- Undue risk in the event of failure of the drain or sewer
- Maintaining access
- Protection of the drain or sewer during construction
- Protection from settlement
- Protection against piling

To discuss the diversion of this asset in further detail, please contact:

Laura King
07966230147
laura.king@nwl.co.uk

To discuss the protection of this asset in further detail, please contact:

Niki Mather
07764 359220
niki.mather@nwl.co.uk

- Sewage Treatment Capacity

The Sewage Treatment Works to which this development finally discharges to is '**Jarrow STW**' and these works are able to accept the additional flows.

Please note that this response is valid for 1 year only and you should resubmit your proposals should this period lapse prior to your development beginning.

Should you require any further assistance or information, then please do not hesitate to contact me at developmentenquiries@nwl.co.uk or alternatively on 07543301284, please quote our reference number above in any future correspondence.

Yours sincerely,

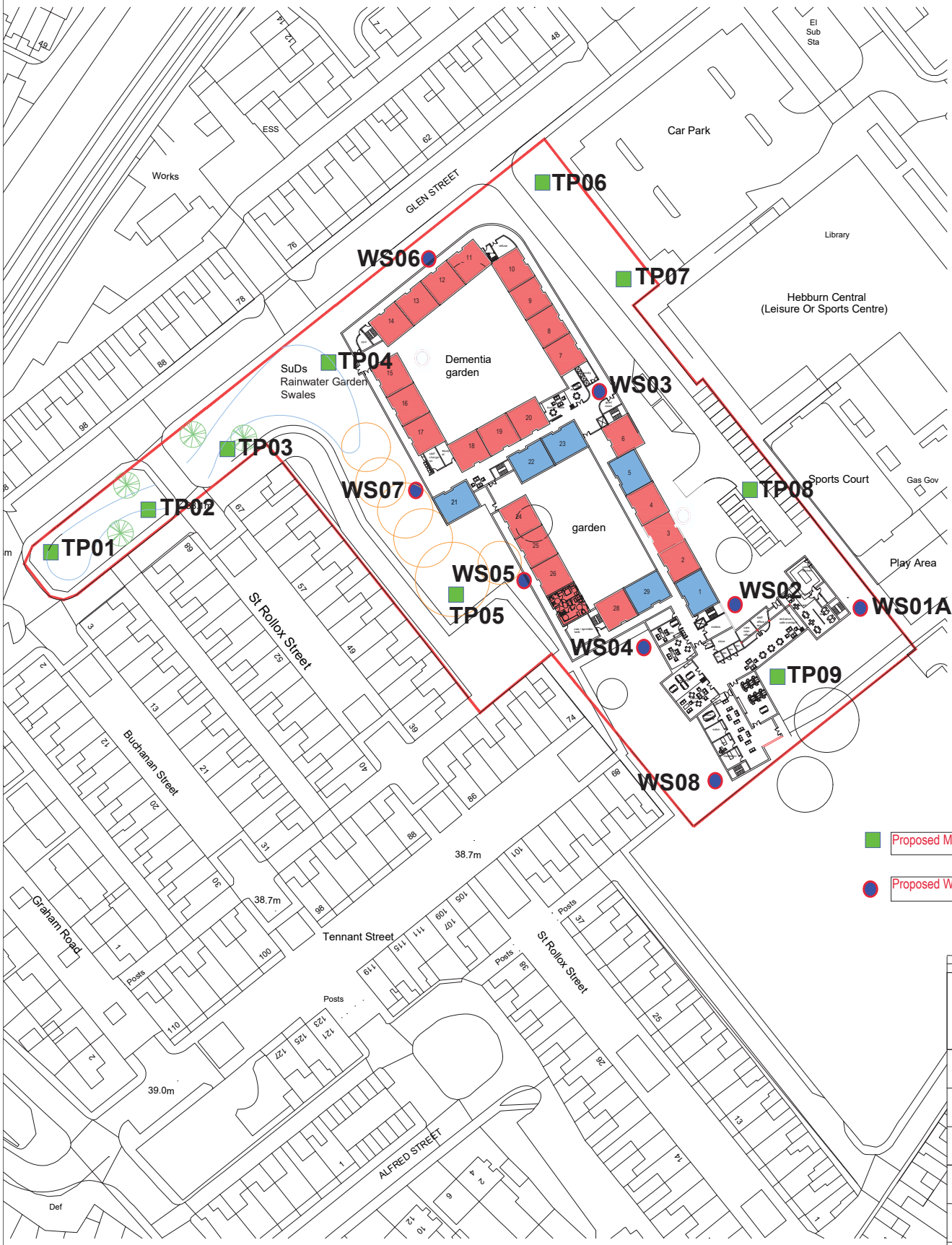
S Clarke

Sophie Clarke
Technical Support Advisor
Developer Services

Appendix F Borehole and Trial Pit Logs

NOTES:

1. DO NOT SCALE from the drawing
2. Further dimensions required to be requested from the project technical team
3. Report discrepancies to JDDK project team immediately.
4. This model file contains the following consultants model files:-
   a) FAIRHURST
   b) Mechnical Model
   c) Electrical Model
   d) Subcontractor Model



Proposed Mechanically Excavated Trial Pit

Proposed Windowless Sampling Borehole

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REV	ISSUED BY	DATE	DESCRIPTION
B	MM	080722	Scheme revised.
A	MM	290622	First issue.

REVISION LOG

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Newcastle upon Tyne
NE5 3AL
t. 0191 286 0811
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e. millmount@jddk.co.uk
jddk.co.uk
DISCOVER DESIGN DELIVER

CLIENT: Karbon Homes

PROJECT TITLE: Hebburn Extracare

PROJECT ADDRESS:

TITLE: Proposed Ground Floor Plan

MAIN CONTRACTOR:

QUANTITY SURVEYOR:

M&E CONSULTANT:

STRUCTURAL CONSULTANT:

OTHER CONSULTANT:

DRAWING No.: 4266-JDDK-XX-XX-DR-A-1001

REV: B

JDDK INTERNAL REF:	4266	JDDK REF NO:	4266
SCALE:	1 : 500 @ A1	ISSUE DATE:	23/06/22
DRAWN BY:	MM	CHECKED BY:	MM

STATUS:

PURPOSE OF ISSUE: PRELIMINARY

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS01A**
Job No: 22-1144	Date: 20-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.15	J/D					0.20	Grass overlying dark brown sandy clayey soil with fragments of sandstone and coal (MADE GROUND)		
						(0.52)	Firm dark brown sandy gravelly clay with fragments of brick, plastic and glass (MADE GROUND)		
						0.72			
						0.74	Concrete (MADE GROUND)		
							Borehole terminated at c.0.74m bcgl due to concrete obstruction		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Terminated due to concrete obstruction

