



REFERENCE: TBCT/22/10/NG/1SS

CLIENT: ONE SILK STREET LTD

ADDRESS: LAND BOUNDED BY BENGAL STREET, PRIMROSE STREET, RADIUM STREET AND SILK STREET, MANCHESTER, M4 6AQ

DEVELOPMENT DETAILS: ERECTION OF A 9 STOREY BUILDING TO FORM GROUND, FIRST AND SECOND FLOOR OFFICE ACCOMMODATION (USE CLASS B1) (3124 SQM) TOGETHER WITH 75 RESIDENTIAL APARTMENTS (USE CLASS C3A) WITH ASSOCIATED CAR PARKING, AMENITY PROVISION AND OTHER ASSOCIATED WORKS FOLLOWING DEMOLITION OF EXISTING BUILDINGS

DATE: 8/11/2022

PRODUCED BY:

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1.0 Scope and Background to the Post Construction Environmental Standards Review

Planning was granted by Manchester City Council under Application reference 120893/FO/2018 on 9th August 2018.

In its decision letter the council stated under condition 11;

11) The development hereby approved shall be carried out in accordance with the Environmental Standards and energy statement stamped as received by the City Council, as Local Planning Authority, on the 3 August 2018. A post construction review certificate/statement shall be submitted for approval, within a timescale that has been previously agreed in writing, to the City Council as Local Planning Authority.

Reason - In order to minimise the environmental impact of the development pursuant to policies SP1, T1-T3, EN4-EN7 and DM1 of the Core Strategy and the principles contained within The Guide to Development in Manchester SPD (2007) and the National Planning Policy Framework.

This report will seek to establish that the standards and energy statement were followed and the attached BRUKL report and SAP Compliance report will evidence as such.

2.0 Introduction to the Development and the Site Location

The development is the erection of a 9 storey building to form ground, first and second floor office accommodation (use class b1) (3124 sqm) together with 75 residential apartments (use class c3a) with associated car parking, amenity provision and other associated works following demolition of existing buildings.

The site is flanked by Bengal Street, Primrose Street, Radium Street and Silk Street and the development site is known as One Silk Street.



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3.0 Summary of the Environmental Standards and energy statement

As per the wording of the planning condition, an Environmental Standards and Energy Statement prepared by Beechfield Consulting Engineers was received by the Council on August 8th.

A summary of the proposals is encapsulated in the Conclusion section of the report and is printed below for ease.

This Statement has reviewed the environmental performance of the proposed development at Bengal Street, Manchester against national and local policies.

The material specification and servicing strategy for the scheme and the building (carbon dioxide) emission rates for the various uses throughout the development have also been reviewed.

Minimising the impacts of climate change is a key element of the proposed design. The proposed energy strategy will incorporate an enhanced 'fabric led' material specification, along with high quality design and construction standards to improve the energy efficiency of the buildings. These proposals will deliver a scheme that is inherently efficient and cost effective during occupation and that accords with the adopted Core Strategy Policy EN 4, EN6 and the Supplementary Planning Document (SPD) criteria.

- The development will be designed and specified in accordance with the principles of the energy hierarchy in line with the adopted Core Strategy Policy EN 4.
- Given the uplift in emissions compliance criteria between the current (2013) and previous(2010) iterations of Building Regulation Part L, the proposed scheme has been demonstrated to be aligned with the energy efficiency requirements and carbon dioxide emission reduction targets within the Core Strategy policies EN4 and EN6, as follows:
 - The dwelling emission rate (DER) reduction for the residential element of the scheme is c.7% over Part L 2013 through fabric measures based upon representative SAP calculations; and,
 - The dwelling fabric energy efficiency (DFEE) reduction for the residential element of the scheme is 14% over Part L 2013 through fabric measures.
- The key issues of Manchester City Council's Supplementary Planning Document (Environmental Standards) in accordance with the Core Strategy Policy DM 1 have been achieved by the proposals. These are as follows:
 - The proposed development will be designed in accordance with the BREEAM criteria and achieve the required 'Very Good' rating. This represents 'good practice' for new nondomestic buildings in the UK and as detailed in Section 5, the scheme is expected to perform well in all areas of the assessments.



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- o Water management for the development will align with the regulatory standard specified to achieve a calculated daily consumption of <125litres/person/day through the specification of efficient water fixtures.
- o The development site is located within Flood Zone 1. The site drainage strategy will be designed to manage the surface water runoff to ensure that the peak rate and volume of surface water run-off will be no greater post-development than pre-development with a target discharge rate of 50% less than the existing conditions.
- o Waste arising during construction and occupation/operation will be minimised. A site waste management plan will be adopted during construction. The dwellings will be provided with waste facilities and a comprehensive waste management plan for the site will accord with the local authority recycling scheme. The provision of suitable space and facilities will allow the commercial and leisure facilities to segregate and store operational recyclable waste.
- o Construction site management procedures will minimise adverse impacts on the environment and control pollution generated during the construction phase. These include a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling of materials. A commitment will be made to minimise waste and pollution.
- o The planting provision will be designed to provide an enhancement to the aesthetic value of the Site and also planting will be selected to improve the biodiversity and strengthen the ecological value of the Site.
- o Materials are proposed to be responsibly sourced, materials with low environmental impact will be selected and local suppliers will be prioritised. In combination this procurement strategy will minimise and conserve energy associated with transportation and waste generation.



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4.0 Evidence to support and document compliance with the Environmental Standards and Energy Statement

In accordance with the Energy statement, the Block Compliance and BRUKL report can be found at Appendix A and B respectively at the conclusion of this report. The reports set out that the domestic element of the development produced a 16.32% improvement of the dwelling emission rate over the target emission rate. The Commercial aspect of the development achieved a 21.1% improvement of the building emission rate over the target emission rate.

The Water Calculations can be found at Appendix C of this report. The report demonstrates a total water consumption rate of 109.2 litres/person per day in accordance with the methodology of Approved document G. This is within the parameters of 125 litres/person per day as set out in the Energy Statement.

