND

CATCHMENT AREAS

G.C. NEWT PONDS

SWALE

SUB-SURFACE TANK

G	DRAWING TITLE AMENDED	JHW	10.12.19	IJF
F	CATCHMENTS ADJUSTED TO SUIT RUSPAR ROAD AND MEAT FARM REQUIREMENTS	JHW	29.11.19	IJF
E	REDRAWN TO SUIT NEW MASTERPLAN 2153A-160	SF	21.08.19	IJF
D	REDRAWN TO SUIT NEW MASTERPLAN 2153-150Q	JW	26.05.16	IJF
C	REDRAWN TO SUIT NEW MASTERPLAN 2153-150N	JW	03.02.16	IJF
B	REDRAWN TO SUIT NEW MASTERPLAN 2153-150	JW	02.06.15	IJF
A	REDRAWN TO SUIT COMMENTS AND 2153-59B	JW	24.03.15	IJF
Mark	Revision	Drawn	Date	Chkd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

Drawing Issue Status

FOR PLANNING

LAND NORTH OF HORSHAM

PLANNING APPLICATION

SUDS FEATURES AND CATCHMENTS

SHEET 3 OF 3

Client

Legal & General

STRATEGIC LAND NORTH HORSHAM LTD

Date of 1st Issue

24.03.15

Date of 1st Issue

24.03.15

A1 Scale

1:2500

Drawn by

JW

Checked by

IJF

Drawing Number

25216/2007/SK03

Revision

G

pba

peterbrett

Offices throughout the UK and Europe

www.peterbrett.com

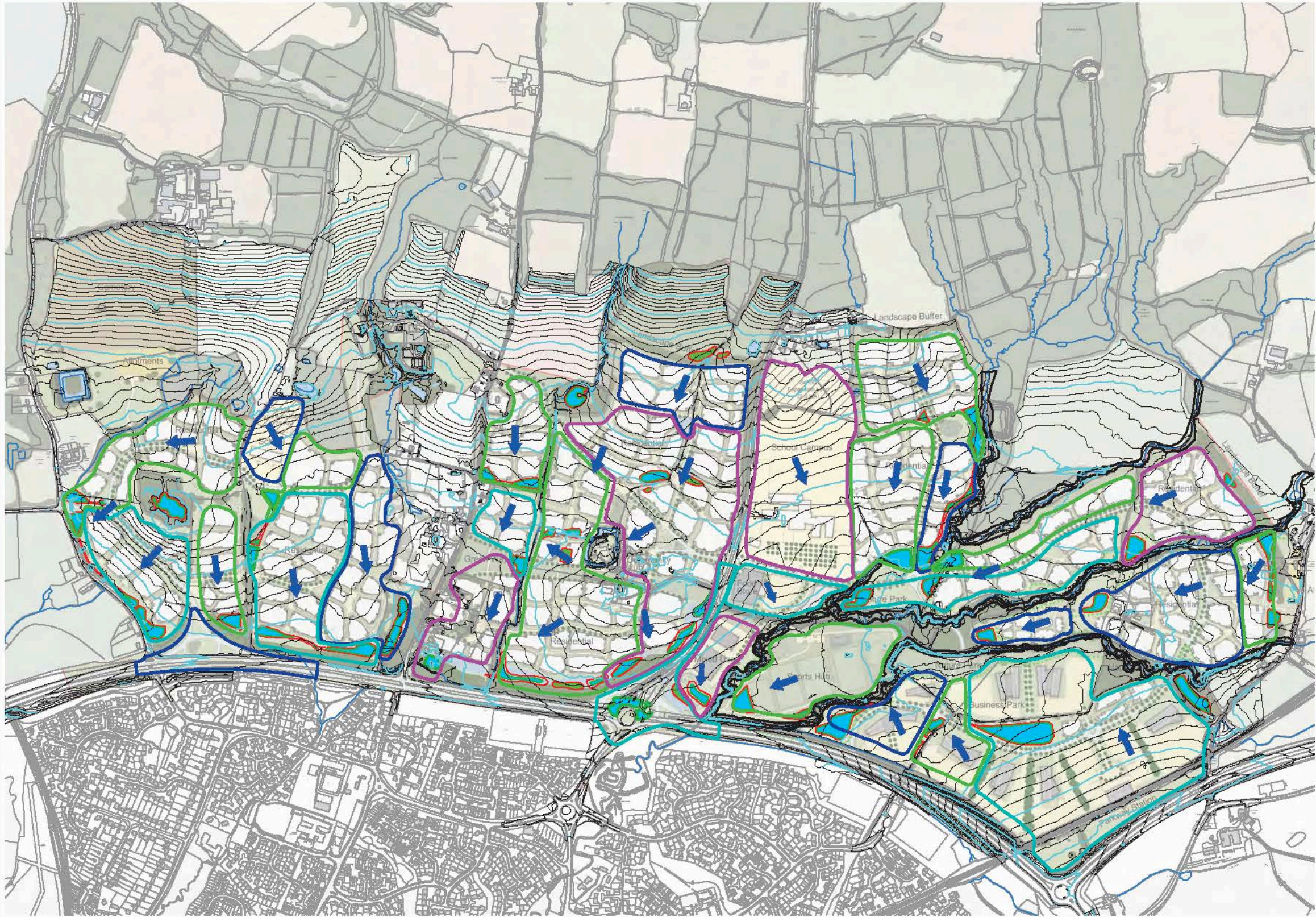
© Peter Brett Associates LLP

READING

Tel: 0118 950 0761

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File Location: J:\21516 north north horsham civil and water\sketches\25216-2007-4819-03.dwg



NOTES

1. DRAWING BASED ON BDB DESIGN MASTERPLAN DRG. No. 2153A-160.

KEY

-  1 IN 100 YEAR PLUS CLIMATE CHANGE FLOOD EXTENT
-  CATCHMENT AREAS
-  SURFACE WATER FLOW DIRECTION

D	REVISION TO POND LAYOUTS IN CENTRAL AREA	23.01.20	JHW	IJF	
C	REDRAWN TO SUIT PHASE 1 MASTERPLAN AND MOAT FARM AREA	25.10.19	RMLM	IJF	
B	REDRAWN TO SUIT NEW MASTERPLAN 2153A-160	21.06.19	JC	IJF	
A	REDRAWN TO SUIT NEW MASTERPLAN 2153-150N	03.02.16	JW	IJF	
Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.
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Drawing Issue Status

