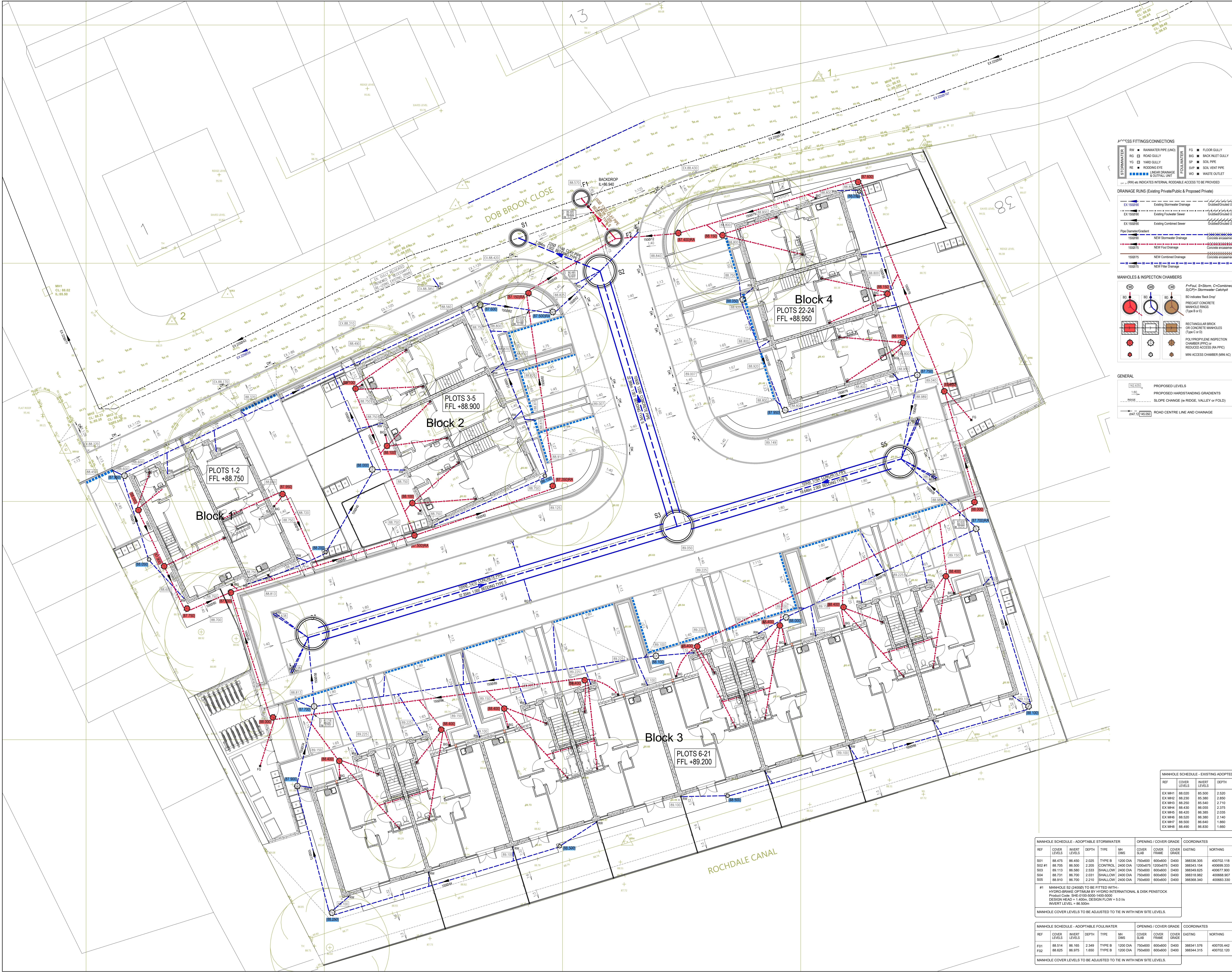




400720N

1.0 GENERAL

1.1 THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS & SPECIFICATIONS.

1.2 WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT GOOD PRACTICE, BUILDING REGULATIONS AND SUBSIDIARY AMENDMENTS. THE PROJECT SPECIFICATION, RELEVANT BRITISH STANDARDS AND CODES OF PRACTICE, MATERIALS AND COMPONENTS TO BE SUPPLIED FOR THEIR INTENDED USE.