The approved Waste Management Plan and Construction Management Plan (App ref CDN/19/0712 dated 23rd August 2019) can be found at Appendix D and Appendix E respectively and was implemented in full for the duration of the development. This minimised the adverse impacts on the environment and controlled pollution generated during the construction phase. The project was also strictly supervised to deliver on its commitment to minimise waste and pollution.

The approved drainage scheme (App ref CDN/22/0147 dated 14th March 2022) was implemented and can be found at Appendix F. The site drainage strategy was designed to manage the surface water runoff to ensure that the peak rate and volume of surface water run-off was no greater post-development than pre-development with a target discharge rate of 50% less than the existing conditions.

All materials were sourced from local suppliers where possible in an effort to decrease emissions and conserve the energy associated with the transportation and waste generation.

4.0 Conclusion

The developer has followed through on the commitments and intentions as per their energy statement at designs stage, and the works have taken place in accordance with those plans. This report has collated the evidence that demonstrates the site is compliant with condition 11 of decision ref: 120893/FO/2018.



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Block Compliance WorkSheet: 1 Silk Street

User Details

Assessor Name: Aharon Horwich
Software Name: Stroma FSAP

Stroma Number: STRO029073
Software Version: Version: 1.5.1.8

Calculation Details

Dwelling	DER	TER	TFA
A 03 001	28.4	32.53	51.12
A 03 002	22.12	27.62	80.02
A 03 003	34.64	34.35	51.18
A 03 004	23.74	27.89	72.26
A 03 005	29.52	34.26	52.07
A 03 006	19.88	27.95	78.14
A 03 007	19.57	27.37	77.89
A 03 008	19.4	27.37	77.89
A 03 009	20.12	27.95	78.14
A 03 010	20.89	27.84	96.13
A 03 011	24.85	29.73	80.05
A 03 012	22.58	27.21	79.68
A 03 013	28.87	32.37	51.5
A 04 001	23.83	26.93	51.12
A 04 002	18.07	22.09	80.02
A 04 003	29.73	28.71	51.18
A 04 004	19.12	22.44	72.26
A 04 005	25.01	28.57	52.07
A 04 006	16.58	22.45	78.14
A 04 007	16.4	21.85	77.89
A 04 008	16.34	21.85	77.89
A 04 009	16.95	22.45	78.14
A 04 010	17.42	22.28	96.13
A 04 011	21.01	24.08	80.05
A 04 012	18	21.7	79.68
A 04 013	23.81	26.79	51.5

Block Compliance WorkSheet: 1 Silk Street Cont...

Dwelling	DER	TER	TFA
A 05 001	23.89	26.93	51.12
A 05 002	17.68	22.09	80.02
A 05 003	29.48	28.71	51.18
A 05 004	19.53	22.44	72.26
A 05 005	25.35	28.57	52.07
A 05 006	16.7	22.45	78.14
A 05 007	16.46	21.85	77.89
A 05 008	16.22	21.85	77.89
A 05 009	16.69	22.45	78.14
A 05 010	17.12	22.28	96.13
A 05 011	20.9	24.08	80.05
A 05 012	18.19	21.7	79.68
A 05 013	23.82	26.79	51.5
A 06 001	24.24	26.93	51.12
A 06 002	18.23	22.09	80.02
A 06 003	29.44	28.71	51.18
A 06 004	19.3	22.44	72.26
A 06 005	24.97	28.57	52.07
A 06 006	16.49	22.45	78.14
A 06 007	16.44	21.85	77.89
A 06 008	16.36	21.85	77.89
A 06 009	16.71	22.45	78.14
A 06 010	17.17	22.28	96.13
A 06 011	20.76	24.08	80.05
A 06 012	18.06	21.7	79.68
A 06 013	23.94	26.79	51.5
A 07 001	25.89	27.88	51.12
A 07 002	19.15	22.73	80.02
A 07 003	32.23	30.2	51.18
A 07 004	20.64	23.08	72.26

Block Compliance WorkSheet: 1 Silk Street Cont...

Dwelling	DER	TER	TFA
A 07 005	27.5	30	52.07
A 07 006	17.44	22.9	78.14
A 07 007	17.2	22.5	77.89
A 07 008	17.23	22.56	77.89
A 07 009	17.65	22.9	78.14
A 07 010	19.68	24.4	96.13
A 07 011	23.68	26.24	80.05
A 07 012	19.26	22.37	79.68
A 07 013	25.8	27.76	51.5
A 08 001	24.76	26.79	81.7
A 08 002	25.84	27.4	84.3
A 08 003	25.22	27.65	76.14
A 08 004	22.65	26.35	72.97
A 08 005	25.28	29.84	52.4
A 08 006	25.59	29.84	52.4
A 08 007	24.25	28.5	58.48
A 08 008	22.32	26.7	90.01
A 08 009	24.77	27.47	83.69
A 08 010	26.53	28.27	65.73

Calculation Summary

Total Floor Area	5348.17
Average TER	25.25
Average DER	21.13
Compliance	Pass
% Improvement	16.32

APPENDIX B

Project name

1 Silk Street**As built**

Date: Mon Oct 17 08:13:26 2022

Administrative information

Building Details

Address: 1 Silk Street, MANCHESTER, M4 6LZ

Certification tool

Calculation engine: TAS

Calculation engine version: "v9.5.4"

Interface to calculation engine: TAS

Interface to calculation engine version: v9.5.4

BRUKL compliance check version: v5.6.b.0

Certifier details

Name: James Barker

Telephone number: 0113 543 1700

Address: Ground Floor, Riverside West, Whitehall Road,
Leeds, LS1 4AWCriterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	17.5
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	17.5
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	13.8
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.25	0.25	External Wall
Floor	0.25	0.12	0.12	Ground Floor
Roof	0.25	-	-	No roofs in project
Windows***, roof windows, and rooflights	2.2	1.7	1.7	CW
Personnel doors	2.2	-	-	No personal doors in project
Vehicle access & similar large doors	1.5	-	-	No vehicle doors in project
High usage entrance doors	3.5	-	-	No high usage entrance doors in project

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m ³ /(h.m ²) at 50 Pa	10	3

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the [Non-Domestic Building Services Compliance Guide](#) for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- B1_Toilet (9 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	0.86	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

2- Offices (53 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.47	4.2	-	-	0.85
Standard value	2.5*	2.6	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.