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS01B**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						(0.30) 0.30	Grass overlying dark brown sandy clayey soil with fragments of brick, sandstone and coal (MADE GROUND)		
						0.34	Concrete (MADE GROUND)		
							Borehole terminated at c.0.34m bcgl due to concrete obstruction		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Terminated due to concrete obstruction

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Windowless Sampling	Logged By KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS01C**
Job No: 22-1144	Date: 20-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.17	Grass overlying dark brown sandy clayey soil with whole bricks and fragments of sandstone and coal (MADE GROUND)		
0.40	J/D					(0.37) 0.54	Firm dark brown sandy gravelly clay with fragments of brick, plastic and glass (MADE GROUND)		
						0.57	Timber shuttering (MADE GROUND)		
							Borehole terminated at c.0.57m bcgl due to timber obstruction		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	Terminated due to timber obstruction

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

AGS3 UK BH 22-1144.GPJ AGS3_ALL.GDT 1/24/23

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS02**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						0.25	Dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
0.20	J/D					(0.30) 0.55	Soft to firm dark brown slightly gravelly sandy clay with whole brick and concrete fragments (MADE GROUND)		
0.60	J/D					(1.85) 2.40	Firm becoming stiff (high strength) light orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine to medium sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
1.20	B								
1.50	V	105kN/m^2							
2.00	B								
2.00-2.45	SPT	N=24							
2.00	V	>120kN/m^2							
2.50	B					(2.60) 5.00	Stiff (high strength) dark grey sandy gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
3.00	B								
3.00	V	>120kN/m^2							
3.70	B								
4.00-4.45	SPT	N=21							
4.00	V	>120kN/m^2							
4.30	B								
5.00	B								
5.00	V	>120kN/m^2							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Borehole remained open and dry during exploratory period.

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Windowless Sampling	Logged By KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS03**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	23-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.10	J/D					0.25	Grass overlying dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
						(1.09)	Soft to firm dark brown sandy gravelly clay with brick and occasional sandstone cobble (MADE GROUND)		
1.00	B					1.34			
1.50	V	>120kN/m^2					Firm becoming stiff (high strength) light orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine sub-angular sandstone with occasional coal fragments (PELAW CLAY)		
1.70	B								
2.00-2.45	SPT	N=23							
2.00	V	>120kN/m^2							
2.50	B					(2.36)			
3.00	V	>120kN/m^2							
3.30	B					3.70			
							Stiff (high strength) dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
4.00	B								
4.00-4.45	SPT	N=22							
4.00	V	>120kN/m^2				(1.30)			
4.70	B					5.00			
5.00	V	101kN/m^2							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	WATER: Water strike noted at c.1.20m bcgl

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Windowless Sampling	Logged By KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS04**
Job No: 22-1144	Date: 20-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
						(0.35) 0.35	Dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
0.30	J/D					(0.89) 1.24	Firm dark brown slightly gravelly sandy clay with whole brick and fragments of sandstone and brick (MADE GROUND)		
1.00	B								
1.20-1.65	SPT	N=7				(0.76) 2.00	Firm to stiff dark orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine to medium sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
1.60	B								
2.00	V	>120kN/m^2				(2.50) 4.50	Stiff (high strength) dark brown slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
2.30	B								
3.00	B								
3.00-3.45	SPT	N=21							
3.00	V	>120kN/m^2							
3.80	B								
4.00	V	>120kN/m^2							
4.50	B					(0.95) 5.45	Firm to stiff dark brown slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
5.00-5.45	SPT	N=18							
5.00	V	>120kN/m^2							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

WATER: Water strike noted at c.0.80m with standing water at c.1.20m

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS05**
Job No: 22-1144	Date: 23-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.05	J/D					0.07	Black sandy gravelly ash (MADE GROUND)		
0.20	B					(0.38) 0.45	Soft to firm light orange brown sandy gravelly clay with fragments of brick, glass and ash (MADE GROUND)		
0.60	B					(0.45) 0.90	Dark brown slightly clayey gravelly sand with whole brick, plastic and ash (MADE GROUND)		
1.20-1.65	SPT	N=6				(1.15) 2.05	Firm becoming stiff (high strength) light orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine to medium sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
1.50	B								
1.50	V	115kN/m^2							
2.00	V	>120kN/m^2							
2.20	B						Stiff (high strength) dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
3.00	B								
3.00-3.45	SPT	N=18							
3.00	V	>120kN/m^2							
3.75	B					(3.40)			
4.00	V	>120kN/m^2							
4.60	B								
5.00-5.45	SPT	N=23							
5.00	V	>120kN/m^2				5.45			

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

WATER: Water strike noted at 4.05m bcgl

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS06**
Job No: 22-1144	Date: 23-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.15	J/D					0.20	Grass overlying dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
0.50	B					(0.75)	Firm dark brown slightly gravelly sandy clay with whole brick and fragments of sandstone and brick (MADE GROUND)		
						0.95			
1.10	B						Firm becoming stiff light orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine to medium sub-angular to sub-rounded sandstone with occasional sandstone cobble and coal fragments (PELAW CLAY)		
1.20-1.65	SPT	N=8							
1.50	V	106kN/m^2				(1.05)			
1.80	B								
						2.00			
2.00	V	>120kN/m^2					Stiff (high strength) dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional sandstone cobble and coal fragments (PELAW CLAY)		
2.50	B								
3.00-3.45	SPT	N=17				(2.15)			
3.00	V	>120kN/m^2							
3.20	B								
4.00	B								
4.00	V	>120kN/m^2				4.15			
							Borehole terminated at c.4.15m bcgl due to possible service / sandstone cobble		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER: Borehole remained open and dry during exploratory period.

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS07**
Job No: 22-1144	Date: 23-01-23	Ground Level (m)	Co-Ordinates ()	
Contractor: Arc Environmental Limited				Sheet: 1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.05	J/D					(0.40) 0.40	Grass overlying dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
0.70	B					(0.60) 1.00	Dark brown slightly clayey gravelly sand with whole brick, plastic and ash (MADE GROUND)		
1.40 1.50	B V	 90kN/m^2				(0.76) 1.76	Firm becoming stiff (high strength) light orange brown mottled grey sandy gravelly CLAY. Gravel comprises fine to medium sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
2.00 2.00-1.65 2.00 2.80 3.00 3.60 4.00-4.45 4.00	B SPT V B V B SPT V	 N=19 >120kN/m^2 >120kN/m^2 N=24 >120kN/m^2				(2.34) 4.10	Stiff (high strength) dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		
4.50	B					(0.90) 5.00	Firm to stiff dark brown mottled grey slightly sandy slightly gravelly CLAY. Gravel comprises fine sub-angular to sub-rounded sandstone with occasional coal fragments (PELAW CLAY)		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To

GENERAL REMARKS

WATER: Borehole remained open and dry during exploratory period.