1.3 FOR SETTING OUT REFER TO ARCHITECTS DRAWINGS.

2.0 EXISTING SERVICES

2.1 SERVICE MEDIA INDICATED IS BASED ON INFORMATION AVAILABLE TO DATE & IS REPRODUCED IN GOOD FAITH. NO RESPONSIBILITY CAN BE ACCEPTED FOR THE LOCATION OF UNKNOWN SERVICES NOT INDICATED.

2.2 STATUTORY SERVICES INDICATED (PRIOR TO ANY WORKS TAKING PLACE) ARE FOR INFORMATION PURPOSES ONLY AND MUST BE CONFIRMED.

2.3 IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT EXISTING SERVICES MEDIA AFFECTED BY THE PROPOSED WORKS.

2.4 ANY EXISTING DRAINAGE ON SITE IS TO BE INVESTIGATED, SURVEYED AND AS FOUND TO BE NECESSARY EITHER MAINTAINED, DIVERTED OR ABANDONED (SUBJECT TO APPROVAL OF THE SEWERAGE UNDERTAKER).

3.0 PRIVATE DRAINAGE

3.1 VITRIFIED CLAY DRAINAGE GOODS TO BE HEPWORTH SUPERLEVEE OR SIMILAR TO BS EN 295-1. PLASTIC DRAINAGE GOODS TO BE HEPWORTH PLASTIDRAINER OR SIMILAR (STRENGTH CLASS & BEDDING TO BE AS INDICATED ON THE TYPICAL DRAINAGE DETAILS DRAWING).

3.2 DRAINAGE BENEATH SOFT LANDSCAPING WITH LESS THAN 600mm COVER TO BE CONCRETE ENCASED. DRAINAGE BENEATH ROAD PARKING WITH LESS THAN 150mm COVER TO BE CONCRETE ENCASED.

3.3 DRAINS WHICH ARE CONCRETE ENCASED TO HAVE 180mm FIBREGLASS OR POLYSTYRENE JOINTS AT 5m (MAX) CENTRES.

3.4 ALL NEW HOUSING TO BE PILE FOUNDATIONS WITH ALL PILE DEPTHS GREATER THAN ALLOWED DRAINAGE.

3.5 ALL SURFACE WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:100 GRADIENT U.N.O. ALL FOUL WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:40 GRADIENT UNLESS A TOILET IS LOCATED UPSTREAM WHERE MINIMUM GRADIENT SHOULD BE 1:80.

3.6 COVER LEVELS ARE APPROXIMATE AND TO BE VERIFIED ON SITE.

3.7 INTERNAL INSPECTION CHAMBERS TO BE PROVIDED WITH DOUBLE SEAL ACTION OPEN DOWN COVERS.

3.8 POLYPROPYLENE (PP) TO INCLUDE 100mm (MIN) CONCRETE SURROUND WHEN LOCATED IN HARSH STANDINGS (SEE DETAILS).

3.9 PP/CBS DEEPER THAN 1.2m TO HAVE REDUCED ACCESS (RA COVER-3500).

4.0 ADAPTABLE DRAINAGE (UNITED UTILITIES)

4.1 ALL ADAPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SERVICES OFFERED ON ADIPTION UNDER THE CODE FOR ADOPTION AGREEMENTS FOR WATER AND SEWERAGE COMPANIES (ORIGINALLY BY ORIGINALLY IN THE CODE). THE RELEVANT BRITISH EUROPEAN STANDARDS AND UNITED UTILITIES REQUIREMENTS.

4.2 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING UNITED UTILITIES PLS DRAWINGS CONTAINING THEIR DEVELOPER SERVICES STANDARD DETAILS >

- STD101001A - DETAIL 1 - MANHOLE TYPE 1
- STD101001A - DETAIL 2 - MANHOLE TYPE 2
- STD101001A - DETAIL 3 - MANHOLE TYPE 4
- STD101001A - DETAIL 4 - MANHOLE TYPE 5
- STD101001A - FLOW CONTROL MANHOLE
- STD101001A - EXTERNAL BACKCROP DETAIL
- STD101001A - PIPE BEDDING DETAIL
- STD101001A - VARIABLE MANHOLE FEATURES
- STD101001A - HEADWALL TYPE 1 DETAIL
- STD101001A - HEADWALL TYPE 2 DETAIL