1- New HWS Circuit

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0
Standard value	1	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
B1_Office 1	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 2	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 3	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 4	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 5	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 6	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 7	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 8	-	-	-	1.8	-	-	-	-	-	-	-	N/A
B1_Office 9	-	-	-	1.8	-	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I		
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
B1_Office 10		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 11		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 12		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 13		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 14		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 15		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 16		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 17		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 18		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 19		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 20		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Reception 1		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Toilet 1		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 2		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 3		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 4		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 5		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 6		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 7		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 8		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Toilet 9		-	-	0.4	-	-	-	-	-	-	-	N/A
B1_Office 21		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 22		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 23		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 24		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 25		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 26		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 27		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 28		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 29		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 30		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 31		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 32		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 33		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 34		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 35		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 36		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 37		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 38		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 39		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 40		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 41		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 42		-	-	-	1.8	-	-	-	-	-	-	N/A

Zone name	SFP [W/(l/s)]										HR efficiency	
	ID of system type	A	B	C	D	E	F	G	H	I		
	Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1	Zone	Standard
B1_Office 43		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 45		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 46		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 47		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 48		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 49		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 51		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 52		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 53		-	-	-	1.8	-	-	-	-	-	-	N/A
B1_Office 54		-	-	-	1.8	-	-	-	-	-	-	N/A

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
B1_Office 1		90	-	-	1968
B1_Office 2		90	-	-	88
B1_Office 3		90	-	-	75
B1_Office 4		90	-	-	244
B1_Office 5		90	-	-	183
B1_Office 6		90	-	-	87
B1_Office 7		90	-	-	91
B1_Office 8		90	-	-	88
B1_Office 9		90	-	-	128
B1_Office 10		90	-	-	126
B1_Office 11		90	-	-	1089
B1_Office 12		90	-	-	344
B1_Office 13		90	-	-	880
B1_Office 14		90	-	-	116
B1_Office 15		90	-	-	227
B1_Office 16		90	-	-	151
B1_Office 17		90	-	-	100
B1_Office 18		90	-	-	139
B1_Office 19		90	-	-	92
B1_Office 20		90	-	-	92
B1_Circulation 1		-	90	-	178
B1_Circulation 2		-	90	-	30
B1_Circulation 3		-	90	-	55
B1_Circulation 4		-	90	-	84
B1_Circulation 5		-	90	-	23
B1_Circulation 6		-	90	-	65
B1_Circulation 7		-	90	-	18
B1_Circulation 8		-	90	-	22
B1_Circulation 9		-	90	-	152

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
B1_Circulation 10		-	90	-	22
B1_Circulation 11		-	90	-	23
B1_Reception 1		-	90	90	36
B1_Store 1		90	-	-	9
B1_Store 2		90	-	-	7
B1_Store 3		90	-	-	7
B1_Store 4		90	-	-	9
B1_Store 5		90	-	-	7
B1_Store 6		90	-	-	6
B1_Store 7		90	-	-	7
B1_Toilet 1		-	90	-	64
B1_Toilet 2		-	90	-	28
B1_Toilet 3		-	90	-	69
B1_Toilet 4		-	90	-	62
B1_Toilet 5		-	90	-	24
B1_Toilet 6		-	90	-	48
B1_Toilet 7		-	90	-	62
B1_Toilet 8		-	90	-	24
B1_Toilet 9		-	90	-	58
B1_Office 21		90	-	-	356
B1_Office 22		90	-	-	80
B1_Office 23		90	-	-	79
B1_Office 24		90	-	-	66
B1_Office 25		90	-	-	80
B1_Office 26		90	-	-	66
B1_Office 27		90	-	-	81
B1_Office 28		90	-	-	84
B1_Office 29		90	-	-	61
B1_Office 30		90	-	-	117
B1_Office 31		90	-	-	81
B1_Office 32		90	-	-	103
B1_Office 33		90	-	-	140
B1_Office 34		90	-	-	153
B1_Office 35		90	-	-	110
B1_Office 36		90	-	-	181
B1_Office 37		90	-	-	227
B1_Office 38		90	-	-	124
B1_Office 39		90	-	-	232
B1_Office 40		90	-	-	263
B1_Office 41		90	-	-	242
B1_Office 42		90	-	-	705
B1_Office 43		90	-	-	151
B1_Office 45		90	-	-	317

General lighting and display lighting		Luminous efficacy [lm/W]			General lighting [W]
Zone name		Luminaire	Lamp	Display lamp	
	Standard value	60	60	22	
B1_Office 46		90	-	-	342
B1_Office 47		90	-	-	1107
B1_Office 48		90	-	-	475
B1_Office 49		90	-	-	333
B1_Office 51		90	-	-	1133
B1_Office 52		90	-	-	497
B1_Office 53		90	-	-	366
B1_Office 54		90	-	-	956

Criterion 3: The spaces in the building should have appropriate passive control measures to limit solar gains

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
B1_Office 1	NO (-20%)	NO
B1_Office 2	NO (-65%)	NO
B1_Office 3	NO (-36%)	NO
B1_Office 4	NO (-44%)	NO
B1_Office 5	NO (-61%)	NO
B1_Office 6	NO (-4%)	NO
B1_Office 7	NO (-31%)	NO
B1_Office 8	NO (-40%)	NO
B1_Office 9	NO (-17%)	NO
B1_Office 10	NO (-42%)	NO
B1_Office 11	NO (-21%)	NO
B1_Office 12	NO (-33%)	NO
B1_Office 13	NO (-14%)	NO
B1_Office 14	NO (-35%)	NO
B1_Office 15	NO (-18%)	NO
B1_Office 16	NO (-8%)	NO
B1_Office 17	NO (-8%)	NO
B1_Office 18	NO (-44%)	NO
B1_Office 19	NO (-53%)	NO
B1_Office 20	NO (-34%)	NO
B1_Reception 1	N/A	N/A
B1_Office 21	N/A	N/A
B1_Office 22	NO (-62%)	NO
B1_Office 23	NO (-44%)	NO
B1_Office 24	NO (-26%)	NO
B1_Office 25	NO (-45%)	NO
B1_Office 26	NO (-48%)	NO
B1_Office 27	NO (-46%)	NO
B1_Office 28	NO (-49%)	NO
B1_Office 29	NO (-41%)	NO
B1_Office 30	NO (-43%)	NO
B1_Office 31	NO (-47%)	NO

