



Kenyon Lane, Moston

DRAINAGE VERIFICATION REPORT



Kenyon Lane, Moston

Drainage Verification Report

KLM-AJP-VV-XX-RP-C-3020

AJP Ref: 222-100

PREPARED BY JACK ROONEY



Record of Approval	Originator:	Approved:	Date:
	J.Rooney Graduate Civil Engineer	K.O'Brien Director	21/01/2026
Version	Author:	Change Description:	
P01	J.Rooney	Original Issue	21/01/2026



Alan Johnston Partnership Ltd.

Company No. 13204766

Kenyon Lane, Moston

Drainage Verification Report

1.0 INTRODUCTION

This drainage verification report has been prepared on behalf of Jigsaw Construction in connection with the discharge of a planning condition associated with the construction of 10 properties as well as green space and an access road along Kenyon Lane as part of a larger residential development throughout Moston.

The purpose of this report is to discharge planning condition 14, the planning condition states the following:

"The development hereby approved shall not be occupied until details of the implementation, maintenance and management of a sustainable drainage scheme have been submitted to and approved by the Local Planning Authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details. Those details shall include:

- A verification report providing photographic evidence of construction as per design drawings;*
- As built construction drawings if different from design construction drawings;*
- Management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime."*

The report below demonstrates that the sustainable drainage system has been constructed in accordance with the agreed design, the surface water design has been designed to withstand storm up events up to and including 100 year rainfall events, including an additional 45% climate change allowance, and 10% urban creep where appropriate.

The sewers in question are to be privately maintained and agreed with United Utilities under a S106 agreement



2.0 Drainage Summary

AJP have been provided a selection photographs by the contractor on the project and a summary of the photographs is listed below:

- 7x Internal manhole pictures
- 2x Hydrobrake pictures
- 3x attenuation tank pictures

2.1 Details and Location of SuDS Elements

Below is a summary of the locations and details of the SuDS provided on this scheme.

Piped system

A piped system is in place throughout the scheme to convey flows from hardstanding areas into the existing combined water sewer. The system is to be privately maintained and as mentioned in the introduction to this report. Below is a list of the surface water manholes and their locations:

- S1 - Co-ordinates (387640.744, 401213.819) - 600mm Diameter
- S2 - Co-ordinates (387648.749, 401204.178) - 600mm Diameter
- S3 - Co-ordinates (387656.827, 401210.926) - 600mm Diameter
- S4 - Co-ordinates (387649.250, 401220.307) - 600mm Diameter
- S5 - Co-ordinates (387654.680, 401215.156) - 600mm Diameter
- S6 - Co-ordinates (387668.289, 401208.475) - 600mm Diameter
- S7 - Co-ordinates (387681.864, 401219.798) - 600mm Diameter
- S8 - Co-ordinates (387672.789, 401230.603) - 1200mm Diameter Catchpit
- S9 - Co-ordinates (387676.310, 401234.874) - 1500mm Diameter Flow Control
- S10 - Co-ordinates (387697.299, 401217.707) - 1200mm Diameter
- S11 - Co-ordinates (387687.603, 401226.821) - 1200mm Diameter Catchpit
- S12 - Co-ordinates (387688.963, 401227.959) - 1200mm Diameter
- S13 - Co-ordinates (387681.081, 401237.441) - 1200mm Diameter
- S14 - Co-ordinates (387688.598, 401243.748) - 1200mm Diameter
- S15 - Co-ordinates (387693.714, 401240.821) - 600mm Diameter
- S16 - Co-ordinates (387707.873, 401223.767) - 600mm Diameter

Hydrobrake

The Hydro-Brake is provided to ensure that the surface water discharge from the site is restricted to the agreed maximum discharge rate, as set out in planning.

The Hydro-Brake is located within MHS9

Details for the Hydro-brake are as follows:

- Co-ordinates - x: 387676.310 y: 401234.874
- Manufacturer - Hydro-international
- Manufacturer Reference - MD-SHE-0100-5000-1350-5000
- Design Flow - 5.0l/s
- Design Head - 1.350m

The hydrobrake will be maintained under a S106 agreement with United Utilities.

Offline cellular attenuation

To ensure that storm events in excess of the United Utilities requirement to manage offline cellular attenuation is provided to manage storm events up to and including 100 year storm events plus a climate change allowance of 45% and also for urban creep in accordance with design guidance at the time of design.

Details for the attenuation tank are as follows:

- Location (centre) - (387686.651, 401220.773)
- Manufacturer - Polystorm-R Modular Cells
- Size of attenuation - 6m x 9.5m x 0.8.
- Invert level - 72.000m

The hydrobrake will be maintained by the management company

Permeable Paving

The driveways within the site are constructed with permeable paving, which provides surface water treatment. The permeable paving will also provide water quality and remove hydrocarbons prior to being discharged to the adopted surface water drainage.

Operation and Maintenance

The sewers are to be maintained and as previously agreed with UU under a S106 agreement.

Details of the management company to operate and maintain the private drainage elements are:

- Name - Jigsaw Homes
- Address - 56 King Street, Leigh, WN7 4LJ
- Telephone - 0300 111 1133

Jigsaw homes will be responsible for maintaining all the drainage works and all associated elements, including:

- Porous Paving
- ACO Drains
- Attenuation Tank
- Road Gullies etc.

The maintenance regime should, where applicable, follow the guidance of C753, The SuDS Manual.

This information is detailed in the AJP report, reference KEN-AJP-ZZ-XX-RP-C-3050-P01.