FOR PLANNING

LAND NORTH OF HORSHAM
SUDS FEATURES AND CATCHMENTS

Client



STANTEC LAND NORTH HORSHAM LTD



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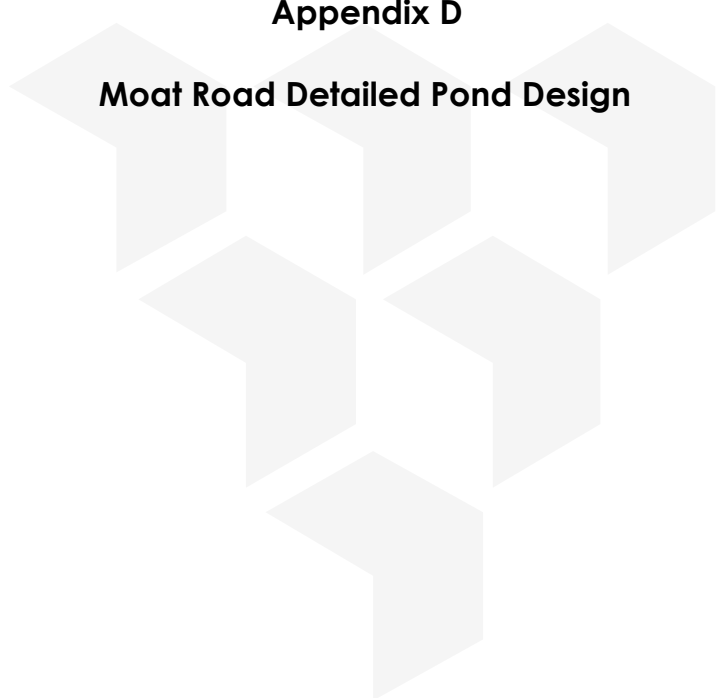
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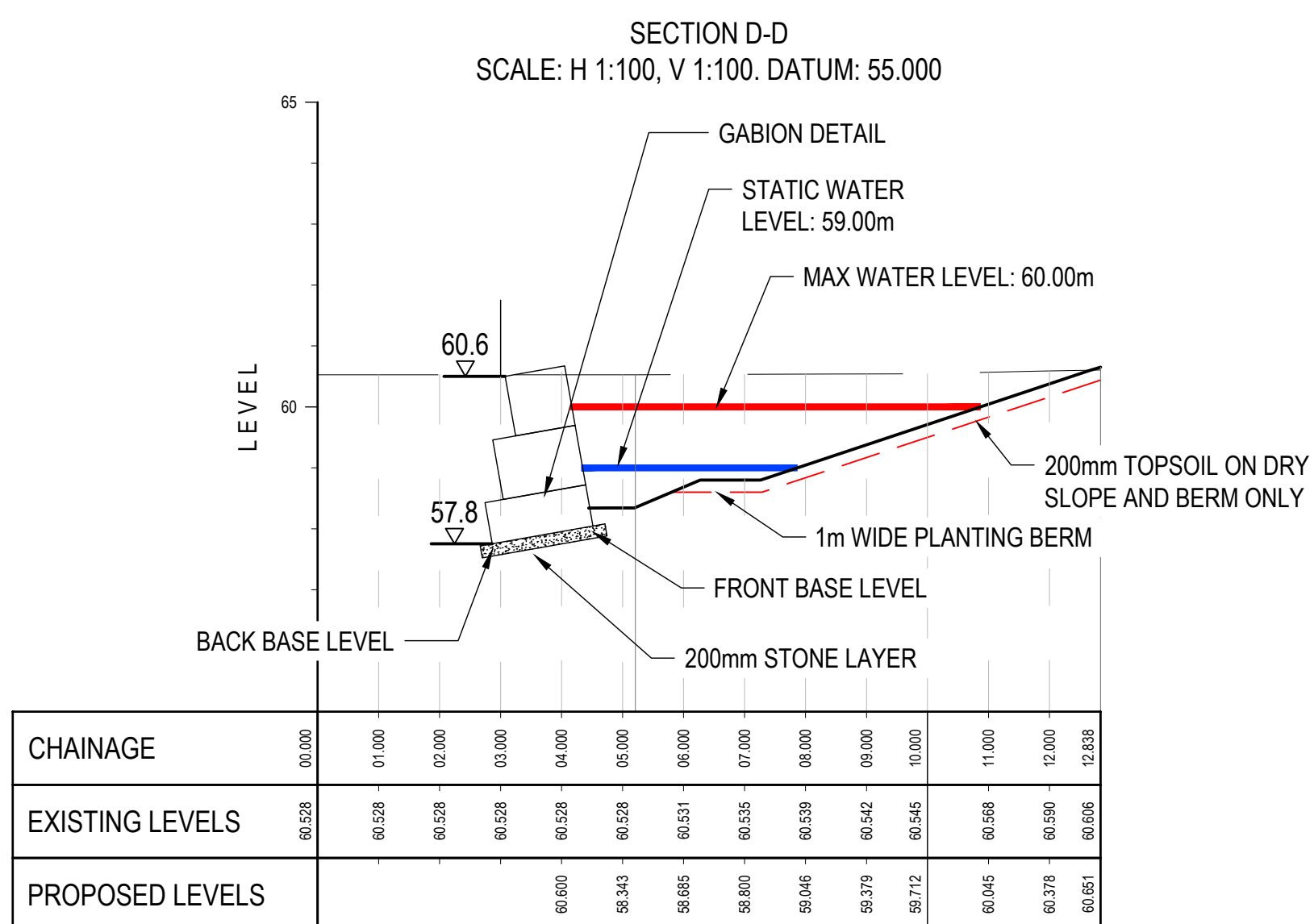
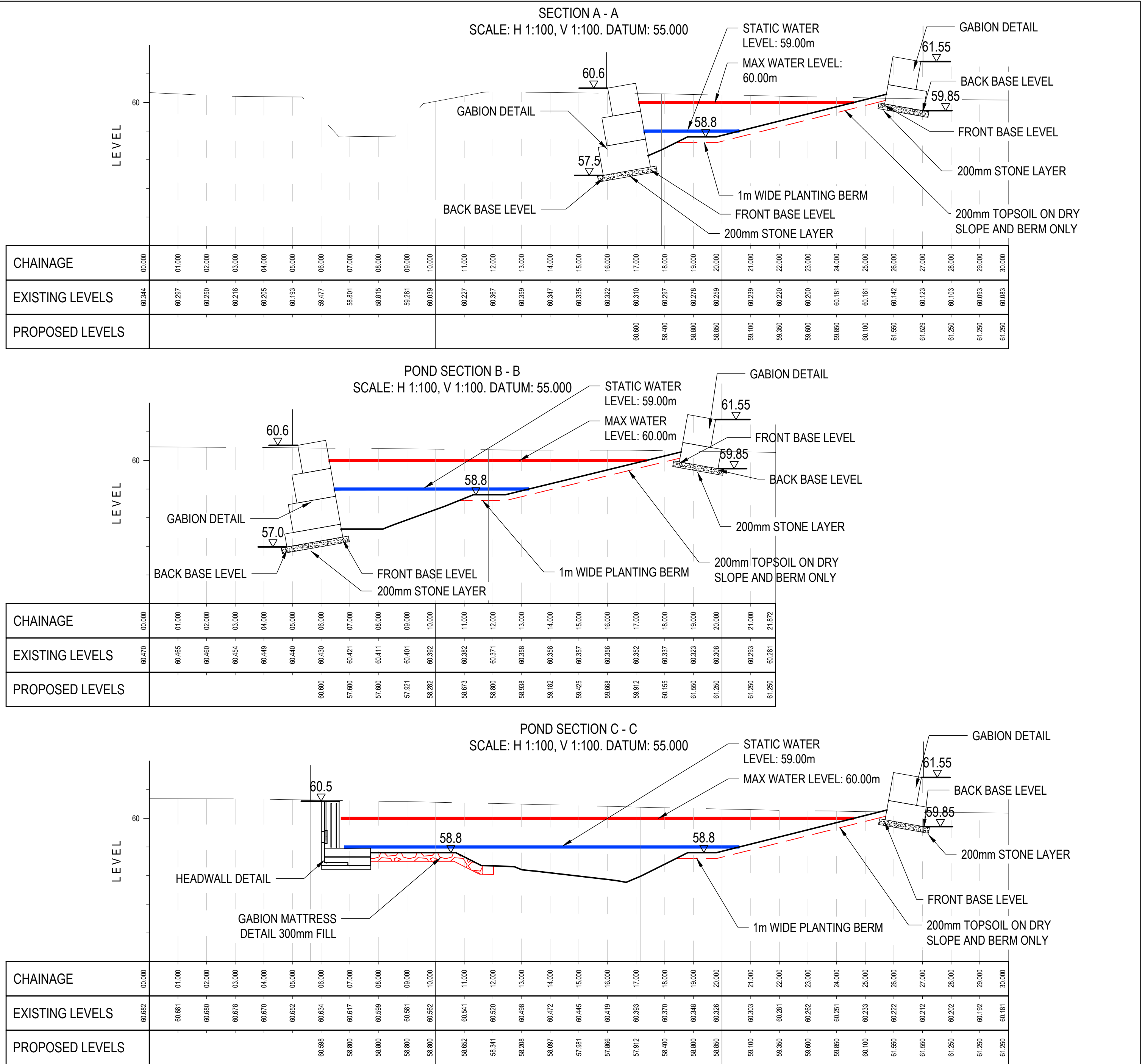
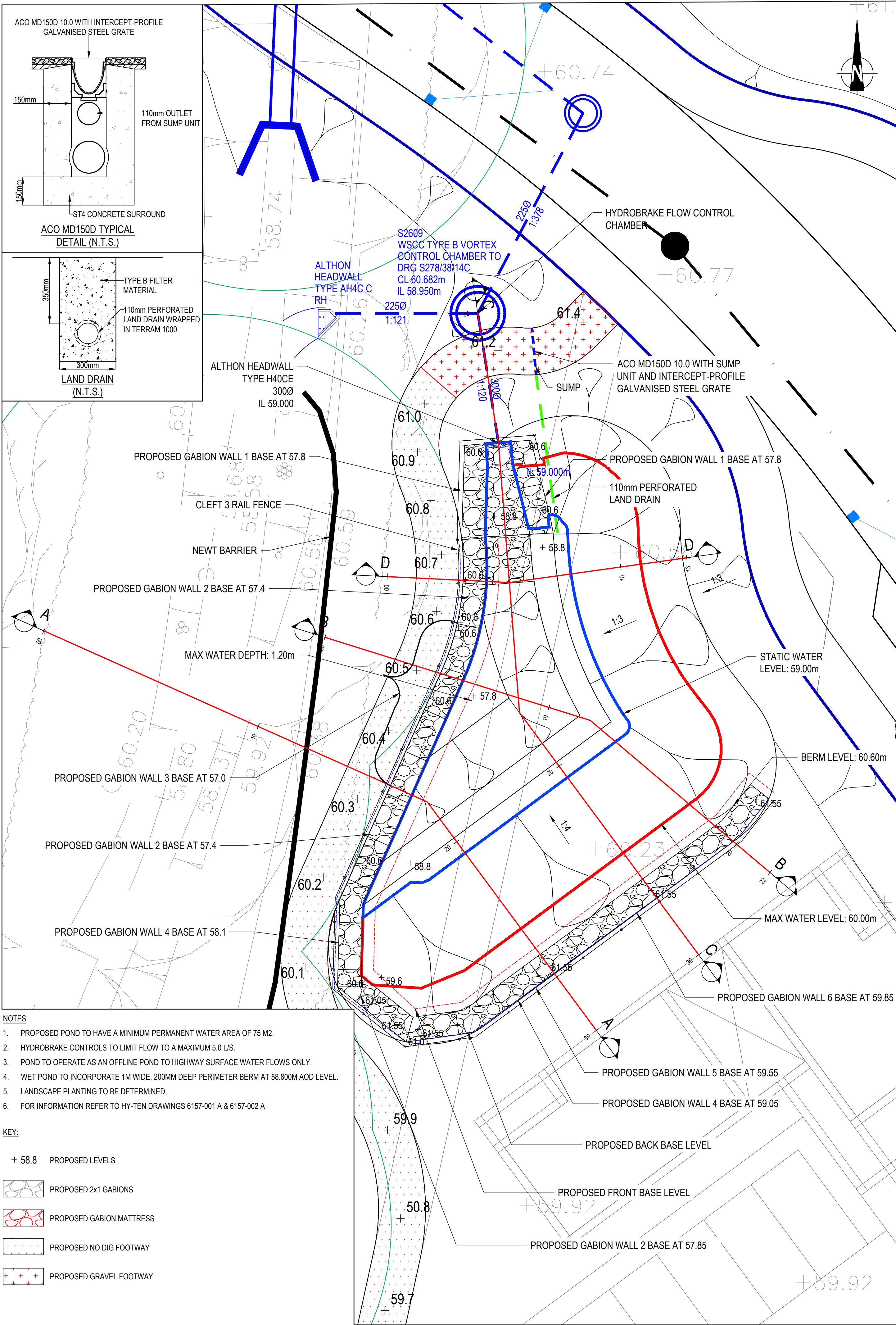
READING
Tel: 01189 500 761

Date of 1st Issue 03.09.15	Designed JW	Drawn JW
A3 Scale nts	Checked IJF	Approved
Drawing Number 25216/2007/SK08	Revision D	

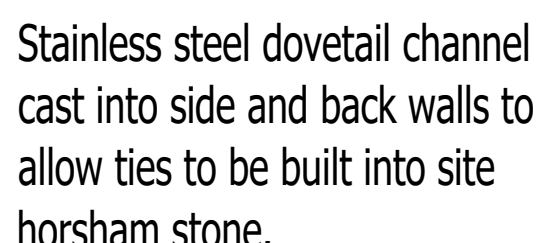
Appendix D

Moat Road Detailed Pond Design



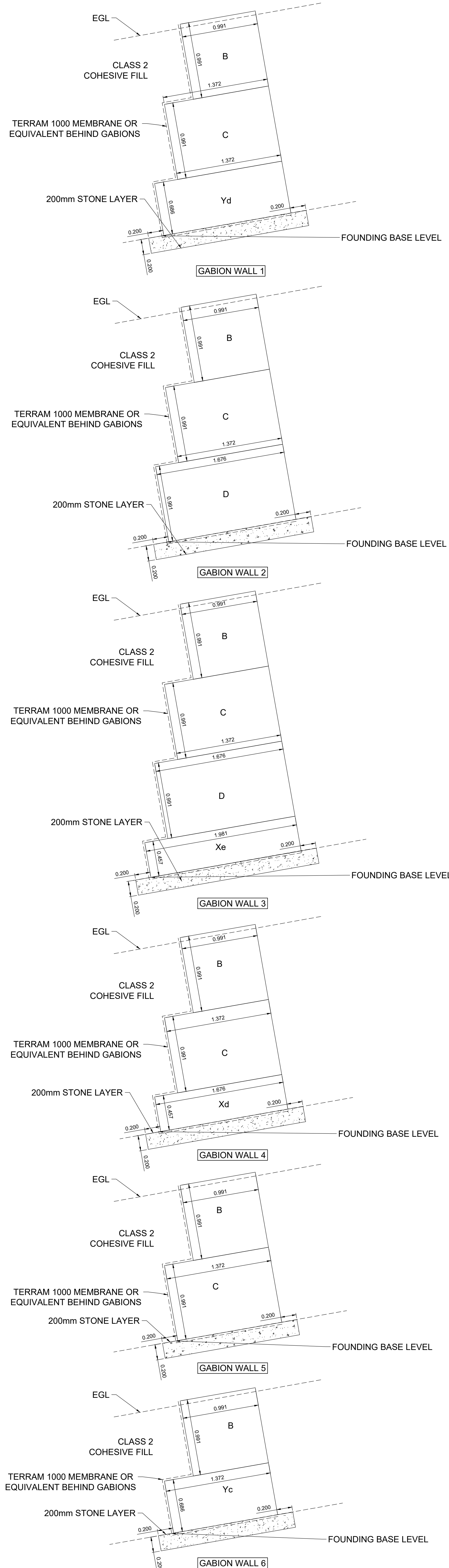


D	ACO DRAIN ADDED	20.11.23	JR	PJG	PJG
C	ADDITIONAL GABION WALLS INCLUDED	23.09.22	RMLM	PJG	PK
B	GABION WALLS UPDATED AND NEWT BARRIER ADDED	07.09.22	LG	PG	PK
A	UPDATED TO ADDRESS L&G COMMENTS	01.07.22	JM	SPR	PK
Mark	Revision	Date	Drawn	Chkd	Appd
SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.					
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Drawing Issue Status					
FOR CONSTRUCTION					
NORTH HORSHAM - PHASE 1					
MOAT HOUSE ROAD SECTION 38					
POND LAYOUT					
Client					
Date of 1st Issue 26.05.2022		Designed IJF		Drawn LG	
A1 Scale 1:100		Checked IJF		Approved PG	
Drawing Number 25216/2001/PH1/MHR/560		Revision D			
				stantec.com/uk	
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READING Tel: 01189 500 761					



HEADWALL TO WATERCOURSE
(BASED ON ALTHON AH4C C RH
(CLAD IN HORSHAM STONE))

HEADWALL TO POND
(BASED ON ALTHON TYPE H40CE DRG No H40CE + CCG)
(CLAD IN HORSHAM STONE)



