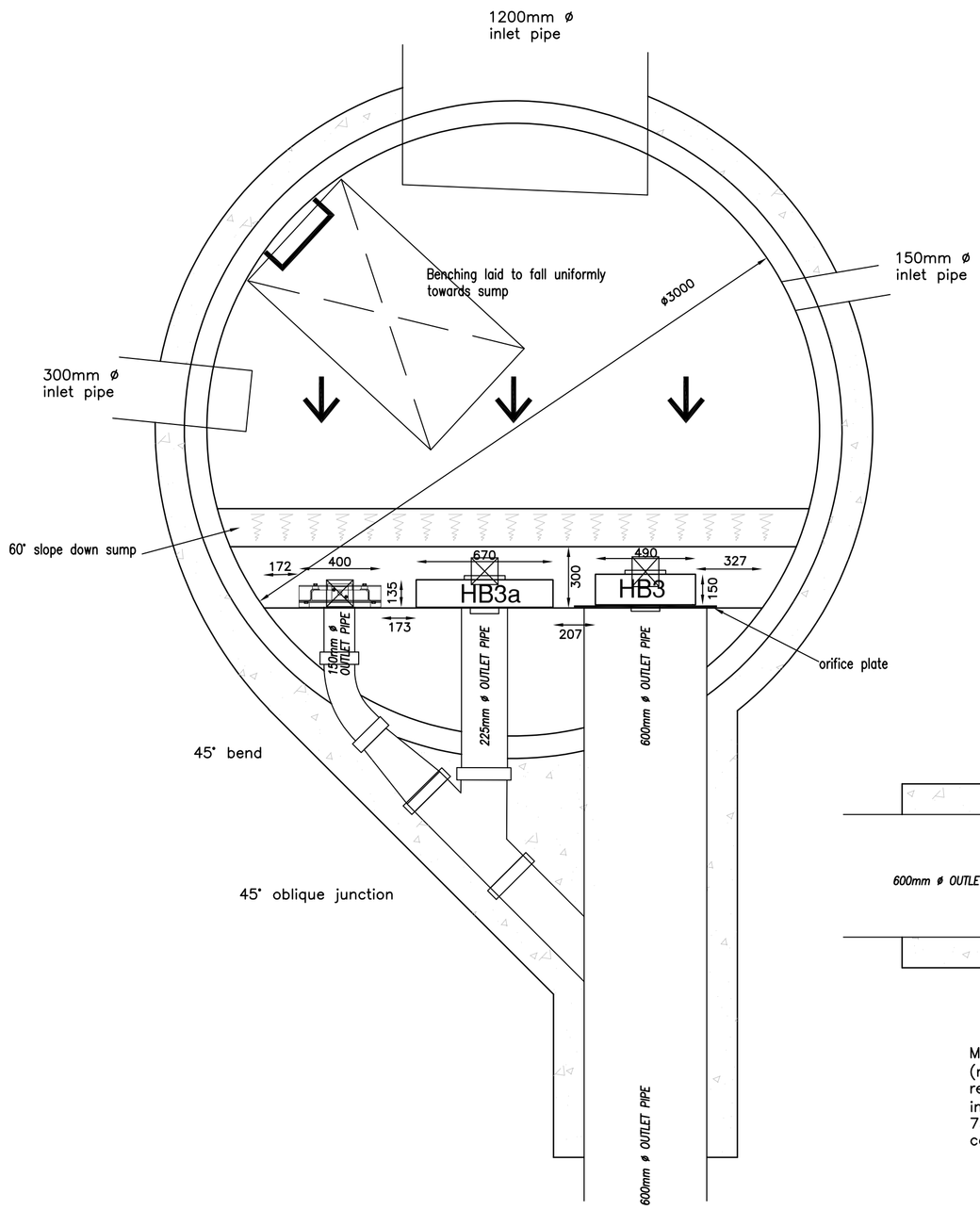
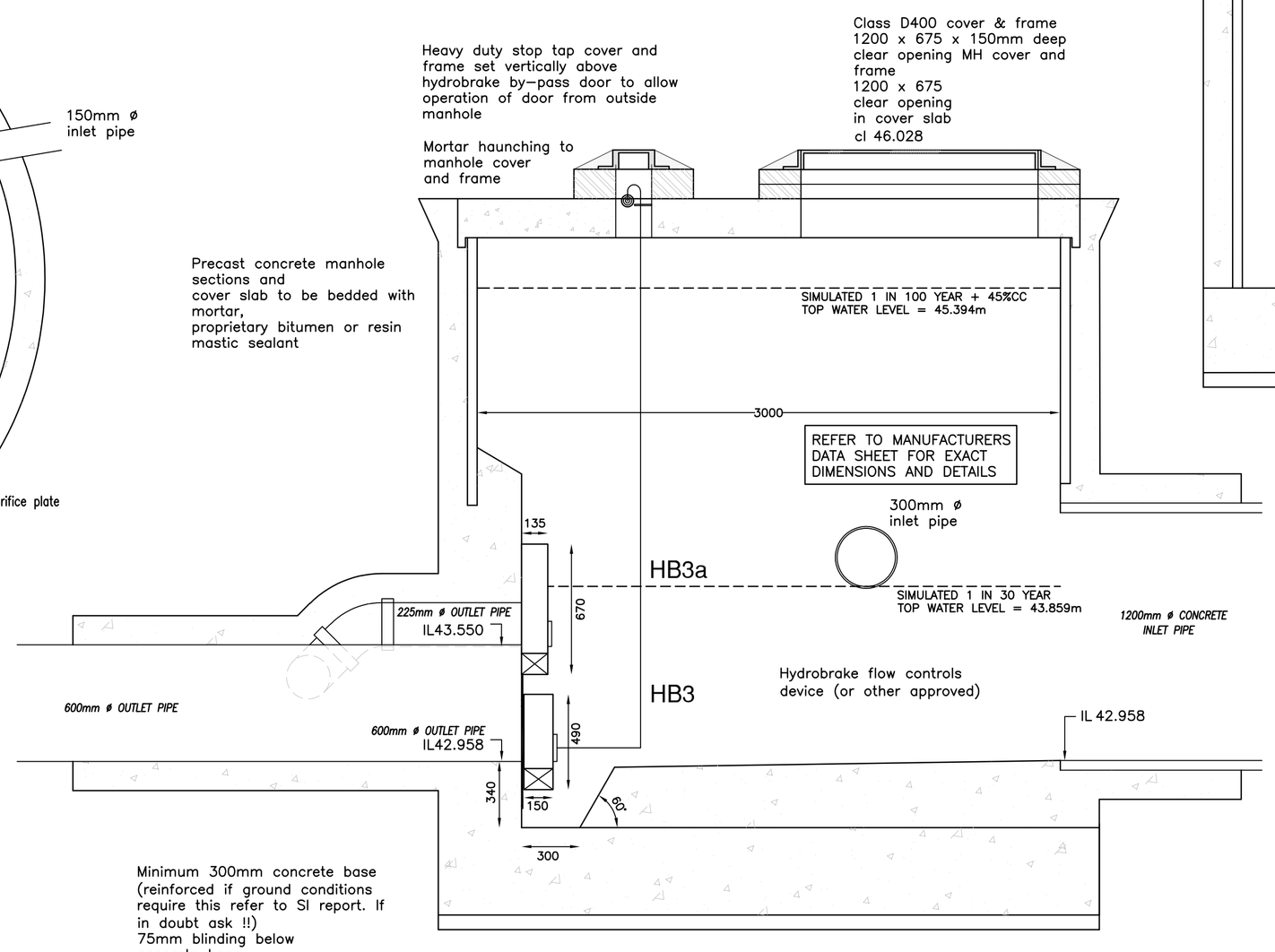
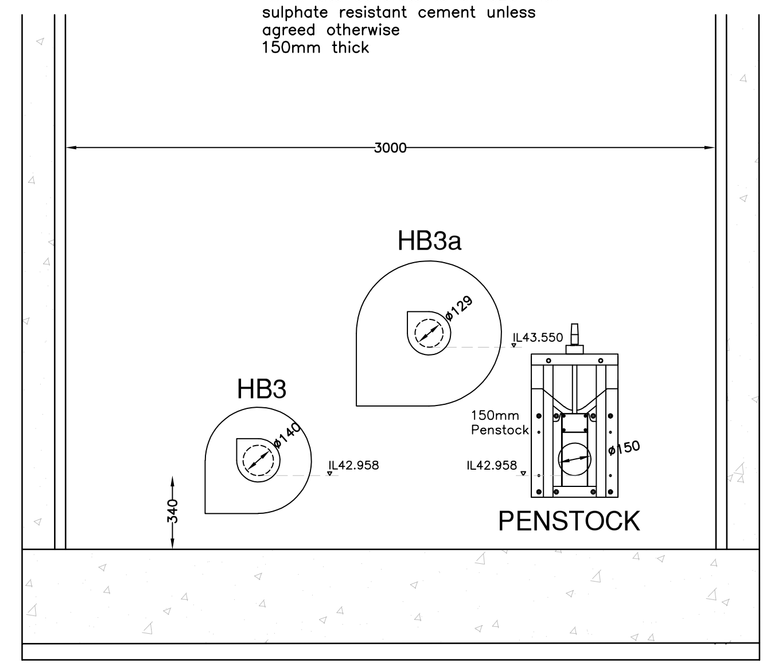
SHB3 - HYDROBRAKE MH







