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1. INTRODUCTION

- 1.1 This Sustainable urban Drainage Strategy (SuDS) Verification Report – Area 3, has been prepared by Paul Basham Associates on behalf of Miller Homes to support the 'As-Built' verification report to Arun District Council in relation to Land at Bayards, Eastergate.
- 1.2 This Verification Report has been prepared to support the discharge of Planning Condition 24. The report authors are Paul Basham Associates Ltd. Paul Basham Associates were established in 2009 and are a multi-disciplinary Transport Planning, Civil and Structural Engineering Consultancy, employing a team of Civil Engineers.
- 1.3 The development is located to the north of Fontwell Farm, west of Northfield Farmhouse. The nearest postcode to the site is PO20 3SA, Grid reference SU 94608 06305. The outline application number is AL/113/21/OUT and the reserved matters application is AL/122/22/DOC.
- 1.4 The total site development is approximately 2.31ha and development comprises of 67 dwellings with associated hardstanding and landscaping.
- 1.5 The Surface Water Management for the development comprises of a series of localised infiltration / soakaway systems which for the purposes of Verification have been divided into discrete local areas as work progresses throughout the site with each area being dealt with separately for the purposes of Verification of the Surface Water Management.

- 1.6 The development must comply with Condition 24 outlined by Arun district council: *“Immediately following implementation of the approved surface water drainage system and prior to occupation of any part of the development, the developer/applicant shall provide the local planning authority with as-built drawings of the implemented scheme together with a completion report prepared by an independent engineer that confirms that the scheme was built in accordance with the approved drawing/s and is fit for purpose. The scheme shall thereafter be maintained in perpetuity.”*
- 1.7 **Figure 1** outlines the total site area however, the site will be subdivided and assessed independently of each other due to each section being self-contained.



Figure 1- Total site Area

- 1.8 Submitting discrete independently assessed local areas allows the verification process to align with the plot construction and completion process for the site.
- 1.9 An independent company, OST Engineering has been appointed to conduct inspections of the surface water network design construction.
- 1.10 **Figure 2** shows the extent of Verification Area 3, comprising of 12 dwellings and associated roads.
- 1.11 See **Appendix A** for the location of all the discrete verification areas as show on drawing number 091.5016.0578.

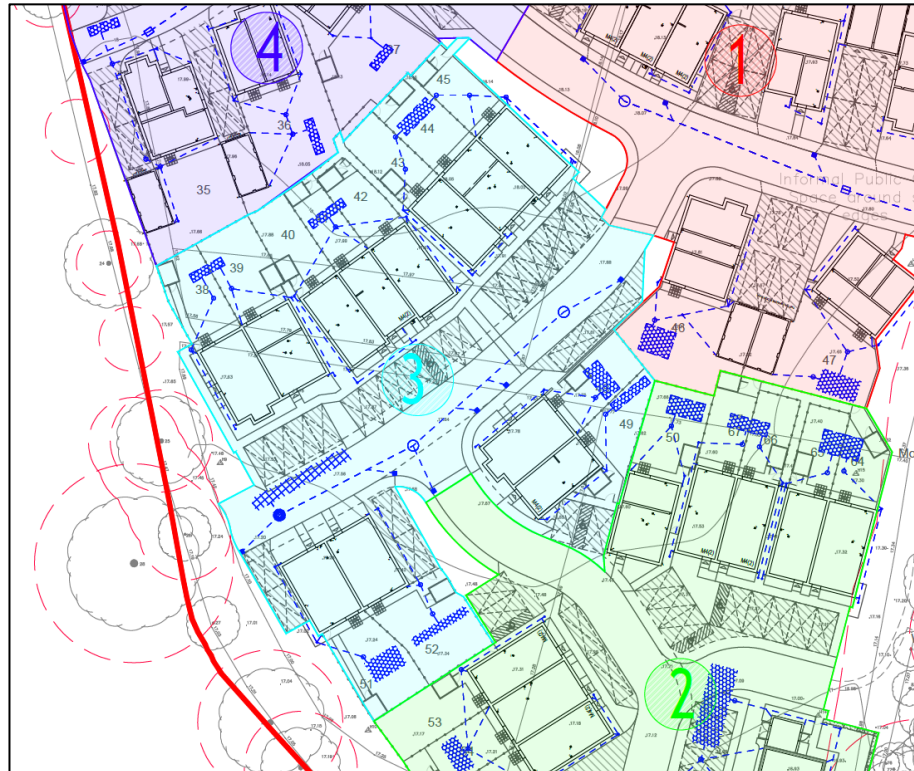


Figure 2- Site extent of Area 3

- 1.12 The relevant Drainage Layout drawings that cover the extent of Area 3 are included as **Appendix B**.

2. INSPECTIONS

- 2.1 Site staff and OST, see 1.8 above, have carried out inspection of the works although some sections of Area 3 have been inspected retroactively by exposing soakaways and pipelines.

3. AS-BUILT SURVEY

- 3.1 As-Built surveys of the site area and drainage systems have been carried out, these surveys are included as **Appendix C**
- 3.2 These levels have been reviewed against the design levels shown in 091.5016.0501 C08, 091.5016.0502 C05 and 092.5016.0503 C06 the design drawings can be found in **Appendix B**
- 3.3 A tabulated summary of invert levels for chambers constructed within Area 3 is given below.

Area	Ref No	As-Built CL	Design IL	As-Built IL	Comments
3	S26	17.79	16.451	16.48	
3	S5	17.71	16.322	16.33	
3	S6 (Downstream defender)	17.30	16.226	16.16	
3	SA ROAD 2	17.49	16.145	16.15	
3	RE5271/RE400	17.70	17.143	17.155	
3	PS235	17.725	17.006	17.10	
3	PSCP236	17.755	16.927	17.00	
3	RE554	17.89	17.39	17.50	
3	PS234/PS5297	17.75	17.265	17.27	
3	PSCP240	17.70	17.181	17.10	
3	SA38-39	17.79	16.891	16.85	
3	RE242	17.89	17.529	17.55	
3	PS5397	17.87	17.482	17.42	
3	PS222/PS243	17.77	17.278	17.27	
3	PSCP249	17.80	17.09	17.15	
2	SA40-42	17.82	16.904	16.85	
3	PS248	17.90	17.190	17.20	
3	RE233		17.317		Not shown on As Built Drawing
3	RE252	17.95	17.475	17.50	
3	PS5272	17.94	17.396	17.42	
3	PS253	17.90	17.264	17.29	
3	PSCP254	17.97	17.207	17.22	
3	PS5301	18.00	17.160	17.10	
3	RE297	17.93	17.575	17.50	
3	PS5285	18.00	17.353	17.40	
3	PSCP298	18.00	17.302	17.30	
3	PS5299	17.80	17.256	17.27	
3	SA43-45	18.00	17.150	16.85	
3	RE328	17.65	17.327	17.35	
3	PS329	17.91	17.200	17.25	
3	PSCP330	17.80	17.128	17.15	

Area	Ref No	As-Built CL	Design IL	As-Built IL	Comments
3	SA48	17.80	17.123	17.10	
3	PS333	17.65	17.26	17.30	
3	PS334	17.58	17.135	17.18	
3	PS335	17.70	17.00	17.10	
3	SA49	17.66	16.696	16.99	
3	PS5270	17.40	17.098	17.15	
3	PS227	17.45	16.932	16.96	
3	PSCP228	17.44	16.864	16.85	
3	SA51	17.40	16.859	16.79	
3	PS526	17.45	16.95	17.00	
3	PS5283	17.40	16.830	16.90	
3	PSCP231	17.43	16.777	16.80	
3	SA52	17.41	16.772	16.70	

Table 1: As Built levels against design levels

- 3.4 The comparison between the design and as built levels shown that the invert levels are generally within normal building site tolerances and fall in the correct directions, unless otherwise noted within the comments provided in Table 1 above.
- 3.5 Based on the as-built levels as per Table 1 cross checks of raised invert levels appear to show that no backfalls have been created.
- 3.6 No levels were provided for RE233.