All dimensions in metres Scale 1:37.5	Client: Portland Consulting	Method/ Plant Used: Windowless Sampling	Logged By: KC

ARC ENVIRONMENTAL

BOREHOLE LOG

Project				BOREHOLE No
Hebburn Extracare				**WS08**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	23-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.15	J/D					(0.30) 0.30	Grass overlying dark brown sandy gravelly clayey soil with brick fragments (MADE GROUND)		
0.65	B					(0.92) 1.22	Firm dark brown sandy gravelly clay with whole brick and fragments of brick, concrete and sandstone (MADE GROUND)		
						1.24	Concrete / sandstone (MADE GROUND)		
							Borehole terminated at c.1.24m bcgl due to possible service. CAT scan detetcting power at base of hole		

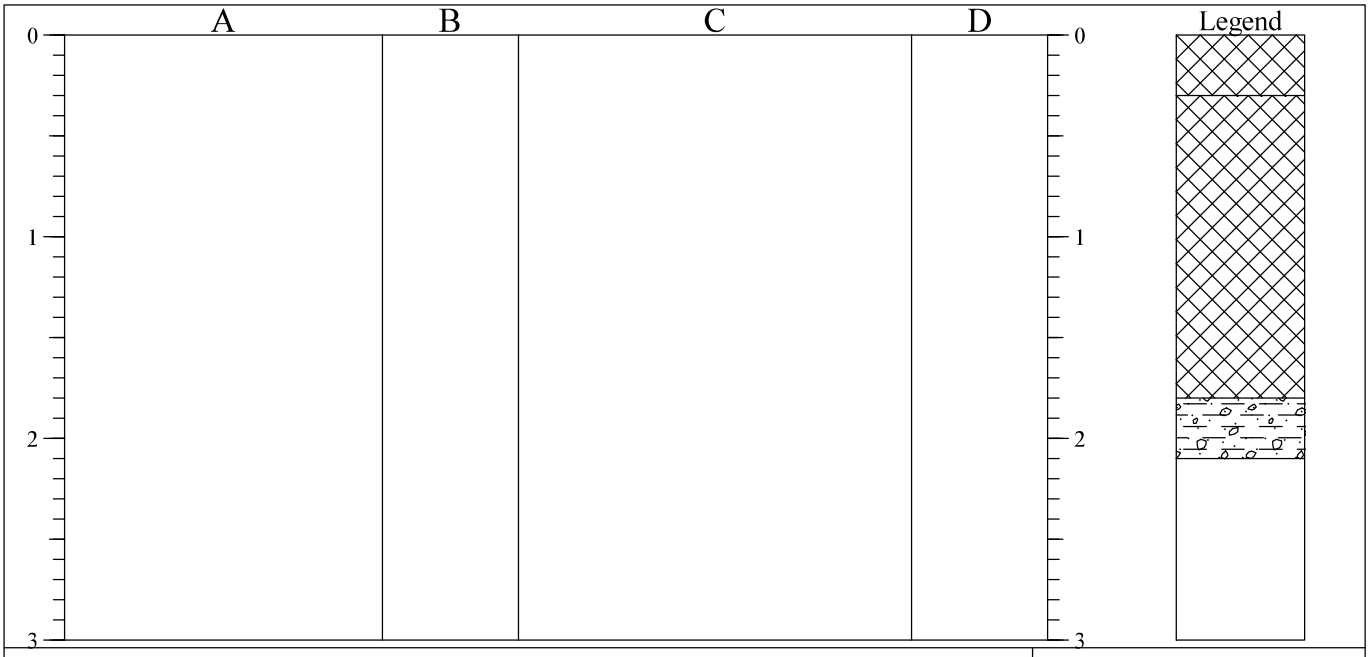
Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											Terminated due to possible service

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Windowless Sampling	Logged By KC

Arc Environmental Limited
Solum House, 1 Elliott Court, Meadowfield
Durham DH7 8PN
Telephone: 0191 378 6380

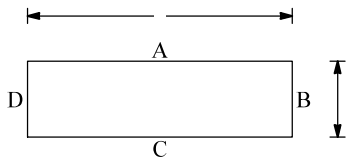
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP01**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)			
0.30-1.80		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, timber and occasional clinker fragments (MADE GROUND)	0.25	J/D	
			1.00	J/D	
1.80-2.10		Stiff (locally firm) (medium / high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)	2.00	B	
			2.00	V	90N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

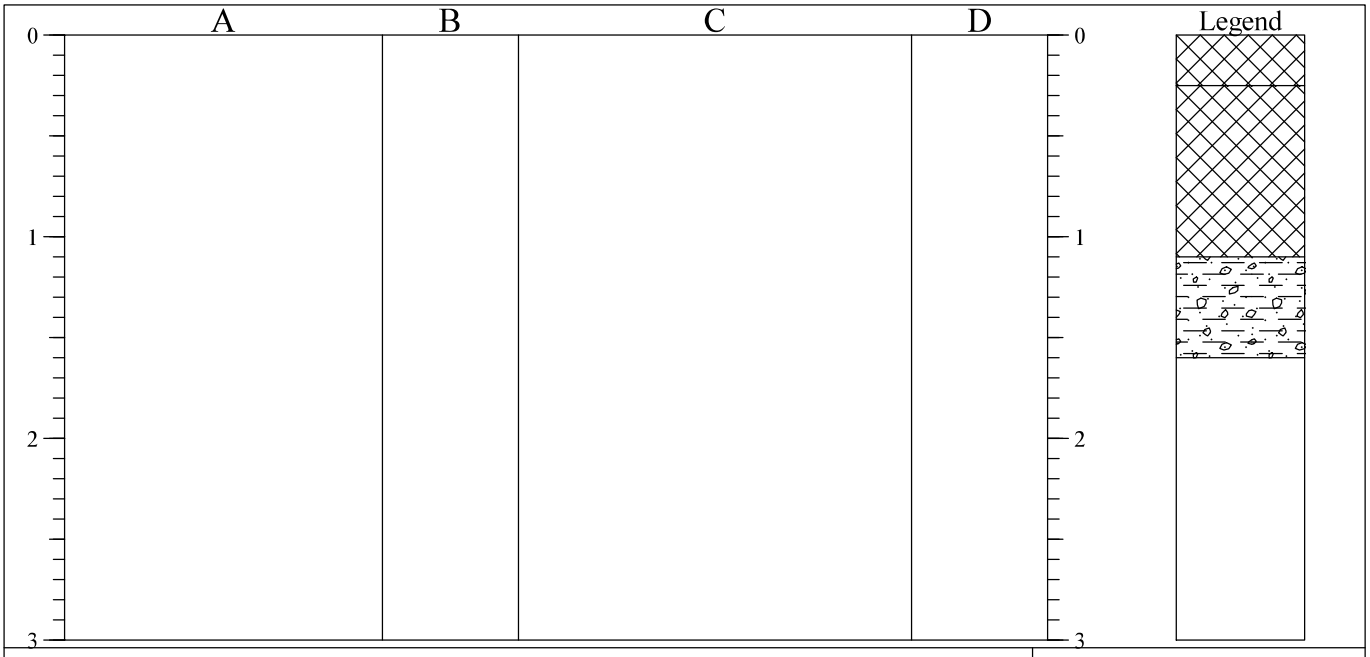
WATER: Trial pit remained open and stable with a slight seepage from within the made ground materials at c.1.50m depth