SW - NETWORK 3

Manhole Number	Cover Level		Pipe				Manhole Size	Types		Other Detail				
Coordinates	Depth To Soffit	Connections		Code	Inverts	Diams		Manhole	Cover	Depth & Size (mm)	Means of Access	Safety Chains	Handrails	Invert Access Steps
SHB3	46.052	1	1	1.005	42.958	1200				150				
		2	2	3.002	43.858	300				1220 x 685				
E= 386208.404	2.494	2					3000	HB	D400	1220 x 685 COVER SLAB OPENING	Ladder	No	No	No
N= 397061.307		0	0	1.006	42.958	600								

STUB PIPES AND ROCKER PIPES ARE REQUIRED ON ALL MANHOLE INLET AND OUTLET PIPES WHERE BACKDROPS ARE USED A ROCKER PIPE MUST BE PROVIDED AT THE TOP OF THE VERTICAL PIPE AND BEYOND THE CONCRETE ENCASEMENT

MANHOLE LADDER TO BE CONSTRUCTED IN LINE WITH DESIGN AND CONSTRUCTION GUIDE CLAUSE DCG CLAUSE E2.37

ROCKER PIPES WILL BE USED IN LINE WITH DESIGN AND CONSTRUCTION GUIDANCE

NOTE ALL CONNECTIONS TO BE MADE SOFFIT LEVEL UNLESS INDICATED OTHERWISE

MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE - MAY 2021

PLEASE NOTE THAT THIS DRAWING IS ISSUED FOR INFORMATION/TENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED. ANY WORK UNDERTAKEN PRIOR TO TECHNICAL APPROVAL BEING GRANTED IS AT THE CLIENTS RISK.