NOTES
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEER'S DRAWINGS.
2. DO NOT SCALE THIS DRAWING.
3. ALL LEVELS ARE IN METERS ABOVE ORPNANCE DATUM (AOD).
4. GABION UNITS SHALL BE MANUFACTURED AND CONSTRUCTED IN ACCORDANCE WITH CLAUSE 626 OF THE SPECIFICATION FOR HIGHWAY WORKS AND IN ACCORDANCE WITH APPENDIX 610 OF THE SPECIFICATION FOR THE WORKS.
5. GABION UNITS SHALL BE FORMED FROM HEXAGONAL WOVEN MESH (P250/20, MESH TYPE X81), WIRE DARIEMET 2.03/5.30, 25.9N, AL GALV (GALUMED) AND POLYMER COATED AS DETAILED IN THE SPECIFICATION FOR THE WORKS, (VOLUME 3).
6. ALL EDGES SHALL BE REINFORCED WITH SELVEDGE WIRE (3/4 CORE DIAMETER) WITH THE SAME DIRECTION AND COLOR AS GABION WIRE MESH BUT OF A GREATER DIAMETER.
7. PARTITION PANELS OF THE SAME MESH SPECIFICATION SHALL BE FIXED DURING MANUFACTURE OF 1m CENTRES ON GABION UNITS GREATER THAN 3m IN LENGTH.
8. ALL JOINTS AND CONNECTIONS OF GABION UNITS SHALL BE FORMED USING CONTINUOUS LACING WIRES AND/or HIGH TENSILE C RINGS ATTACHED WITH A PNEUMATIC ASSEMBLY TOOL. IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDANCE DOCUMENTS. SHOULD CONTINUOUS LACING WIRES BE USED, CARE SHOULD BE TAKEN TO ENSURE THAT THEY DO NOT EXTEND OUTSIDE THE GABION UNITS.
9. ANY GABION UNIT FORMING AN EXPOSED FACE SHALL HAVE INTERNAL BRACING WIRES FIXED AT 300 CENTRES IN 1m HIGHS UNITS AT A FREQUENCY OF A PER SQUARE METRE. THE EXPOSED FACE OF THE GABION SHALL BE FINISHED IN SUCH A MANNER AS TO RESEMBLE A DRY STONE WALL.
10. GABION UNITS SHALL BE SUFFICIENTLY FILLED WITH 100 - 150mm angular HORSHAM STONE.
11. FLAMMABLE HOPE OR OTHER POLYMER COATINGS THAT SUSTAIN COMBUSTION WHEN THE IGNITION SOURCE IS REMOVED SHALL NOT BE PERMITTED ON THE GABION BASKETS. NECESSARY BASED LABORATORY TESTING TO CONFIRM COMPLIANCE WITH THIS REQUIREMENT MAY BE REQUESTED BY THE PROJECT ENGINEER AND BE PROVIDED AT THE MATERIAL SUPPLIERS EXPENSE.
12. THE SLOPE SHALL BE FINISHED WITH A MINIMUM OF 150mm TOPSOIL (CLASS SA) IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATION FOR THE WORKS.
13. THE CONTRACTOR SHALL ENSURE THE INTEGRITY & STABILITY OF THE GABION WALL AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.
14. FOR INFORMATION REFER TO HY-TEN DRAWINGS S157-001 & S157-002 A

SPECIFICATION INFORMATION

- OPENING IN BACK WALL CAST TO SUIT OUTSIDE DIAMETER OF THE PIPEWORK
- INVERT LEVEL OF PIPE CAN BE SET TO YOUR SPECIFICATION
- IT IS TO BE ASSUMED THAT THE HEIGHT OF THE BRICKWORKS WILL BE UP TO 500mm HIGHER THAN INDICATED ON THE DETAILS SHOWN. DETAILS TO BE CONFIRMED WITH THE SUPPLIER.

HEADWALL INSTALLATION

UNITS SHOULD BE BEDDED ON MINIMUM 150mm THICK WELL COMPACTED CLASS 6N OR 6K* WELL GRADED GRANULAR MATERIAL WITH A 50mm TOPPING OF FINE MATERIAL (CLASS 6L*) TO ENSURE UNITS ARE LEVEL AND STABLE.
*MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS: VOLUME (MCHW1) SPECIFICATION FOR HIGHWAY WORKS, SERIES 600 (NOV 09).

HANDLING

- A. WEIGHT OF CONCRETE IS BASED ON 2.4 TONNE/m³+5% IS RECOMMENDED FOR SIZING LIFTING EQUIPMENT.

CONCRETE

- A. MIX REF: SELF-COMPACTING DC4/DS4 MIX
B. LIFTING STRENGTH BASED ON 2 CUBES = 20N/mm²
C. CHARACTERISTIC 28 DAY CUBE STRENGTH = 50N/mm²
D. CONCRETE PROVIDES DESIGN CHEMICAL CLASS 4 (DC4) TO SPECIAL DIGEST TABLE F2.

REINFORCEMENT

- A. REINFORCEMENT TO BS EN 13369
B. SCHEDULING, DIMENSIONING, BENDING & CUTTING TO BS8666
C. CAGE TO BE MACHINE TIED WITH STEEL WIRE

MANUFACTURE

- A. MANUFACTURE TO BS EN 15258:2008 PRECAST CONCRETE PRODUCTS - RETAINING WALL ELEMENTS, FACTORY PRODUCTION CONTROL CERTIFICATE NUMBER: 0005 000 050410 & BS EN 12360

B. TOLERANCE

	TOP	SIDES	BASE	REAR OF BACK WALL
CLASS	A	A	A	SELF - LEVELLED

- D MARKING: UNITS SHALL BE INDELIBLY MARKED TO SHOW
- MOULD REFERENCE CODE
- DE-MOULD DATE
- JOB REFERENCE NUMBER & UNIQUE PRODUCT NUMBER
- UNIT WEIGHT (KG)

DESIGN

- A. CONCRETE DESIGN TO EC2
B. ALTHOUGH HAVE DESIGNED THE CONCRETE UNITS ONLY, THE SITE CONDITIONS SHOULD BE ASSESSED FOR SUITABILITY BY THE SCHEME DESIGNER
C. UNITS ARE DESIGNED TO WITHSTAND A VERTICAL LIVE LOAD SURCHARGE OF 10kN/m²
D. WEIGHT OF SOIL = 18kN/m²
E. ANGLE OF INTERNAL FRICTION = 30 DEG.
F. DESIGN LIFE: >120 YEARS

MIN COVER	COVER BLOCK SIZE (mm)	MIN COVER SIZE (mm)	MAX COVER SIZE (mm)
ALL FACES	55	50	60

EXPOSURE CLASSIFICATION	EXPOSURE INDUCED BY CARBONATION	CORROSION INDUCED BY CHLORIDE	FREEZE/THAW ATTACK	CHEMICAL ATTACK
All Faces	XC3/4	XD3	XF4	XA3

FABRICATION SPECIFICATION

- A. MANUFACTURE IAW EN 1090-2 EXC CLASS 1
- B. MATERIAL GRADE IS TO BE: BS EN 10025 S275
- C. WELDING CARRIED OUT IAW EN 1090-2 PARA 7.5.4 - 7.5.18
- D. ALL FILLET AND BUTT WELDS HAVE A MINIMUM THROAT THICKNESS OF 6mm
- E. JOINTS TO BE FULLY WELDED WHERE POSSIBLE
- F. ENSURE VERTICAL FLATS ARE FULLY WELDED BOTH SIDES WHERE POSSIBLE
- G. ALL SHARP EDGES AND BURRS ARE TO BE REMOVED.
- H. REMOVE ALL WELD SPLATTER.
- I. HOLES BY PUNCHING ARE PERMITTED WITH REAMING.
- J. GALVANISING IS CARRIED OUT AFTER FABRICATION TO BS EN ISO 1461

HANDRAIL SPECIFICATION

HANDRAILING TO BE TIMBER, TYPICAL ARRANGEMENT INDICATED ON DRO
25216 2001 S104-36

STONE CLADDING

ALL EXPOSED CONCRETE FACES TO BE CLAD IN HORSHAM STONE, MAXIMUM STONE THICKNESS 60mm TO INCLUDE CAPPING STONES. REFER TO APPENDIX 24/1 OF THE SPECIFICATION

C	ADDITIONAL GABION WALLS INCLUDED	23.09.22	RMLM	PJG	PK
B	UPDATED TO ADDRESS L&G COMMENTS	01.07.22	JM	SPR	PK
A	NOTE 10 REVISED	01.06.22	RMLM	IJF	PK
Mark	Revision	Date	Drawn	Chkd	App

SCALING NOTE: Do not scale this drawing - any errors or omissions shall be reported to Stantec without delay.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR CONSTRUCTION

NORTH HORSHAM - PHASE 1
MOAT HOUSE ROAD SECTION 38
CONSTRUCTION DETAILS



Date of 1st Issue	Designed	Drawn
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26.05.2022	IJF	LG
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AO Scale	Checked	Approved
----------	---------	----------

NTS	IJF	PK
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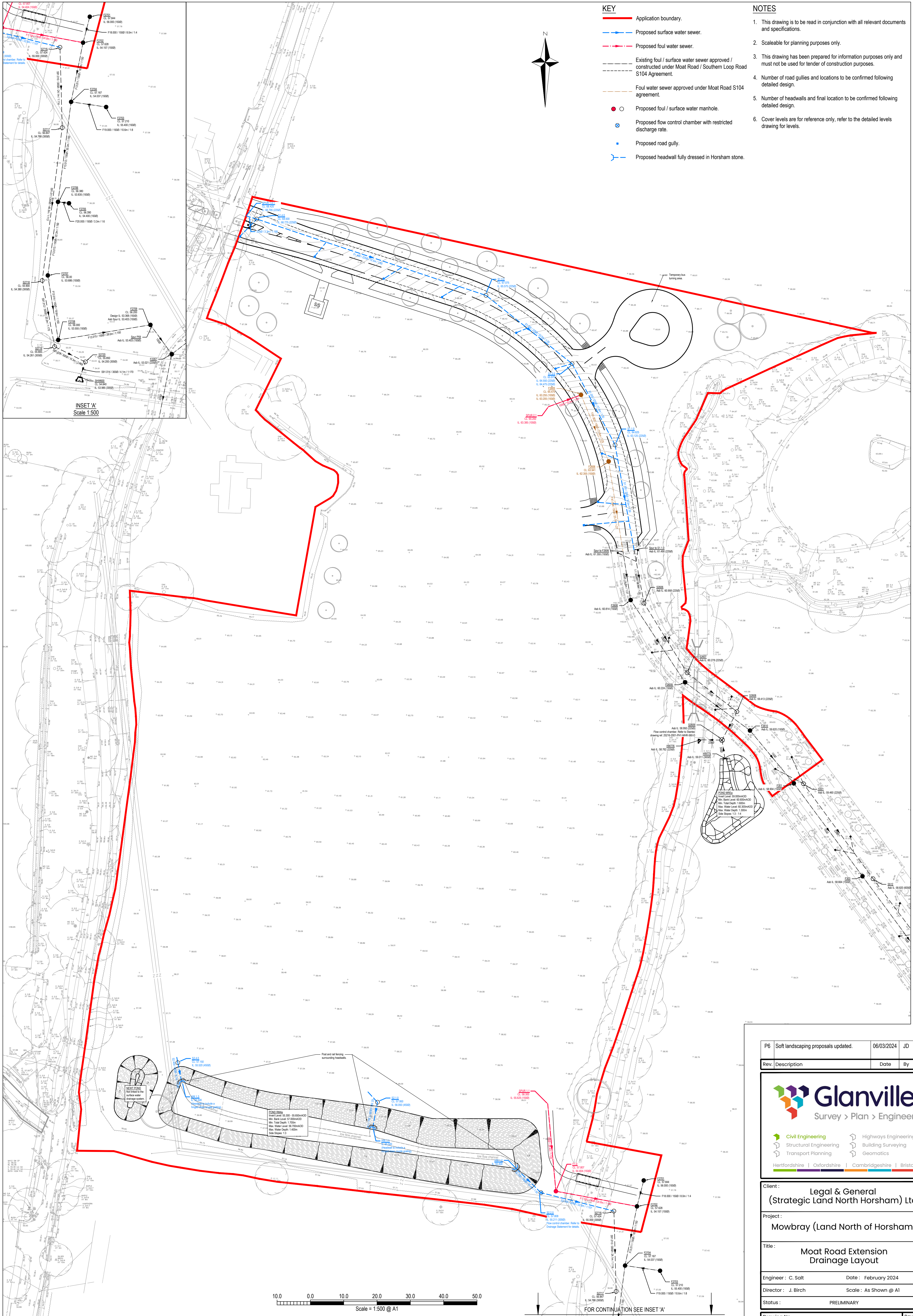
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Appendix E

Drainage Layout and Basin Sections



- KEY**
- Application boundary.
 - Proposed surface water sewer.
 - Proposed foul water sewer.
 - Existing foul / surface water sewer approved / constructed under Moat Road / Southern Loop Road S104 Agreement.
 - Foul water sewer approved under Moat Road S104 agreement.
 - Proposed foul / surface water manhole.
 - Proposed flow control chamber with restricted discharge rate.
 - Proposed road gully.
 - Proposed headwall fully dressed in Horsham stone.

- NOTES**
- This drawing is to be read in conjunction with all relevant documents and specifications.
 - Scaleable for planning purposes only.
 - This drawing has been prepared for information purposes only and must not be used for tender or construction purposes.
 - Number of road gullies and locations to be confirmed following detailed design.
 - Number of headwalls and final location to be confirmed following detailed design.
 - Cover levels are for reference only, refer to the detailed levels drawing for levels.