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

Arc Environmental Limited
Solum House, 1 Elliott Court, Meadowfield
Durham DH7 8PN
Telephone: 0191 378 6380

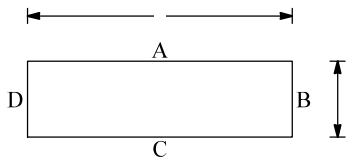
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP02**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)	0.15	J/D	
0.25-1.10		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, timber, clay pipe, concrete paving and occasional clinker fragments (MADE GROUND)	0.75	J/D	
1.10-1.60		Stiff (locally firm) (medium / high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)	1.50	B	
			1.50	V	80N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

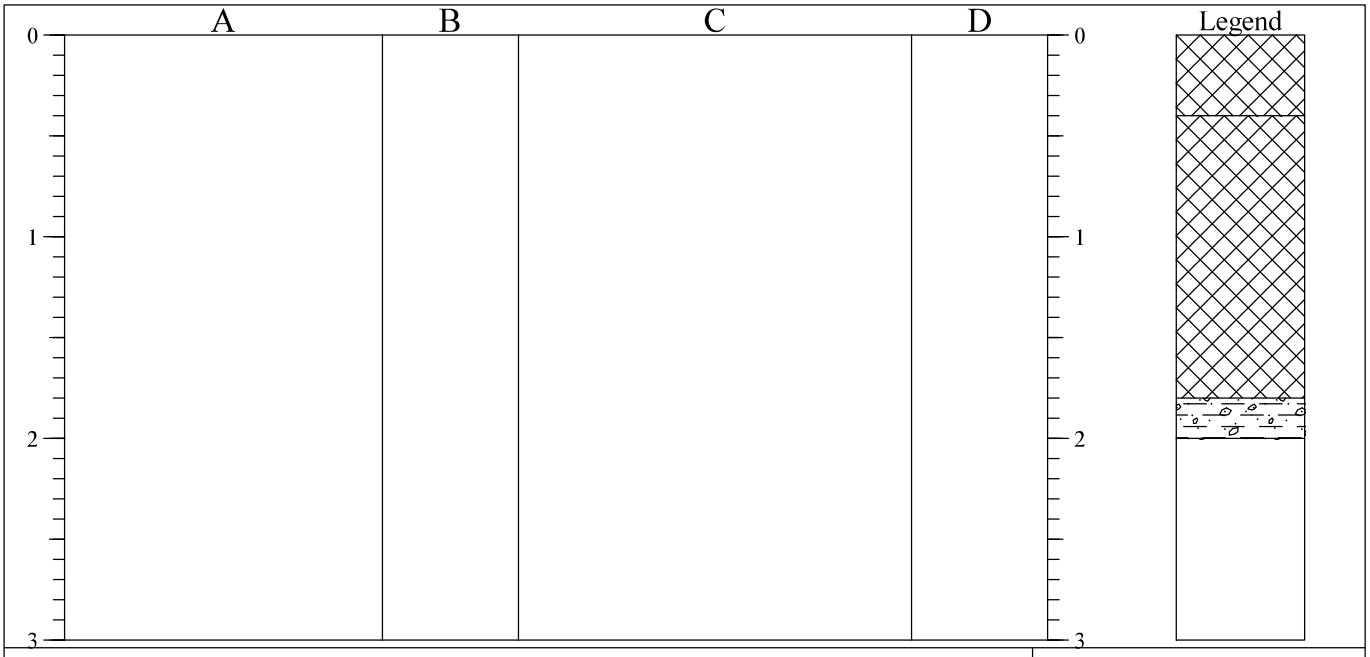
WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

Arc Environmental Limited
Solum House, 1 Elliott Court, Meadowfield
Durham DH7 8PN
Telephone: 0191 378 6380

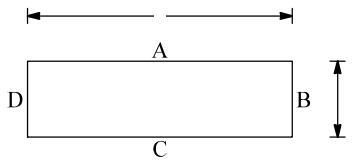
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP03**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)			
			0.30	J/D	
0.40-1.80		Firm orangish brown slightly sandy slightly gravelly clay with broken bricks, concrete and plastic pipe (MADE GROUND)			
			1.20	J/D	
1.80-2.00		Stiff (high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)	1.90	B	
			2.00	V	>120N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

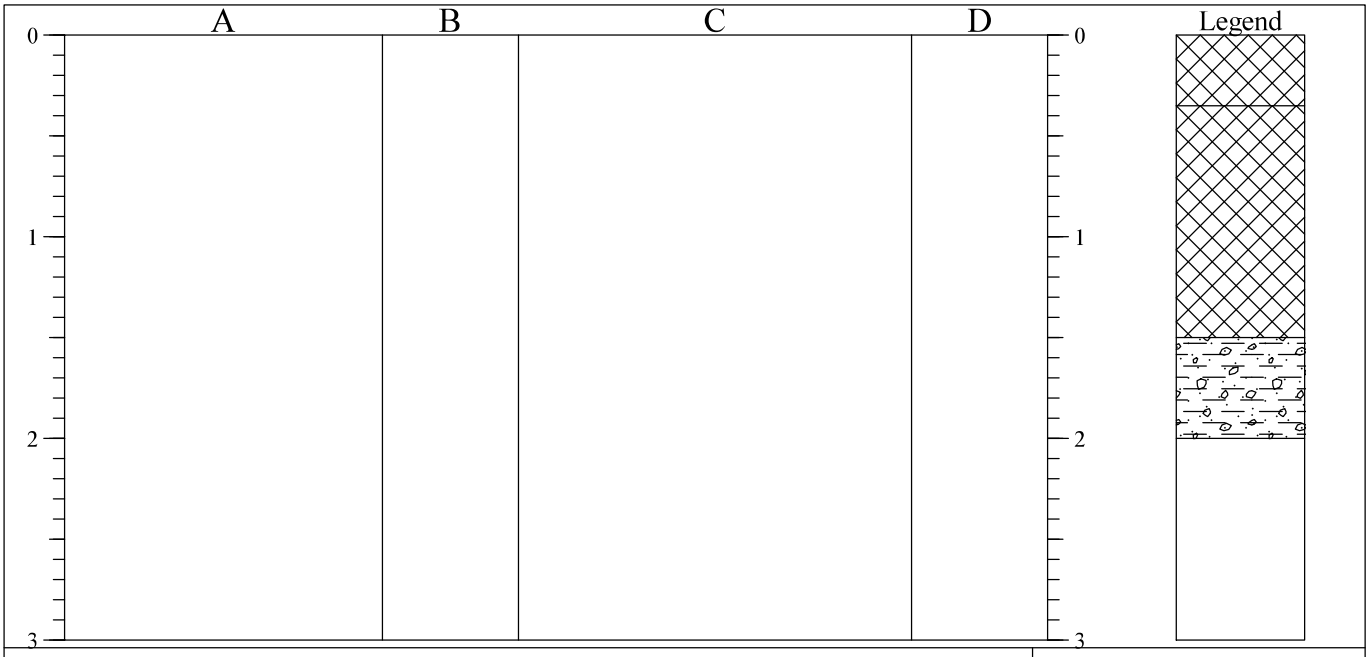
WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