4. MATERIALS AND CONSTRUCTION RECORDS

- 4.1 The list of materials suppliers is contained within **Appendix D**.
- 4.2 The materials selected for inclusion in the works have Manufacturers confirmation that the materials selected meet the required national standards.
- 4.3 Photographic evidence of the materials used during construction works is given below:



Plots 39 & 39



Plots 40, 41 & 42



Plots 43, 44 & 45



Plot 48



Plot 49



Plot 51



Plot 52

- 4.4 The image for plot 52 shows a different arrangement to what was proposed, this would suggest the wrong image has been supplied or the incorrect number of crates have been installed, the proposal was for 1m wide by 7m long and 0.4 deep which would total to 14 crates being used. The image shows 6 crates used, this is significantly less storage, and this may cause this property to be at risk of flooding. The crates also appear to be Polystorm Modular Cell, which were not approved

by Paul Basham Associates. The design storage volume is 2.66m³ and the as-built storage volume is 1.14m³ this is significantly less and will mean the crates are more likely to flood.

- 4.5 In the image for plot 51 it appears three SDS GEOLight blocks have been installed at the total dimensions of 2m long x 1.5m wide x 0.75m deep, this has a total storage volume of 2.14m³. Whereas the design was 4m long x 2.5 wide x 0.4m deep, this has a total storage volume of 3.8m³
- 4.6 For the other plots it is unclear how many crates were installed but from the images Plot 49 shape differs from the intended shape, this could be due to other factors on site.
- 4.7 From the images it appears that the installation of the geotextile membranes are not installed and sealed in accordance with the manufacturer's specifications.
- 4.8 Plots 48, 49 & 51 have shown an arrangement that differs from the design outlined within the construction detail on sheet 091.5061.551 C01, this is likely due to the use of the SDS GEOLight. This product typically requires a specific arrangement, including a perforated pipe running centrally through the attenuation crates, as illustrated in **Figure 3** below. However, the contractor has instead installed an in-situ pipe that has been hand-cut with spiral slits to function as a perforated pipe, intended to feed water into the crates. This pipe appears to have been installed without appropriate bedding. Furthermore, the structural integrity of the pipe has likely been compromised due to the hand-cut slits, which is also evident from the CCTV footage. There also appears to be no restraint preventing the pipe from shifting or rotating. As a result, there is no assurance that the slits will remain correctly oriented (i.e. facing downward towards the crates).
- 4.9 This may lead to ineffective interaction between the pipe and the attenuation system, potentially causing the drainage to perform in an unintended and unpredictable manner.

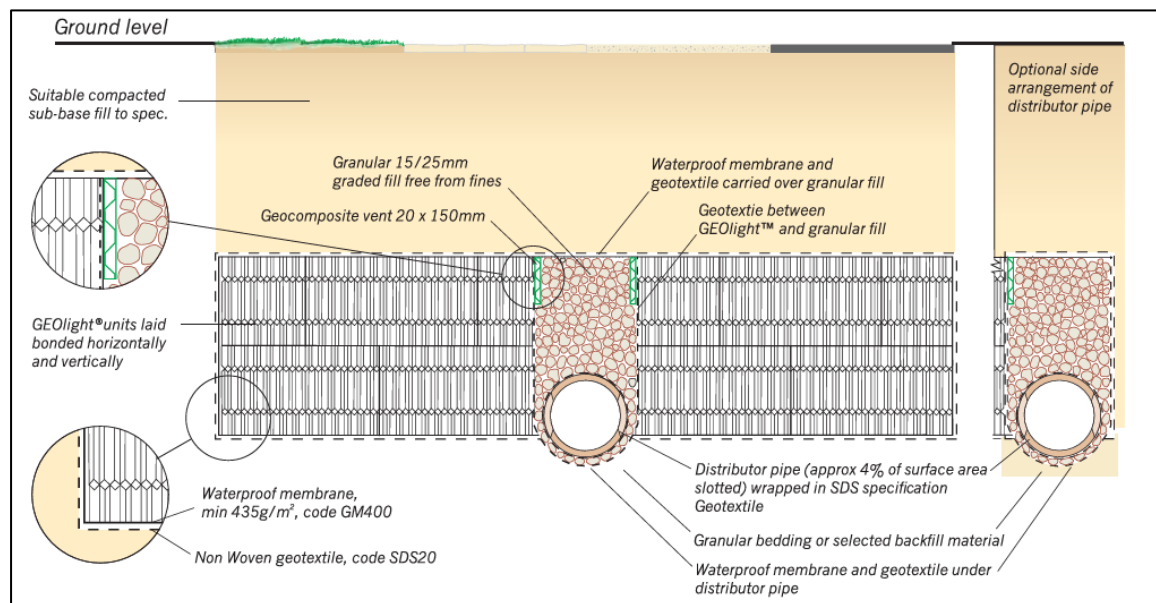


Figure 3: SDS GEOLight Cross Section

- 4.10 The images also suggest that vents have not been installed in line with the construction detail on sheet 091.5061.551 C01 and in accordance with manufactures specifications which can be found in **Appendix D**.
- 4.11 No images have been provided of SA Road 2 or any of the permeable paving within this area, therefore, we are unable to verify this element on the absence of this evidence.

5. CCTV SURVEY OF PIPELINES

- 5.1 CCTV Surveys of most pipelines in Area 3 have been carried out to confirm the as-built conditions. The video files have been examined in detail with pipe conditions and a report assessing the condition of the pipe produced is included in **Appendix E**. Copies of the CCTV media files are listed below and are appended to this report as **Appendix E**.

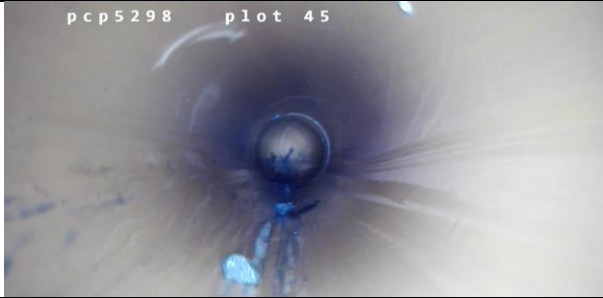
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- PSCP335X_1b0ba4cc-8288-4545-86e7-a69c4507f6ac
- S5X_ecc4546f-4a87-4b9f-a654-f87262ab22ef
- S26X_c019802b-3f20-4b3a-a24f-3d26d92135c4
- plot 43 ps253-5272
- plot 45 catchpit to ps5285
- Plot 51
- plot38 pscp236-5271
- plot39 pscp240-rwp
- plot41 pscp249-rwp
- plot48rwp
- PSCP236 - SA38
- Plot 40 pscp249-243
- plot 41-pscp249-ps248
- Plot 38 - PS235 -PS236
- plot 39 - PS243 - PS240
- plot 43 - PS253 - PS254
- plot 43 - PS254 - PS5301
- plot 45 - PS298 - PSCP5299
- plot 49 PS334 - PSPSCP335
- plot 51 - PS5283 - PSCP231
- plot 52