INSET 'A'
Scale 1:500

10.0 0.0 10.0 20.0 30.0 40.0 50.0
Scale = 1:500 @ A1

FOR CONTINUATION SEE INSET 'A'

P6	Soft landscaping proposals updated.	06/03/2024	JD	CS
Rev	Description	Date	By	Chkd



Survey > Plan > Engineer

 Civil Engineering

 Structural Engineering

 Transport Planning

 Highways Engineering

 Building Surveying

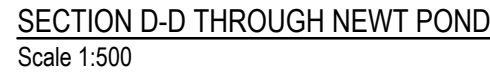
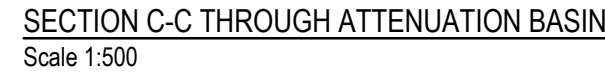
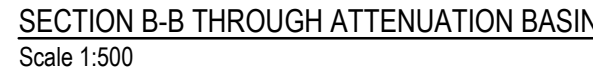
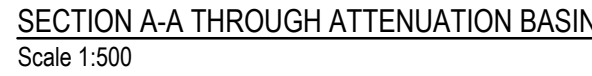
 Geomatics

Hertfordshire | Oxfordshire | Cambridgeshire | Bristol

Client:	Legal & General (Strategic Land North Horsham) Ltd		
Project:	Mowbray (Land North of Horsham)		
Title:	Moat Road Extension Drainage Layout		
Engineer:	C. Salt	Date:	February 2024
Director:	J. Birch	Scale:	As Shown @ A1
Status:	PRELIMINARY		
Drawing No.	MOW-GLA-MRE-PHI-D-C-1201	Rev	P6

1. This drawing is to be read in conjunction with all relevant documents and specifications.
2. Scaleable for planning purposes only.
3. This drawing has been prepared for information purposes only and must not be used for tender of construction purposes.

- - - - - Existing ground profile - Section
 — Proposed ground profile - Section
 — Proposed pond and embankment contours - Plan
 — Major 0.5m
 — Minor 0.1m
 1:3
 ← Fall arrow with gradient.



Rev.	Description	Date	By	Chk
------	-------------	------	----	-----



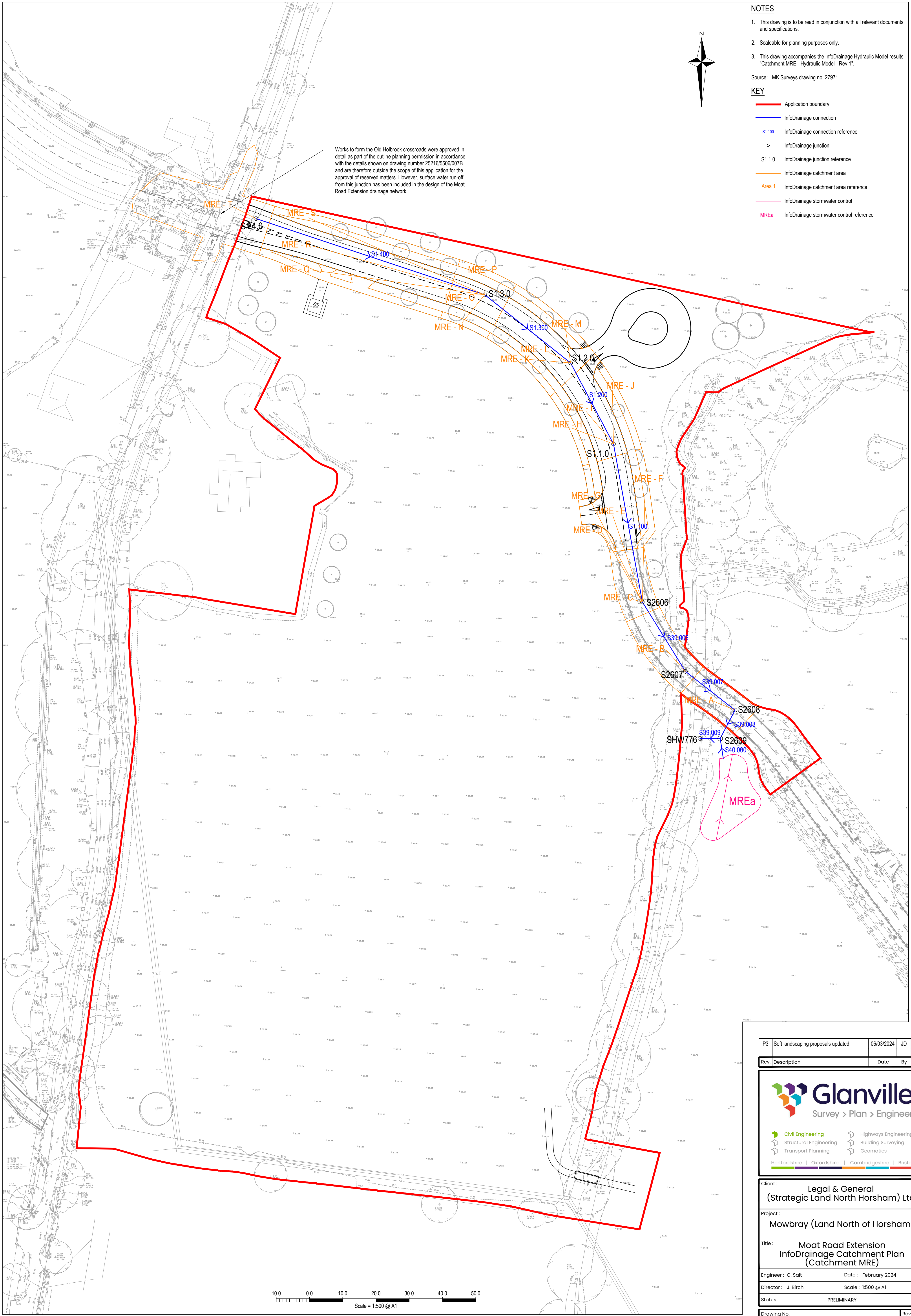
Title : Moat Road Extension
Attenuation Basin &
Newt Pond Sections

Director : J. Birch Scale : As Shown @ A1

Drawing No.	Rev
MOW-GLA-MRE-PH1-D-C-1202	P5

Appendix F

InfoDrainage Catchment Plans



NOTES

1. This drawing is to be read in conjunction with all relevant documents and specifications.

2. Scaleable for planning purposes only.

3. This drawing accompanies the InfoDrainage Hydraulic Model results "Catchment MRE - Hydraulic Model - Rev 1".

Source: MK Surveys drawing no. 27971

KEY

Application boundary

InfoDrainage connection

S1.100 InfoDrainage connection reference

InfoDrainage junction

S1.1.0 InfoDrainage junction reference

InfoDrainage catchment area

Area 1 InfoDrainage catchment area reference

InfoDrainage stormwater control

MREa InfoDrainage stormwater control reference

P3	Soft landscaping proposals updated.	06/03/2024	JD	CS
Rev	Description	Date	By	Chkd

**Glanville**
Survey > Plan > Engineer

 Civil Engineering

 Structural Engineering

 Transport Planning

 Highways Engineering

 Building Surveying

 Geomatics

Hertfordshire | Oxfordshire | Cambridgeshire | Bristol

Client:

Legal & General
(Strategic Land North Horsham) Ltd

Project:

Mowbray (Land North of Horsham)

Title:

Moat Road Extension
InfoDrainage Catchment Plan
(Catchment MRE)

Engineer:

C. Salt

Date:

February 2024

Director:

J. Birch

Scale:

1:500 @ A1

Status:

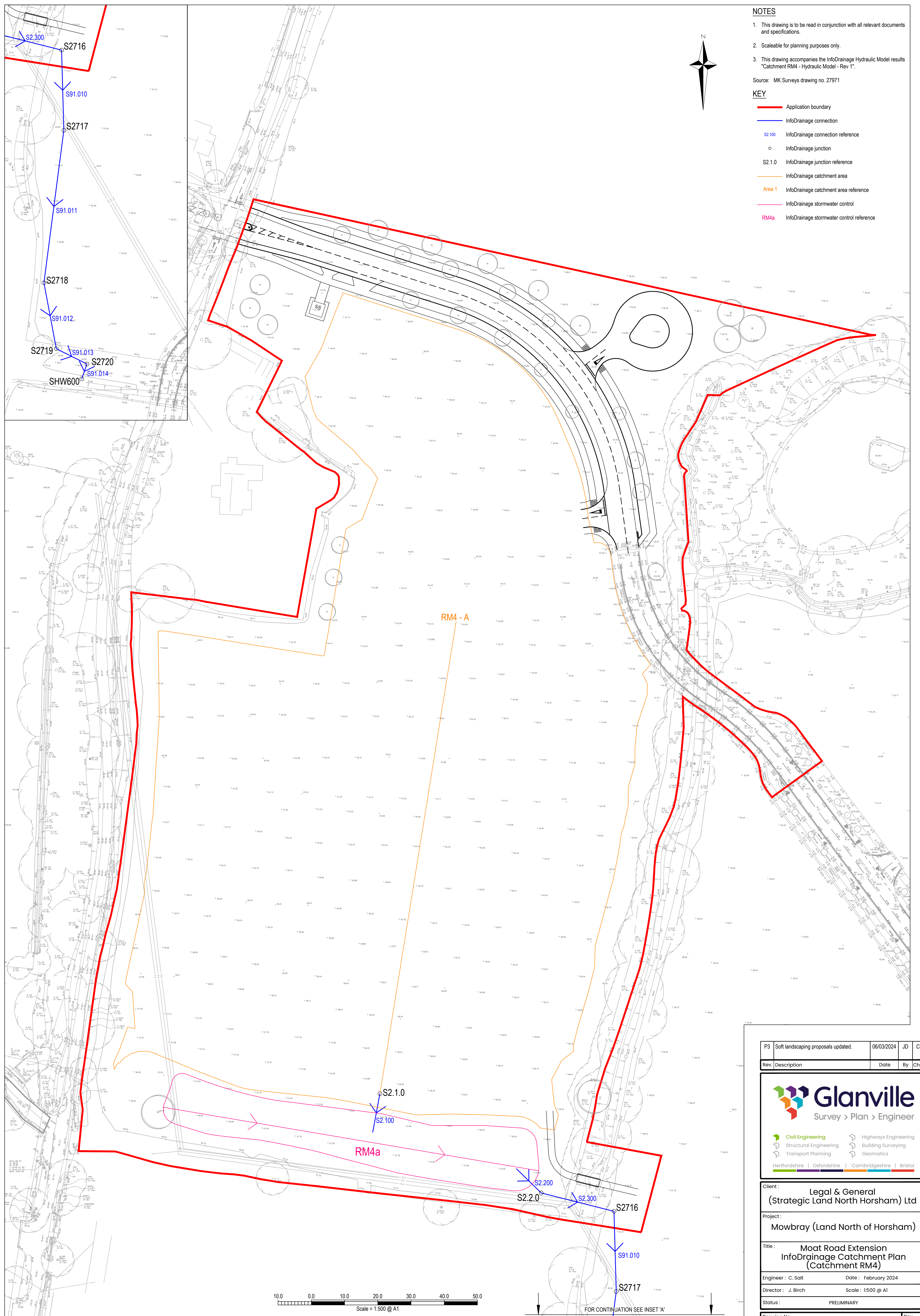
PRELIMINARY

Drawing No.