Arc Environmental Limited
Solum House, 1 Elliott Court, Meadowfield
Durham DH7 8PN
Telephone: 0191 378 6380

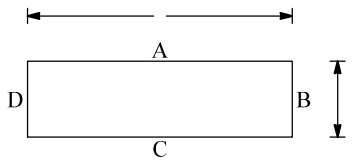
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP04**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)			
			0.25	J/D	
0.35-1.50		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, large concrete blocks, timber and occasional clinker fragments (MADE GROUND)			
			0.80	J/D	
1.50-2.00		Stiff (locally firm) (medium / high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)			
			1.75	V	90N/m^2
			1.80	B	

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

AGS3 UK TP 22-1144.GPJ AGS3_ALL.GDT 30/1/23

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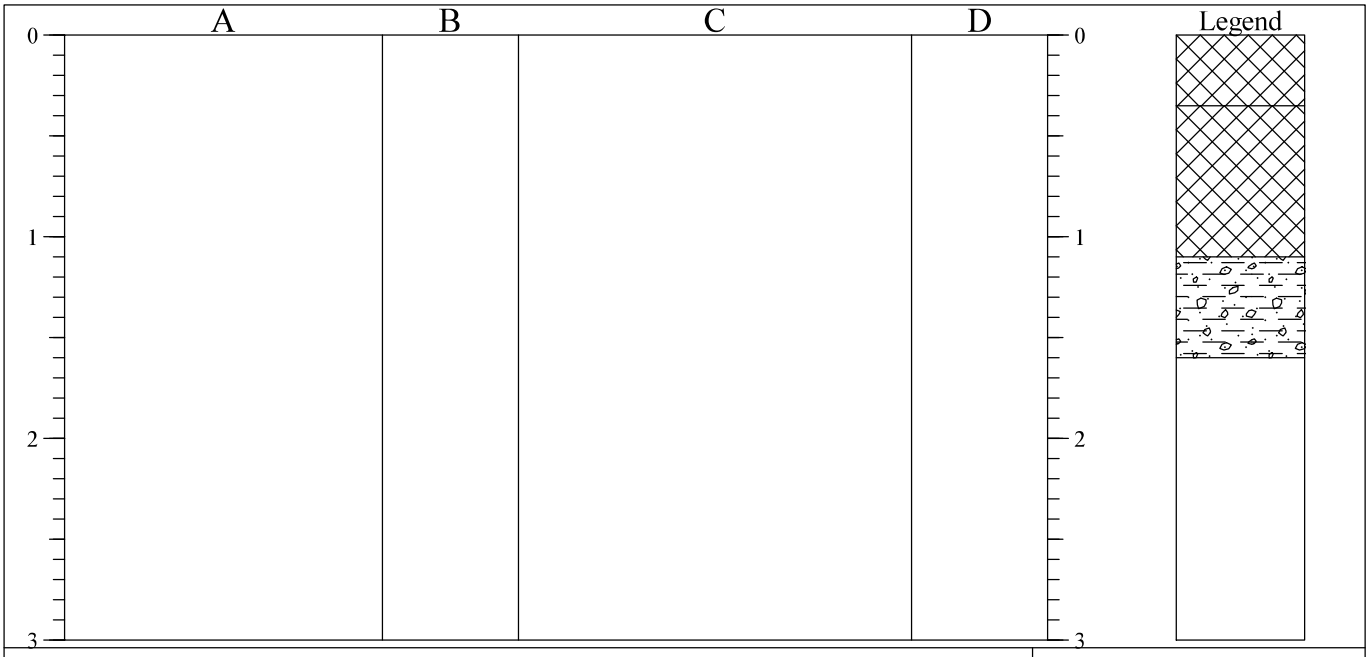
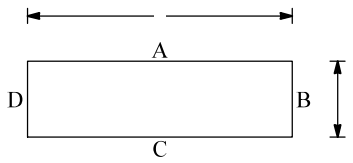
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP05**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Grass overlying dark brown sandy clay with roots and rootlets (MADE GROUND)	0.20	J/D	
0.35-1.10		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, timber and occasional clinker fragments (MADE GROUND)	1.00	J/D	
1.10-1.60		Stiff (locally firm) (medium / high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)	1.40	B	
			1.50	V	85N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