Appendix A - Site Photographs



Installation of impermeable wrapping



Installation of cellular attenuation



Internal Manhole Benching



Internal Manhole Benching



PCC Manhole Ring and Step Irons



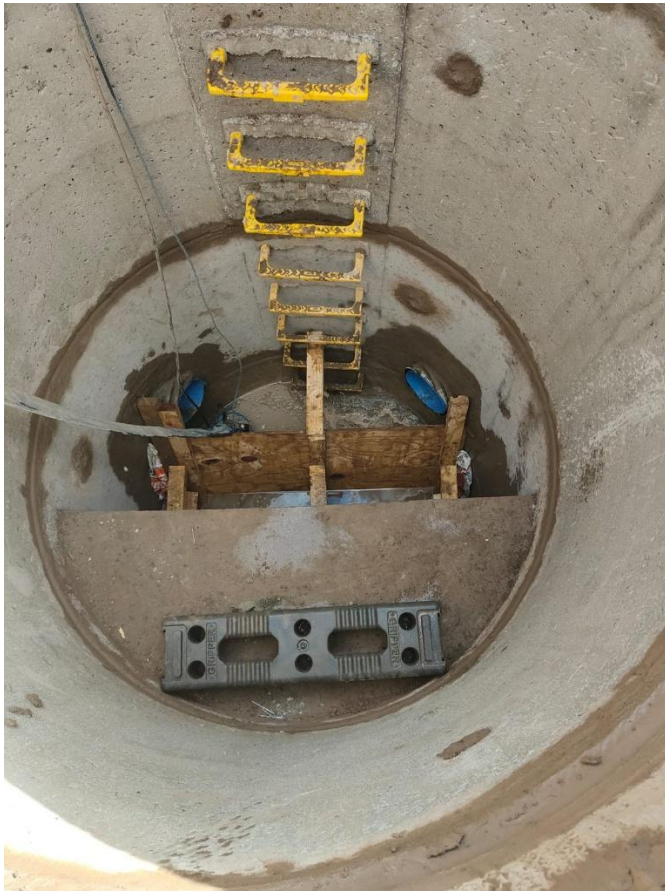
Internal Manhole Benching



Flow Control Manhole

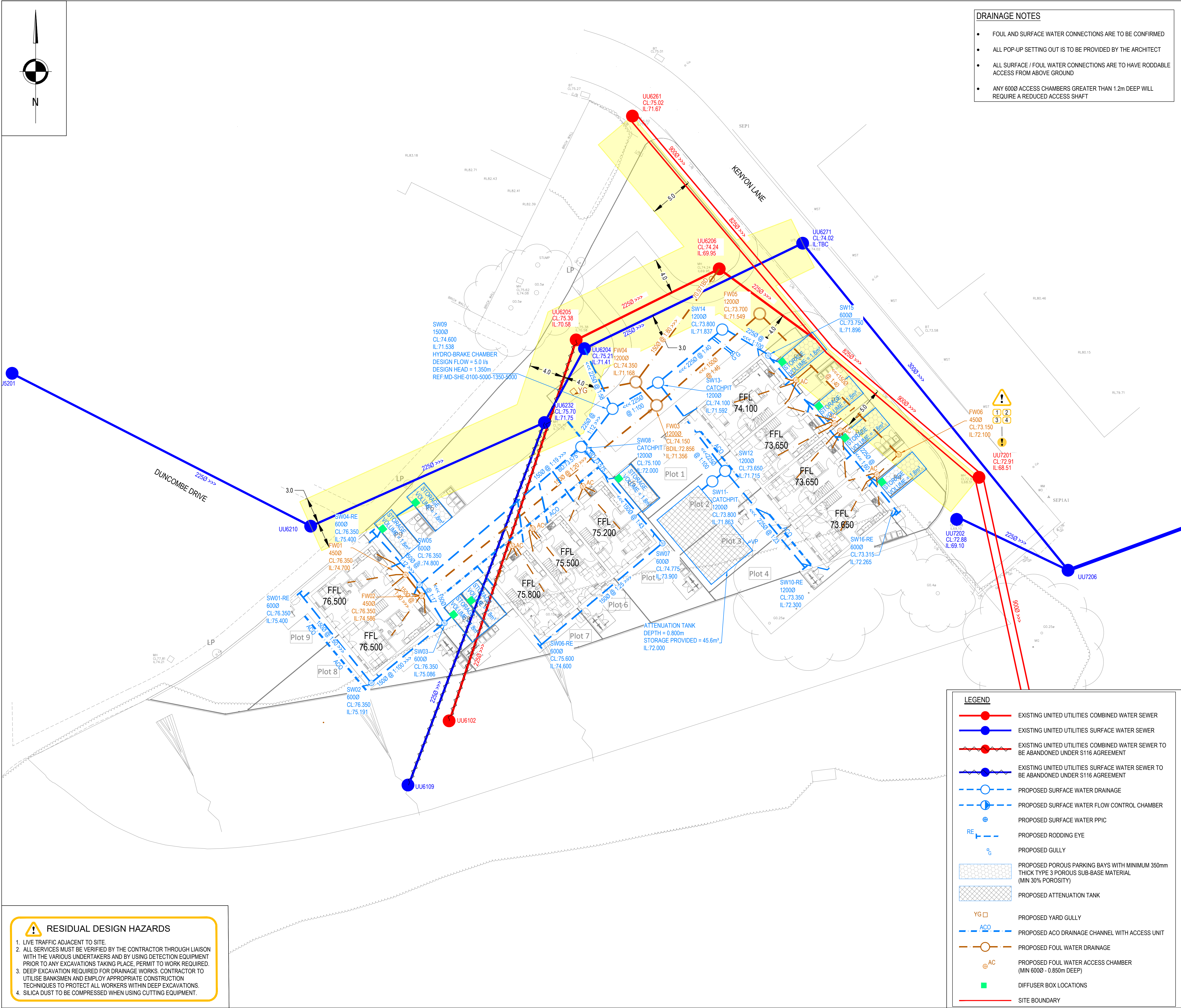
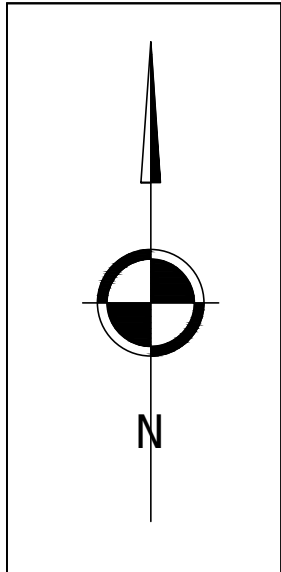


Flow Control Manhole



Flow Control Manhole

Appendix B - Drainage Drawings



- DRAINAGE NOTES**
- FOUL AND SURFACE WATER CONNECTIONS ARE TO BE CONFIRMED
 - ALL POP-UP SETTING OUT IS TO BE PROVIDED BY THE ARCHITECT
 - ALL SURFACE / FOUL WATER CONNECTIONS ARE TO HAVE RODDABLE ACCESS FROM ABOVE GROUND
 - ANY 6000 ACCESS CHAMBERS GREATER THAN 1.2m DEEP WILL REQUIRE A REDUCED ACCESS SHAFT

- GENERAL NOTES**
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 - DO NOT SCALE FROM THIS DRAWING.
 - THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION OF ALL UNDERGROUND SERVICES THAT MAY EXIST AND TO DIVERT THEM IF NECESSARY PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - MATERIALS OR WORKMANSHIP NOT COMPLYING WITH THE ENGINEERS DRAWINGS AND SPECIFICATION SHALL BE DEEMED UNACCEPTABLE AND REMOVED FROM SITE AND REPLACED WITH WORK CORRECTLY MANUFACTURED, DELIVERED AND ERECTED.
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 - ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR YORKSHIRE WATER AS APPLICABLE.
 - ALL MATERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS 3 CONDITION).
 - WHERE "ULTRA RIB" UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION. A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES.
 - TRENCH BACKFILL IN HIGHWAYS / CAR PARKS TO WITHIN 1M OF HIGHWAY SHALL BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 3.3.4. BACKFILL MATERIAL IN OTHER AREAS SHALL BE SELECTED EXCAVATED MATERIAL FREE FROM STONES LARGER THAN 40mm, LUMPS OF CLAY OVER 100mm, TIMBER, FROZEN MATERIAL OR VEGETABLE MATTER.
 - UPVC PIPES AND FITTINGS SHALL COMPLY WITH WIS 4-35-01. CLAY PIPES AND FITTINGS SHALL BE EXTRA STRENGTH TO BSEN 295 AND BS 65. CONCRETE PIPES AND FITTINGS SHALL COMPLY WITH BS 5911, PIPES SHALL BE CLASS H.
 - A CLASS S BED MUST BE PROVIDED TO UPVC PIPES, A CLASS B BED MAY BE USED FOR V.C. AND CONCRETE PIPES.
 - BACKFILL TO DRAINAGE TRENCHES ABOVE PIPE BEDDING AND SURROUND WITHIN ROAD AND CAR PARK AREAS TO BE GRANULAR FILL COMPLYING WITH CLASS 6F2 OR DOT TYPE 1 OR QUARRY SCALPING GRADED FROM 75mm DOWN.
 - A CONCRETE SURROUND IS NOT NORMALLY REQUIRED TO MANHOLES UNLESS INSTALLED IN AREAS OF UNSTABLE GROUND. UNDER CONDITIONS OF FLOATATION OR WHERE SUBJECTED TO EXCEPTIONAL OR ECCENTRIC LOADS, IN WHICH CASE A 150mm SURROUND OF AT LEAST 20N/mm2 CONCRETE SHOULD BE PROVIDED. ANY JOINTS SHOULD BE STAGGERED WITH THE PRECAST CONCRETE JOINTS.
 - DOUBLE STEPS SHALL BE PLASTIC ENCAPSULATED CARBON TO BS EN 1247-2 MANHOLE STEPS. STEP IRONS AT 300ctrs. HORIZONTALLY & VERTICALLY MAY BE USED AS AN ALTERNATIVE TO DOUBLE STEPS.
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 - FOUNDATIONS WITHIN CLOSE PROXIMITY TO PROPOSED DRAINAGE WILL NEED TO BE AT THE SAME DEPTH AS DRAINAGE TO AVOID THE POTENTIAL FOR UNDERMINING.