HYDROBRAKE DETAILS

MH. No.	SHB3
TYPE	SHE-0140-8600-0700-8600
DESIGN HEAD (m)	0.7
MAX. FLOW (litres/sec)	8.6 IL 42.958
ORIFICE DIA. (mm)	140
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB3
TYPE	SHE-0129-8500-1450-8500
DESIGN HEAD (m)	1.45
MAX. FLOW (litres/sec)	8.5 IL 43.550
ORIFICE DIA. (mm)	140
SURCHARGED OUTFALL PIPE	YES

GENERAL

1. All adoptable sewers and associated works are to comply fully with "Design and Construction Guidance" & Local Practices
2. All highway works to be to adoptable standards and to to comply fully with the Local Authority specification.
3. All private drainage works are to comply fully with part H of the Building Regulations
4. All existing invert levels to be checked by the Contractor at the start of works and any discrepancies notified to REFA. All levels are based on topographical survey information provided by others.
5. 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)
6. 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 Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015

In line with the above regulations we are obliged to inform the Client of their responsibilities under section CDM 15/1, and residual risks that may be encountered in the construction of these works. All design work has been carried out with Health and Safety aspects given full consideration. Wherever possible risks have been eliminated from the design, however due to the very nature of this type of work it is not possible to remove all the risks from the design.
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They should also provide satisfactory responses at tender stage as to the manner in which they will deal with the elements of risk involved in this type of work and in particular those highlighted by REFA below:-

1. Support / treatment for ALL excavation work.
2. Guarding to edges of excavations to prevent people,materials and vehicles falling into excavation.
3. Guarding of excavations outside working hours to prevent unauthorised access.
4. Undermining to adjacent roads or structures.
5. Confined space operations.
6. Dealing with existing services.
7. Traffic management on existing highways.
8. Procedure to be followed in event of accident or emergency.
9. Method of working where contaminated ground is present on site.
10. Confirmation will be required that all operatives are adequately trained, copies of relevant training certificates to be supplied.

The above list is by no means exhaustive but it does highlight operations that present a risk to contractors and the general public.
For clarification on any item please contact REFA.

rev	Revision details	Rev.By	Date
E	SHB3 CL MINOR REVISION	RF	20.09.23
D	REVISED FOLLOWING SW RECALCULATIONS	RW	20.07.23
C	COVER SIZES REVISED AS S104 COMMENTS	RF	25.5.23
B	SEWER DESIGN REVISED FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
A	MINOR CHANGES TO COVER LEVEL. TWL & HB SPEC REVISED.	RF	20.01.23

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Drawing Stage		Drawing Status	
	Draft	Comments	Tender
●	Issued	Information	Construction
		● Approval	As Built

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
MANHOLE SCHEMATICS DRG 13 - HB3

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CONSULTING ENGINEERS
CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