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
B1_Office 32	NO (-45%)	NO
B1_Office 33	NO (-38%)	NO
B1_Office 34	NO (-32%)	NO
B1_Office 35	NO (-9%)	NO
B1_Office 36	NO (-3%)	NO
B1_Office 37	NO (-35%)	NO
B1_Office 38	NO (-15%)	NO
B1_Office 39	NO (-33%)	NO
B1_Office 40	NO (-2%)	NO
B1_Office 41	NO (-42%)	NO
B1_Office 42	N/A	N/A
B1_Office 43	N/A	N/A
B1_Office 45	NO (-21%)	NO
B1_Office 46	NO (-14%)	NO
B1_Office 47	NO (-29%)	NO
B1_Office 48	NO (-46%)	NO
B1_Office 49	NO (-46%)	NO
B1_Office 51	NO (-36%)	NO
B1_Office 52	NO (-27%)	NO
B1_Office 53	NO (-33%)	NO
B1_Office 54	NO (-23%)	NO

Criterion 4: The performance of the building, as built, should be consistent with the calculated BER

Separate submission

Criterion 5: The necessary provisions for enabling energy-efficient operation of the building should be in place

Separate submission

EPBD (Recast): Consideration of alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Area [m ²]	2907	2907
External area [m ²]	2440	2440
Weather	MAN	MAN
Infiltration [m ³ /hm ² @ 50Pa]	3	3
Average conductance [W/K]	1523	1281
Average U-value [W/m ² K]	0.62	0.53
Alpha value* [%]	8.18	8.18

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	A1/A2 Retail/Financial and Professional services
	A3/A4/A5 Restaurants and Cafes/Drinking Est./Takeaways
100	B1 Offices and Workshop businesses
	B2 to B7 General Industrial and Special Industrial Groups
	B8 Storage or Distribution
	C1 Hotels
	C2 Residential Institutions: Hospitals and Care Homes
	C2 Residential Institutions: Residential schools
	C2 Residential Institutions: Universities and colleges
	C2A Secure Residential Institutions
	Residential spaces
	D1 Non-residential Institutions: Community/Day Centre
	D1 Non-residential Institutions: Libraries, Museums, and Galleries
	D1 Non-residential Institutions: Education
	D1 Non-residential Institutions: Primary Health Care Building
	D1 Non-residential Institutions: Crown and County Courts
	D2 General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger terminals
	Others: Emergency services
	Others: Miscellaneous 24hr activities
	Others: Car Parks 24 hrs
	Others: Stand alone utility block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	0.92	1.1
Cooling	4.81	8.31
Auxiliary	5.71	2.99
Lighting	12.81	20.63
Hot water	2.29	2.65
Equipment*	36.33	36.33
TOTAL**	26.54	35.68

* Energy used by equipment does not count towards the total for consumption or calculating emissions.

** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	90.58	122.94
Primary energy* [kWh/m ²]	81.47	101.61
Total emissions [kg/m ²]	13.8	17.5

* Primary energy is net of any electrical energy displaced by CHP generators, if applicable.

HVAC Systems Performance

System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Other local room heater - unfanned, [HS] Room heater, [HFT] Electricity, [CFT] Electricity									
Actual	12.3	0	3.4	0	2.3	1	0	1	0
Notional	8.2	0	2.8	0	2.3	0.82	0	----	----
[ST] Split or multi-split system, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
Actual	16.2	91.3	1	6	7.1	4.47	4.2	4.47	4.2
Notional	11	135.4	1.3	10.5	3.7	2.43	3.6	----	----

Key to terms

Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric

Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.25	External Wall
Floor	0.2	0.12	Ground Floor
Roof	0.15	-	No roofs in project
Windows, roof windows, and rooflights	1.5	1.7	1.5 X 2.5
Personnel doors	1.5	-	No personal doors in project
Vehicle access & similar large doors	1.5	-	No vehicle doors in project
High usage entrance doors	1.5	-	No high usage entrance doors in project
U _{i-Typ} = Typical individual element U-values [W/(m²K)]			U _{i-Min} = Minimum individual element U-values [W/(m²K)]
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	3

APPENDIX C

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	6	1.46	0.00	8.76
	Part flush Volume (litres)	4	2.96	0.00	11.84
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow(litres)	213.33	0.11	0.00	23.47
Shower (where bath also present)	Flow Rate(litres / minute)	5.00	4.37	0.00	21.85
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	5.00	0.44	10.36	12.56
Washing Machine	(Litres/kg dry load)	11.10	2.1	0.00	23.31
Dishwasher	(Litres/place setting)	0.90	3.6	0.00	3.24
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			114.51
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			104.20
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) = (9)+(10)(litres/person/day)			109.2

Installation Type	Make/Model (mandatory)	Litres/Person/Day
WC (dual flush)	Wirquin Initio	20.6
Taps	HD05K Basin Mono Mixer	9.48
Baths (shower(s) present)	Orchard Square Edged Bath	24.20
Showers (bath(s) present)	CVP04K 2 Outlet 2 Knobs Concealed Thermostatic Mixer Valve	21.85
Kitchen Taps	Reginox Obion B	12.56
Washing Machines	Hotpoint RDG 9643 KS UK N	23.31
Dishwasher	CDA WC142	3.24



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[Terms and Conditions](#)
[System Requirements](#)