P14	27.02.2025	DIFFUSER BOX LOCATIONS ADDED	JPR	JPR	KOB
P13	04.02.2025	DOUBLE GULLIES ADDED AT ROAD LOW POINT	JPR	JPR	KOB
P12	24.01.2025	PLOT 2 FFL AMENDED	JPR	JPR	KOB
P11	10.01.2025	AMENDED TO SUIT JOHN SOUTHWORTH COMMENTS	JPR	JPR	KOB
P10	08.01.2025	AMENDED TO SUIT JOHN SOUTHWORTH COMMENTS	JPR	JPR	KOB
P09	13.12.2024	AMENDED TO SUIT JOHN SOUTHWORTH COMMENTS	JPR	JPR	KOB
P08	27.11.2024	SW08 INVERT LEVEL AMENDED TO SUIT HYDRAULIC CALCULATIONS	JPR	KOB	KOB
P07	26.11.2024	DRAINAGE UPDATED TO SUIT LATEST FINISHED LEVELS PLAN	JPR	KOB	KOB
P06	26.11.2024	DRAINAGE AMENDED TO AROUND PLOTS 8-9	JPR	KOB	KOB
P05	25.11.2024	AMENDED TO SUIT LATEST SITE LEVELS MARK UP SKETCH	JPR	KOB	KOB
P04	22.11.2024	AMENDED TO SUIT LATEST SITE LEVELS	JPR	LS	KOB
P03	30.10.2024	AMENDED TO SUIT LATEST ARCHITECTS PLAN	JPR	KOB	KOB
P02	24.10.2024	UPDATED TO SUIT NEW DRAINAGE OUTFALL	JPR	KOB	KOB
P01	31.10.2023	PRELIMINARY ISSUE	JP	KOB	KOB
REV	DATE	DESCRIPTION	BY	CHK	APP

DRAWING STATUS:

PRELIMINARY

CLIENT:

JIGSAW

ARCHITECT:

BTP ARCHITECTS

PROJECT:

P500 MOSTON
KENYON LANE

TITLE:

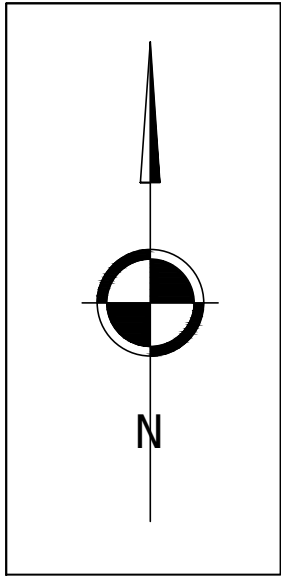
DRAINAGE LAYOUT

STATUS:	PROJECT No:	PROJECT	ORIGINATOR	VOL/SYS/LEVEL	TYPE	ROLE	DRAWING No	REV:
S2	222-100	KLM - AJP - ZZ - 00 - DR - C - 0900					P14	

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:200	JP	JP	KOB	KOB	OCT 23

0151 227 1462 info@ajptd.co.uk 01 Dale Street, Liverpool, L2 2ET

- RESIDUAL DESIGN HAZARDS**
- LIVE TRAFFIC ADJACENT TO SITE.
 - ALL SERVICES MUST BE VERIFIED BY THE CONTRACTOR THROUGH LIAISON WITH THE VARIOUS UNDERTAKERS AND BY USING DETECTION EQUIPMENT PRIOR TO ANY EXCAVATIONS TAKING PLACE. PERMIT TO WORK REQUIRED.
 - DEEP EXCAVATION REQUIRED FOR DRAINAGE WORKS. CONTRACTOR TO UTILISE BANKSMEN AND EMPLOY APPROPRIATE CONSTRUCTION TECHNIQUES TO PROTECT ALL WORKERS WITHIN DEEP EXCAVATIONS.
 - SILICA DUST TO BE COMPRESSED WHEN USING CUTTING EQUIPMENT.



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C01	21.01.2026	CONSTRUCTION ISSUE		JPR	KOB	KOB
REV	DATE	DESCRIPTION		BY	CHK	APP

DRAWING STATUS:

CONSTRUCTION

CLIENT:

JIGSAW

ARCHITECT:

BTP ARCHITECTS

PROJECT:

P500 MOSTON
KENYON LANE

TITLE:

DRAINAGE LAYOUT
SuDs FEATURES AND CO-ORDINATES

STATUS:	PROJECT No.	PROJECT	ORIGINATOR	VOLUYS/LEVEL	TYPE	ROLE	DRAWING No.	REV:
S2	222-100	KLM - AJP - ZZ - 00 - DR - C - 0910	C01					

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:200	JP	JP	KOB	KOB	OCT 23

0151 227 1462 info@ajp ltd.co.uk 01 Dale Street, Liverpool, L2 2ET

SURFACE WATER MANHOLE SCHEDULE

Manhole Number	Cover Level	Connections	Pipe			Manhole Size	Types		
			Code	Inverts	Dimensions (mm)		Manhole	Cover	
SW1	76.350		0	1.000	75.400	150	600	PPIC	600x600
E. 387640.742	0.800								
N. 401213.822									
SW2	76.350		1	1.000	75.191	150	600	PPIC	600x600
E. 387648.747	1.019								
N. 401204.180									
SW3	76.350		1	1.001	75.086	150	600	PPIC	600x600
E. 387656.824	1.114								
N. 401210.929									
SW4	76.350		0	2.000	75.400	150	600	PPIC	600x600
E. 387649.247	0.800								
N. 401220.310									
SW5	76.350		1 2	1.002 2.000	74.800 74.800	150 150	600	PPIC	600x600
E. 387654.677	1.400								
N. 401215.158									
SW6	75.600		0	3.001	74.800	150	600	PPIC	600x600
E. 387668.286	0.850								
N. 401228.478									
SW7	74.775		0	3.001	73.900	150	600	PPIC	600x600
E. 387681.861	0.725								
N. 401219.800									
SW8	75.100		1 2	1.003 3.001	73.5794 73.5794	150 150	1200	B	600x600
E. 387672.786	2.960								
N. 401230.606									
SW9	74.600		1 2	1.004 4.002	71.538 71.538	225 225	1500	B	600x600
E. 387676.307	2.837								
N. 401234.876									
SW10	73.350		0	4.000	72.300	225	1200	C	600x600
E. 387697.296	0.825								
N. 401217.710									
SW11	73.800		1	5.000	71.863	225	1200	B	600x600
E. 387687.600	2.012								
N. 401226.824									
SW12	73.650		1 2	4.000 5.001	71.715 71.715	225 225	1200	B	600x600
E. 387688.960	1.710								
N. 401227.962									
SW13	74.100		1 2	4.001 6.002	71.592 71.592	225 225	1200	B	600x600
E. 387681.078	2.583								
N. 401237.444									
SW14	73.800		1	6.001	71.837	225	600	PPIC	600x600
E. 387688.995	1.738								
N. 401243.751									
SW15	73.750		1	6.000	71.896	225	600	PPIC	600x600
E. 387693.711	1.629								
N. 401240.824									
SW16	73.315		0	6.000	72.265	225	600	PPIC	600x600
E. 387707.870	0.825								
N. 401223.770									

FOUL WATER MANHOLE SCHEDULE

Manhole Number	Cover Level	Connections	Pipe			Manhole Size	Types		
			Code	Inverts	Dimensions (mm)		Manhole	Cover	
FW1	76.150		0	1.000	74.700	150	450	PPIC	600x600
E. 387652.083	1.300								
N. 401216.765									
FW2	76.350		1	1.000	74.586	150	450	PPIC	600x600
E. 387655.037	1.614								
N. 401213.280									
FW3	74.010		1 2	1.001 2.001	72.856 71.211	150 150	1200	B	600x600
E. 387681.201	2.649								
N. 401235.228									
FW4	74.190		1	1.002	71.168	150	1200	B	600x600
E. 387678.911	2.872								
N. 401237.845									
FW5	76.350		0	2.000	72.100	150	1200	C	600x600
E. 387692.774	0.900								
N. 401245.494									
FW6	73.725		1	2.000	71.549	150	450	PPIC	600x600
E. 387708.303	2.026								
N. 401229.760									

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- A CONCRETE SURROUND IS NOT NORMALLY REQUIRED TO MANHOLES UNLESS INSTALLED IN AREAS OF UNSTABLE GROUND. UNDER CONDITIONS OF FLOATATION OR WHERE SUBJECTED TO EXCEPTIONAL OR ECCENTRIC LOADS, IN WHICH CASE A 150mm SURROUND OF AT LEAST 20N/mm2 CONCRETE SHOULD BE PROVIDED. ANY JOINTS SHOULD BE STAGGERED WITH THE PRECAST CONCRETE JOINTS.
- DOUBLE STEPS SHALL BE PLASTIC ENCAPSULATED CARBON TO BS EN 1247-2 MANHOLE STEPS. STEP IRONS AT 300ctrs. HORIZONTALLY & VERTICALLY MAY BE USED AS AN ALTERNATIVE TO DOUBLE STEPS.
- ALL WORK TO BE IN ACCORDANCE WITH "DESIGN AND CONSTRUCTION GUIDANCE" AND UNITED UTILITIES STANDARD CONSTRUCTION DETAILS.
- TOP OF FOUNDATIONS ARE TO BE A MIN 450mm FROM FINISHED EXTERNAL LEVELS.
- FOUNDATIONS WITHIN CLOSE PROXIMITY TO PROPOSED DRAINAGE WILL NEED TO BE AT THE SAME DEPTH AS DRAINAGE TO AVOID THE POTENTIAL FOR UNDERMINING.