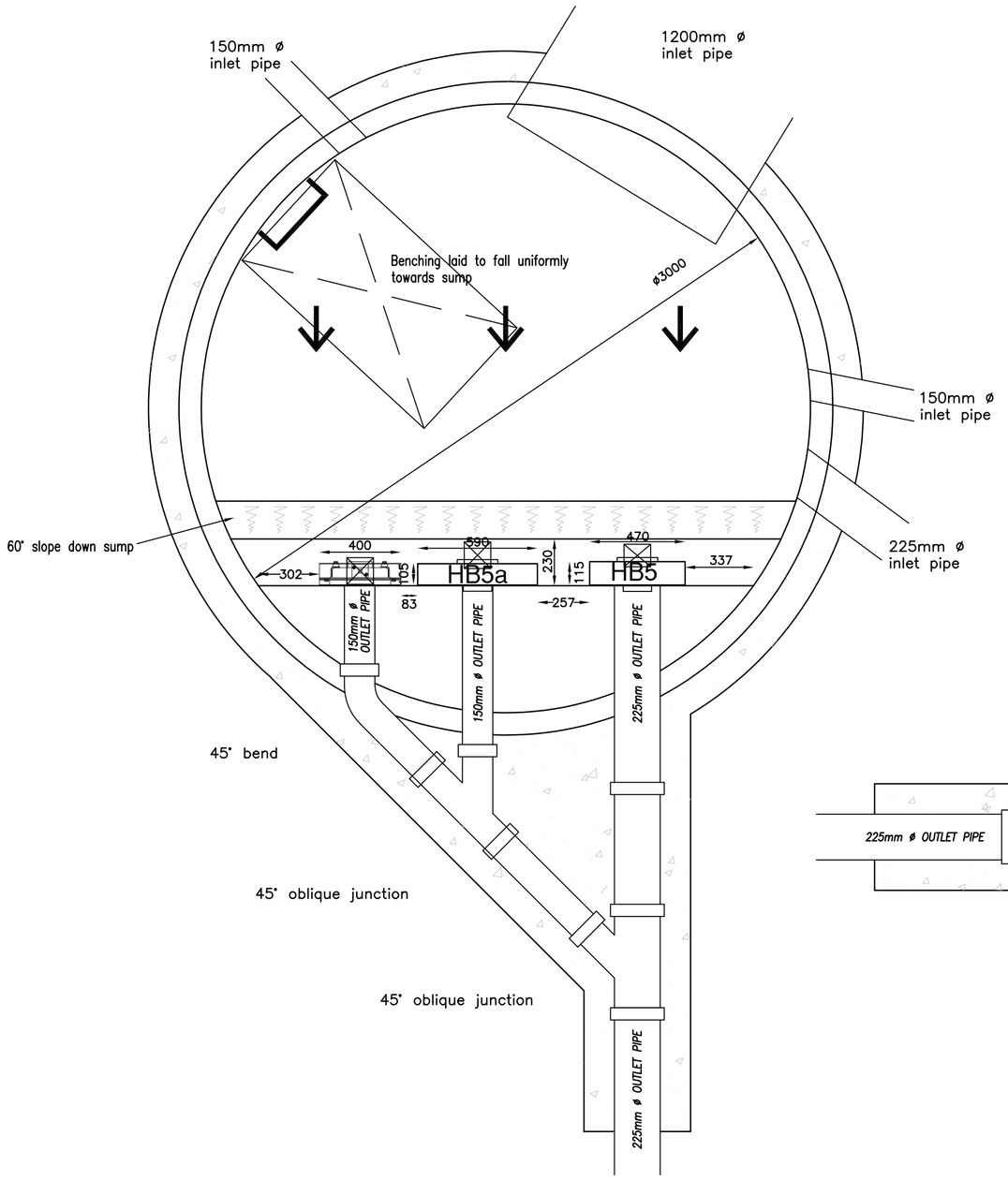
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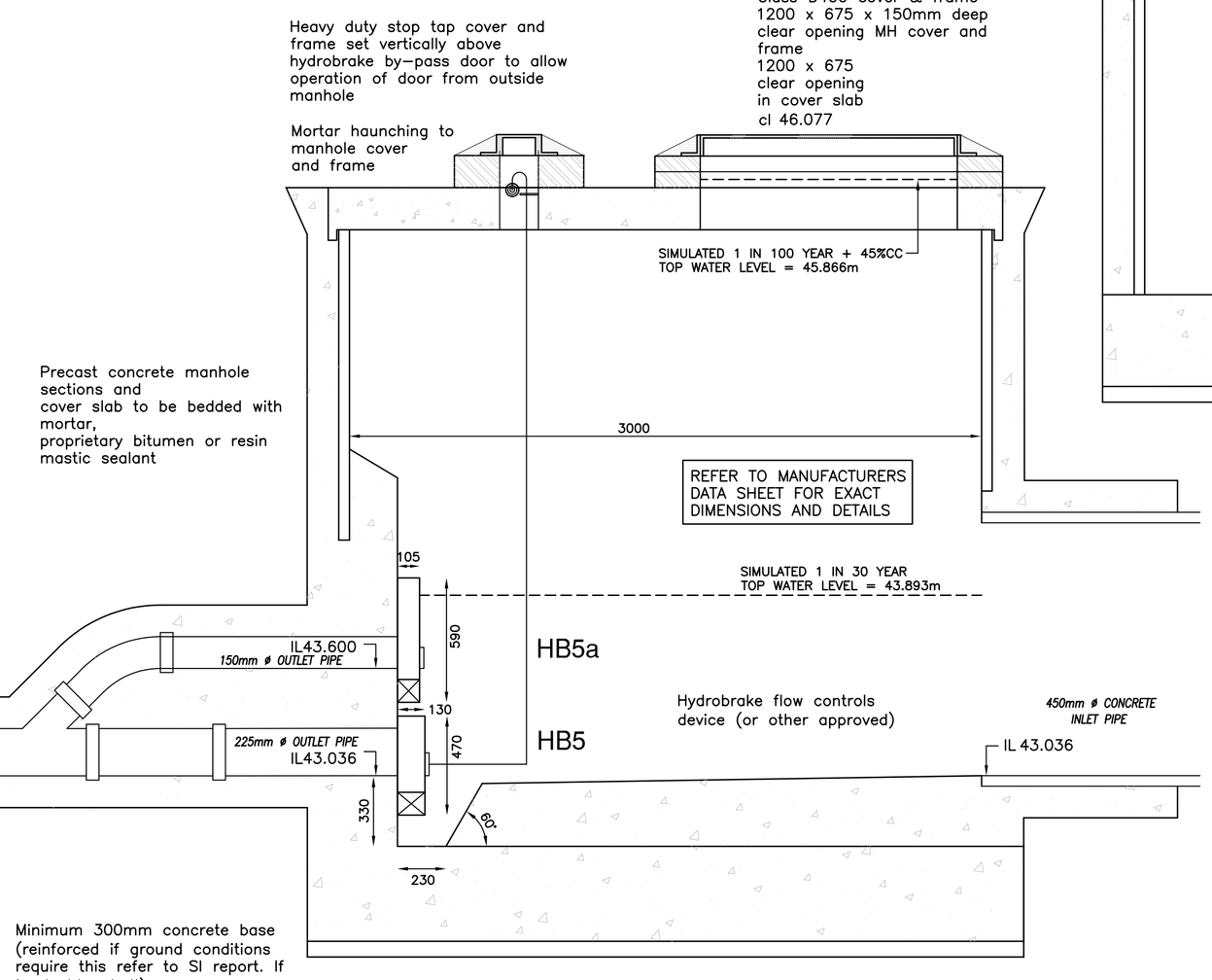
DRAWING No 22122/109/13 Rev E