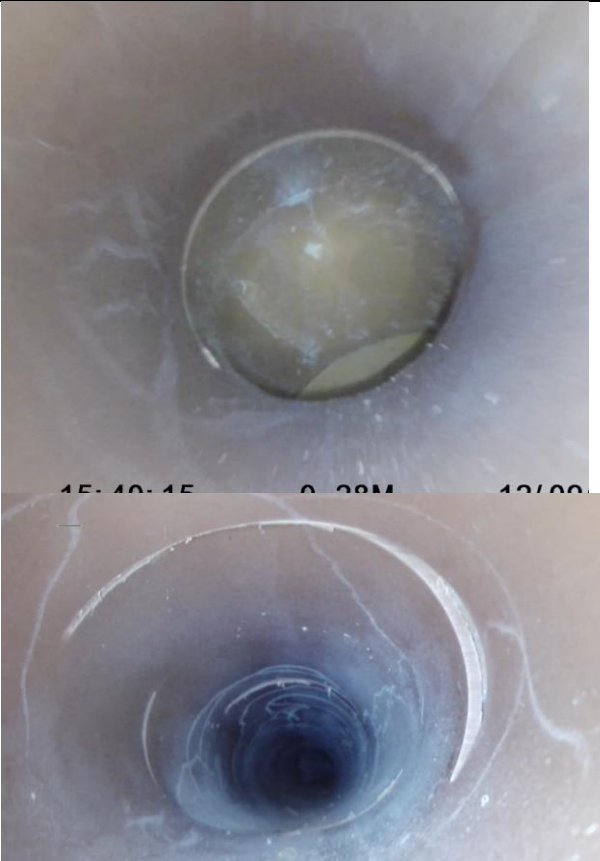
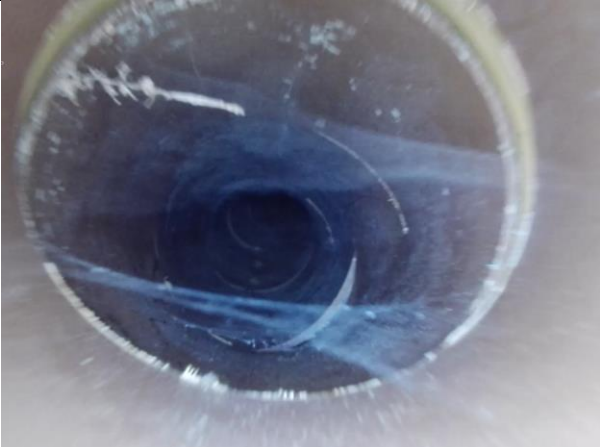
- 5.2 Each video has been reviewed and comments relating to specific pipes are listed below.

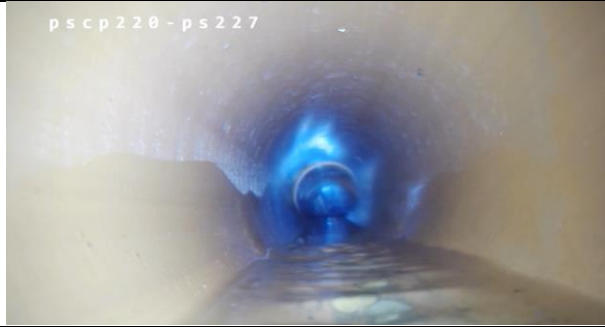
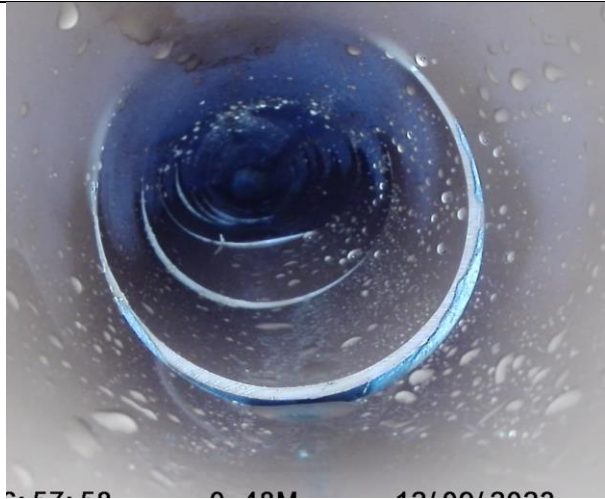
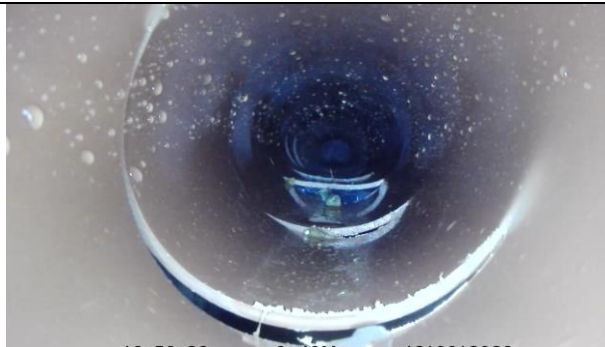
- 5.3 The general quality of the CCTV surveys is incomplete, the videos do not start looking up at the chamber at the head of the run, so there is no way to guarantee the position in the pipe, equally they do not finish looking up at the downstream chamber. There are also several videos where the footage is blocked due to obstructions in the pipe.

Ref	Defect Images	Comments
S26-S5		S26 Depth 1.35m As Built Depth 1.31m Video terminates at 19.60m Design length 22.48m No Defects present
S5-S6		Depth 1.5m As Built depth 1.38m Longitudinal cracking present at 7.95m Video terminates at 12.48m Design length 16.809m Downstream defender does not appear to have been installed in S6
S6-SA Road 2	No footage provided	
RE5721-PS235		No depth given in video, Video starts at 9.89m video ends at 3.17m Design length: 11.011 No junctions for RWP were visible in survey No defects
PS235-PSCP236		No defects
PSCP236-SA38-39	No footage provided	
PS243/PS5297-PSCP240		Standing water at start of survey- suggests the pipe is back falling
RWP-PSCP240		Video starts at 3.17m No Defects

PSCP240-SA38/39		Semi spiral cuts present on the video, causing the pipe to bend. Pipe also not cleaned after being cut and signs of debris from cuts present. CCTV survey shows the pipe is back falling.
PS243-PSCP249		Video labelled as Plot 40 RWP, suggesting that the RWP is connected directly into PSCP249 and that PS243 chamber was not constructed. Standing water present in pipe downstream, unclear if this was due to poor drainage or recent weather, no recent weather was provided.
RWP (Plot 41) – PSCP249		View blocked by obstruction but appears to be no defects.
PS248-PSCP249		Survey appears to terminate at a bend suggesting that PS248 chamber was not installed.
PSCP249-SA40-42		No defects
PS5272-PS253		Unclear if full length of sewer was surveyed as upstream manhole could not be seen No defects
PS253-PSCP254		No defects
PSCP254-PS3301		No Defects
PS3301-SA43-45		damage to infiltration crates has been caused due to inadequate connection. No defects within pipe

PS5285- PSCP298		Bend encountered, Chamber PS5285 does not appear to have been constructed.
PSCP298- PS5299		Large amounts of sediment build up, PS5299 looks to have been built as a catchpit manhole unclear if there are two catchpit manholes or PS5299 is the sole catchpit on the network.
PS5299-SA43- SA45		Pipe appears to change direction of slope, at ~1.5m into survey. The pipe appears to terminate above infiltration crates.
RWP (Plot 48) – PSCP330		RWP looks to have not been properly connected. No defects within pipe sediment build up could suggest pipe has been laid at a shallow gradient.

PSCP330-SA48		Pipe appears to change direction twice and spiral slits have been cut into pipe. From the images in section 4.4 there is two pipes coming into the crate system, the other pipe will need to be surveyed and a catchpit manhole must be installed upstream of this pipe.
PS334-PSCP335		Standing water and large amounts of sediment build up in PS334. Water does not appear to be flowing downstream suggesting that the pipe is back falling
PSCP335-SA49		Pipe displacements, deformed pipe due to spiral section cut through the pipe. Pipe appears to have moved away from joint in image.