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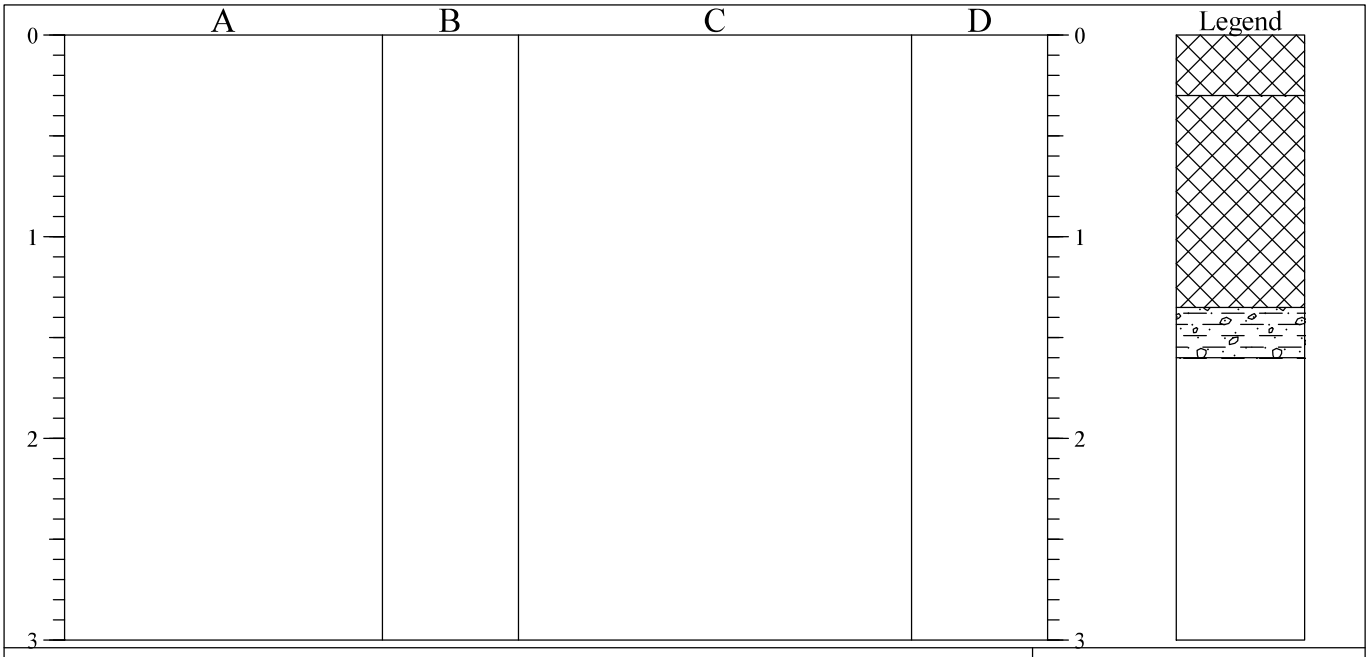
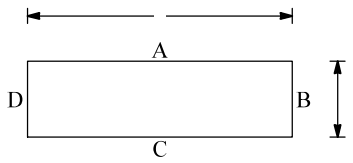
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP06**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)			
0.30-1.35		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, large concrete blocks, timber and occasional clinker fragments (MADE GROUND)	0.20	J/D	
			1.00	J/D	
1.35-1.60		Stiff (locally firm) (medium / high strength) brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments and clayey sand pockets. Gravels comprise medium to coarse subangular sandstone (PELAW CLAY)	1.40 1.50	V B	95N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

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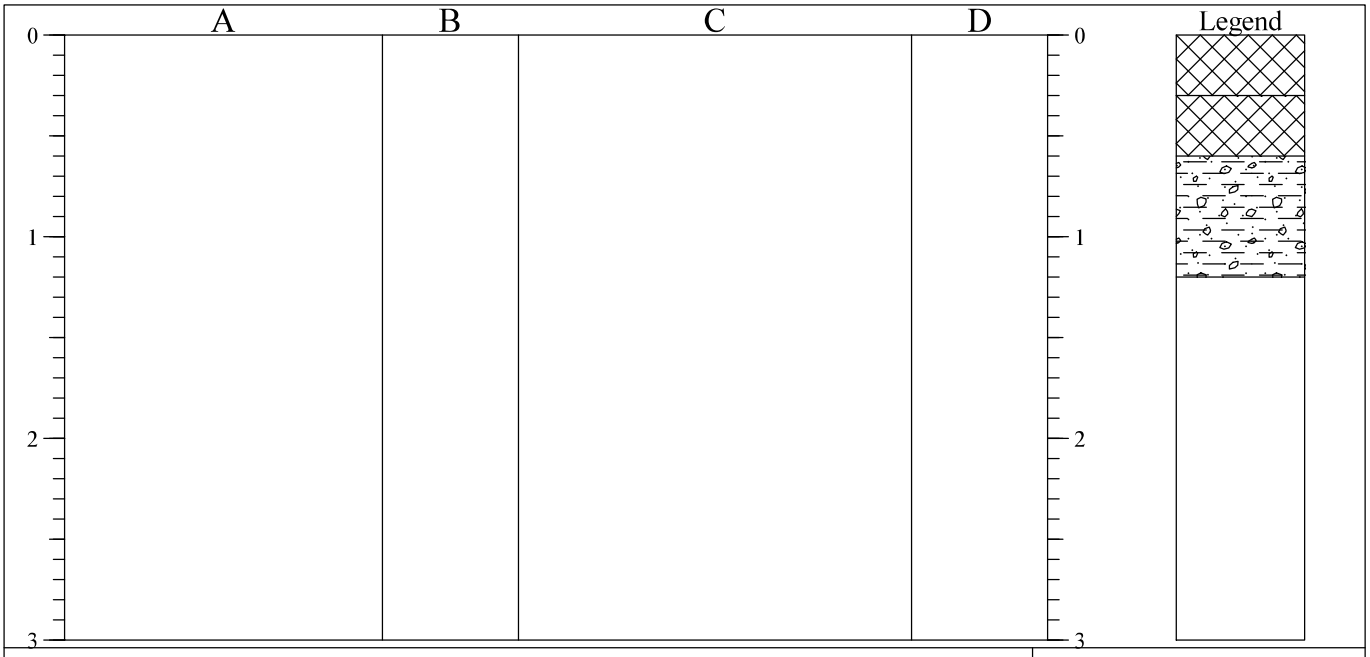
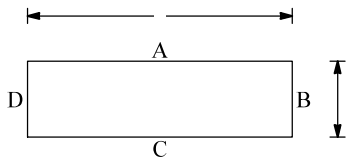
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP07**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)	0.10	J/D	
0.30-0.60		Dark brown sandy clayey slightly ashy gravel / gravelly clay with broken bricks, slate, timber and occasional clinker fragments. Relic brick foundation noted to extend to c.0.50m in eastern end of trial pit (MADE GROUND)	0.50	J/D	
0.60-1.20		Firm (locally stiff) (medium / high strength) orangish brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments (PELAW CLAY)	1.00	B	
			1.20	V	85N/m^2