P03	04.02.2025	FW05 AND FW06 CO-ORDINATES UPDATED	JPR	JPR	KOB
P02	10.01.2025	AMENDED TO SUIT JOHN SOUTHWORTH COMMENTS	JPR	JPR	KOB
P01	08.01.2024	PRELIMINARY ISSUE	JPR	KOB	KOB
REV	DATE	DESCRIPTION	BY	CHK	APP

DRAWING STATUS:

PRELIMINARY

CLIENT:

JIGSAW

ARCHITECT:

BTP ARCHITECTS

PROJECT:

P500 MOSTON
KENYON LANE

TITLE:

MANHOLE SCHEDULES

STATUS:

S2

PROJECT No:

222-100

PROJECT

ORIGINATOR

VOLU/SYS/LEVEL

TYPE

ROLE

DRAWING No:

REV:

P03

SCALE @ A1:

NTS

DESIGNED:

JPR

DRAWN:

JPR

CHECKED:

KOB

APPROVED:

KOB

DATE:

JAN 25

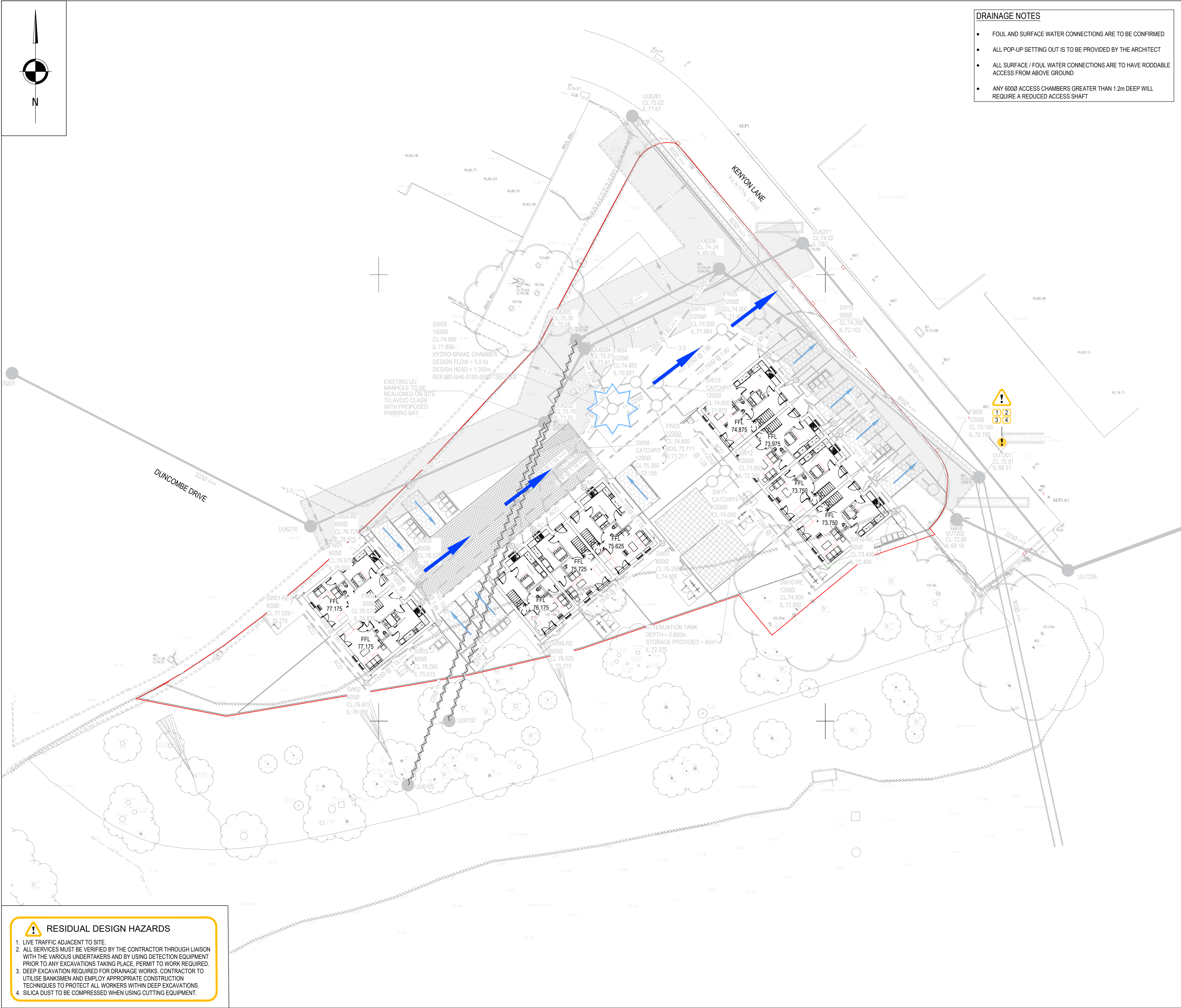
AJP

consulting engineers

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- DRAINAGE NOTES**
- FOUL AND SURFACE WATER CONNECTIONS ARE TO BE CONFIRMED
 - ALL POP-UP SETTING OUT IS TO BE PROVIDED BY THE ARCHITECT
 - ALL SURFACE / FOUL WATER CONNECTIONS ARE TO HAVE RODDABLE ACCESS FROM ABOVE GROUND
 - ANY 6000 ACCESS CHAMBERS GREATER THAN 1.2m DEEP WILL REQUIRE A REDUCED ACCESS SHAFT

- GENERAL NOTES**
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
 - ALL RELEVANT DIMENSIONS TO BE OBTAINED/CHECKED AGAINST ARCHITECT'S DRAWINGS AND BY SITE MEASUREMENT PRIOR TO THE COMMENCEMENT OF WORKS OR ORDERING OF MATERIALS. DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS TO BE NOTIFIED TO THE ENGINEER.
 - DO NOT SCALE FROM THIS DRAWING.
 - THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION OF ALL UNDERGROUND SERVICES THAT MAY EXIST AND TO DIVERT THEM IF NECESSARY PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - MATERIALS OR WORKMANSHIP NOT COMPLYING WITH THE ENGINEERS DRAWINGS AND SPECIFICATION SHALL BE DEEMED UNACCEPTABLE AND REMOVED FROM SITE AND REPLACED WITH WORK CORRECTLY MANUFACTURED, DELIVERED AND ERECTED.
 - ALL EXISTING INVERT LEVELS TO BE CHECKED BY THE CONTRACTOR AT THE START OF WORKS AND ANY OTHER DISCREPANCIES NOTIFIED TO THE ENGINEER. ALL LEVELS ARE BASED ON TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY OTHERS.
 - ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR YORKSHIRE WATER AS APPLICABLE.
 - ALL MATERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS 3 CONDITION).
 - WHERE 'ULTRA RIB' UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION. A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES.
 - TRENCH BACKFILL IN HIGHWAYS / CAR PARKS TO WITHIN 1M OF HIGHWAY SHALL BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 3.3.4. BACKFILL MATERIAL IN OTHER AREAS SHALL BE SELECTED EXCAVATED MATERIAL FREE FROM STONES LARGER THAN 40mm, LUMPS OF CLAY OVER 100mm, TIMBER, FROZEN MATERIAL OR VEGETABLE MATTER.
 - UPVC PIPES AND FITTINGS SHALL COMPLY WITH WIS 4-35-01. CLAY PIPES AND FITTINGS SHALL BE EXTRA STRENGTH TO BSEN 295 AND BS 65. CONCRETE PIPES AND FITTINGS SHALL COMPLY WITH BS 5911. PIPES SHALL BE CLASS H.
 - A CLASS S BED MUST BE PROVIDED TO UPVC PIPES, A CLASS B BED MAY BE USED FOR V.C. AND CONCRETE PIPES.
 - BACKFILL TO DRAINAGE TRENCHES ABOVE PIPE BEDDING AND SURROUND WITHIN ROAD AND CAR PARK AREAS TO BE GRANULAR FILL COMPLYING WITH CLASS 6F2 OR DOT TYPE 1 OR QUARRY SCALPING GRADED FROM 75mm DOWN.
 - A CONCRETE SURROUND IS NOT NORMALLY REQUIRED TO MANHOLES UNLESS INSTALLED IN AREAS OF UNSTABLE GROUND. UNDER CONDITIONS OF FLOATATION OR WHERE SUBJECTED TO EXCEPTIONAL OR ECCENTRIC LOADS, IN WHICH CASE A 150mm SURROUND OF AT LEAST 20N/mm2 CONCRETE SHOULD BE PROVIDED. ANY JOINTS SHOULD BE STAGGERED WITH THE PRECAST CONCRETE JOINTS.
 - DOUBLE STEPS SHALL BE PLASTIC ENCAPSULATED CARBON TO BS EN 1247-2 MANHOLE STEPS. STEP IRONS AT 300ctrs. HORIZONTALLY & VERTICALLY MAY BE USED AS AN ALTERNATIVE TO DOUBLE STEPS.
 - ALL WORK TO BE IN ACCORDANCE WITH 'DESIGN AND CONSTRUCTION GUIDANCE' AND UNITED UTILITIES STANDARD CONSTRUCTION DETAILS.
 - TOP OF FOUNDATIONS ARE TO BE A MIN 450mm FROM FINISHED EXTERNAL LEVELS.
 - FOUNDATIONS WITHIN CLOSE PROXIMITY TO PROPOSED DRAINAGE WILL NEED TO BE AT THE SAME DEPTH AS DRAINAGE TO AVOID THE POTENTIAL FOR UNDERMINING.