PS5270-PS227		Small amount of water present in PS227
PS227-PSCP228	Survey not recieved	
PSCP228-SA51		Pipe displacements due to spiral cuts in pipe, pipe has changed direction due to settlement.
PS5283-PSCP231		No defects
PSCP231-SA52		Pipe displacements due to spiral cuts in pipe.

6. VARIATIONS TO THE APPROVED DESIGN

- 6.1 The design levels have in certain areas been subject to minor amendments, these are shown in 3.3 (Table 1) above.
- 6.2 For the most part the level changes to the Surface Water Drainage Systems within Area 3 are not likely to prevent the systems from performing adequately. However the CCTV footage between PS5297 and PSCP240 suggests there is potentially back falling pipes in the network, this would need to be further investigated and the CCTV footage indicates general workmanship issues.
- 6.3 The air vents to all the Soakaways appear to have been missing. This needs to be investigated.
- 6.4 The pipe connections to the plot soakaways within Area 3 may restrict the flow of surface water into the soakaway. The hand cut PVC pipes compromise the pipe's structural integrity and do not have the correct bedding which has caused the pipe to deform, along with this, the rate of infiltration into the soakaways cannot be guaranteed.
- 6.5 The soakaways have been constructed with other types of infiltration crates opposed to the previously specified Aquacell Core-R, and as such the shape and size of the crates has been changed. In some cases this has resulted in a reduction of storage capacity and infiltration surface area.
- 6.6 Given the number of crates used is not clear from the images, the Contractor will need to confirm the amount of crates for each soakaway to ensure compliance was achieved.

7. REMEDIAL WORKS TO BE UNDERTAKEN AND PLANNED

- 7.1 Provide images of SA Road 2 during construction and CCTV S6 to Soakaway.
- 7.2 Chamber S6 the Downstream Defender Vortex Plus has yet to be installed, this will need to be installed.
- 7.3 The air vent to the Soakaways requires investigation and resolution.
- 7.4 Investigate the cases where the pipes may be back falling and remediate if necessary.
- 7.5 The remedial works required within Area 3 is as listed below:
- The Contractor shall obtain written approval from crate supplier that the constructed soakaways comply with their specification. Notwithstanding this requirement, it is recommended that all damaged or deformed pipes be removed and replaced.
 - Install additional infiltration crates where the storage volume is less than what was specified in the approved design or provide supporting hydraulic modelling to support the as-built storage.
 - Once remedial works have been carried out the system will need to be re CCTV surveyed.

8. CONCLUSION

- 8.1 The records and details contained within this report reference 091.5016/SVR3 “SuDS Verification Report Area 3 and Appendices” show that the Surface Water Systems within Area 3 have not been constructed completely to the design and that the surface water network cannot be signed off without remedial actions.

Appendix A Verification Areas (Dwg 091.5016.0578)



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CDM Regulations 2015 - Reg. 9

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In preparing the design shown on this and related drawings Paul Basham Associates has considered and, where reasonably practicable, eliminated foreseeable risks. Any further abnormal or unusual risks, which remain, are numbered below and identified thus, and should be given particular attention by all those carrying out construction or of future maintenance works.

1. Existing services present
- 2.
- 3.

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- — STORM WATER SEWER, Ø AS NOTED
- ○ SURFACE WATER MANHOLE (CUL/SILT/TYPE AS SHOWN)
- ○ SURFACE WATER INSPECTION CHAMBER/CATCHPIT
- ○ SURFACE WATER RODDING EYE
- ■ ROAD GULLY
- ○ DOWNSTREAM DEFENDER VORTEX PLUS
- GRAVEL INFILTRATION TRENCH (SEE 091.5016.551 FOR FULL DETAILS)
- INFILTRATION CRATES (SEE 091.5016.551 FOR FULL DETAILS)
- PERMEABLE PAVING

FOR
CONSTRUCTION

C02	UPDATED TO SUIT CLIENT COMMENT	03.08.2023	OJT	JM
C01	FIRST ISSUE	31.07.2023	OJT	JM
Rev	Description	Date	By	Chkd



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Client

millershomes

Project Name
LAND AT BAYARDS,
EASTERGATE

Title
SURFACE WATER
VERIFICATION AREAS

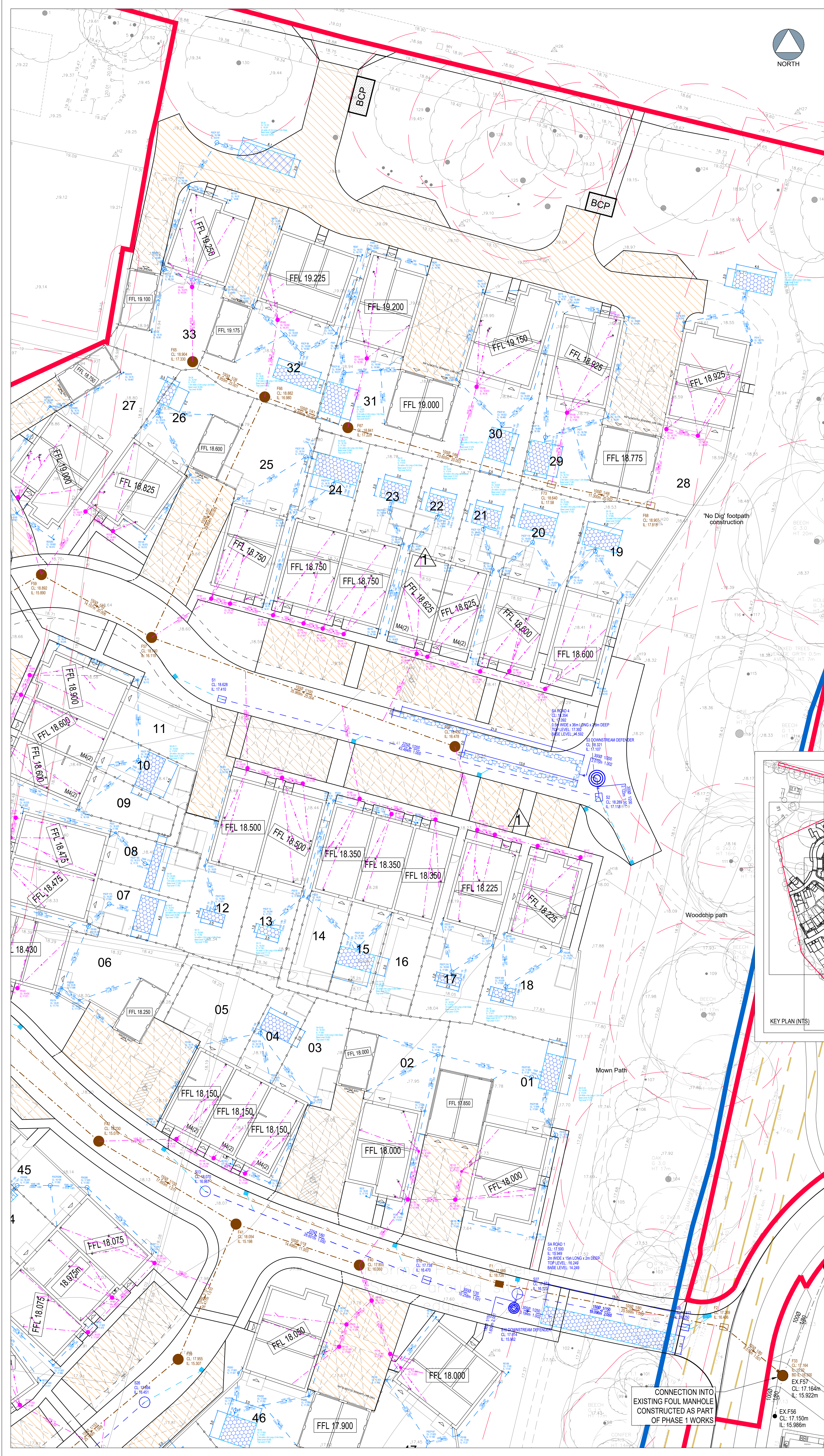
Project Phase

FOR CONSTRUCTION

Checked By	Checked Date	Drawn By	Drawn Date
JM	31.07.2023	OJT	31.07.2023
Client Drawing No.	Scale	(AT A1 SIZE)	
-	1:500		