MOW-GLA-MRE-PHI-D-C-1401

Rev

P3



P3	Soft landscaping proposals updated.	06/03/2024	JD	CS
Rev.	Description	Date	By	Chkd



Glanville

Survey > Plan > Engineer

 **Civil Engineering**
 Structural Engineering
 Transport Planning

 Highways Engineering
 Building Surveying
 Geomatics

Hertfordshire
OXfordshire
CAmbridgeshire
BRistol

Client :	Legal & General (Strategic Land North Horsham) Ltd
Project :	Mowbray (Land North of Horsham)
Title :	Moat Road Extension InfoDrainage Catchment Plan (Catchment RM4)
Engineer : C. Salt	Date : February 2024
Director : J. Birch	Scale : 1:500 @ A1
Status : PRELIMINARY	

Drawing No.	Rev
MOW-GLA-MRE-PHI-D-C-1402	P3

Appendix G

InfoDrainage Calculations – 1 in 100 year +20% Climate Change Design Event

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S1.4.0	Manhole	518541.680	134258.717	68.500	1.725	66.775	Circular	1.200
S1.3.0	Manhole	518610.487	134235.797	67.075	1.500	65.575	Circular	1.200
S1.2.0	Manhole	518636.317	134215.288	65.975	1.500	64.475	Circular	1.200
S1.1.0	Manhole	518649.225	134190.886	64.625	1.500	63.125	Circular	1.200
S2606	Manhole	518657.903	134143.353	62.618	1.660	60.958	Circular	1.200
S2607	Manhole	518670.859	134122.455	61.798	1.520	60.278	Circular	1.200
S2608	Manhole	518685.784	134110.804	61.403	1.990	59.413	Circular	1.200
S2609	Manhole	518681.302	134102.272	60.700	1.750	58.950	Circular	1.500
SHW776	Manhole	518675.215	134102.272	60.260	1.498	58.762	Circular	1.200

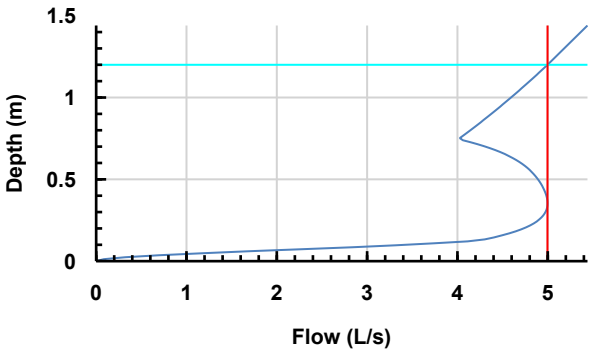
Name	Lock
S1.4.0	None
S1.3.0	None
S1.2.0	None
S1.1.0	None
S2606	None
S2607	None
S2608	None
S2609	None
SHW776	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
S1.4.0	Inlet	MRE - T	(None)	No Restriction
S1.3.0	Inlet	S1.400 MRE - Q MRE - S MRE - R MRE - P MRE - N MRE - O	(None)	No Restriction
S1.2.0	Inlet	MRE - L MRE - K MRE - M S1.300	(None)	No Restriction
S1.1.0	Inlet	S1.200 MRE - H MRE - J MRE - I	(None)	No Restriction
S2606	Inlet	S1.100 MRE - C MRE - G MRE - E MRE - D MRE - F	(None)	No Restriction
S2607	Inlet	S39.006 MRE - B	(None)	No Restriction
S2608	Inlet	S39.007 MRE - A	(None)	No Restriction
S2609	Inlet	S39.008 S40.000	(None)	No Restriction
SHW776	Inlet	S39.009	(None)	No Restriction

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
S1.4.0	Outlet	S1.400	Free Discharge
S1.3.0	Outlet	S1.300	Free Discharge
S1.2.0	Outlet	S1.200	Free Discharge
S1.1.0	Outlet	S1.100	Free Discharge
S2606	Outlet	S39.006	Free Discharge
S2607	Outlet	S39.007	Free Discharge
S2608	Outlet	S39.008	Free Discharge
S2609	Outlet	S39.009	Hydro-Brake®
	Invert Level (m)	58.950	
	Design Depth (m)	1.200	
	Design Flow (L/s)	5.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0103-5000-1200-5000	
			

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Stormwater Controls Storm Phase: Phase	Revision: Rev 1		



MREa

Type : Pond

Dimensions		
Exceedance Level (m)		60.600
Depth (m)		1.600
Base Level (m)		59.000
Freeboard (mm)		300
Initial Depth (m)		0.000
Porosity (%)		100
Average Slope (1:X)		2.597
Total Volume (m³)		195.483
Depth (m)	Area (m²)	Volume (m³)
0.000	82.383	0.000
1.000	190.192	132.583
1.300	229.767	195.483
1.600	270.300	270.411

Outlets	
Outlet	
Outgoing Connection	S40.000
Outlet Type	Free Discharge

Advanced	
Perimeter	Circular
Length (m)	27.777
Friction Scheme	Manning's n
n	0.03

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S1.4.0	68.500 66.775	Diameter / Length: 1.200					Manhole
E:518541.680	1.725						
N:134258.717			{a} S1.400	Pipe	66.775	Diam/Width:225	Not Applicable
S1.3.0	67.075 65.575	Diameter / Length: 1.200	{1} S1.400	Pipe	65.575	Diam/Width:225	Manhole
E:518610.487	1.500						
N:134235.797			{a} S1.300	Pipe	65.575	Diam/Width:225	Not Applicable
S1.2.0	65.975 64.475	Diameter / Length: 1.200	{1} S1.300	Pipe	64.475	Diam/Width:225	Manhole
E:518636.317	1.500						
N:134215.288			{a} S1.200	Pipe	64.475	Diam/Width:225	Not Applicable
S1.1.0	64.625 63.125	Diameter / Length: 1.200	{1} S1.200	Pipe	63.125	Diam/Width:225	Manhole
E:518649.225	1.500						
N:134190.886			{a} S1.100	Pipe	63.125	Diam/Width:225	Not Applicable
S2606	62.618 60.958	Diameter / Length: 1.200	{1} S1.100	Pipe	60.958	Diam/Width:225	Manhole
E:518657.903	1.660						
N:134143.353			{a} S39.006	Pipe	60.958	Diam/Width:225	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2607	61.798 60.278	Diameter / Length: 1.200	{1} S39.006	Pipe	60.278	Diam/Width:225	Manhole
E:518670.859 N:134122.455	1.520		{a} S39.007	Pipe	60.278	Diam/Width:225	Not Applicable
S2608	61.403 59.413	Diameter / Length: 1.200	{1} S39.007	Pipe	59.413	Diam/Width:225	Manhole
E:518685.784 N:134110.804	1.990		{a} S39.008	Pipe	59.413	Diam/Width:225	Not Applicable
S2609	60.700 58.950	Diameter / Length: 1.500	{1} S39.008	Pipe	58.950	Diam/Width:225	Manhole
E:518681.302 N:134102.272	1.750		{2} S40.000	Pipe	58.950	Diam/Width:225	
			{a} S39.009	Pipe	58.950	Diam/Width:225	Not Applicable
SHW776	60.260 58.762	Diameter / Length: 1.200	{1} S39.009	Pipe	58.762	Diam/Width:225	Manhole
E:518675.215 N:134102.272	1.498						Not Applicable

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Inflow Summary Storm Phase: Phase	Revision: Rev 1			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
MRE - A	S2608		Time of Concentration	0.021	100	0	100	0.021
MRE - B	S2607		Time of Concentration	0.027	100	0	100	0.027
MRE - C	S2606		Time of Concentration	0.022	100	0	100	0.022
MRE - D	S2606		Time of Concentration	0.003	100	0	100	0.003
MRE - E	S2606		Time of Concentration	0.031	100	0	100	0.031
MRE - F	S2606		Time of Concentration	0.006	100	0	100	0.006
MRE - G	S2606		Time of Concentration	0.003	100	0	100	0.003
MRE - H	S1.1.0		Time of Concentration	0.005	100	0	100	0.005
MRE - I	S1.1.0		Time of Concentration	0.028	100	0	100	0.028
MRE - J	S1.1.0		Time of Concentration	0.006	100	0	100	0.006
MRE - K	S1.2.0		Time of Concentration	0.005	100	0	100	0.005
MRE - L	S1.2.0		Time of Concentration	0.030	100	0	100	0.030
MRE - M	S1.2.0		Time of Concentration	0.006	100	0	100	0.006
MRE - N	S1.3.0		Time of Concentration	0.003	100	0	100	0.003
MRE - O	S1.3.0		Time of Concentration	0.016	100	0	100	0.016
MRE - P	S1.3.0		Time of Concentration	0.004	100	0	100	0.004
MRE - Q	S1.3.0		Time of Concentration	0.014	100	0	100	0.014
MRE - R	S1.3.0		Time of Concentration	0.056	100	0	100	0.056
MRE - S	S1.3.0		Time of Concentration	0.012	100	0	100	0.012
MRE - T	S1.4.0		Time of Concentration	0.070	100	0	100	0.070
TOTAL		0.0		0.367				0.367

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Network Design Criteria Storm Phase: Phase	Revision: Rev 1		



Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase	Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW776	Free Discharge		

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Title: Rainfall Analysis Criteria	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100yr Event (+20% CC)	Type: FEH
Site Location	GB 518600 133700 TQ 18600 33700
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	68.500	66.775	66.823	0.048	6.6	0.054	0.000	6.6	13.875	OK
S1.3.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	67.075	65.575	65.639	0.064	16.4	0.073	0.000	16.4	34.581	OK
S1.2.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	65.975	64.475	64.539	0.064	20.2	0.072	0.000	20.2	42.593	OK
S1.1.0	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	64.625	63.125	63.196	0.071	23.8	0.080	0.000	23.8	50.108	OK
S2606	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	62.618	60.958	61.054	0.096	29.9	0.108	0.000	29.9	62.973	OK
S2607	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	61.798	60.278	60.365	0.087	32.4	0.099	0.000	32.4	68.340	OK
S2608	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	61.403	59.413	59.496	0.083	34.4	0.094	0.000	34.4	72.546	OK
S2609	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	60.700	58.950	59.432	0.482	34.4	0.852	0.000	5.0	106.304	Surcharged
SHW776	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Winter	60.260	58.762	58.798	0.036	5.0	0.000	0.000	5.0	62.497	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	68.500	66.775	66.843	0.068	13.4	0.077	0.000	13.4	28.149	OK
S1.3.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	67.075	65.575	65.669	0.094	33.3	0.107	0.000	33.3	70.142	OK
S1.2.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	65.975	64.475	64.570	0.095	41.0	0.107	0.000	41.0	86.403	OK
S1.1.0	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	64.625	63.125	63.229	0.104	48.2	0.118	0.000	48.2	101.663	OK
S2606	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	62.618	60.958	61.109	0.151	60.6	0.171	0.000	60.6	127.703	OK
S2607	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	61.798	60.278	60.403	0.125	65.8	0.142	0.000	65.8	138.483	OK
S2608	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	61.403	59.413	59.957	0.544	69.9	0.615	0.000	69.3	146.220	Surcharged
S2609	100yr Event (+20% CC): 30 years: +0 %: 360 mins: Summer	60.700	58.950	59.877	0.927	33.3	1.638	0.000	5.0	290.555	Surcharged
SHW776	100yr Event (+20% CC): 30 years: +0 %: 360 mins: Summer	60.260	58.762	58.798	0.036	5.0	0.000	0.000	5.0	180.327	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S1.4.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	68.500	66.775	66.860	0.085	20.2	0.096	0.000	20.2	42.505	OK
S1.3.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	67.075	65.575	65.696	0.121	50.3	0.137	0.000	50.3	105.937	OK
S1.2.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	65.975	64.475	64.596	0.121	61.9	0.137	0.000	61.9	130.488	OK
S1.1.0	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	64.625	63.125	63.260	0.135	72.9	0.153	0.000	72.9	153.474	OK
S2606	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	62.618	60.958	62.162	1.204	91.5	1.361	0.000	90.7	192.781	Surcharged
S2607	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	61.798	60.278	61.368	1.090	98.5	1.233	0.000	97.7	209.196	Surcharged
S2608	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	61.403	59.413	60.627	1.214	103.9	1.373	0.000	103.1	220.785	Surcharged
S2609	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.700	58.950	60.288	1.338	45.2	2.363	0.000	5.2	326.227	Surcharged
SHW776	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.260	58.762	58.798	0.036	5.2	0.000	0.000	5.2	133.531	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 2 years: +0 %: 240 mins: Summer	59.454	59.454	0.454	0.454	18.8	46.914	0.000	0.000	4.9	46.386	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 30 years: +0 %: 180 mins: Winter	59.912	59.912	0.912	0.912	32.0	116.278	0.000	0.000	4.4	44.291	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model		Date: 29/02/2024			
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Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MREa	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	60.288	60.288	1.288	1.288	40.4	192.653	0.000	0.000	5.0	68.760	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Winter	Pipe	S2609	SHW776	60.700	59.428	0.037	62.497	1.2	0.05	5.0	Surcharged
S39.008	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	59.496	0.225	72.546	0.9	0.3	34.4	OK
S39.007	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	60.365	0.085	68.340	2.3	0.29	32.4	OK
S39.006	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	61.054	0.092	62.973	2.0	0.34	29.9	OK
S1.100	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.196	0.083	50.108	1.8	0.21	23.8	OK
S1.200	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.539	0.067	42.593	2.0	0.17	20.2	OK
S1.400	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.823	0.056	13.875	0.9	0.1	6.6	OK
S40.000	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	MREa	S2609	60.600	59.432	0.225	0.000	0.2	0.1	4.9	Surcharged
S1.300	100yr Event (+20% CC): 2 years: +0 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.639	0.064	34.581	1.8	0.17	16.4	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 30 years: +0 %: 960 mins: Summer	Pipe	S2609	SHW776	60.700	59.727	0.037	237.837	1.2	0.05	5.0	Surcharged
S39.008	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	59.957	0.225	146.220	1.7	0.6	69.3	Surcharged
S39.007	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	60.403	0.225	138.483	2.5	0.59	65.8	OK
S39.006	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	61.109	0.138	127.703	2.4	0.7	60.6	OK
S1.100	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.229	0.128	101.663	2.1	0.44	48.2	OK
S1.200	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.570	0.099	86.403	2.4	0.35	41.0	OK
S1.400	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.843	0.081	28.149	1.0	0.2	13.4	OK
S40.000	100yr Event (+20% CC): 30 years: +0 %: 600 mins: Summer	Pipe	MREa	S2609	60.600	59.820	0.225	0.000	0.2	0.1	4.9	Surcharged
S1.300	100yr Event (+20% CC): 30 years: +0 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.669	0.095	70.142	2.1	0.35	33.3	OK