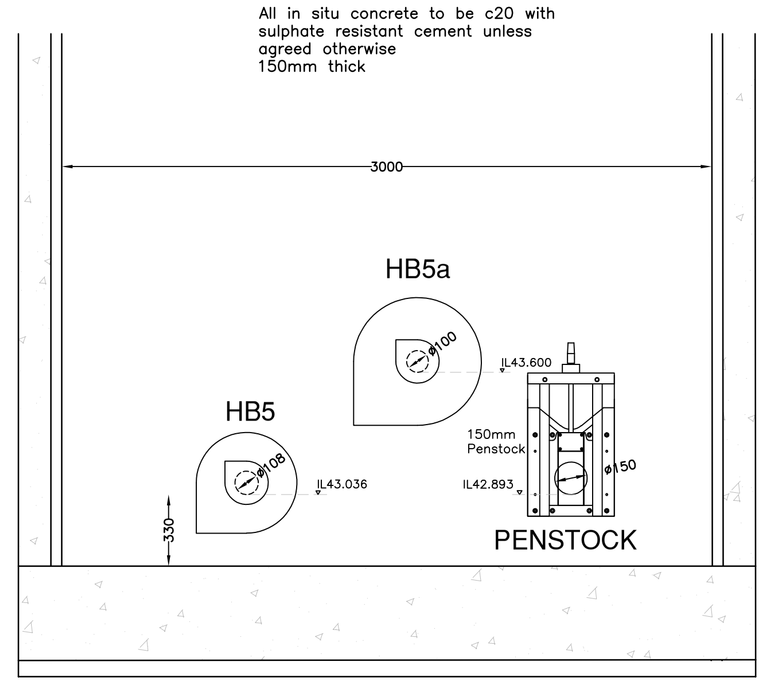
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A1 SHEET

SHB5 - HYDROBRAKE MH







SW - NETWORK 5

Manhole Number	Cover Level	Connections	Pipe				Manhole Size	Types		Other Detail				
Coordinates	Depth To Soffit		Code	Inverts	Diams			Manhole	Cover	Depth & Size (mm)	Means of Access	Safety Chains	Handrails	Invert Access Steps
SHB5	46.120	1	1	1.003	43.036	1200	3000	HB	D400	150 1220 x 685 1220 x 685 COVER SLAB OPENING	Ladder	No	No	No
E= 386142.717 N= 397058.264	2.859	0	0	1.004	43.036	225								

STUB PIPES AND ROCKER PIPES ARE REQUIRED ON ALL MANHOLE INLET AND OUTLET PIPES WHERE BACKDROPS ARE USED A ROCKER PIPE MUST BE PROVIDED AT THE TOP OF THE VERTICAL PIPE AND BEYOND THE CONCRETE ENCASEMENT

MANHOLE LADDER TO BE CONSTRUCTED IN LINE WITH DESIGN AND CONSTRUCTION GUIDE CLAUSE DCG CLAUSE E2.37

ROCKER PIPES WILL BE USED IN LINE WITH DESIGN AND CONSTRUCTION GUIDANCE

NOTE ALL CONNECTIONS TO BE MADE SOFFIT LEVEL UNLESS INDICATED OTHERWISE

MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE - MAY 2021

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HYDROBRAKE DETAILS

MH. No.	SHB5
TYPE	SHE-0108-5000-0850-5000
DESIGN HEAD (m)	0.85
MAX. FLOW (litres/sec)	5.0 IL 43.036
ORIFICE DIA. (mm)	108
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB5
TYPE	SHE-0100-5000-1400-5000
DESIGN HEAD (m)	1.4
MAX. FLOW (litres/sec)	5.0 IL 43.600
ORIFICE DIA. (mm)	100
SURCHARGED OUTFALL PIPE	YES

GENERAL

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2. All highway works to be to adoptable standards and to to comply fully with the Local Authority specification.
3. All private drainage works are to comply fully with part H of the Building Regulations
4. All existing invert levels to be checked by the Contractor at the start of works and any discrepancies notified to REFA. All levels are based on topographical survey information provided by others.
5. 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)
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C.D.M. REGULATIONS 2015

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2. Guarding to edges of excavations to prevent people,materials and vehicles falling into excavation.
3. Guarding of excavations outside working hours to prevent unauthorised access.
4. Undermining to adjacent roads or structures.
5. Confined space operations.
6. Dealing with existing services.
7. Traffic management on existing highways.
8. Procedure to be followed in event of accident or emergency.
9. Method of working where contaminated ground is present on site.
10. Confirmation will be required that all operatives are adequately trained, copies of relevant training certificates to be supplied.