PBA Drawing No.	Revision
091.5016.0578	C02

Appendix B Relevant Drainage Layout Drawings



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1	Existing services present
2	
3	

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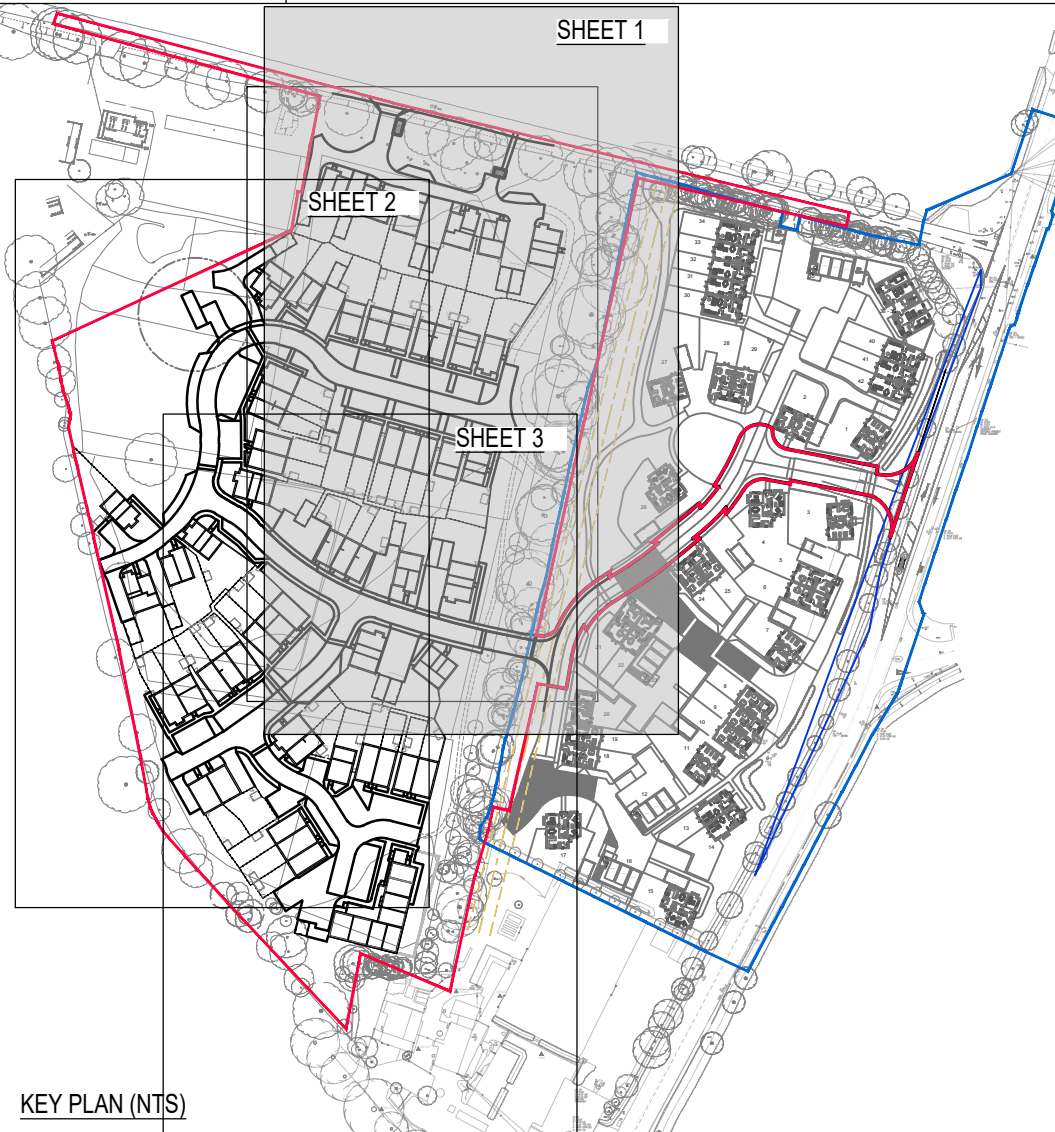
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- THE LEVEL OF THE EXISTING FOUL AND STORM SEWERS ON SITE HAS BEEN EXTRAPOLATED FROM THE LEVELS OF ADJACENT MANHOLES THE EXACT LEVEL AT THE POINT OF CONNECTION SHALL BE CHECKED PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY VARIANCE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL LEVELS ARE TO ORDNANCE DATUM
- ALL DRAINAGE TO BE IN ACCORDANCE WITH BUILDING REGULATIONS PART H. SEWERS NOTED AS ADOPTABLE SHALL BE TO SEWERS FOR ADOPTION 7th EDITION.
- THE LOCATION OF EXISTING UNDERGROUND UTILITY SERVICES IS AS PROVIDED BY THE RELEVANT STATUTORY UNDERTAKERS THE CONTRACTOR IS TO ASCERTAIN THE EXACT LOCATION PRIOR TO COMMENCEMENT OF WORKS.
- UNLESS NOTED OTHERWISE ALL DRAINAGE PIPES ARE TO BE 100mm DIA. AND ALL GULLY LEADS ARE TO BE 150mm DIA. MINIMUM ADOPTABLE SEWER 100mm DIA.
- MAXIMUM OUTFLOW RATE FOR FOUL PUMP STATION TO BE 4.0 l/s

LEGEND:

- ADOPTABLE/PRIVATE FOUL WATER SEWER, Ø AS NOTED
- PRIVATE FOUL WATER DRAIN, 100mm Ø U.N.O
- PRIVATE/ADOPTABLE STORM WATER SEWER, Ø AS NOTED
- PRIVATE STORM WATER DOMESTIC DRAIN, 100mm Ø, U.N.O.
- FOUL RISING MAIN
- FOUL WATER MANHOLE (CL/USL/TYPE AS SHOWN)
- SURFACE WATER MANHOLE (CL/USL/TYPE AS SHOWN)
- FOUL WATER CATCHPIT/INSPECTION CHAMBER
- SURFACE WATER INSPECTION CHAMBER/CATCHPIT
- SURFACE WATER ROOFING EYE
- FOUL GULLY
- ROAD GULLY
- FINISHED FLOOR LEVELS
- DOWNSTREAM DEFENDER
- VORTEX PLUS
- INFILTRATION CRATES (SEE 091.5016.551 FOR FULL DETAILS)
- GRAVEL INFILTRATION TRENCH (SEE 091.5016.551 FOR FULL DETAILS)
- PERMEABLE PAVING
- SITE BOUNDARY
- EXISTING FOUL WATER SEWER
- TREE ROOT PROTECTION AREAS
- TREE ROOT PROTECTION AREAS CALCULATED AND SPECIFIED IN ACCORDANCE WITH BS 5827:2012 - 'TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION - RECOMMENDATIONS'