Project: Mowbray (Land North of Horsham) Catchment MRE - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S39.009	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	Pipe	S2609	SHW776	60.700	60.288	0.037	133.531	1.2	0.06	5.2	Surcharged
S39.008	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2608	S2609	61.403	60.627	0.225	220.785	2.6	0.9	103.1	Surcharged
S39.007	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2607	S2608	61.798	61.368	0.225	209.196	2.5	0.87	97.7	Surcharged
S39.006	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S2606	S2607	62.618	62.162	0.225	192.781	2.3	1.05	90.7	Surcharged
S1.100	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.1.0	S2606	64.625	63.260	0.225	153.474	2.1	0.66	72.9	OK
S1.200	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.2.0	S1.1.0	65.975	64.596	0.128	130.488	2.6	0.54	61.9	OK
S1.400	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.4.0	S1.3.0	68.500	66.860	0.103	42.505	1.1	0.3	20.2	OK
S40.000	100yr Event (+20% CC): 100 years: +20 %: 240 mins: Winter	Pipe	MREa	S2609	60.600	60.288	0.225	0.000	0.1	0.11	5.0	Surcharged
S1.300	100yr Event (+20% CC): 100 years: +20 %: 120 mins: Summer	Pipe	S1.3.0	S1.2.0	67.075	65.696	0.121	105.937	2.3	0.53	50.3	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase		Revision: Rev 1			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
S2720	Manhole	518656.492	133866.377	55.850	1.650	54.200	Circular	1.200
SHW600	Manhole	518654.933	133861.928	54.840	0.855	53.985	Circular	1.200
S2719	Manhole	518647.273	133870.981	55.800	1.539	54.261	Circular	1.200
S2718	Manhole	518643.542	133890.831	55.900	1.520	54.380	Circular	1.200
S2717	Manhole	518649.546	133936.715	56.847	2.059	54.788	Circular	1.200
S2716	Manhole	518648.872	133960.844	57.424	2.424	55.000	Circular	1.200
S2.2.0	Manhole	518626.967	133966.367	57.808	2.597	55.211	Circular	1.200
S2.1.0	Manhole	518578.414	133996.264	57.950	1.900	56.050	Circular	1.200

Name	Lock
S2720	None
SHW600	None
S2719	None
S2718	None
S2717	None
S2716	None
S2.2.0	None
S2.1.0	None

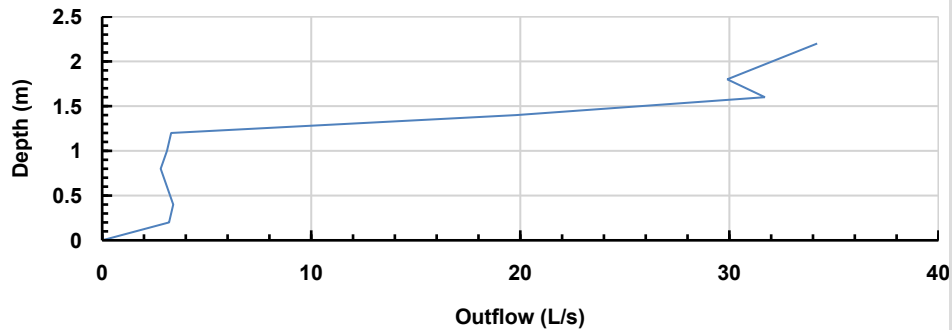
Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
S2720	Inlet	S91.013	(None)	No Restriction
SHW600	Inlet	S91.014	(None)	No Restriction
S2719	Inlet	S91.012	(None)	No Restriction
S2718	Inlet	S91.011	(None)	No Restriction
S2717	Inlet	S91.010	(None)	No Restriction
S2716	Inlet	S2.300	(None)	No Restriction
S2.2.0	Inlet	S2.200	(None)	No Restriction
S2.1.0	Inlet	RM4 - A	(None)	No Restriction

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
S2720	Outlet	S91.014	Free Discharge
S2719	Outlet	S91.013	Free Discharge
S2718	Outlet	S91.012	Free Discharge
S2717	Outlet	S91.011	Free Discharge
S2716	Outlet	S91.010	Free Discharge
	Outlet	S2.300	Multiple
	Invert Level (m)	55.211	

Combined Outflow



Hydro-Brake®

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Junctions Storm Phase: Phase	Revision: Rev 1		



Junction	Outlet Name	Outgoing Connection	Outlet Type
S2.2.0	Depth Above Invert (m)	0.000	
	Design Depth (m)	1.245	
	Design Flow (L/s)	3.4	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0084-3400-1245-3400	
	Hydro-Brake®		
	Depth Above Invert (m)	1.245	
	Design Depth (m)	0.755	
	Design Flow (L/s)	28.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☒	
	Unit Reference	SHE-0233-2800-0755-2800	
S2.1.0	Outlet	S2.100	Free Discharge

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024		
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt
Report Details: Type: Stormwater Controls Storm Phase: Phase	Revision: Rev 1		



RM4a

Type : Pond

Dimensions

Exceedance Level (m)	57.000
Depth (m)	1.700
Base Level (m)	55.300
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	11.731
Total Volume (m³)	1314.447

Depth (m)	Area (m²)	Volume (m³)
0.000	40.640	0.000
0.100	173.055	9.919
0.200	368.429	36.385
0.300	631.271	85.784
0.400	807.841	157.558
0.500	876.047	241.729
0.600	944.828	332.752
0.700	1014.185	430.682
0.800	1084.118	535.577
0.900	1154.626	647.496
1.000	1225.710	766.495
1.100	1297.370	892.632
1.200	1369.607	1025.965
1.300	1442.419	1166.550
1.400	1515.807	1314.447
1.500	1590.740	1469.759
1.600	1665.187	1632.541
1.700	1740.794	1802.826

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	S2.100
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	S2.200
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	116.505
Friction Scheme	Manning's n
n	0.03

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2720	55.850 54.200	Diameter / Length: 1.200	{1} S91.013	Pipe	54.200	Diam/Width:300	Manhole
E:518656.492 N:133866.377	1.650		{a} S91.014	Pipe	54.200	Diam/Width:300	Not Applicable
SHW600	54.840 53.985	Diameter / Length: 1.200	{1} S91.014	Pipe	53.985	Diam/Width:300	Manhole
E:518654.933 N:133861.928	0.855						Not Applicable
S2719	55.800 54.261	Diameter / Length: 1.200	{1} S91.012	Pipe	54.261	Diam/Width:300	Manhole
E:518647.273 N:133870.981	1.539		{a} S91.013	Pipe	54.261	Diam/Width:300	Not Applicable
S2718	55.900 54.380	Diameter / Length: 1.200	{1} S91.011	Pipe	54.380	Diam/Width:300	Manhole
E:518643.542 N:133890.831	1.520		{a} S91.012	Pipe	54.380	Diam/Width:300	Not Applicable
S2717	56.847 54.788	Diameter / Length: 1.200	{1} S91.010	Pipe	54.788	Diam/Width:300	Manhole
E:518649.546 N:133936.715	2.059		{a} S91.011	Pipe	54.788	Diam/Width:300	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Manhole Schedule Storm Phase: Phase		Revision: Rev 1			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
S2716	57.424 55.000	Diameter / Length: 1.200	{1} S2.300	Pipe	55.000	Diam/Width:300	Manhole
E:518648.872 N:133960.844	2.424		{a} S91.010	Pipe	55.000	Diam/Width:300	Not Applicable
S2.2.0	57.808 55.211	Diameter / Length: 1.200	{1} S2.200	Pipe	55.211	Diam/Width:300	Manhole
E:518626.967 N:133966.367	2.597		{a} S2.300	Pipe	55.211	Diam/Width:300	Not Applicable
S2.1.0	57.950 56.050	Diameter / Length: 1.200					Manhole
E:518578.414 N:133996.264	1.900		{a} S2.100	Pipe	56.050	Diam/Width:450	Not Applicable

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Inflow Summary Storm Phase: Phase	Revision: Rev 1			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
RM4 - A	S2.1.0		Time of Concentration	2.613	69.9	0	69.9	1.827
TOTAL		0.0		2.613				1.827

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Network Design Criteria Storm Phase: Phase	Revision: Rev 1			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase	Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW600	Free Discharge		

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Title: Rainfall Analysis Criteria	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

100yr Event (+20% CC)	Type: FEH
Site Location	GB 518600 133700 TQ 18600 33700
Rainfall Version	2022
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.850	54.200	54.226	0.026	3.4	0.029	0.000	3.4	161.517	OK
SHW600	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	54.840	53.985	54.010	0.025	3.4	0.000	0.000	3.4	161.517	OK
S2719	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.800	54.261	54.303	0.042	3.4	0.048	0.000	3.4	161.566	OK
S2718	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	55.900	54.380	54.421	0.041	3.4	0.047	0.000	3.4	161.695	OK
S2717	100yr Event (+20% CC): 2 years: +0 %: 360 mins: Summer	56.847	54.788	54.825	0.037	3.4	0.042	0.000	3.4	120.801	OK
S2716	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	57.424	55.000	55.037	0.037	3.4	0.042	0.000	3.4	62.365	OK
S2.2.0	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	57.808	55.211	55.956	0.745	3.5	0.843	0.000	3.4	62.565	Surcharged
S2.1.0	100yr Event (+20% CC): 2 years: +0 %: 60 mins: Summer	57.950	56.050	56.234	0.184	215.1	0.209	0.000	214.7	269.381	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.850	54.200	54.231	0.031	4.7	0.035	0.000	4.7	570.855	OK
SHW600	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	54.840	53.985	54.014	0.029	4.7	0.000	0.000	4.7	570.855	OK
S2719	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.800	54.261	54.311	0.050	4.7	0.056	0.000	4.7	570.906	OK
S2718	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	55.900	54.380	54.429	0.049	4.7	0.055	0.000	4.7	571.041	OK
S2717	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	56.847	54.788	54.831	0.043	4.7	0.049	0.000	4.7	571.272	OK
S2716	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	57.424	55.000	55.044	0.044	4.7	0.050	0.000	4.7	571.474	OK
S2.2.0	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	57.808	55.211	56.495	1.284	4.7	1.453	0.000	4.7	571.682	Surcharged
S2.1.0	100yr Event (+20% CC): 30 years: +0 %: 60 mins: Summer	57.950	56.050	56.370	0.320	488.4	0.362	0.000	489.5	610.378	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Junctions Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.850	54.200	54.279	0.079	28.0	0.090	0.000	28.0	1222.891	OK
SHW600	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	54.840	53.985	54.054	0.069	28.0	0.000	0.000	28.0	1222.891	OK
S2719	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.800	54.261	54.381	0.120	28.0	0.136	0.000	28.0	1222.944	OK
S2718	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.900	54.380	54.505	0.125	28.0	0.142	0.000	28.0	1223.082	OK
S2717	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.847	54.788	54.895	0.107	28.0	0.121	0.000	28.0	1223.319	OK
S2716	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.424	55.000	55.111	0.111	28.0	0.126	0.000	28.0	1223.522	OK
S2.2.0	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.808	55.211	56.664	1.453	28.0	1.643	0.000	28.0	1223.730	Surcharged
S2.1.0	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	57.950	56.050	57.199	1.149	752.6	1.300	0.000	749.5	941.396	Surcharged

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 2 years: +0 %: 960 mins: Winter	56.083	56.083	0.783	0.783	30.0	516.780	0.000	0.000	3.4	328.792	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	56.496	56.496	1.196	1.196	38.1	1020.123	0.000	0.000	4.7	573.317	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.674	56.674	1.374	1.374	90.3	1275.10	0.000	0.000	28.0	1225.406	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
Report Details: Type: Connections Summary Storm Phase: Phase	Revision: Rev 1			