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For clarification on any item please contact REFA.

rev	Revision details	Rev.By	Date
E	SHB5 CL MINOR REVISION	RF	20.09.23
D	REVISED FOLLOWING SW RECALCULATIONS	RW	26.07.23
C	COVER SIZES REVISED AS S104 COMMENTS	RF	25.5.23
B	SEWER DESIGN REVISED FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
A	MINOR CHANGES TO COVER LEVEL. TVL REVISED	RF	20.01.23

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Drawing Stage			Drawing Status		
	Draft		Comments	●	Tender
●	Issued		Information		Construction
		●	Approval		As Built

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
MANHOLE SCHEMATICS DRG 15 - HB5

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CONSULTING ENGINEERS
CIVIL, STRUCTURAL
GEOTECHNICAL, ENVIRONMENTAL

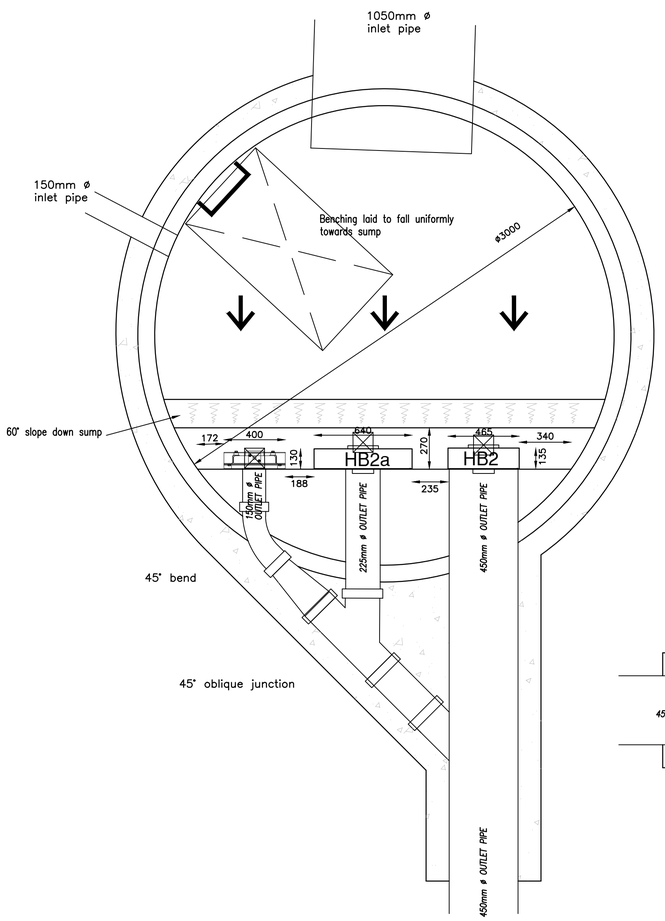
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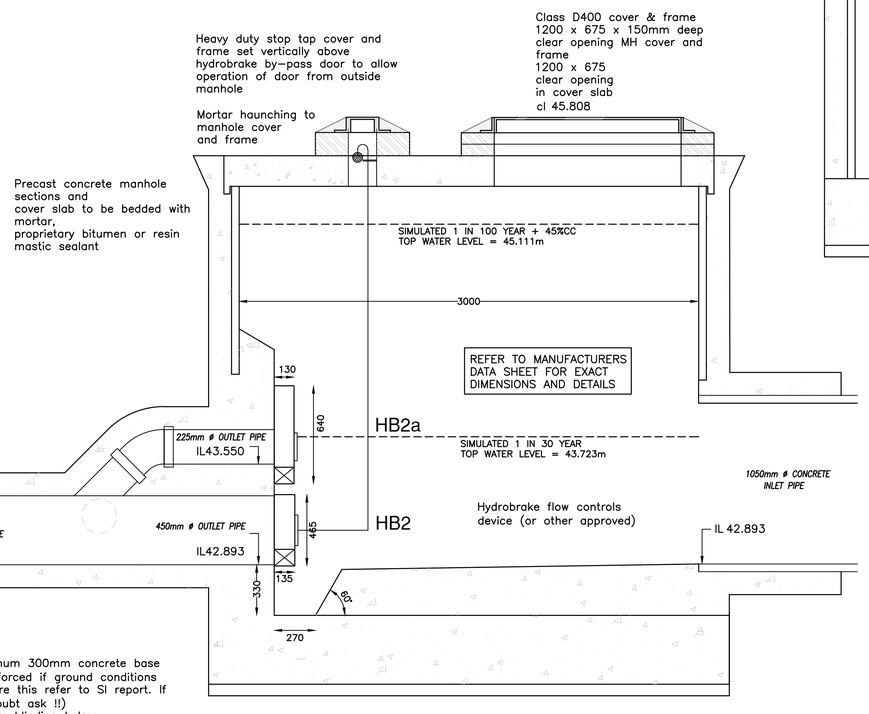
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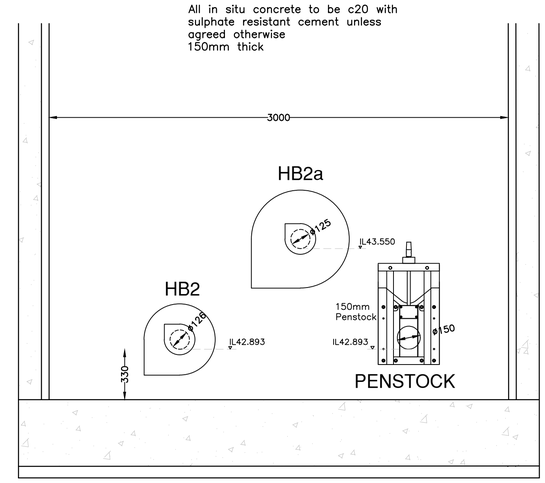
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A1 SHEET