4.3 MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS 440 TO BS EN 124 WITH 100mm DEEP FRAMES IN HARSHINGS.

4.4 COVER SLABS MUST CARRY THE 30 TONNE MARK. WHERE THE CLEAR OPENING OF THE SITE MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME A LADY MARKING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm x 600mm. PLEASE REFER TO CONCRETE PIPES SYSTEM ASSOCIATION (CPA) TECHNICAL BULLETIN AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

5.0 LINEAR DRAINAGE SYSTEM

5.1 THE LINEAR DRAINAGE SYSTEM SHALL BE BRICO (SEE DRAWING FOR DETAILS), MANUFACTURED IN PRE-CAST CONCRETE, WITH THE EXCEPTION OF CERTAIN FINISHES MANUFACTURED IN STEEL, ON CAST IRON, AND INSTALLED IN ACCORDANCE WITH MARSHALLS STANDARD DETAIL SHEETS.

5.2 THE LINEAR DRAINAGE SHALL BE A TWO PART SYSTEM CONSISTING OF STEEL OR CAST IRON DRAINAGE COVERS TO BE PRECAST CONCRETE DRAINAGE CHANNELS. DRAINAGE CHANNELS TO COMPOSE CONSTANT DEPTH AND INSET FALL UNITS AS REQUIRED TO SATISFY THE HYDRAULIC DESIGN.

5.3 ALL COMPONENTS OF THE MARSHALLS BRICO SYSTEM, SHALL COMPLY WITH LCA CLASSIFICATION AND IN ACCORDANCE WITH BS EN 1432:2002.

5.4 THE LINEAR DRAINAGE SYSTEM COMPOSING DRAINAGE COVERS, CONSTANT DEPTH AND INSET FALL CHANNELS, OUTFALLS, T JUNCTION CHANNELS, EN CAPS, CAP OUTLETS, AND SEALANTS SHALL BE INSTALLED TO THE LINE AND LEVEL INDICATED IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND STANDARD DETAILS.

5.5 BRICO OUTFALLS TO BE 150 SIDETRAP U.N.O. (SUPPLIED IN TWO SECTIONS WITH UNIVERSAL FIT SEAL AND STOPPER INCLUDED). OUTFALL SECTIONS TO BE BEDDED USING MARSHALLS POLYURETHANE SEALANT.

5.6 MARSHALLS VERTICAL JOINT SEALANT, M-SEAL, SHALL BE APPLIED TO ALL VERTICAL JOINTS OF THE CHANNEL.

6.0 MANHOLE SCHEDULE - EXISTING ADOPTED

REF	COVER LEVELS	INVERT LEVELS	DEPTH
EX MH1	88.020	85.500	2.520
EX MH2	88.230	85.380	2.850
EX MH3	88.250	85.540	2.710
EX MH4	88.430	86.055	2.375
EX MH5	88.420	86.385	2.035
EX MH6	88.520	86.380	2.140
EX MH7	88.500	86.840	1.660
EX MH8	88.450	86.850	1.600

7.0 MANHOLE SCHEDULE - ADAPTABLE STORMWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
S01	88.475	86.450	2.025	TYPE B	1200 DIA	750x600	600x600	D400	388336.305	400702.116
S02 #1	88.765	86.500	2.265	CONTROL	2400 DIA	1200x675	1200x675	D400	388343.154	400689.333
S03	88.113	86.580	2.533	SHALLOW	2400 DIA	750x600	600x600	D400	388340.625	400677.900
S04	88.751	86.700	2.051	SHALLOW	2400 DIA	750x600	600x600	D400	388318.082	400685.907
S05	88.810	86.700	2.210	SHALLOW	2400 DIA	750x600	600x600	D400	388366.340	400683.330

#1 MANHOLE S2 (2400) TO BE FITTED WITH HYDRO-BRAKE OPTIMUM BY HYDRO INTERNATIONAL & DISK PENSTOCK
Product Code: SH-6100-6500-140-6500
DESIGN HEAD = 1.40m, DESIGN FLOW = 5.0 l/s
INVERT LEVEL = 86.500m

MANHOLE COVER LEVELS TO BE ADJUSTED TO THE IN WITH NEW SITE LEVELS.