Site Environmental and Waste Management Plan

At

Bengal Street

Ancoats

Manchester M4 6AQ

Produced by

John Thompson on behalf of

Artez Limited

Unit C Lostock Office Park

Lynstock Way

Lostock

Bolton BL6 4SG

Proposed scheme commencement date September 2019



1.0 Nature of the project

The development site is situated to the east of Manchester city centre and sees the development of the Erection of a 9 storey building to form ground, first and second floor office. Accommodation (Use Class B1) (3124 sqm) together with 75 residential apartments. (Use Class C3a) with associated car parking, amenity provision and other associated

1.0 Parties Involved with the project

Client

**M4nchester Two Limited,
Jactin House, 24 Hood Street,
Ancoats, Manchester,
M4 6WX**

Contract Administrator

As appointed by the Employer and notified to the Contractor

Principal Contractor

**Artez Limited
Unit C Lostock Office Park
Lynstock Way
Lostock
Bolton
BL6 4SG
01204 676 550**

Principle designer

**Rider Levett Bucknall

1 King Street, Manchester,

M2 6AW**

Architect

**Falconer Chester Hall,
The Lightwell,
61-63 Brown Street,
Manchester,
M2 2JG**



Structural Engineer

**Hydrock Consultants Ltd,
2nd Floor, 172 Edmund Street,
Birmingham,
B3 2HB**

1.1 Site Location

Land Bounded By Bengal Street, Primrose Street, Radium Street And Silk Street , Manchester, M4 6AQ

The Ordnance Survey grid reference for the site is TBC
A site location plan forms part of this file.

1.2 Nature of the construction work

The construction of Bengal Street will consist of a basement for carparking with piled foundations, new drainage scheme and incoming services. The main building will be concrete frame with brickwork fascade. The building will have traditional internal fit out to the apartments and common areas, the roof coverings will be a single ply membrane.

- New ground floor slab on piles
- New incoming services
- New above ground and below ground drainage system
- Two passenger lifts
- Single ply membrane roof covering
- Internal fit out / partition walls / M&E throughout / joinery / decoration
- External landscaping / new service road / car parking

2.0 Waste management plan summery

2.0 Anyone planning a construction project costing more than £300,000.00 must by law produce, keep and maintain a site waste management plan.

The responsibility for writing and implementing the site waste management plan is with the principal contractor.

Local Authorities and Environment Agency will enforce the legislation and impose penalties for failure to make, keep or produce a Site Waste Management Plan.

The purpose of this site environmental and waste management plan is to implement, manage and reduce the quantity of waste created at the Bengal Street.

The following benefits for the waste management plan are as stated below:

- Queries from the waste regulation authority can be answered simply and easily
- Materials and waste are managed responsibly and will therefore be less risk to the environment

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- It shows how our waste will be managed and may help to reduce costs
- Information that can be used to set targets, costs and reduction of waste for the project
- Improve re-use and recycling rates
- Provide a greater resource efficiency

As principal contractor Artez Limited will:

- Obtain relevant information from sub-contactors
- Update the SWMP at least every three months as the project progresses
- Keep the SWMP on site during the project
- Ensure that other contractors know where the SWMP is kept
- Allow other contractors and the client access to the SWMP during the project
- Hand the completed SWMP back to the client at the end of the project
- Keep a copy of the SWMP for two years.

3.0 The Waste Management Plan consists of the following information:

- Who is responsible for managing and updating the plan? (see table below:)
- Quantities and types of waste that will be generated on site and targets for reduction, re-use and recycling.
- Where the site waste will be disposed of to ensure that 'duty of care' requirements are met.
- Details of arrangements for measuring, monitoring and reporting on the waste streams to ensure that waste targets are met.

RESPONSIBILITY FOR WASTE MANAGEMENT

Name	Position	Location	Telephone No.
Mike Banton	Managing Director Artez Ltd	Head Office - Bolton	01204676550
John Thompson	Project Manager	Head Office	01204676550
TBC	Site Manager / Supervisor	Mansion House Site Office	TBC

As construction manager with day to day responsibilities for, health, safety and environmental management, TBC is the nominated responsible person, for ensuring this plan is kept and updated throughout the project.

4.0 IDENTIFICATION OF TYPES OF WASTE ON SITE

The three different types of waste that will be found on site are as follows:

INERT WASTE – Waste that will not decompose to cause green-house gases

(i.e. Rubble, concrete, glass, metal).

ACTIVE WASTE – Waste that will rot and decompose and does not contain dangerous substances

(i.e. Food, Paper, Cardboard, Timber)

HAZARDOUS WASTE – Waste that contains dangerous substances which is dangerous to human health and the environment.

(i.e. Asbestos, chemicals, fuels.)

The works Bengal Street will have different activities throughout the project and there will be many different types of waste that will arise from works on site.

5.0 IDENTIFYING YOUR WASTE MANAGEMENT OPTIONS

Artez Limited will follow the waste hierarchy controls and choose the most suitable;

- **Eliminate** – Avoid producing the waste in the first place.
- **Reduce** – Minimise the amount of waste produced.
- **Re-Use** – Use items as many times as possible.
- **Recycle** – Recycle what you can only after you have re-used it.
- **Dispose** – Dispose of what's left in a responsible way.

6.0 WASTE STORING – SKIPS

Skips will be provided on site by Artez Ltd and main sub-contractors (if applicable) for collection of waste that is produced on site. All skips will be easy to reach and access, and clearly labelled regarding what type of skip it is.

The Artez site team will ensure that all skips are not overloaded therefore will be monitored and emptied on a regular basis.

All skips that contain waste that is at risk of blowing away will be covered/protected to prevent this. All skips that need to be covered to prevent contaminated water run-off from the rain will be protected as required.

7.0 Artez Ltd Collective waste

- **GENERAL OFFICE WASTE**

This will include paper, general canteen and welfare waste and paper towels. All waste will be bagged in black bin bags and placed in the general waste skip

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- **WOOD**

There will be a wood skip on site which will be used for scrap wood. From this skip all wood that can be recycled is sent to a recycle centre and is created as MDF. The non-recyclable wood goes to an incinerator.

- **METAL**

If required a designated metal skip on site when full will be picked up by (TBC) which in turn will be transferred to the appropriate metal recycling facility.