FOR CONSTRUCTION

Rev	Description	Date	By	Chkd
C08	LEGEND REVERTED TO REV. C05	16.02.2024	RL	RW
C07	COVER LEVELS UPDATED TO SUIT V.E. / PART M REVISIONS	08.08.2023	RL	RW
C06	SITE LAYOUT UPDATED	21.04.2023	RL	RW
C05	PLOT 19: PS115 LOCALLY RELOCATED	24.02.2023	RL	RW
C04	FW: Mh's F1, F2 & F33 AMENDED	08.02.2023	RL	RW
C03	ROAD 4 SOAKAWAY SIZED AMD.	07.02.2023	RL	RW
C02	ROAD 1/4 SOAKAWAY INFORMATION ADDED	02.02.2023	RL	RW
C01	ISSUED FOR CONSTRUCTION	20.01.2023	RL	RW

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miller homes

Project Name
LAND AT BAYARDS, EASTERGATE

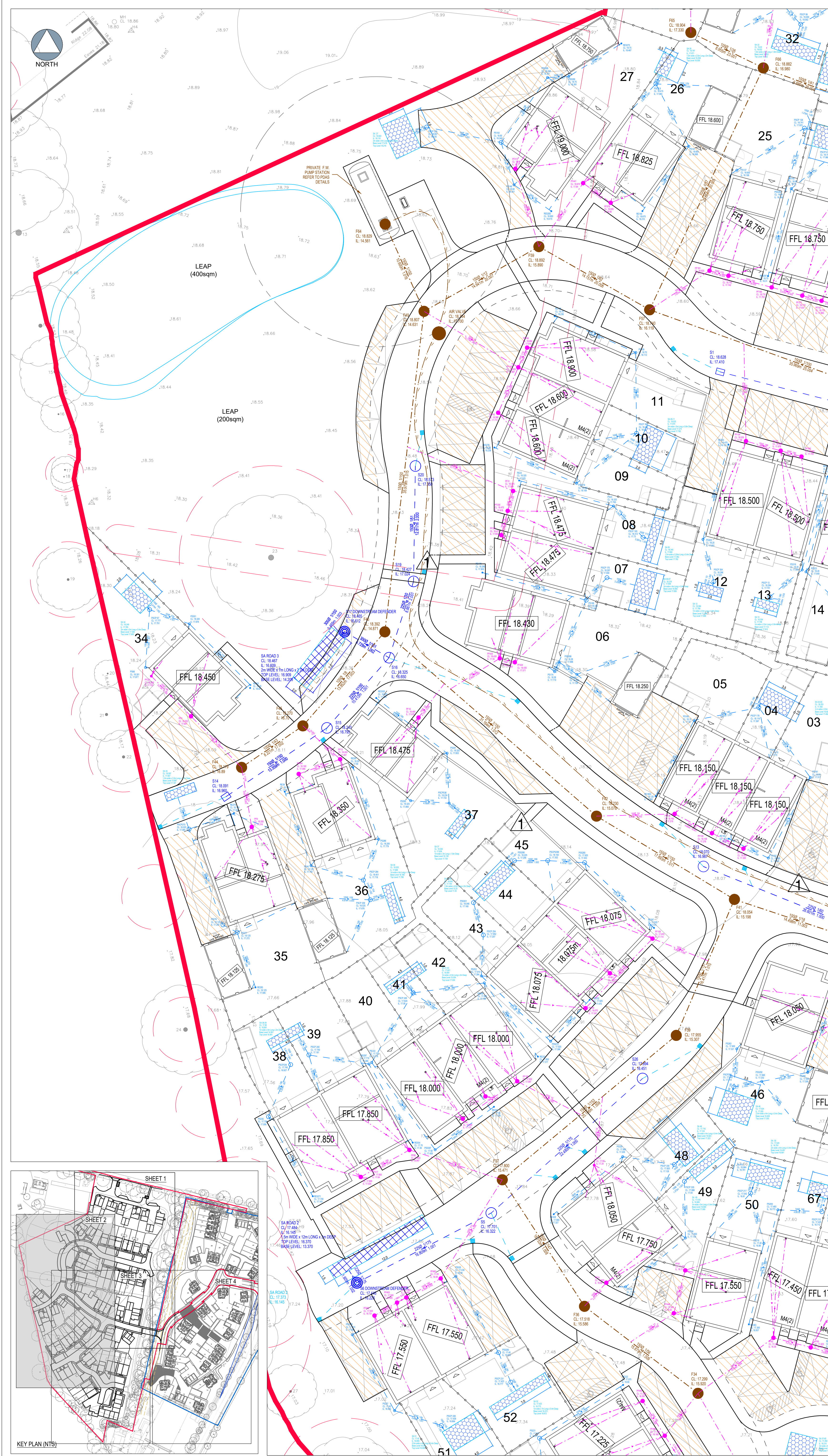
From
ENGINEERING LAYOUT DRAINAGE SHEET 1

Project Phase
CONSTRUCTION

Checked By	Checked Date	Drawn By	Drawn Date
RW	21.03.2022	CP	21.03.2022

Client Drawing No. - Scale 1:200 (AT A1 SIZE)

PBA Drawing No. 091.5016.0501 Revision C08



KEY PLAN (NTS)

SHEET 1

SHEET 2

SHEET 3

SHEET 4

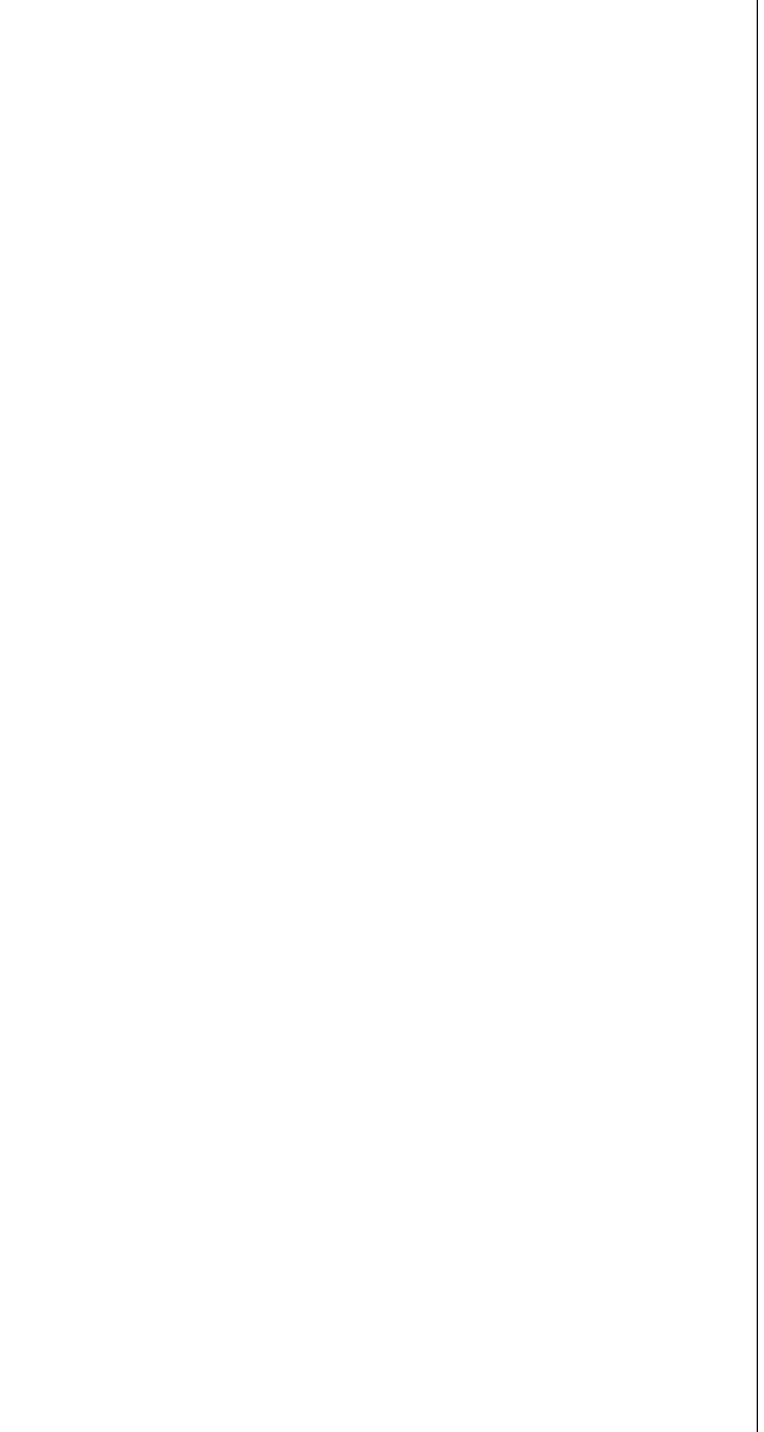
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CDM Regulations 2015 - Reg. 9			
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In preparing the design shown on this and related drawings Paul Basham Associates has considered and, where reasonably practicable, eliminated foreseeable risks. Any further abnormal or unusual risks, which remain, are numbered below and identified thus (A) and should be given particular attention by all those carrying out construction or of future maintenance works.			
1.	Existing services present		
2.			
3.			