8.0 MANHOLE SCHEDULE - ADAPTABLE FOLLWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
F01	88.514	86.165	2.349	TYPE B	1200 DIA	750x600	600x600	D400	388341.576	400705.442
F02	88.625	86.975	1.650	TYPE B	1200 DIA	750x600	600x600	D400	388344.315	400702.120

MANHOLE COVER LEVELS TO BE ADJUSTED TO THE IN WITH NEW SITE LEVELS.

9.0 NOTES

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9.10 DRAINS WHICH ARE CONCRETE ENCASED TO HAVE 180mm FIBREGLASS OR POLYSTYRENE JOINTS AT 5m (MAX) CENTRES.

9.11 ALL NEW HOUSING TO BE PILE FOUNDATIONS WITH ALL PILE DEPTHS GREATER THAN ALLOWED DRAINAGE.

9.12 ALL SURFACE WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:100 GRADIENT U.N.O. ALL FOUL WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:40 GRADIENT UNLESS A TOILET IS LOCATED UPSTREAM WHERE MINIMUM GRADIENT SHOULD BE 1:80.

9.13 COVER LEVELS ARE APPROXIMATE AND TO BE VERIFIED ON SITE.

9.14 INTERNAL INSPECTION CHAMBERS TO BE PROVIDED WITH DOUBLE SEAL ACTION OPEN DOWN COVERS.

9.15 POLYPROPYLENE (PP) TO INCLUDE 100mm (MIN) CONCRETE SURROUND WHEN LOCATED IN HARSH STANDINGS (SEE DETAILS).

9.16 PP/CBS DEEPER THAN 1.2m TO HAVE REDUCED ACCESS (RA COVER-3500).

9.17 ALL ADAPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SERVICES OFFERED ON ADIPTION UNDER THE CODE FOR ADOPTION AGREEMENTS FOR WATER AND SEWERAGE COMPANIES (ORIGINALLY BY ORIGINALLY IN THE CODE). THE RELEVANT BRITISH EUROPEAN STANDARDS AND UNITED UTILITIES REQUIREMENTS.

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- STD101001A - HEADWALL TYPE 1 DETAIL
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9.25 BRICO OUTFALLS TO BE 150 SIDETRAP U.N.O. (SUPPLIED IN TWO SECTIONS WITH UNIVERSAL FIT SEAL AND STOPPER INCLUDED). OUTFALL SECTIONS TO BE BEDDED USING MARSHALLS POLYURETHANE SEALANT.

9.26 MARSHALLS VERTICAL JOINT SEALANT, M-SEAL, SHALL BE APPLIED TO ALL VERTICAL JOINTS OF THE CHANNEL.

10.0 MANHOLE SCHEDULE - EXISTING ADOPTED

REF	COVER LEVELS	INVERT LEVELS	DEPTH
EX MH1	88.020	85.500	2.520
EX MH2	88.230	85.380	2.850
EX MH3	88.250	85.540	2.710
EX MH4	88.430	86.055	2.375
EX MH5	88.420	86.385	2.035
EX MH6	88.520	86.380	2.140
EX MH7	88.500	86.840	1.660
EX MH8	88.450	86.850	1.600

11.0 MANHOLE SCHEDULE - ADAPTABLE STORMWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
S01	88.475	86.450	2.025	TYPE B	1200 DIA	750x600	600x600	D400	388336.305	400702.116
S02 #1	88.765	86.500	2.265	CONTROL	2400 DIA	1200x675	1200x675	D400	388343.154	400689.333
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S05	88.810	86.700	2.210	SHALLOW	2400 DIA	750x600	600x600	D400	388366.340	400683.330

#1 MANHOLE S2 (2400) TO BE FITTED WITH HYDRO-BRAKE OPTIMUM BY HYDRO INTERNATIONAL & DISK PENSTOCK
Product Code: SH-6100-6500-140-6500
DESIGN HEAD = 1.40m, DESIGN FLOW = 5.0 l/s
INVERT LEVEL = 86.500m

MANHOLE COVER LEVELS TO BE ADJUSTED TO THE IN WITH NEW SITE LEVELS.