- PRIMARY ROUTE OF FLOOD WATERS IN EXCEEDENCE OF DESIGN EVENTS
- SECONDARY ROUTE OF FLOOD WATERS IN EXCEEDENCE OF DESIGN EVENTS FROM LOCALISED BLOCKAGES
- LOCATION OF MOST LIKELY FLOODING EVENT IN THE CASE OF STORM EVENTS BEYOND THE REQUIRED DESIGN PARAMETERS

P02	30.10.2024	AMENDED TO SUIT LATEST SITE PLAN	JPR	KOB	KOB
P01	24.10.2024	PRELIMINARY ISSUE	JPR	KOB	KOB
REV	DATE	DESCRIPTION	BY	CHK	APP

DRAWING STATUS:	PRELIMINARY
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CLIENT:	JIGSAW
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ARCHITECT:	BTP ARCHITECTS
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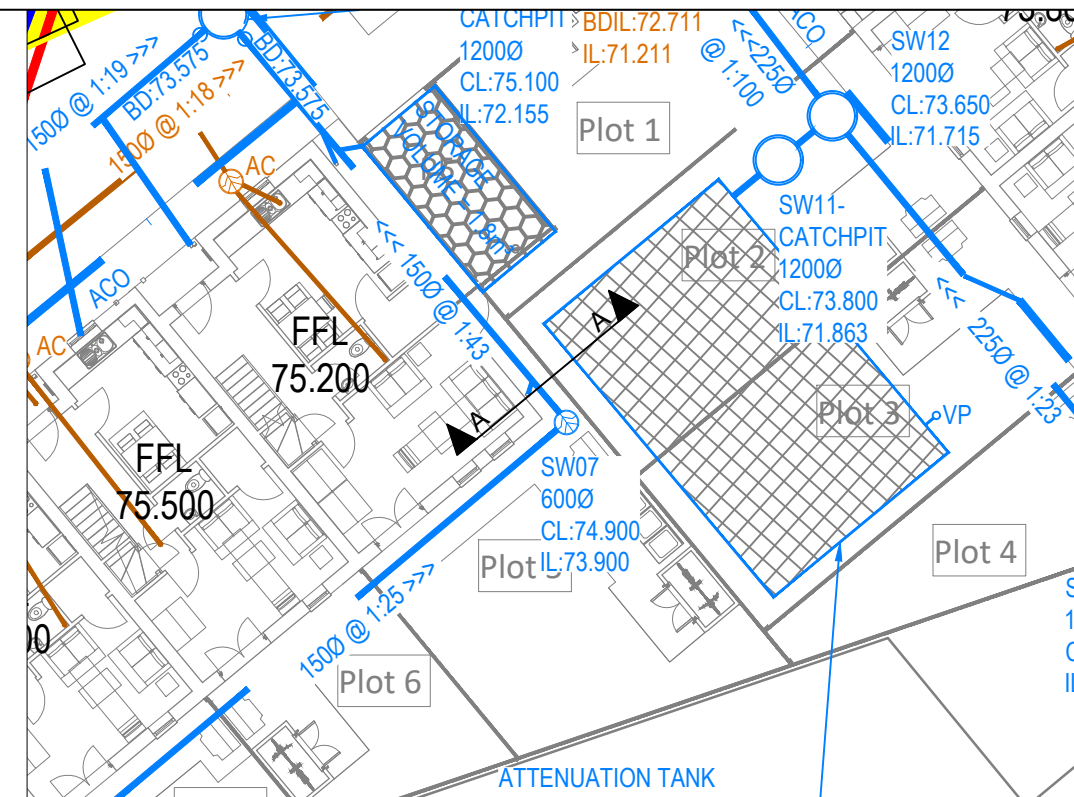
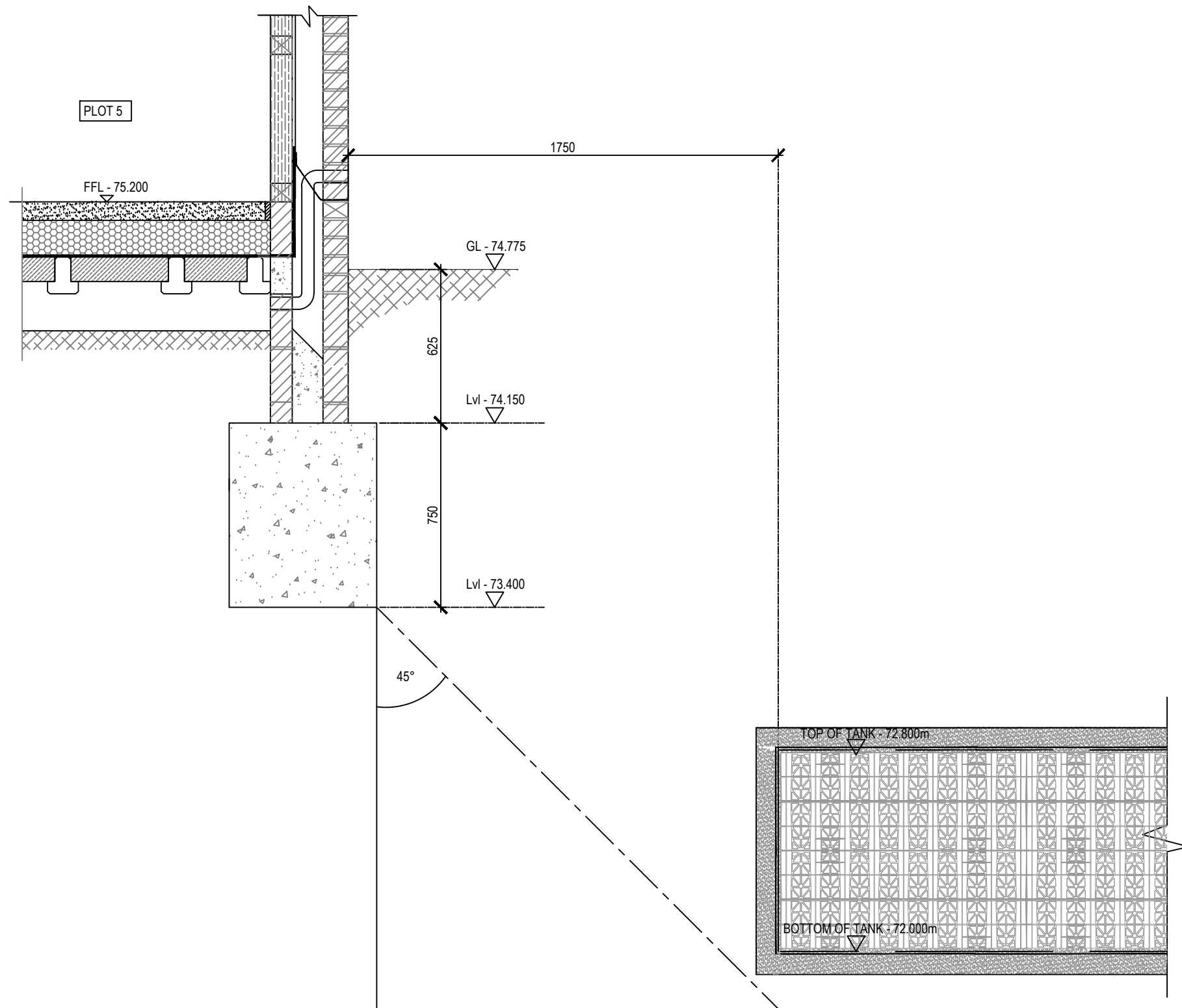
PROJECT:	P500 MOSTON KENYON LANE
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TITLE:	FLOOD ROUTING PLAN
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STATUS:	PROJECT No.	PROJECT	ORIGINATOR	VOLUYS/LEVEL	TYPE	ROLE	DRAWING No.	REV.
S2	222-100	KLM - AJP - ZZ - 00 - DR - C - 1020	P02					