100yr Event (+20% CC): 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 2 years: +0 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	56.234	0.286	269.381	2.1	0.26	214.7	OK
S2.200	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Winter	Pipe	RM4a	S2.2.0	57.000	55.957	0.300	63.264	0.3	0.04	4.3	Surcharged
S2.300	100yr Event (+20% CC): 2 years: +0 %: 240 mins: Summer	Pipe	S2.2.0	S2716	57.808	55.990	0.037	81.768	0.7	0.03	3.4	Surcharged
S91.010	100yr Event (+20% CC): 2 years: +0 %: 180 mins: Summer	Pipe	S2716	S2717	57.424	55.037	0.037	62.365	0.7	0.03	3.4	OK
S91.011	100yr Event (+20% CC): 2 years: +0 %: 360 mins: Summer	Pipe	S2717	S2718	56.847	54.825	0.039	120.801	0.6	0.03	3.4	OK
S91.012	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2718	S2719	55.900	54.421	0.042	161.695	0.6	0.04	3.4	OK
S91.013	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2719	S2720	55.800	54.303	0.034	161.566	0.8	0.04	3.4	OK
S91.014	100yr Event (+20% CC): 2 years: +0 %: 480 mins: Summer	Pipe	S2720	SHW600	55.850	54.226	0.025	161.517	1.2	0.01	3.4	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Connections Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

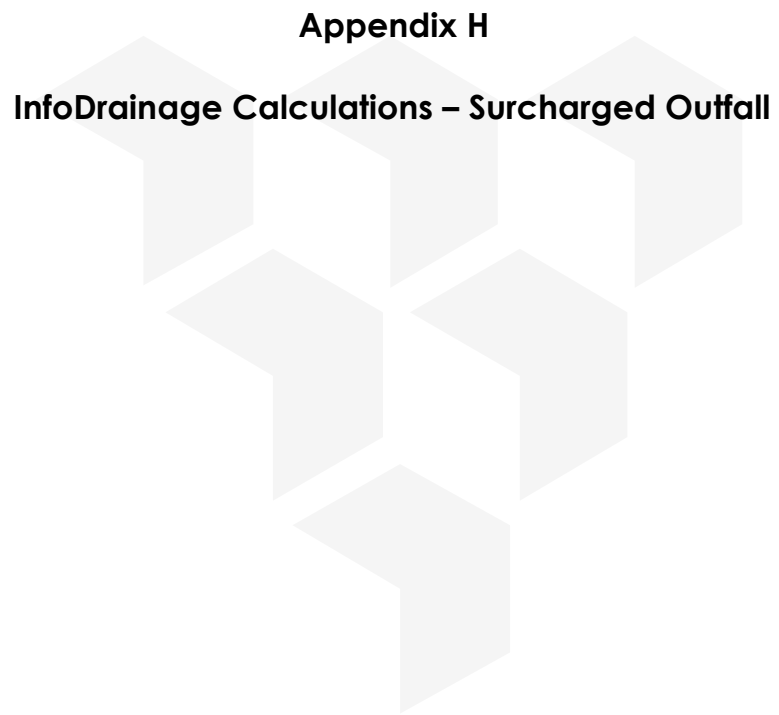
Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 30 years: +0 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	56.370	0.450	610.370	3.1	0.6	489.5	OK
S2.200	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	RM4a	S2.2.0	57.000	56.496	0.300	573.317	0.2	0.05	4.7	Surcharged
S2.300	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2.2.0	S2716	57.808	56.495	0.044	571.625	0.7	0.04	4.7	Surcharged
S91.010	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2716	S2717	57.424	55.044	0.044	571.474	0.7	0.05	4.7	OK
S91.011	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2717	S2718	56.847	54.831	0.046	571.272	0.7	0.05	4.7	OK
S91.012	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2718	S2719	55.900	54.429	0.049	571.041	0.6	0.06	4.7	OK
S91.013	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2719	S2720	55.800	54.311	0.040	570.906	0.8	0.06	4.7	OK
S91.014	100yr Event (+20% CC): 30 years: +0 %: 1440 mins: Winter	Pipe	S2720	SHW600	55.850	54.231	0.030	570.855	1.3	0.02	4.7	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Connections Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	57.199	0.450	941.386	4.7	0.92	749.5	Surcharged
S2.200	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	RM4a	S2.2.0	57.000	56.674	0.300	1225.405	0.4	0.27	28.0	Surcharged
S2.300	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2.2.0	S2716	57.808	56.664	0.111	1223.674	1.2	0.26	28.0	Surcharged
S91.010	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2716	S2717	57.424	55.111	0.109	1223.522	1.2	0.27	28.0	OK
S91.011	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2717	S2718	56.847	54.895	0.116	1223.319	1.1	0.27	28.0	OK
S91.012	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2718	S2719	55.900	54.505	0.123	1223.082	1.0	0.33	28.0	OK
S91.013	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2719	S2720	55.800	54.381	0.100	1222.944	1.4	0.33	28.0	OK
S91.014	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2720	SHW600	55.850	54.279	0.074	1222.891	2.1	0.12	28.0	OK



Appendix H

InfoDrainage Calculations – Surcharged Outfall

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
	Report Details: Type: Network Design Criteria Storm Phase: Phase			
Revision: Rev 1				

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
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Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
Report Details: Type: Outfall Details Storm Phase: Phase		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
		Revision: Rev 1			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SHW600	Fixed Surcharged Level	54.540	
100yr Event (+20% CC) : 2 years: +0 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 60 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 60 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 120 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 120 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 180 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 180 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 240 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 240 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 30 years: +0 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 360 mins: Summer		54.540	
100yr Event (+20% CC) : 100 years: +20 %: 360 mins: Winter		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 480 mins: Summer		54.540	
100yr Event (+20% CC) : 2 years: +0 %: 480 mins: Winter		54.540	

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
Report Details: Type: Outfall Details Storm Phase: Phase		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
		Revision: Rev 1			

100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 480 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 480 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 480 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 480 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 600 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 600 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 600 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 600 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 600 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 600 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 720 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 720 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 720 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 720 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 720 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 720 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 960 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 960 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 960 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 960 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 960 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 960 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 1440 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 1440 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 1440 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 1440 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 1440 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 1440 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2160 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2160 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2160 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2160 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2160 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2160 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2880 mins: Summer			

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by:	Checked by:	Approved By:	
	J. Dunesby	C. Salt	C. Salt	
Report Details: Type: Outfall Details Storm Phase: Phase			Revision: Rev 1	

100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 2880 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2880 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 2880 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2880 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 2880 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 4320 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 4320 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 4320 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 4320 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 4320 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 4320 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 5760 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 5760 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 5760 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 5760 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 5760 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 5760 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 7200 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 7200 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 7200 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 7200 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 7200 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 7200 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 8640 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 8640 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 8640 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 8640 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 8640 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 8640 mins: Winter			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 10080 mins: Summer			
100yr Event (+20% CC) : 2 years:		54.540	
+0 %: 10080 mins: Winter			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 10080 mins: Summer			
100yr Event (+20% CC) : 30 years:		54.540	
+0 %: 10080 mins: Winter			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 10080 mins: Summer			
100yr Event (+20% CC) : 100		54.540	
years: +20 %: 10080 mins: Winter			

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
Report Title: Rainfall Analysis Criteria	Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt	
	Revision: Rev 1			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall		
100yr Event (+20% CC)	Type: FEH	
Site Location	GB 518600 133700 TQ 18600 33700	
Rainfall Version	2022	
Summer	☒	
Winter	☒	

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	20.000

Storm Durations

Duration (mins)	Run Time (mins)
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall	Date: 29/02/2024			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Junctions Summary Storm Phase: Phase	J. Dunesby	C. Salt	C. Salt	
Revision: Rev 1				



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Outflow

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
S2720	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.850	54.200	54.569	0.369	28.0	0.418	0.000	28.0	1219.697	Surcharged
SHW600	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	54.840	53.985	54.562	0.577	28.0	0.653	0.000	28.0	1228.048	Flood Risk
S2719	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.800	54.261	54.580	0.319	28.0	0.360	0.000	28.0	1220.767	Surcharged
S2718	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	55.900	54.380	54.597	0.217	28.0	0.246	0.000	28.0	1222.126	OK
S2717	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.847	54.788	54.893	0.105	28.0	0.118	0.000	28.0	1223.570	OK
S2716	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.424	55.000	55.111	0.111	28.0	0.126	0.000	28.0	1223.758	OK
S2.2.0	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	57.808	55.211	56.664	1.453	28.0	1.643	0.000	28.0	1223.966	Surcharged
S2.1.0	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	57.950	56.050	57.202	1.152	753.5	1.303	0.000	750.4	941.321	Surcharged

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall		Date: 29/02/2024			
		Designed by: J. Dunesby	Checked by: C. Salt		Approved By: C. Salt
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Revision: Rev 1			



100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
RM4a	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	56.674	56.674	1.374	1.374	90.3	1275.204	0.000	0.000	28.0	1225.640	OK

Project: Mowbray (Land North of Horsham) Catchment RM4 - Hydraulic Model Surcharged Outfall				Date: 29/02/2024				
Report Details: Type: Connections Summary Storm Phase: Phase				Designed by: J. Dunesby	Checked by: C. Salt	Approved By: C. Salt		
				Revision: Rev 1				

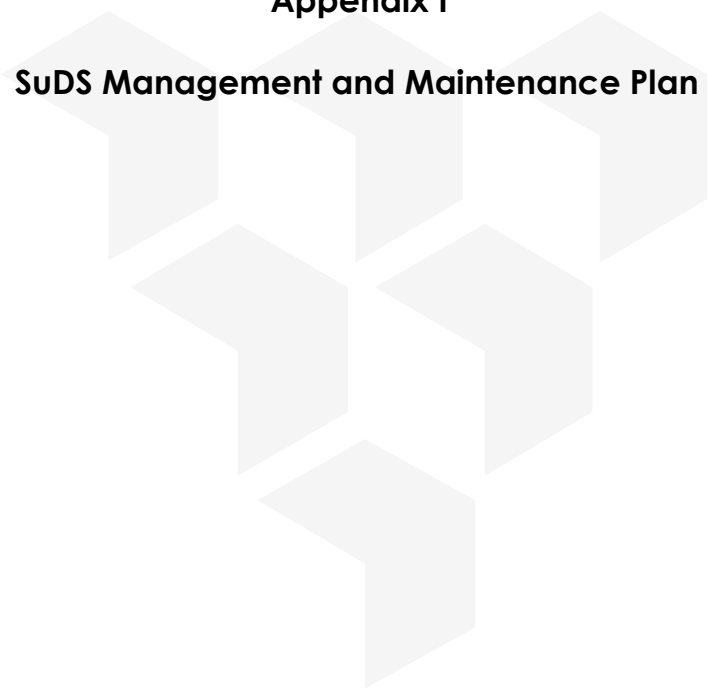


100yr Event (+20% CC): 100 years: Increase Rainfall (%): +20: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
S2.100	100yr Event (+20% CC): 100 years: +20 %: 60 mins: Summer	Pipe	S2.1.0	RM4a	57.950	57.202	0.450	941.284	4.7	0.92	750.4	Surcharged
S2.200	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	RM4a	S2.2.0	57.000	56.674	0.300	1225.640	0.4	0.27	28.0	Surcharged
S2.300	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2.2.0	S2716	57.808	56.664	0.111	1223.911	1.2	0.26	28.0	Surcharged
S91.010	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2716	S2717	57.424	55.111	0.108	1223.758	1.2	0.27	28.0	OK
S91.011	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2717	S2718	56.847	54.893	0.161	1223.570	0.7	0.27	28.0	OK
S91.012	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2718	S2719	55.900	54.597	0.268	1222.126	0.5	0.33	28.0	OK
S91.013	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2719	S2720	55.800	54.580	0.300	1220.767	0.7	0.33	28.0	Surcharged
S91.014	100yr Event (+20% CC): 100 years: +20 %: 1440 mins: Summer	Pipe	S2720	SHW600	55.850	54.569	0.300	1219.697	0.4	0.12	28.0	Surcharged

Appendix I

SuDS Management and Maintenance Plan



Mowbray, North Horsham, West Sussex (Phase 1)

Phase 1 – SuDS Management and Maintenance Plan

1.0 Site and Drainage Description

- 1.1 The wider Mowbray development at North Horsham is currently under construction with various applications for the approval of reserved matters for individual infrastructure elements and sub-phases, both under consideration and determined.
- 1.2 This SuDS Management and Maintenance Plan relates to the drainage infrastructure proposed as part of Phase 1 of the development.
- 1.3 Surface water run-off generated by the Phase 1 of the development will be discharged to the existing network of watercourses running through and around Phase 1, utilising attenuation provided by basins located across the phase and serving various land parcels.
- 1.4 Foul effluent generated by the residential parcels will be conveyed by gravity sewer networks, which will gravitate flows to the various pump stations proposed.
- 1.5 This plan should be read alongside the accompanying drainage reports for the various applications submitted for individual infrastructure elements and residential parcels located across Phase 1. This SuDS Management and Maintenance Plan does not constitute a complete maintenance schedule and should be developed at the appropriate design stage, taking into account advice and recommendations from system manufacturers and installers. Appropriate health and safety measures should also be put in place.