SHB2 - HYDROBRAKE MH







SW - NETWORK 2

Manhole Number	Cover Level	Connections	Pipe				Manhole Size	Types		Other Detail				
Coordinates	Depth To Soffit		Code	Inverts	Diams			Manhole	Cover	Depth & Size (mm)	Means of Access	Safety Chains	Handrails	Invert Access Steps
SHB2	**45.808**	1	1	**1.005**	**42.893**	**1050**				150				
										1220 x 685				
E= 386187.790	**2.465**						**3000**	HB	**D400**	1220 x 685 COVER SLAB OPENING	Ladder	No	No	No
N= 396986.663		0	0	**1.006**	**42.893**	**450**								

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MANHOLE LADDER TO BE CONSTRUCTED IN LINE WITH DESIGN AND CONSTRUCTION GUIDE CLAUSE DCG CLAUSE E2.37

ROCKER PIPES WILL BE USED IN LINE WITH DESIGN AND CONSTRUCTION GUIDANCE

NOTE ALL CONNECTIONS TO BE MADE SOFFIT LEVEL UNLESS INDICATED OTHERWISE

MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE - MAY 2021

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HYDROBRAKE DETAILS

MH. No.	SHB2
TYPE	SHE-0126-6800-0700-6800
DESIGN HEAD (m)	0.7
MAX. FLOW (litres/sec)	6.8 IL 42.893
ORIFICE DIA. (mm)	126
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB2
TYPE	SHE-0125-7800-1360-7800
DESIGN HEAD (m)	1.36
MAX. FLOW (litres/sec)	7.8 IL 43.550
ORIFICE DIA. (mm)	125
SURCHARGED OUTFALL PIPE	YES

GENERAL

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C.D.M. REGULATIONS 2015

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3. Guarding of excavations outside working hours to prevent unauthorised access.
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5. Confined space operations.
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rev	Revision details	Rev.By	Date
D	REVISED FOLLOWING SW RECALCULATIONS	RW	20.07.23
C	COVER SIZES REVISED AS S104 COMMENTS	RF	25.5.23
B	SEWER DESIGN REVISED FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
A	TWL REVISED	RF	20.01.23

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Drawing Stage			Drawing Status		
	Draft		Comments	●	Tender
●	Issued		Information		Construction
		●	Approval		As Built

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
MANHOLE SCHEMATICS DRG 12 - HB2

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Fax:-(01942) 230816
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CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

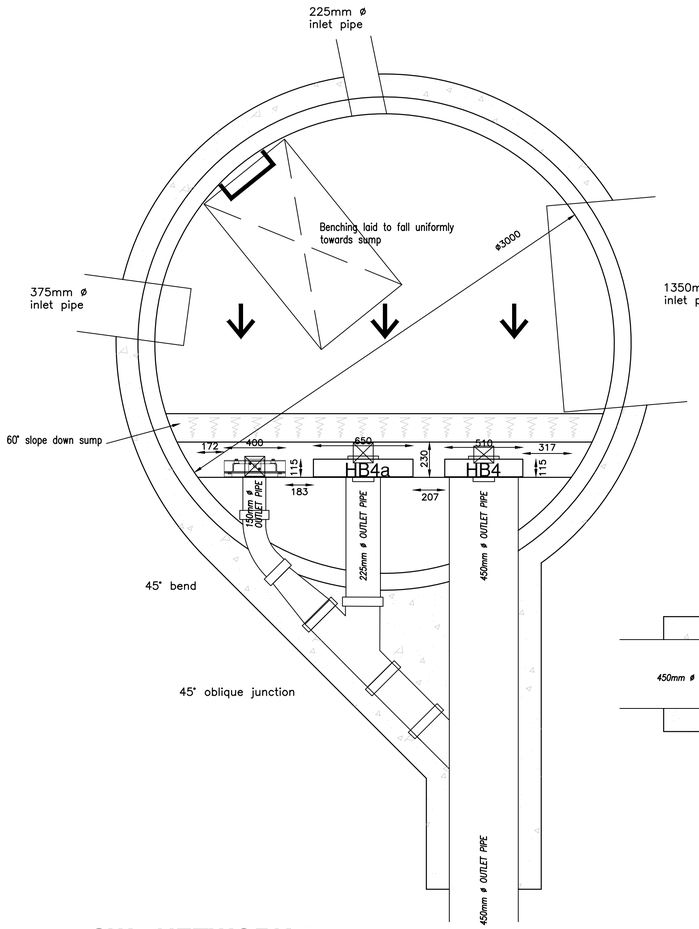
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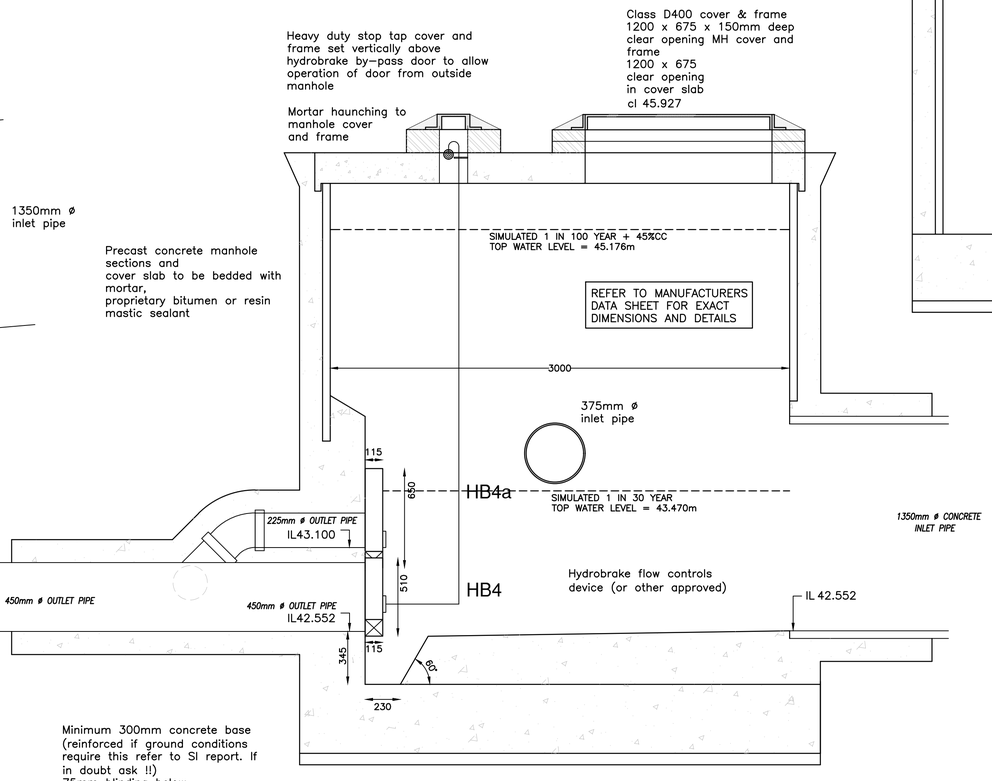
DRAWING No 22122/109/12 Rev D