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

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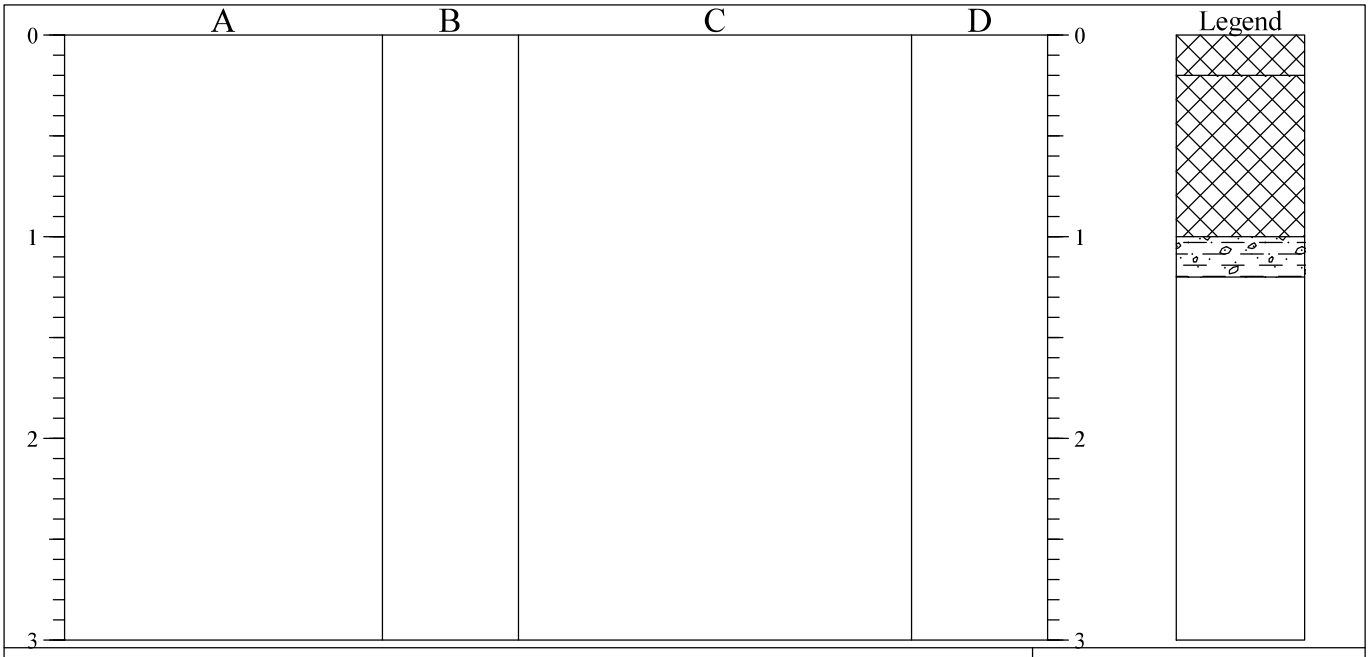
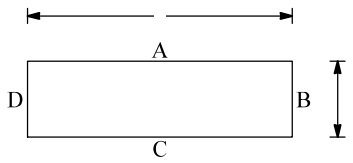
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP08**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)			
0.20-1.00		Dark brown sandy clayey slightly ashy gravelly clay with broken bricks, slate, timber and occasional clinker fragments (MADE GROUND)			
1.00-1.20		Firm (locally stiff) (medium / high strength) orangish brown and grey mottled slightly sandy gravelly CLAY with occasional coal fragments (PELAW CLAY)			
1.20		Trial pit terminated at c.1.20m on possible relic services, having already been extended to avoid c.0.12m diameter plastic ducting at c.0.70m depth in northern end of trial pit			

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

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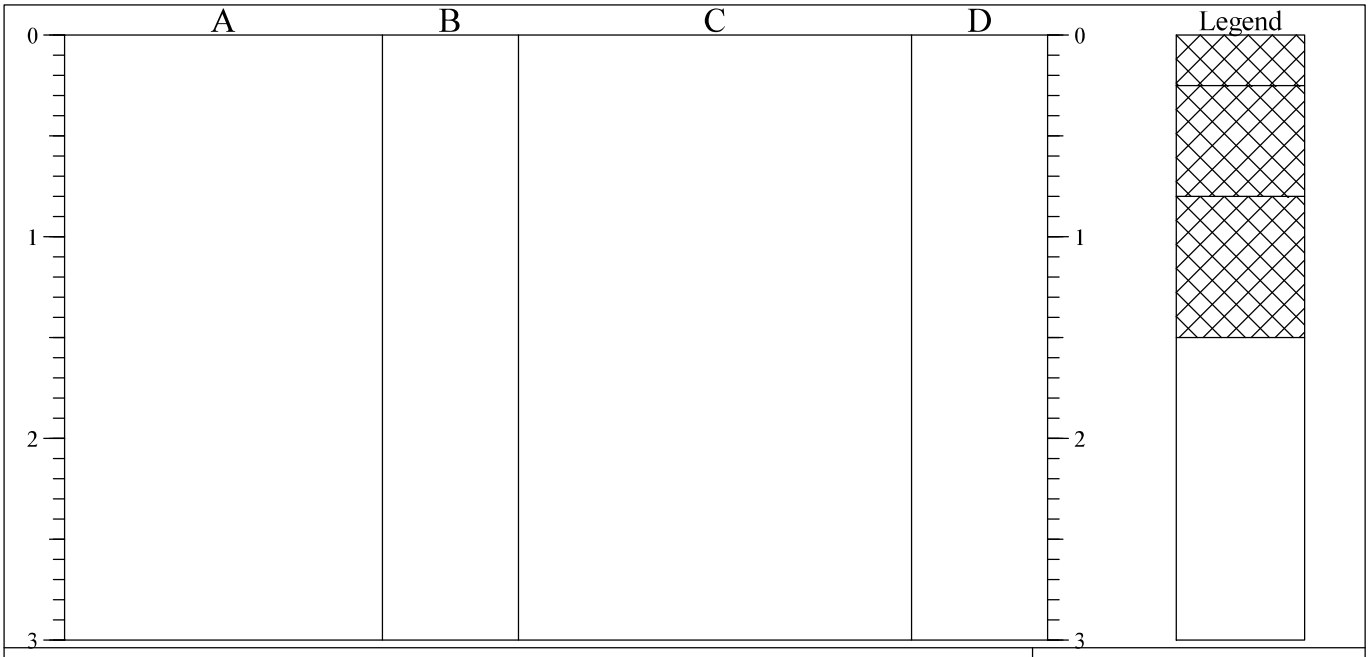
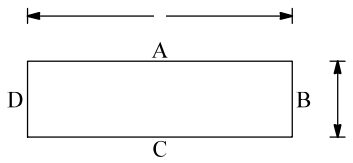
TRIAL PIT LOG

Project				TRIAL PIT No
Hebburn Extracare				**TP09**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
22-1144	20-01-23			
Contractor				Sheet
Arc Environmental Limited				1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Grass overlying dark brown sandy clay with fragments of sandstone and coal (MADE GROUND)	0.15	J/D	
0.25-0.80		Dark brown sandy clayey slightly ashy gravelly clay intermixed with yellowish brown sandy gravel and sandstone cobbles (MADE GROUND)	0.50	J/D	
0.80-1.50		Firm greyish brown slightly sandy slightly gravelly clay with plastic membrane, broken bricks, loose relic cables and metal rods (MADE GROUND)	1.40	J/D	
1.50		Trial pit terminated at c.1.50m on possible relic service comprising c.0.10m diameter cast iron pipe encased in concrete. Trial pit previously extended to east due to buried concrete at c.0.80m depth			

Shoring/Support:
Stability:



GENERAL REMARKS

WATER: Trial pit remained open and dry during exploratory period

All dimensions in metres Scale 1:37.5	Client Portland Consulting	Method/ Plant Used Mechanically Excavated	Logged By LJ