- **CHEMICALS**

To prevent pollution to the ground by oils, fuels, solvents and other chemicals the following measures will be taken in storing and disposal of these materials:

- Have safe procedures to avoid any spillage
- Provide training and supervise employees
- Dispose properly of all chemicals
- Provide tool box talks and give clear procedures on how to deal with spillages.
- Install bunding around all storage areas, even temporary fuel stores.
- Maintain equipment and storage vessels in good condition.
- Provide drip trays for plant and equipment that may leak.

- **PAINT**

All paint that is finished with will be disposed of in the general waste skip depending on the COSHH data. Any other wet liquids will have to leave site as specialist waste - Contractor TBC.

- **INVASIVE PLANTS**

If invasive plants are found on site Artez site team will seek advice from specialists who will provide further details on how best to treat and dispose of these plants. Invasive plants are plants that have been introduced where they do not naturally occur as non-native species which are bigger, faster growing and more aggressive than the native species. The following are types of invasive plants:

Con't

- *Giant Hogweed*
- *Giant Kelp*
- *Japanese kelp*
- *Japanese seaweed*
- *Himalayan Balsam*

All waste transfer notes from Artez arisings are documented on a monthly basis with calculated quantities of waste held within the waste management file. All documentation will be kept on site in the file for two years.

8.0 DEMOLITION WASTE

Any demolition works will be carried out and completed prior to Artez Ltd commencing works on site.

- **ASBESTOS**

Asbestos will be removed by approved sub-contractors prior to Artez being on site.

9.0 MANAGEMENT AND ORGANISATION OF SITE MATERIALS AND WASTE HANDLING

Artez Ltd will attempt to reduce the amount of waste by pre-ordering materials to specification and avoid over ordering.

Where possible, recycled or previously used materials will be used.

10.0 COMMUNICATING THE PLAN

A copy of the Environmental and Waste Management Plan will be communicated to all contractors on site, as part of the pre-let and induction process to ensure that everyone is aware of the guidelines laid down with regard to site waste management and the importance of recording the correct paperwork, receipts, destinations of materials etc.

11.0 MEASURING WASTE

Once the plan is in use on site, Artez Ltd will measure its effectiveness, including;

- Record how much and what type of waste is being produced, including
- Volume (e.g. number of skips)
- Value (e.g. cost of disposal)
- Weight (e.g. weighbridge tickets)

These costs can be recorded against;

- Value of project
- Area of build floor-space
- Volume of building

12.0 MONITOR THE PLAN

The responsible person will monitor the success of the plan periodically throughout the project

13.0 REVIEW AND LEARN

By the end of the project, the site waste management plan should give an accurate record of how effectively Artez Ltd have managed the materials on site, and how well the targets for waste management were met.

The information can also be used for future construction projects in determining the value of the process, its impact on the cost of the project and its benefit to the environment.

14.0 OTHER KEY ENVIRONMENTAL CONSIDERATIONS

No geo-environmental information / report was available at the time of writing this plan.

Land Bounded By Bengal Street, Primrose Street, Radium Street And Silk Street , Manchester, M4 6AQ

Working Hours

Working hours are restricted to 07:30am to 18:00pm, Monday to Friday and 08:30am to 14:00 on Saturday. No work will occur on Sundays or Bank Holidays without the prior consultation with the appropriate authorities.

Timber Procurement

All timber based products to be sourced from legal and sustainable sources and carry independent certification as proof of compliance.

Project Specific Environmental Hazards

- Timber from sustainable sources
 - General materials storage
 - Oil storage
 - Noise, vibration and dust
- Cont,

- General waste
- Hazardous waste
- Crushed concrete
- Static plant
- Mobile plant

Construction Targets

- Target zero pollution incidents
- Measure energy use as follows;
 - o Sub-contractors to issue copies of fuel, gas, oil etc
 - o Where electricity meter is installed, readings to be taken monthly and noted
 - o Water use to be monitored
- Crushed concrete to be used where approved by structural engineer
- Sub-contractors to target zero pollution
- Full compliance to be achieved with the site waste management plan.

Energy Conservation Measures

The following energy conservation measures will be considered

- Low energy fluorescent lighting to be used in all cabins, and for all temporary lighting
- Where timers are fitted to the heater circuits they will be set to turn off at 18:00hrs and come back on at 07:00hrs, except for the drying room, where the heaters will be

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set to a lower setting when not in use. For cabins with no timers, the heaters are to be turned down to the lowest setting by the last occupant when they leave for the night

- External compound lights will be fitted with PIR detectors for night security
- Plant to be kept well maintained, and switched off when not in use.

Materials Management

The following materials management measures will be employed:

- All hazardous materials will be kept within a locked storage area, and access to these materials will be restricted to those who have viewed the COSHH assessment for the particular material.
- All timber products are to be from a Chain of Custody source to ensure legality and sustainability. (Forest Stewardship Council (FSC), Canadian Standards Association (CSA), Programme for the Endorsement of Forest Certification Schemes (PEFC), North American Sustainable Forest Initiative (SFI) Where this is not possible the client will be informed and alternative timbers proposed.
- All bulk materials are to be stored on the hard standing as existing in the car park area adjacent to site cabin set up.

Oil, Fuel and Liquid Chemical Storage

The storage of oil containers with a capacity of more than 200ltrs or more will comply with the requirements of the control of pollution (oil storage) regulations as follows

- All bulk storage tanks are to be integrally bunded proprietary tanks. The tanks are to be located within the compound area of the site, away from general traffic movements and surface water drains, and secured against unauthorised discharge
- The site manager is to be notified of all spillages, however minor.
- A spill kit will be available on site.
- Oils and other chemicals in containers with a capacity of less than 200ltrs will be stored within a locked store; again, only authorised personnel will be issued with a key to this store.
- Subcontractors storing oil or chemicals are to set up similar arrangements to the above. The location of oil storage areas and procedures must be agreed with Artez Ltd site management prior to any deliveries. No storage will be permitted within 10m of the stream of surface water drains.

Community Relations

The site is close to a residential / commercial area; therefore noise, vibration and dust are the main concerns.