GENERAL NOTES

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 - ALL LEVELS ARE TO ORDNANCE DATUM.
 - ALL DRAINAGE TO BE IN ACCORDANCE WITH BUILDING REGULATIONS PART H. SEWERS NOTED AS ADOPTABLE SHALL BE TO SEWERS FOR ADOPTION 7th EDITION.
 - THE LOCATION OF EXISTING UNDERGROUND UTILITY SERVICES IS AS PROVIDED BY THE RELEVANT STATUTORY UNDERTAKERS. THE CONTRACTOR IS TO ASCERTAIN THE EXACT LOCATION PRIOR TO COMMENCEMENT OF WORKS.
 - UNLESS NOTED OTHERWISE ALL DRAINAGE PIPES ARE TO BE 100mm DIA. AND ALL GULLY LEADS ARE TO BE 150mm DIA. MINIMUM ADOPTABLE SEWER 100mm DIA.
 - MAXIMUM OUTFLOW RATE FOR FOUL PUMP STATION TO BE 4.0 l/s

LEGEND:	
	ADOPTABLE/PRIVATE FOUL WATER SEWER, Ø AS NOTED
	PRIVATE FOUL WATER DRAIN, 100mm Ø U.N.O
	PRIVATE/ADOPTABLE STORM WATER SEWER, Ø AS NOTED
	PRIVATE STORM WATER DOMESTIC DRAIN, 100mm Ø, U.N.O.
	FOUL RISING MAIN
	FOUL WATER MANHOLE (CL/UL/SL TYPE AS SHOWN)
	SURFACE WATER MANHOLE (CL/UL/SL TYPE AS SHOWN)
	FOUL WATER CATCHPIT/INSPECTION CHAMBER
	SURFACE WATER INSPECTION CHAMBER/CATCHPIT
	SURFACE WATER ROOSTING EYE
	FOUL GULLY
	ROAD GULLY
	FINISHED FLOOR LEVELS
	DOWNSTREAM DEFENDER
	VORTEX PLUS
	INFILTRATION CRATES (SEE 091.5016.551 FOR FULL DETAILS)
	GRAVEL INFILTRATION TRENCH (SEE 091.5016.551 FOR FULL DETAILS)
	PERMEABLE PAVING
	SITE BOUNDARY
	EXISTING FOUL WATER SEWER
	TREE ROOT PROTECTION AREAS
	TREE ROOT PROTECTION AREAS CALCULATED AND SPECIFIED IN ACCORDANCE WITH BS 5837:2012 - 'TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION - RECOMMENDATIONS'



C05	LEGEND REVERTED TO REV. C02	16.02.2024	RL	RW
C04	COVER LEVELS UPDATED TO SUIT V.E. / PART M REVISIONS	08.08.2023	RL	RW
C03	SITE LAYOUT UPDATED	21.04.2023	RL	RW
C02	ROAD 2/3 SOAKAWAY INFORMATION ADDED	02.02.2023	RL	RW
C01	ISSUED FOR CONSTRUCTION	20.01.2023	RL	RW
Rev	Description	Date	By	Chkd

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Client

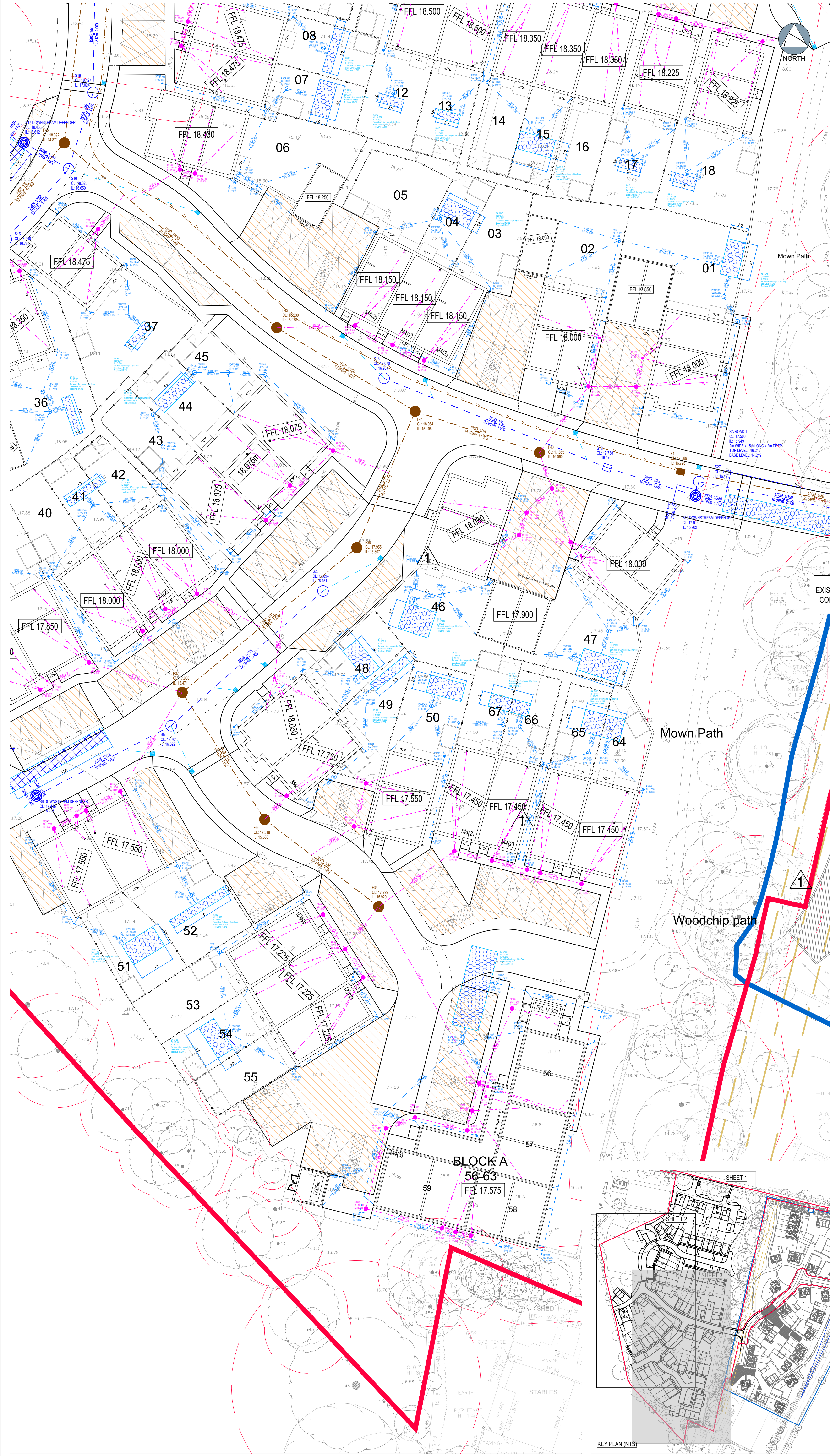
Project Name
LAND AT BAYARDS, EASTERGATE