Appendix G Greenfield Run off Calculations

Print Close Report

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Kieran Costello
Site name:	STC Extra Care
Site location:	Hebburn

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	54.97282° N
Longitude:	1.52255° W
Reference:	4135562939
Date:	Jan 10 2023 09:35

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 1.7

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics	Default	Edited
SAAR (mm):	643	643
Hydrological region:	3	3
Growth curve factor 1 year:	0.86	0.86
Growth curve factor 30 years:	1.75	1.75
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates	Default	Edited
Q_{BAR} (l/s):	7.43	7.43
1 in 1 year (l/s):	6.39	6.39
1 in 30 years (l/s):	13	13
1 in 100 year (l/s):	15.46	15.46
1 in 200 years (l/s):	17.6	17.6

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This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

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Appendix H Proposed Hydraulic Calculations

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	17.700	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	20.761	0.085	244.2	0.040	5.00	0.0	0.600		o	300	Pipe/Conduit	
1.001	25.350	0.104	243.8	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.002	7.558	0.031	243.8	0.019	0.00	0.0	0.600		o	375	Pipe/Conduit	
2.000	7.892	0.047	169.0	0.017	5.00	0.0	0.600		o	225	Pipe/Conduit	
1.003	52.528	0.215	244.3	0.110	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.004	59.387	0.243	244.4	0.081	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.005	13.170	0.054	243.9	0.055	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.006	51.390	0.211	243.6	0.026	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.007	15.118	0.147	103.0	0.010	0.00	0.0	0.600		o	375	Pipe/Conduit	
3.000	30.300	0.188	161.2	0.050	5.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.35	38.097	0.040	0.0	0.0	0.0	1.00	70.8	5.4
1.001	50.00	5.77	38.012	0.040	0.0	0.0	0.0	1.00	70.9	5.4
1.002	50.00	5.88	37.908	0.059	0.0	0.0	0.0	1.16	127.7	8.0
2.000	50.00	5.13	38.100	0.017	0.0	0.0	0.0	1.00	39.9	2.3
1.003	50.00	6.63	37.877	0.186	0.0	0.0	0.0	1.15	127.5	25.2
1.004	48.61	7.49	37.662	0.267	0.0	0.0	0.0	1.15	127.5	35.2
1.005	48.04	7.68	37.419	0.322	0.0	0.0	0.0	1.16	127.6	41.9
1.006	45.94	8.42	37.365	0.348	0.0	0.0	0.0	1.16	127.7	43.3
1.007	45.57	8.56	37.154	0.358	0.0	0.0	0.0	1.79	197.2	44.2
3.000	50.00	5.41	38.000	0.050	0.0	0.0	0.0	1.24	87.4	6.8

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
3.001	53.753	0.335	160.5	0.048	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.000	14.727	0.573	25.7	0.009	5.00	0.0	0.600		o	100	Pipe/Conduit	
3.002	15.725	0.098	160.5	0.009	0.00	0.0	0.600		o	300	Pipe/Conduit	
3.003	13.467	0.099	136.0	0.026	0.00	0.0	0.600		o	300	Pipe/Conduit	
5.000	19.377	0.388	49.9	0.021	5.00	0.0	0.600		o	150	Pipe/Conduit	
5.001	20.880	0.432	48.3	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
3.004	35.765	0.147	244.0	0.015	0.00	0.0	0.600		o	300	Pipe/Conduit	
6.000	24.414	0.740	33.0	0.039	5.00	0.0	0.600		o	225	Pipe/Conduit	
6.001	7.850	0.193	40.7	0.010	0.00	0.0	0.600		o	225	Pipe/Conduit	
7.000	25.684	0.626	41.0	0.030	5.00	0.0	0.600		o	225	Pipe/Conduit	
7.001	15.387	0.307	50.1	0.019	0.00	0.0	0.600		o	225	Pipe/Conduit	
6.002	18.387	0.109	169.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
3.005	12.360	0.051	242.4	0.019	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
3.001	50.00	6.13	37.812	0.098	0.0	0.0	0.0	1.24	87.5	13.3
4.000	50.00	5.16	38.250	0.009	0.0	0.0	0.0	1.53	12.0	1.2
3.002	50.00	6.34	37.477	0.116	0.0	0.0	0.0	1.24	87.5	15.7
3.003	50.00	6.51	37.379	0.142	0.0	0.0	0.0	1.35	95.2	19.2
5.000	50.00	5.23	38.250	0.021	0.0	0.0	0.0	1.43	25.2	2.8
5.001	50.00	5.47	37.862	0.021	0.0	0.0	0.0	1.45	25.6	2.8
3.004	49.83	7.11	37.280	0.178	0.0	0.0	0.0	1.00	70.8	24.0
6.000	50.00	5.18	38.250	0.039	0.0	0.0	0.0	2.29	90.9	5.3
6.001	50.00	5.24	37.510	0.049	0.0	0.0	0.0	2.06	81.8	6.6
7.000	50.00	5.21	38.250	0.030	0.0	0.0	0.0	2.05	81.4	4.1
7.001	50.00	5.35	37.624	0.049	0.0	0.0	0.0	1.85	73.6	6.6
6.002	50.00	5.65	37.317	0.098	0.0	0.0	0.0	1.00	39.9	13.3
3.005	49.18	7.31	37.133	0.295	0.0	0.0	0.0	1.01	71.1	39.3

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.008	2.175	0.007	310.7	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.009	8.336	0.026	320.6	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.010	31.237	0.062	503.8	0.000	0.00	0.0		0.035	→_/		Pond/Tank	
1.011	4.520	0.015	300.0	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.012	4.175	0.035	120.8	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.013	5.250	0.044	120.0	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	
1.014	98.255	0.779	126.1	0.000	0.00	0.0	0.600		o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.008	45.47	8.60	37.007	0.653	0.0	0.0	0.0	1.02	112.9	80.4
1.009	45.12	8.74	37.000	0.653	0.0	0.0	0.0	1.01	111.2	80.4
1.010	44.00	9.18	36.899	0.653	0.0	0.0	0.0	1.16	13752.7	80.4
1.011	43.84	9.25	36.837	0.653	0.0	0.0	0.0	1.17	185.8	80.4
1.012	43.75	9.29	36.822	0.653	0.0	0.0	0.0	1.85	294.0	80.4
1.013	43.64	9.33	36.787	0.653	0.0	0.0	0.0	1.85	295.0	80.4
1.014	41.61	10.24	36.744	0.653	0.0	0.0	0.0	1.81	287.7	80.4

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.014		38.100	35.965	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Return Period (years)	2	Profile Type	Summer
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	17.700	Cv (Winter)	0.840

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Synthetic Rainfall Details

Storm Duration (mins) 30

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