The following measures are to be considered for each scheme:

- A newsletter to be sent out before the start of the project, introducing the project team and giving a brief outline of the project, and at regular intervals throughout the project. The news will include site contact details, name and telephone number as the point of contact.

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- The local authority's Environmental Health Officer is to be contacted, and the details of the project discussed.
- Site management will take immediate action on receiving a complaint, and respond to any complaint by the end of the next working day.
- The working hours will be as per the planning conditions.
- All plant and machinery to be switched off when not in use
- During dry periods dust suppression will be used.

CONCLUSION

Artez Ltd takes its legal and moral responsibility under environmental legislation seriously, and will make every effort to ensure that the effect on the environment from the project will be minimised as much as possible, with proactive measures as described throughout this Environmental and Site Waste Management Plan being implemented.

The production of waste material on this site is to be avoided wherever possible by following the hierarchy of risk control, Eliminate, Reduce, Re-Use, Recycle or Dispose.

Appendix 1 Site Location Plan

Appendix 2 Site Waste Management Data Sheet

M4nchester Two Ltd

BENGAL STREET

Manchester

M4 6AQ

CONSTRUCTION MANAGEMENT PLAN

(Construction Methodology and Management Strategy)

Prepared by ARTEZ on behalf of M4NCHESTER TWO LTD

Revision A: 31st JULY 2019

BENGAL STREET, MANCHESTER, M4 6QA

Construction Methodology and Management Strategy

1.0 Introduction

The purpose of this document is to give a broad overview of the construction proposals in respect of the proposed new-build development currently known as “Bengal Street”. The construction site is situated within land Bounded by Bengal Street, Primrose Street, Radium Street and Silk Street, Manchester, M4 6AQ

2.0 Scheme Overview

The proposed works consist of the erection of 75 new apartments over 6 floors (3rd floor to 8th floor) above commercial office space on the ground, 1st and 2nd floor, with all associated infrastructure works, public realm, landscaping, new roads etc.

The building is concrete frame with masonry to all elevations with the internal skin being formed with SFS and cement particle board. The roof terrace provides outside space for residents this is covered with a single ply membrane with various materials being used to provide a level access, both lifts provide access to the roof terrace.

In the current design, Bengal Street is sited in a single rectangular block with 1, 2 and 3 bed apartments at each floor level. The apartments to the 8th floor have access to private terraces.

The current procurement programme indicates an anticipated start on site in October 2019, but with possibly some Enabling Works being undertaken in September 2019. Completion is anticipated around July 2021, which equates to a ~90-week construction period.

A brief overview of the proposed program for the construction of the new building is:

- Erection of hoardings to the Artez site perimeter. This will include the erection of separate pedestrian and vehicle entrances into the site, both entrances being capable of being made secure and controlling entry during construction working hours.
- Site preparation, including construction of a temporary piling mat.
- Piling work and construction of concrete beams and basement floor slab.
- Construction of an underground surface water attenuation tank and associated drainage, both foul and storm as separate systems.
- Excavation for and installation of the required service runs.
- Erection of the concrete frame
- Construction of new internal staircases lift shafts and other accommodation.
- External masonry, windows, balconies etc. using mast climbers to access all 4 elevations.
- Internal partitions, ducts etc. within dry wall.
- Apartment fit out including M & E, fixtures & fittings etc.
- External works, including landscape and car parking etc.

Artez, as Principal Contractor (PC), will develop the above and produce specific information including: Construction Phase Plan (CPP), Traffic Management Plan (TMP) etc. and this will identify dates and timescales for the above works. Artez has recently produced a draft CPP for review.

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3.0 Access to, and traffic circulation around, the site:

Access for pedestrians and vehicles into the construction site will only be allowed at position(s) identified in the Traffic Management Plan. Artez have met with Highways and discussed proposals to have footpath closures in place on Radium Street and Primrose Street a partial footpath closure on Bengal Street and the possibility of a road closure on Silk Street. Artez have also been in contact with E.N.W.L and agreed a means of access to the sub stations on Silk Street during the Construction period.

There will be no parking on site for vehicles (plant and site operative's cars etc.) all vehicles will use local car parks as indicated on the Car Parking Strategy. Pedestrian access onto this site will be controlled and it is anticipated that this may be achieved by turnstile with access card/fob or similar.

4.0 Surrounding land use and restrictions:

The Bengal Street site is well served by public transport with several bus routes running along Oldham Road Piccadilly Railway Station is situated to the south of the site and the Metrolink Tramway system is also reasonably accessible.

Ancoats is currently undergoing a major transformation with several new build residential developments.

Bengal Street site has little accessible space for the bulk storage of materials; therefore, all site accommodation (offices, welfare, toilets etc.) will be in offsite (TBC) with any additional requirement for space utilizing the Mustard Tree facilities (possibly including their compound on Radium Street) and a designated area located on Harriett Street.

5.0 Proposed works:

The Architect's conceptual design is described in Section 2 above.

5.1 Foundations and lower ground floors:

Hydrock are the appointed civil and structural engineer, the extent of their design responsibility is limited to the foundations, ground floor construction, frame and external works (roads, below ground drainage, retaining walls etc.)

5.2 Main Building Superstructure (ground floor and above):

Falconer Chester Hall are the appointed Architect and Lead Designer. They are to assist with the design and co-ordination of the masonry facade and associated support works, terrace detailing, basement arrangement and floor plan configuration.

5.3 Roof:

The roof is split into private terraces on the 8th floor and a communal roof garden on the 9th floor.

5.4 Communal works:

The apartments are accessed via communal lobbies and staircases or via 2 lifts one of which is a firefighting lift.

5.5 Temporary Works/Supports:

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The Principal Contractor (Artez) will ensure that the **stability and structural integrity** of any excavations and the building (under construction) is retained at all times throughout the works and in doing this will ensure where needed, that such temporary supports are **designed** and **installed**.