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE
1: 250	JPR	JPR	KOB	KOB	OCT 24

- RESIDUAL DESIGN HAZARDS**
- LIVE TRAFFIC ADJACENT TO SITE.
 - ALL SERVICES MUST BE VERIFIED BY THE CONTRACTOR THROUGH LIAISON WITH THE VARIOUS UNDERTAKERS AND BY USING DETECTION EQUIPMENT PRIOR TO ANY EXCAVATIONS TAKING PLACE. PERMIT TO WORK REQUIRED.
 - DEEP EXCAVATION REQUIRED FOR DRAINAGE WORKS. CONTRACTOR TO UTILISE BANKSMEN AND EMPLOY APPROPRIATE CONSTRUCTION TECHNIQUES TO PROTECT ALL WORKERS WITHIN DEEP EXCAVATIONS.
 - SILICA DUST TO BE COMPRESSED WHEN USING CUTTING EQUIPMENT.



PLAN 1:200

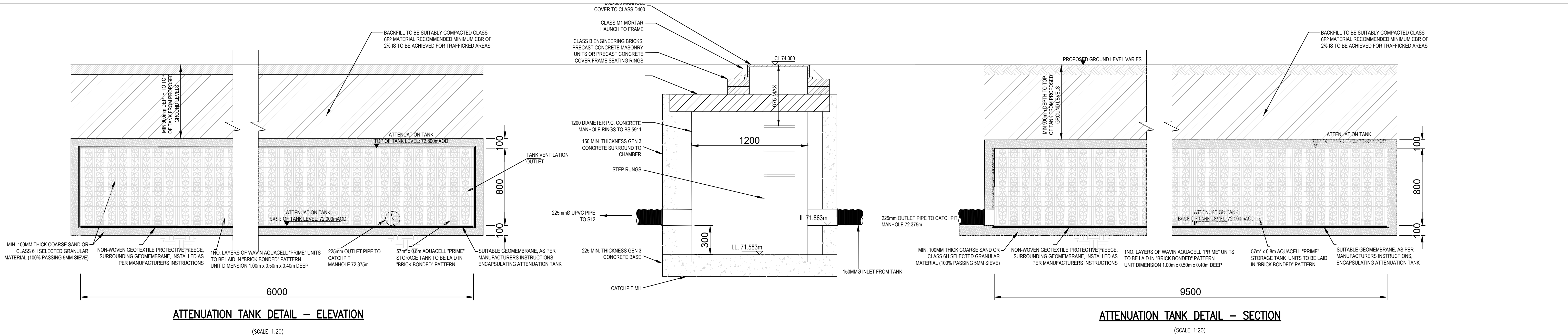
P02	26.11.2024	PLOT 5 UPDATED	JPR	KOB
P01	25.11.2024	PRELIMINARY ISSUE	JPR	KOB
REV	DATE	DESCRIPTION	BY	APP
PROJECT: KENYONS LANE				
TITLE: PLOT 5 - ATTENUATION TANK SECTION				
STATUS: S2	PROJECT No: 222-100	DRAWING No: KLM-AJP-XX-DR-C-1030	REV: P02	

SCALE @ A3: 1:20	DESIGNED: JPR-	DRAWN: JPR	CHECKED: KOB	APPROVED: KOB	DATE: NOV 2024
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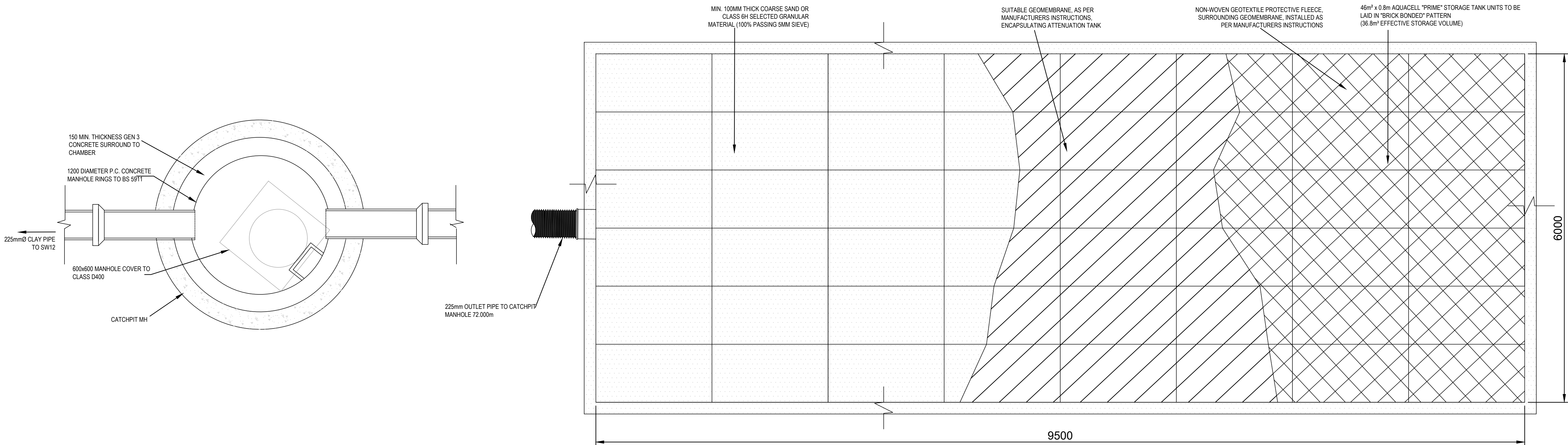


ATTENUATION TANK DETAIL – ELEVATION

(SCALE 1:20)

ATTENUATION TANK DETAIL – SECTION

(SCALE 1:20)



ATTENUATION TANK DETAIL – PLAN

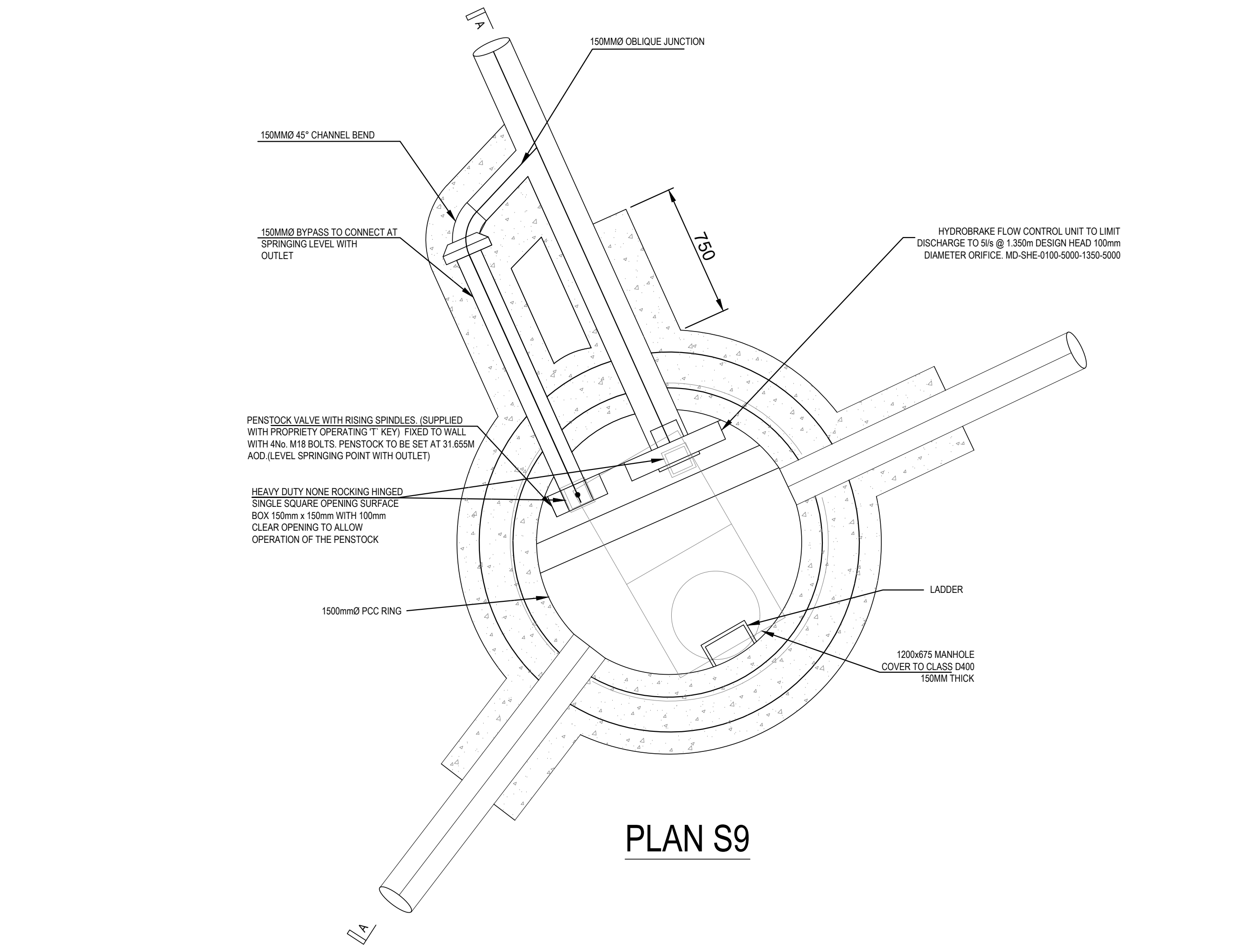
(SCALE NTS)