2.0 Management Responsibilities

- 2.1 The proposed surface water pipe network and associated drainage infrastructure serving the development parcels of Phase 1 are to be adopted by the sewerage undertaker, which will have the responsibility to keep them maintained. There are some exceptions to this where small sections of proposed surface water drainage infrastructure will remain private. The accompanying drainage reports for the various applications submitted for individual infrastructure elements and development parcels should be referred to.
- 2.2 Gullies, gully connections and other surface water drainage infrastructure solely serving highway land are to be adopted by West Sussex County Council (WSCC) in its role as highway authority. Surface water drainage infrastructure adopted by WSCC will be their responsibility to maintain.
- 2.3 Foul water drainage infrastructure constructed as part of Phase 1 and serving the residential parcels are to be adopted by the sewerage undertaker and will have the responsibility to keep them maintained.
- 2.4 All attenuation basins will remain private and be the responsibility of a management company to maintain.

3.0 Maintenance Activities

- 3.1 This section details the type and frequency of maintenance activities for the drainage infrastructure which will be implemented as part of Phase 1 of the Mowbray development.

Conventional Pipe Network / Inspection Chambers / Catchpits / Gullies

- 3.2 Piped network components require regular inspection and maintenance to ensure that the individual components continue to operate as designed, both in terms of hydraulic capacity and potential pollutant removal. All gullies, inspection chambers and catchpits will therefore be inspected and cleaned regularly, with typical maintenance activities detailed in Table 1.

Table 1: Conventional Pipe Network / Inspection Chambers / Gullies – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect and identify any features that are not operating correctly. If required, take remedial action.	Monthly (for first three months), then six monthly
	Remove debris from catchment surface / gratings (where it may cause risk to performance).	Quarterly and after large storms
	Inspect and remove sediment, debris, and silt from gullies, silt traps, and catchpit chambers.	Annually, or as required
	Inspect pipework for blockages, root ingress, displaced joints, or other signs of differential settlement.	Annually, or as required
Remedial Actions	Clear pipework of blockages, root ingress, repair joints or repair other signs of differential settlement.	As required
	Replacement of gullies / pipe system.	As required
	Repair / rehabilitation of gratings, inlets and outlets.	As required
Monitoring	Inspect / check all gratings, manholes, gullies, and catchpits to ensure that they are in good condition and operating as designed.	Annually and after large storm events
Structure Rehabilitation / Repair	Regular maintenance and monitoring to identify if repair and / or replacement of features or pipe system is required.	As required

Attenuation Basin

- 3.3 Attenuation basins are landscaped depressions which surface water is attenuated within prior to being discharged to the network of watercourses running through and around Phase 1 of the Mowbray development. To ensure the effective operation of the basins with limited erosion and silt accumulation, regular inspection and maintenance is required including the typical maintenance activities detailed in Table 2.

Table 2: Attenuation Basins – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Mow grass access paths and verges surrounding basins, at 35mm-50mm minimum and 75mm maximum.	Monthly (during growing season), or as required
	Mow rough grass areas for occasional access or habitat reasons at 100mm and 150mm maximum with cutting removed to wildlife piles.	As required
	Manage other vegetation and remove nuisance plants.	Monthly (for first three months, then as required)
	Inspect for signs of clogging and remove any litter / debris found.	Monthly, or as required
	Inspect and clear inlets, outlets, and overflows of any blockages.	Annually, or as required
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies.	Monthly (for first year), then annually, or as required
	Inspect banksides for evidence of physical damage and repair as appropriate.	Annually, or as required
	Cut (trim) wetland vegetation at 100mm and remove cuttings.	Annually, or as required
	Reseed areas of poor vegetation growth.	As required
	Prune and trim any trees and remove cuttings.	Every 2 years, or as required
Occasional Maintenance	Where silt accumulates on apron or area in front of inlet or outlet then remove and spread above design profile of SuDS. Where silt accumulates more than 150mm in base of basins undertake a phased removal of silt subject to Client approval. Remove silt but not more than 30% of basin area at any one time and to an agreed depth. Retain as much representative existing vegetation as possible to ensure rapid re-colonisation of open areas. Stack excavated material adjacent to basin to allow dewatering of silt. Undertake silt removal during September-October to minimise damage to protected wildlife and ensure re-growth of aquatic vegetation before winter. Spread excavated material on site above SUDS design profile.	Every 3 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing.	As required

Inlet / Outlets / Controls

- 3.4 Headwalls, flow control chambers and outfalls direct the flow in and control the flow rate out of the proposed basins across Phase 1. To prevent surface water exceedance, regular inspection and maintenance of these structures are required to remove potential blockages and ensure the intended design flow rates are achieved. Typical maintenance activities for these structures are included in Table 3.

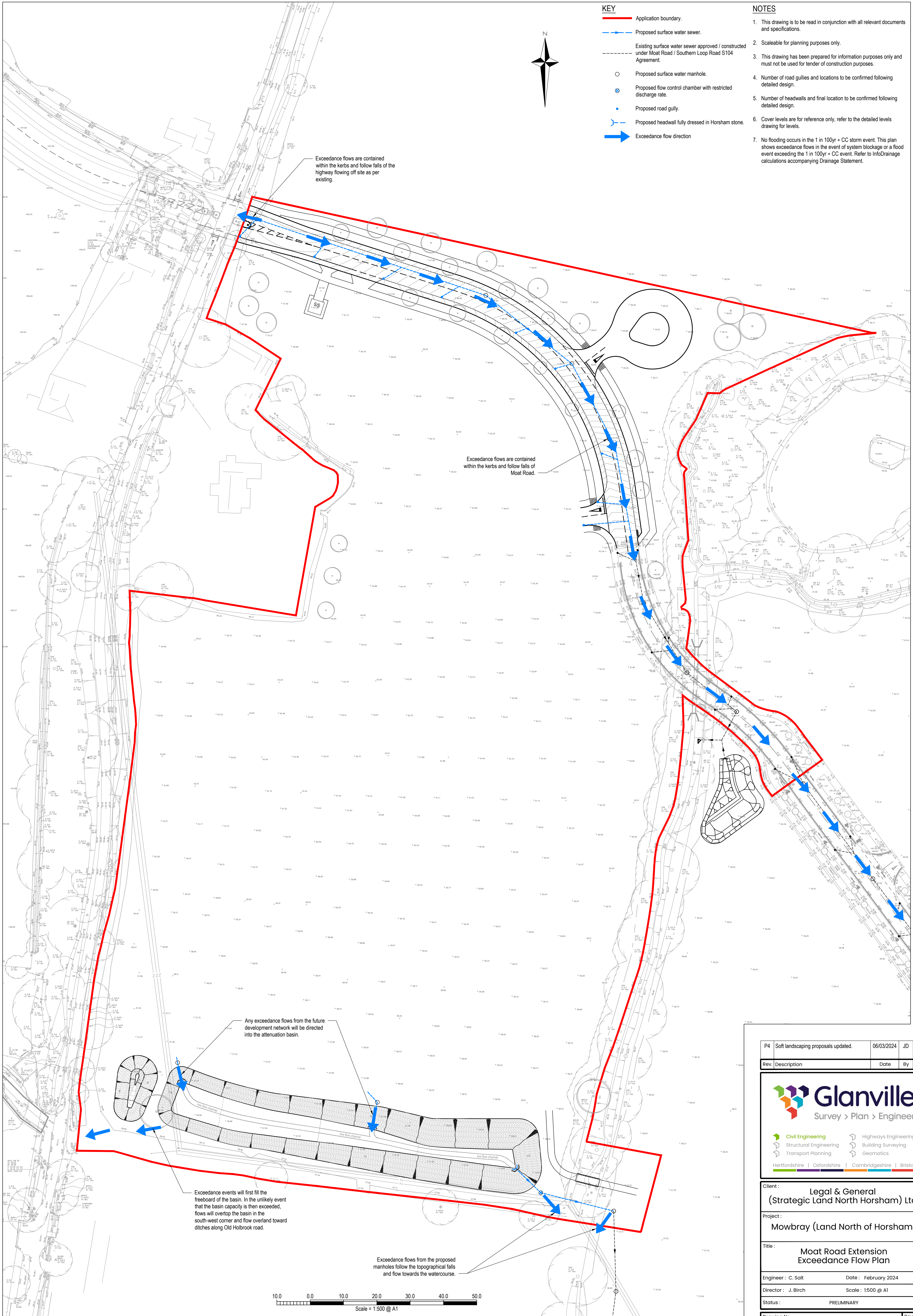
Table 3: Inlets / Outlets / Flow Control Devices* – Typical Maintenance Activities

Maintenance Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect control chamber and remove any sediment, debris, and silt to ensure water is flowing freely.	Quarterly, or as required
	Inspect chamber and incoming / outgoing pipework for blockage or root ingress.	Six monthly, or as required
	Inspect surface structures for physical damage.	Quarterly, or as required
	Cut (Strim) vegetation 1m minimum from the surround of structures.	Six monthly (spring and autumn)
	Remove debris and silt from hard head wall aprons.	Quarterly, or as required
	Inspect and clear headwall grills.	Quarterly, or as required
	Undertake general inspection after Autumn leaf fall.	Annually
Occasional Maintenance	Check topsoil levels are 20mm above chamber edges to avoid mower damage.	As required
Remedial Actions	Clear chamber and incoming / outgoing pipework of blockages.	As required
	Repair physical damage or replace missing grills or controls.	As required

*Refer to manufacturer's guidance for specific maintenance instructions

Appendix J

Exceedance Flow Route Plan



- KEY**
- Application boundary.
 - Proposed surface water sewer.
 - Existing surface water sewer approved / constructed under Moat Road / Southern Loop Road S104 Agreement.
 - Proposed surface water manhole.
 - Proposed flow control chamber with restricted discharge rate.
 - Proposed road gully.
 - Proposed headwall fully dressed in Horsham stone.
 - Exceedance flow direction

- NOTES**
- This drawing is to be read in conjunction with all relevant documents and specifications.
 - Scaleable for planning purposes only.
 - This drawing has been prepared for information purposes only and must not be used for tender or construction purposes.
 - Number of road gullies and locations to be confirmed following detailed design.
 - Number of headwalls and final location to be confirmed following detailed design.
 - Cover levels are for reference only, refer to the detailed levels drawing for levels.
 - No flooding occurs in the 1 in 100yr + CC storm event. This plan shows exceedance flows in the event of system blockage or a flood event exceeding the 1 in 100yr + CC event. Refer to InfoDrainage calculations accompanying Drainage Statement.

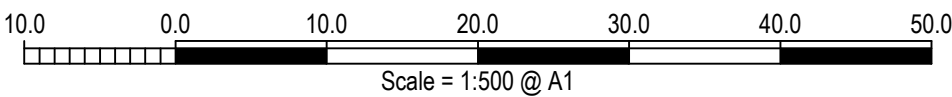
Exceedance flows are contained within the kerbs and follow falls of the highway flowing off site as per existing.

Exceedance flows are contained within the kerbs and follow falls of Moat Road.

Any exceedance flows from the future development network will be directed into the attenuation basin.

Exceedance events will first fill the freeboard of the basin. In the unlikely event that the basin capacity is then exceeded, flows will overtop the basin in the south-west corner and flow overland toward ditches along Old Holbrook road.

Exceedance flows from the proposed manholes follow the topographical falls and flow towards the watercourse.



P4	Soft landscaping proposals updated.	06/03/2024	JD	CS
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Rev	Description	Date	By	Chkd
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- Civil Engineering
- Structural Engineering
- Transport Planning
- Highways Engineering
- Building Surveying
- Geomatics

Hertfordshire | Oxfordshire | Cambridgeshire | Bristol

Client: Legal & General (Strategic Land North Horsham) Ltd

Project: Mowbray (Land North of Horsham)

Title: Moat Road Extension Exceedance Flow Plan

Engineer: C. Salt Date: February 2024

Director: J. Birch Scale: 1:500 @ A1

Status: PRELIMINARY

Drawing No. MOW-GLA-MRE-PHI-D-C-1203

Rev P4

Appendix K

Approved Site-Wide Foul Water Strategy