Project Phase
CONSTRUCTION

Checked By	Checked Date	Drawn By	Drawn Date
RW	21.03.2022	CP	21.03.2022

Client Drawing No. - Scale: 1:250 (AT A1 SIZE)

PBA Drawing No.	Revision
091.5016.0502	C05



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2.			
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- LEGEND:**
- ADOPTABLE/PRIVATE FOUL WATER SEWER, Ø AS NOTED
 - PRIVATE FOUL WATER DRAIN, 100mm Ø U.N.O
 - PRIVATE/ADOPTABLE STORM WATER SEWER, Ø AS NOTED
 - PRIVATE STORM WATER DOMESTIC DRAIN, 100mm Ø, U.N.O.
 - FOUL RISING MAIN
 - FOUL WATER MANHOLE (CL/ULS/TYPE AS SHOWN)
 - SURFACE WATER MANHOLE (CL/ULS/TYPE AS SHOWN)
 - FOUL WATER CATCHPIT/INSPECTION CHAMBER
 - SURFACE WATER INSPECTION CHAMBER/CATCHPIT
 - SURFACE WATER ROOING EYE
 - FOUL GULLY
 - ROAD GULLY
 - FINISHED FLOOR LEVELS
 - DOWNSIDE DEFENDER
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FOR CONSTRUCTION

C06	LEGEND REVERTED TO REV. C03	16.02.2024	RL	RW
C05	COVER LEVELS UPDATED TO SUIT V.E. / PART M REVISIONS	08.08.2023	RL	RW
C04	SITE LAYOUT UPDATED	21.04.2023	RL	RW
C03	FW Mths F1, F2 & F33 AMENDED	08.02.2023	RL	RW
C02	ROAD 1 SOAKAWAY INFORMATION ADDED	02.02.2023	RL	RW
C01	ISSUED FOR CONSTRUCTION	20.01.2023	RL	RW
Rev	Description	Date	By	Chkd



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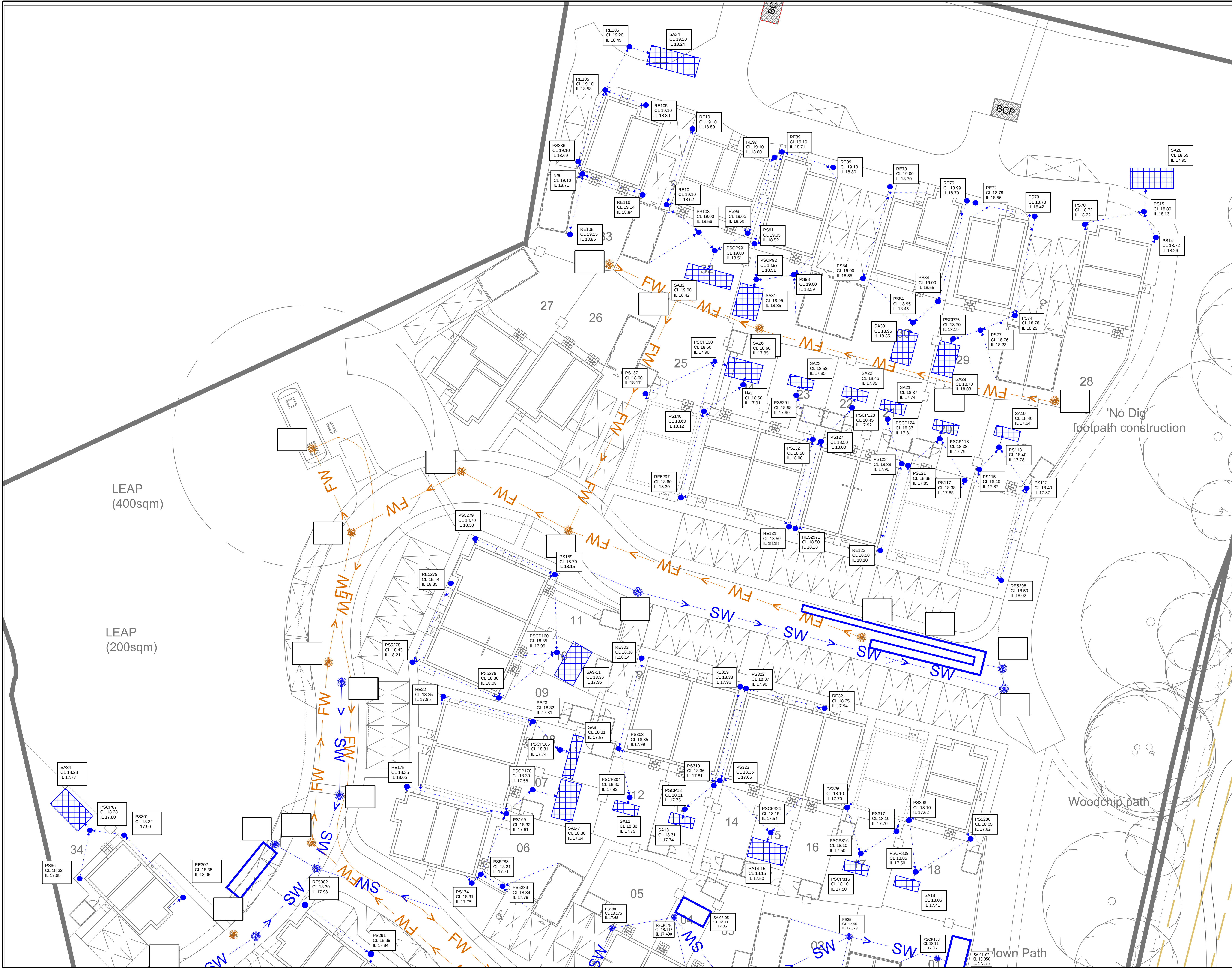
Project Name
LAND AT BAYARDS, EASTERGATE

Draw
ENGINEERING LAYOUT DRAINAGE SHEET 3

Project Phase
CONSTRUCTION

Checked By	Checked Date	Drawn By	Drawn Date
RW	21.03.2022	CP	21.03.2022
Client Drawing No.	-	Scale	(AT A1 SIZE)
		1:250	
PBA Drawing No.	091.5016.0503	Revision	C06

Appendix C As Built Survey



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Notes

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- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS SHOWN OTHERWISE.

— SW — SURFACE WATER

— FW — FOUL WATER

MANHOLE/INSPECTION CHAMBER/RODDING EYE

FOUL WATER MANHOLE

101	FOR INFORMATION	22/08	RU	RU
Rev	Description	Date	By	App
			CHK	

FOR INFORMATION

BAYARDS LANE
EASTERGATE

HI-ACRE CONSTRUCTION

AS BUILT DRAINAGE
LAYOUT PLAN
SHEET 1 OF 2

Project No:	Scale (BA1):	BT	Date:
EASTERGATE	1:200	-----	AUG 23
Drawing No:			Rev:
EASTERGATE-HA-XX-DR-C-00001			101

Appendix D Materials

Appendix E CCTV Survey of Pipelines and CCTV Video Files