GENERAL NOTES

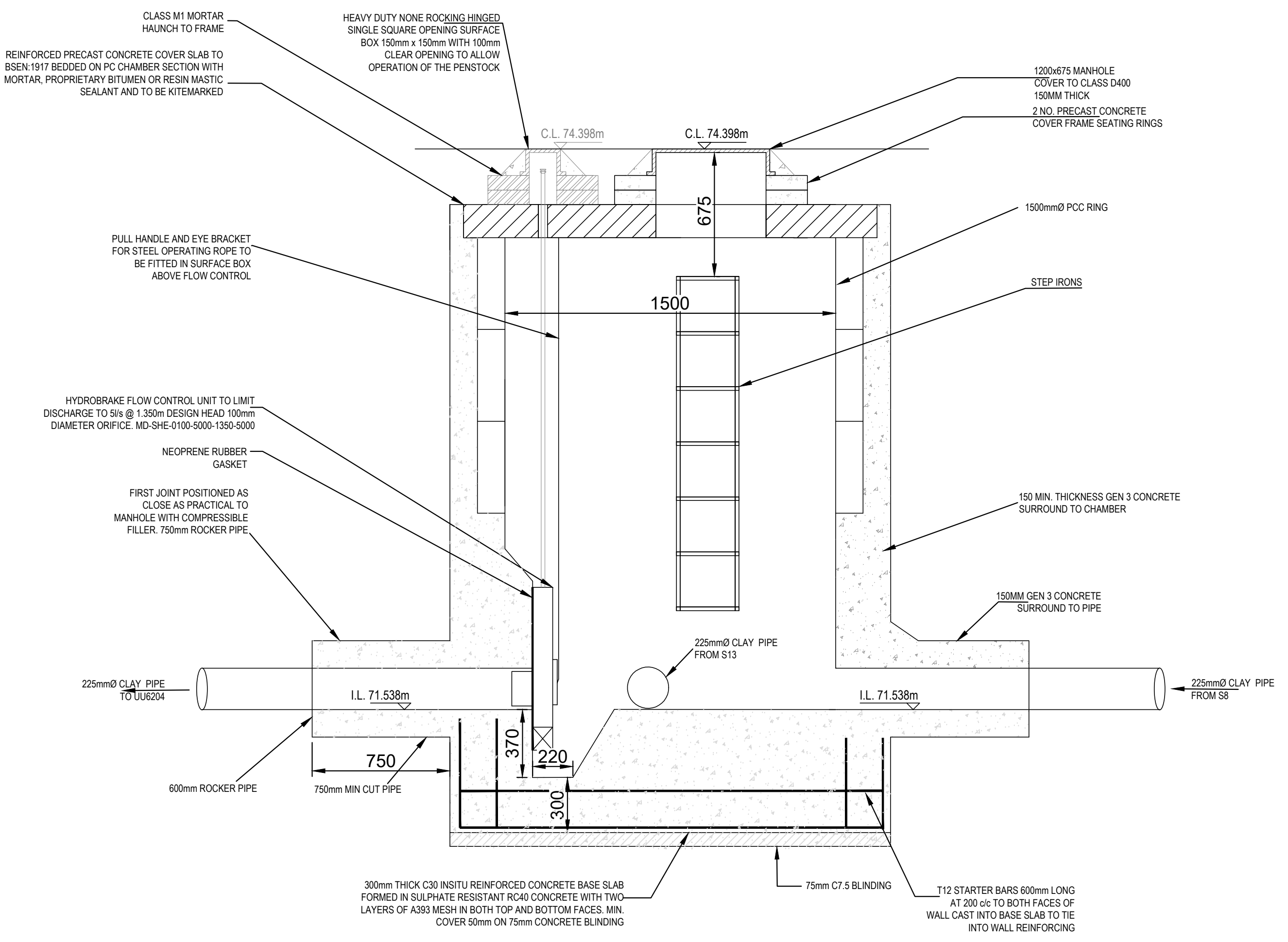
- SETTING OUT SHALL BE UNDERTAKEN USING ONLY THE INFORMATION GIVEN. DISTANCES SHOULD NOT BE SCALED FROM THIS DRAWING.
- ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION AND UNITED UTILITIES DETAILS AND STANDARDS
- THE MINIMUM GRAVITY PIPE DIAMETER UNDER ADOPTABLE HIGHWAYS SHALL BE 150mm
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION GIVEN WITH REGARDS TO EXISTING SERVICES AND DRAINAGE CONNECTIONS ETC. PRIOR TO COMMENCING THE WORKS. THE RATES SHALL INCLUDE FOR HAND DIG AROUND SERVICES WHERE NECESSARY. THE CONTRACTOR SHALL ADHERE TO THE CDM REGULATIONS AT ALL TIMES
- ONLY TRAINED PERSONNEL SHALL BE PERMITTED TO ENTER CONFINED SPACES
- ALL MATERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS
- ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR THE NETWORK OPERATOR AS APPLICABLE.
- A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES. TRENCH BACKFILL IN HIGHWAYS TO WITHIN 1M OF HIGHWAY SHALL, AS DIRECTED BY THE HIGHWAY AUTHORITY BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 4.3.4.
- ALL WORKS TO BE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
- EXCAVATION FOR INSTALLATION OF TANK SHALL BE ADEQUATELY SUPPORTED AT ALL TIMES.
- CONSTRUCTION TRAFFIC SHALL AVOID PASSING OVER TANK IF POSSIBLE, TEMPORARY FENCING SHOULD BE PROVIDED AS NECESSARY. ALL TRAFFIC LOADING TO TANK SHOULD BE IN ACCORDANCE WITH ITS DESIGN SPECIFICATIONS
- ENSURE THAT THE EXCAVATION IS KEPT DRY DURING THE INSTALLATION PROCESS, TO PREVENT PONDING AND FLOTATION OF STORAGE TANK.