12.0 MANHOLE SCHEDULE - ADAPTABLE FOLLWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
F01	88.514	86.165	2.349	TYPE B	1200 DIA	750x600	600x600	D400	388341.576	400705.442
F02	88.625	86.975	1.650	TYPE B	1200 DIA	750x600	600x600	D400	388344.315	400702.120

MANHOLE COVER LEVELS TO BE ADJUSTED TO THE IN WITH NEW SITE LEVELS.

13.0 NOTES

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13.12 ALL SURFACE WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:100 GRADIENT U.N.O. ALL FOUL WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:40 GRADIENT UNLESS A TOILET IS LOCATED UPSTREAM WHERE MINIMUM GRADIENT SHOULD BE 1:80.

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13.26 MARSHALLS VERTICAL JOINT SEALANT, M-SEAL, SHALL BE APPLIED TO ALL VERTICAL JOINTS OF THE CHANNEL.

14.0 MANHOLE SCHEDULE - EXISTING ADOPTED

REF	COVER LEVELS	INVERT LEVELS	DEPTH
EX MH1	88.020	85.500	2.520
EX MH2	88.230	85.380	2.850
EX MH3	88.250	85.540	2.710
EX MH4	88.430	86.055	2.375
EX MH5	88.420	86.385	2.035
EX MH6	88.520	86.380	2.140
EX MH7	88.500	86.840	1.660
EX MH8	88.450	86.850	1.600

15.0 MANHOLE SCHEDULE - ADAPTABLE STORMWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
S01	88.475	86.450	2.025	TYPE B	1200 DIA	750x600	600x600	D400	388336.305	400702.116
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Product Code: SH-6100-6500-140-6500
DESIGN HEAD = 1.40m, DESIGN FLOW = 5.0 l/s
INVERT LEVEL = 86.500m

MANHOLE COVER LEVELS TO BE ADJUSTED TO THE IN WITH NEW SITE LEVELS.

16.0 MANHOLE SCHEDULE - ADAPTABLE FOLLWATER

REF	COVER LEVELS	INVERT LEVELS	DEPTH	TYPE	MH DMS	COVER SLAB	COVER FRAME	COVER GRADE	EASTING	NORTHING
F01	88.514	86.165	2.349	TYPE B	1200 DIA	750x600	600x600	D400	388341.576	400705.442
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17.5 STATUTORY SERVICES INDICATED (PRIOR TO ANY WORKS TAKING PLACE) ARE FOR INFORMATION PURPOSES ONLY AND MUST BE CONFIRMED.

17.6 IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT EXISTING SERVICES MEDIA AFFECTED BY THE PROPOSED WORKS.

17.7 ANY EXISTING DRAINAGE ON SITE IS TO BE INVESTIGATED, SURVEYED AND AS FOUND TO BE NECESSARY EITHER MAINTAINED, DIVERTED OR ABANDONED (SUBJECT TO APPROVAL OF THE SEWERAGE UNDERTAKER).

17.8 VITRIFIED CLAY DRAINAGE GOODS TO BE HEPWORTH SUPERLEVEE OR SIMILAR TO BS EN 295-1. PLASTIC DRAINAGE GOODS TO BE HEPWORTH PLASTIDRAINER OR SIMILAR (STRENGTH CLASS & BEDDING TO BE AS INDICATED ON THE TYPICAL DRAINAGE DETAILS DRAWING).

17.9 DRAINAGE BENEATH SOFT LANDSCAPING WITH LESS THAN 600mm COVER TO BE CONCRETE ENCASED. DRAINAGE BENEATH ROAD PARKING WITH LESS THAN 150mm COVER TO BE CONCRETE ENCASED.

17.10 DRAINS WHICH ARE CONCRETE ENCASED TO HAVE 180mm FIBREGLASS OR POLYSTYRENE JOINTS AT 5m (MAX) CENTRES.

17.11 ALL NEW HOUSING TO BE PILE FOUNDATIONS WITH ALL PILE DEPTHS GREATER THAN ALLOWED DRAINAGE.

17.12 ALL SURFACE WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:100 GRADIENT U.N.O. ALL FOUL WATER DRAINS TO BE MINIMUM 100mm DIA AT MINIMUM 1:40 GRADIENT UNLESS A TOILET IS LOCATED UPSTREAM WHERE MINIMUM GRADIENT SHOULD BE 1:80.