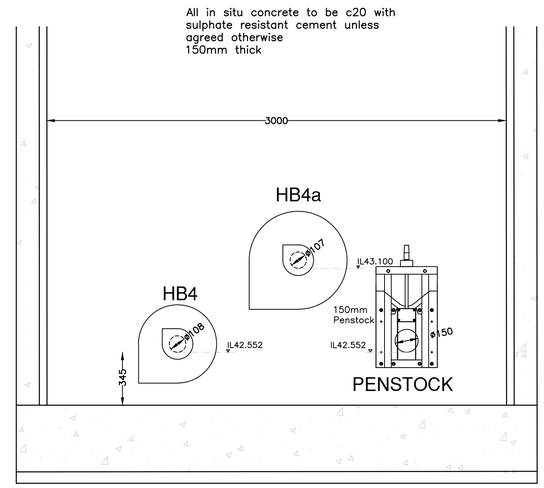
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A1 SHEET

SHB4 - HYDROBRAKE MH







SW - NETWORK 4

Manhole Number	Cover Level	Connections	Pipe				Manhole Size	Types		Other Detail				
Coordinates	Depth To Soffit		Code	Inverts		Diams		Manhole	Cover	Depth & Size (mm)	Means of Access	Safety Chains	Handrails	Invert Access Steps
SHB4	45.927	2 1 0	1	3.003	42.552	1350	3000	HB	D400	150	Ladder	No	No	No
			2	1.001	43.527	375				1220 x 685				
E= 386136.315	2.925									1220 x 685 COVER SLAB OPENING				
N= 397004.506			0	1.002	42.552	450								

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MANHOLE LADDER TO BE CONSTRUCTED IN LINE WITH DESIGN AND CONSTRUCTION GUIDE CLAUSE DCG CLAUSE E2.37

ROCKER PIPES WILL BE USED IN LINE WITH DESIGN AND CONSTRUCTION GUIDANCE

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MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE - MAY 2021

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HYDROBRAKE DETAILS

MH. No.	SHB4
TYPE	SHE-0108-5200-1000-5200
DESIGN HEAD (m)	1.0
MAX. FLOW (litres/sec)	5.2 IL 42.552
ORIFICE DIA. (mm)	108
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB4
TYPE	SHE-0107-6600-1900-6600
DESIGN HEAD (m)	1.9
MAX. FLOW (litres/sec)	6.6 IL 43.100
ORIFICE DIA. (mm)	107
SURCHARGED OUTFALL PIPE	YES

GENERAL

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3. All private drainage works are to comply fully with part H of the Building Regulations
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rev	Revision details	Rev.By	Date
F	REVISED FOLLOWING SW RECALCULATIONS	RW	28.07.23
E	COVER SIZES REVISED AS S104 COMMENTS	RF	25.5.23
D	SEWER DESIGN REVISED FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
C	TO LATEST DESIGN	AS	23.02.23
B	NETWORK 4 REVISED FOLLOWING CULVERT DIVERSION REVISIONS. TWL REVISED	RF	20.01.23
A	DRAGOUT UPSIZED TO 225MM	RW	08.12.22

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Drawing Stage			Drawing Status		
	Draft		Comments	●	Tender
●	Issued		Information		Construction
		●	Approval		As Built

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
MANHOLE SCHEMATICS DRG 14 - HB4

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Date	Scale	Drawn
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DRAWING No 22122/109/14 Rev F

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