P04	08.01.2024	AMENDED TO SUIT LATEST DRAINAGE LAYOUT - REV P05	JPR	KOB	KOB
P03	25.11.2024	AMENDED TO SUIT LATEST DRAINAGE LAYOUT - REV P05	JPR	KOB	KOB
P02	30.10.2024	ATTENUATION TANK DIMENSIONS AMENDED TO SUIT NEW SITE POSITION	JPR	KOB	KOB
P01	24.10.2024	PRELIMINARY ISSUE	JPR	KOB	KOB
REV	DATE	DESCRIPTION	BY	CHK	APP

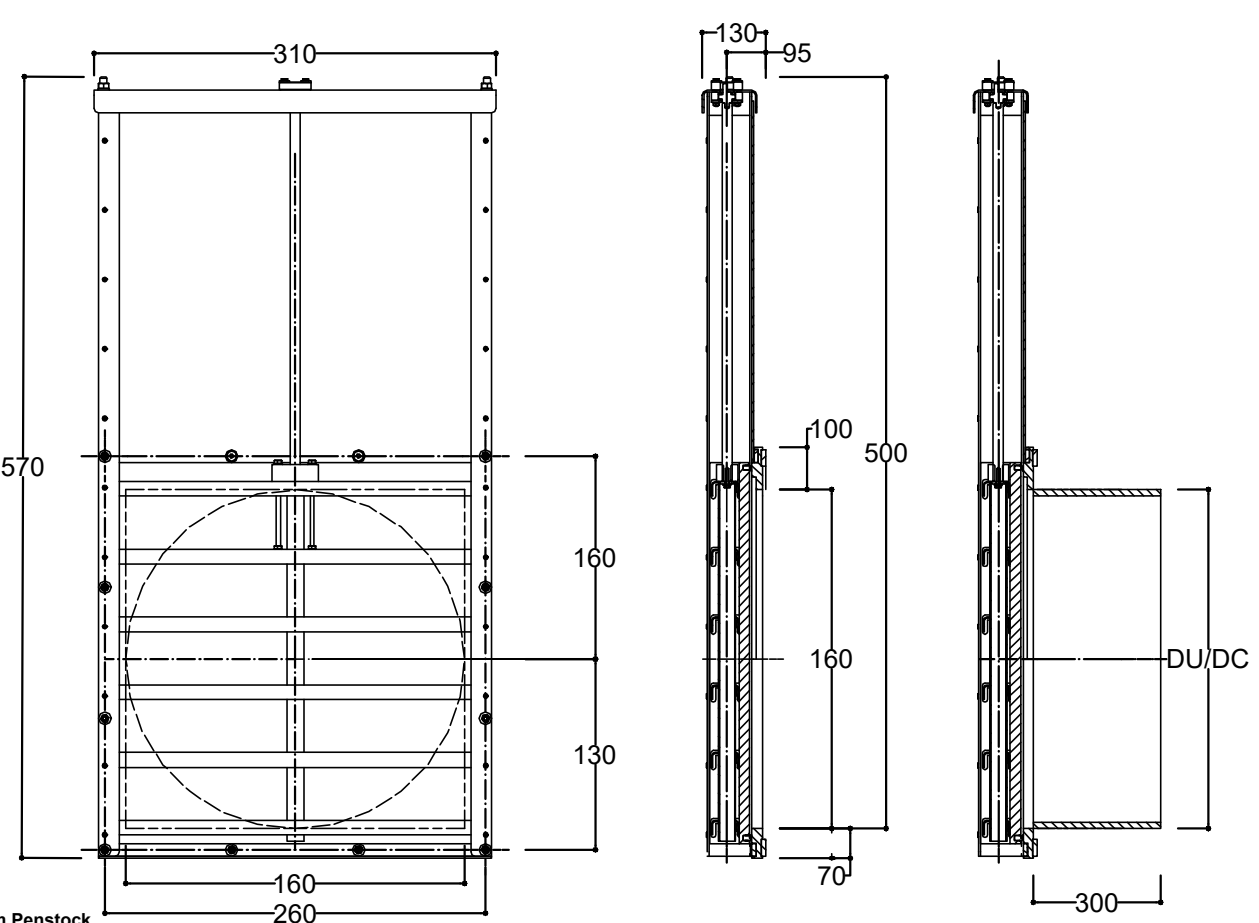
DRAWING STATUS:		PRELIMINARY						
CLIENT:		JIGSAW						
ARCHITECT:		BTP ARCHITECTS						
PROJECT:		P500 MOSTON KENYON LANE						
TITLE:		ATTENUATION TANK DETAILS						
STATUS:	PROJECT No.	PROJECT	ORIGINATOR	VOL/SYS/LEVEL	TYPE	ROLE	DRAWING No.	REV.
S2	222-100	KLM	AJP	-XX	-00	-DR	C - 1070	P04
SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:			
1:20	JPR	JPR	KOB	KOB	OCT 24			
								



PLAN S9



SECTION S9



Althon KSA-MD 150mm Penstock
Manufactured by: KWT Waterbeheersing
Materials: HDPE, SS316, EPDM and POM
Standard Culvert: Ø 160mm
Working Pressure: 5 Mwc on/off seating
The penstock is supplied with a non-rising spindle as standard. It has an OLG spindle bearing and an HDPE back plate. It has an HDPE moving plate provided with RVS316L stiffeners with a POM spindle block. The mounting material and the spindle are made of SS316. The seal between the moving and back plate consists of an integral EPDM lip seal, which does not require any adjustment after installation.
PLEASE NOTE THIS DRAWING IS NOT TO SCALE AND SHOULD ONLY BE USED AS A VISUAL REPRESENTATION
All dimensions shown in mm.

PENSTOCK DETAIL NTS

GENERAL NOTES

- SETTING OUT SHALL BE UNDERTAKEN USING ONLY THE INFORMATION GIVEN. DISTANCES SHOULD NOT BE SCALED FROM THIS DRAWING.
- ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION AND UNITED UTILITIES DETAILS & GUIDELINES.
- THE MINIMUM GRAVITY PIPE DIAMETER UNDER ADOPTABLE HIGHWAYS SHALL BE 150MM
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION GIVEN WITH REGARDS TO EXISTING SERVICES AND DRAINAGE CONNECTIONS ETC. PRIOR TO COMMENCING THE WORKS. THE RATES SHALL INCLUDE FOR HAND DIG AROUND SERVICES WHERE NECESSARY. THE CONTRACTOR SHALL ADHERE TO THE CDM REGULATIONS AT ALL TIMES
- THE OUTSIDES OF ALL SEWERS SHALL BE A MINIMUM OF 1.0M FROM KERB LINES AND THE OUTSIDE OF MANHOLES SHALL BE A MINIMUM OF 0.5M FROM KERB LINES
- EXISTING FLOWS IN WATERCOURSES, SEWERS AND LAND DRAINS SHALL BE MAINTAINED AT ALL TIMES 7. ONLY TRAINED PERSONNEL SHALL BE PERMITTED TO ENTER CONFINED SPACES
- ALL MATERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS
- ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR THE NETWORK OPERATOR AS APPLICABLE.
- WHERE "ULTRA RIB" UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION.
- A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES. TRENCH BACKFILL IN HIGHWAYS TO WITHIN 1M OF HIGHWAY SHALL, AS DIRECTED BY THE HIGHWAY AUTHORITY BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 4.3.4. 12. SLAB LEVELS SHALL NOT BE VARIED WITHOUT REFERENCE TO THE ENGINEER FOR GUIDANCE
- DOMESTIC DRAINAGE SHALL BE TO BUILDING REGULATIONS APPROVED DOCUMENT H. 110MM U.P.V.C. PIPES LAID TO THE FOLLOWING MINIMUM FALLS UNLESS OTHERWISE SHOWN.

HEAD RUN	FOUL	S.W.
ELSEWHERE	1 IN 40	1 IN 60
	1 IN 80	1 IN 100
- POLYPROPYLENE INSPECTION CHAMBERS TO BE PROVIDED TO ALL PRIVATE DRAINAGE LESS THAN 1.0m DEEP. WHERE PRIVATE DRAINAGE RUNS ARE DEEPER THAN 1.0m. REDUCED ACCESS CHAMBERS TO BE PROVIDED.
- ALL LATERAL CONNECTIONS WILL BE MADE AT SOFFIT LEVEL TO THE MAIN CHANNEL.
- REFER TO UU - STDND-19-010 FOR APPROPRIATE ROCKER PIPE LENGTHS

P03	25.11.2024	AMENDED TO SUIT LATEST DRAINAGE LAYOUT - REV P05	JPR	KOB	KOB
P02	30.10.2024	AMENDED TO SUIT UPDATED SITE PLAN	JPR	KOB	KOB
P01	24.10.2024	PRELIMINARY ISSUE	JPR	KOB	KOB
REV	DATE	DESCRIPTION	BY	CHK	APP
DRAWING STATUS:					
PRELIMINARY					
CLIENT:					
JIGSAW					
ARCHITECT:					
BTP ARCHITECTS					
PROJECT:					
P500 MOSTON KENYON LANE					
TITLE:					
HYDROBRAKE DETAILS					
STATUS:	PROJECT No.	PROJECT	ORIGINATOR	VOLUYS	LEVEL
S2	222-100	KLM - AJP - ZZ - 00 - DR - C - 1090	P03		
SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1 : 250	JPR	JPR	KOB	KOB	OCT 24
AJPC consulting engineers					
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