17.13 COVER LEVELS ARE APPROXIMATE AND TO BE VERIFIED ON SITE.

17.14 INTERNAL INSPECTION CHAMBERS TO BE PROVIDED WITH DOUBLE SEAL ACTION OPEN DOWN COVERS.

17.15 POLYPROPYLENE (PP) TO INCLUDE 100mm (MIN) CONCRETE SURROUND WHEN LOCATED IN HARSH STANDINGS (SEE DETAILS).

17.16 PP/CBS DEEPER THAN 1.2m TO HAVE REDUCED ACCESS (RA COVER-3500).

17.17 ALL ADAPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH DESIGN AND CONSTRUCTION GUIDANCE FOR FOUL AND SURFACE WATER SERVICES OFFERED ON ADIPTION UNDER THE CODE FOR ADOPTION AGREEMENTS FOR WATER AND SEWERAGE COMPANIES (ORIGINALLY BY ORIGINALLY IN THE CODE). THE RELEVANT BRITISH EUROPEAN STANDARDS AND UNITED UTILITIES REQUIREMENTS.

17.18 THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING UNITED UTILITIES PLS DRAWINGS CONTAINING THEIR DEVELOPER SERVICES STANDARD DETAILS >

- STD101001A - DETAIL 1 - MANHOLE TYPE 1
- STD101001A - DETAIL 2 - MANHOLE TYPE 2
- STD101001A - DETAIL 3 - MANHOLE TYPE 4
- STD101001A - DETAIL 4 - MANHOLE TYPE 5
- STD101001A - FLOW CONTROL MANHOLE
- STD101001A - EXTERNAL BACKCROP DETAIL
- STD101001A - PIPE BEDDING DETAIL
- STD101001A - VARIABLE MANHOLE FEATURES
- STD101001A - HEADWALL TYPE 1 DETAIL
- STD101001A - HEADWALL TYPE 2 DETAIL

17.19 MANHOLE COVERS SHALL HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS 440 TO BS EN 124 WITH 100mm DEEP FRAMES IN HARSHINGS.

17.20 COVER SLABS MUST CARRY THE 30 TONNE MARK. WHERE THE CLEAR OPENING OF THE SITE MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME A LADY MARKING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm x 600mm. PLEASE REFER TO CONCRETE PIPES SYSTEM ASSOCIATION (CPA) TECHNICAL BULLETIN AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

17.21 THE LINEAR DRAINAGE SYSTEM SHALL BE BRICO (SEE DRAWING FOR DETAILS), MANUFACTURED IN PRE-CAST CONCRETE, WITH THE EXCEPTION OF CERTAIN FINISHES MANUFACTURED IN STEEL, ON CAST IRON, AND INSTALLED IN ACCORDANCE WITH MARSHALLS STANDARD DETAIL SHEETS.

17.22 THE LINEAR DRAINAGE SHALL BE A TWO PART SYSTEM CONSISTING OF STEEL OR CAST IRON DRAINAGE COVERS TO BE PRECAST CONCRETE DRAINAGE CHANNELS. DRAINAGE CHANNELS TO COMPOSE CONSTANT DEPTH AND INSET FALL UNITS AS REQUIRED TO SATISFY THE HYDRAULIC DESIGN.

17.23 ALL COMPONENTS OF THE MARSHALLS BRICO SYSTEM, SHALL COMPLY WITH LCA CLASSIFICATION AND IN ACCORDANCE WITH BS EN 1432:2002.

17.24 THE LINEAR DRAINAGE SYSTEM COMPOSING DRAINAGE COVERS, CONSTANT DEPTH AND INSET FALL CHANNELS, OUTFALLS, T JUNCTION CHANNELS, EN CAPS, CAP OUTLETS, AND SEALANTS SHALL BE INSTALLED TO THE LINE AND LEVEL INDICATED IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND STANDARD DETAILS.

17.25 BRICO OUTFALLS TO BE 150 SIDETRAP U.N.O. (SUPPLIED IN TWO SECTIONS WITH UNIVERSAL FIT SEAL AND STOPPER INCLUDED). OUTFALL SECTIONS TO BE BEDDED USING MARSHALLS POLYURETHANE SEALANT.

17.26 MAR