Prior to commencing any civil or structural works in any area, a survey will be carried out to establish the need for temporary support works, which should also be done in conjunction with the Consultant Structural Engineer and the specialist sub-contractor. Temporary propping requirements will be designed and specified by competent person(s) to prevent any uncontrolled collapse. Design Risk Assessments and Method Statements will be provided to cover all temporary works installations. The Principal Contractor will produce a schedule of temporary works within its Construction Phase Plan.

All temporary works will be designed and approved by a competent person and where appropriate be subject to independent checks. The installation of any temporary works and the subsequent inspection, monitoring and management will be undertaken by a nominated 'competent person' identified by the Principal Contractor.

5.6 M&E Design (key elements only, detailed design is still to be confirmed)

All apartments are intended for private rental and will be provided with utilities (water electricity and telecoms. It is assumed that a 'fibre-to-premises' broadband can be provided from one or more major service providers.

Artez is ultimately responsible for the design and installation of all internal M&E services (electric, water, telephone/cable, lifts) together with all internal plumbing/drainage, fixtures and fittings.

A single metered water supply will be brought into plant room to a landlord's storage tank. A boosted domestic water supply will be provided, and this storage tank will also be used to provide a water supply to domestic sprinkler systems, located within each apartment.

Separate storm and foul drainage disposal systems will be provided and these will be connected to the mains system. The storm water system will pass through an attenuation tank/pipe.

The method of heating the building will be electric panel heating with thermally efficient cylinders, incorporating immersion heaters to provide domestic hot water.

The landlord, common and commercial/office areas are to be naturally ventilated where possible. Background and purge ventilation is required to the apartments to meet the requirements of the Building Regulations Part F.

A consumer unit will be provided in each service riser for provision of MCM/RCBO protected ways to provide power to lighting and electrical accessories. A central coms and electricity 'hub' will be provided in each apartment housing the consumer unit, data patch panel and other coms connections. UHF/VHF

6.0 KEY INFORMATION

Commencement Date: Artez's Main Contract works will start on/around 1st October 2019.

Completion Date: Currently anticipated to be June/July 2021 (assuming ~90 week contract period)

Hours of Operation: Monday to Friday 8am to 6pm and Saturday 8.30am to 2pm

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No works will occur on a Sunday or Bank Holiday. There will be no "out of hours working" without the prior written agreement of MCC.

Emergency contact number: Artez office number: 01204 676550
Contracts Manager (John Thompson): 07743 250845

6.1 Measures to control noise and dust:

6.1.1 Dust suppression

Dust is created externally, on the site, during most stages of construction and will be managed throughout the construction phase. Measures will be taken to minimise and control dust on site through industry standard measures, i.e. dampening down, use of dust extraction attachments etc.

Internally, good housekeeping will be employed to reduce the amount of dust created. The Principal Contractor (Artez) in conjunction with its sub-contractors will ensure dust generated from site activities does not become a risk to others and in doing so shall assess the dust risk for each work package, ensure adequate controls are in place and review these controls with their contractors.

Measures will be taken to eliminate, or at least minimize, dust generation with consideration given to material usage, type of work equipment used and work methods applied. Where dust creation is unavoidable, dampening down techniques will be applied.

6.1.2 Noise

As part of the pre-planning process of work activities, those works which may bring about excessive or high levels of noise will be pre-assessed, including the impact upon construction operatives and residents/neighbours in nearby premises.

The requirements described within The Noise at Work Regulations 2005 and the British Standard BS 5228 Noise and Vibration Control on Construction and Open Sites will be adhered to fully.

The Principal Contractor will limit (as much as is practical) high noise operations and where this is unavoidable measures will be taken, such as the selection of plant and equipment or work processes, which does not emit high noise levels or equipment which is fitted with silencing/anti-vibration equipment.

Also any noisy equipment will be sited as far away from occupied premises as possible and turned off when not in use. Noise paths will be restricted by the placement of enclosures/barriers where practical. The above measures will be considered as part of the assessment process, which will identify noisy hazards, estimate likely exposure to noise by construction operatives and any other persons likely to be affected, identify measures required to eliminate or reduce noise exposure, and make persons likely to be affected by noise aware of the risks and controls which are being taken.

Full liaison will occur with affected residents/neighbours as part of the pre-planning of construction work activities and every effort will be made to minimise the impact upon their work activities as described above and also to work in cooperation with tenants regarding any specific requirements they may have, including restricting high level noise during key times.

Noise monitoring will occur during potential noisy activities and where the action levels are exceeded as identified within the Noise at Work Regulations (see below), then appropriate action will be taken.

Lower exposure action level is a daily or weekly exposure of 80db and a peak sound pressure of 135db

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Upper exposure action levels is a daily or weekly exposure of 85db and a peak sound pressure of 137db

Additionally, liaison will also occur with the local authority regarding any restrictions they have and ensuring minimal impact upon neighbours.

6.1.3 Air Quality Monitoring.

With the exception of piling, it is believed that the Bengal Street development is predicted to have a **negligible** impact with no exceedance of the short-term 1-hour NO₂ and 24 hour PM₁₀ air quality.

Irrespective of this belief, "Site Specific Mitigation", will be taken into account in the Principal Contractor's Construction Phase Plan (CPP), in particular to measure and control dust and/or other emissions, which may arise during construction activities.

Measures to reduce and control both dust and noise are referred to earlier in this document and any specific recommendations made in regard to the piling works will be considered and reviewed as part of regular site monitoring and review, which includes monthly site safety audits by others.

6.1.4 Site Waste Management Strategy.

Although there is no longer a legal requirement to produce a Site Waste Management Plan, Artez will produce a Site Waste Management Strategy (contained within their CPP) and this will re-use and recycle waste, wherever possible.

6.2 Further key issues, which will also be considered, are:

- **Ongoing liaison** with affected persons (pre-construction & throughout construction phase).
- **Hours of work** will be as per Local Authority guidelines.
- **Vehicle movement and deliveries** will be controlled by the Principal Contractor. A full Traffic Management Plan for the construction phase of the scheme will be produced which will describe in detail the arrangements for vehicular movement, access/egress, parking and how this will be coordinated and controlled, with personnel identified.
- **Parking of construction vehicles and staff:** Due to space limitations, it is unlikely that sufficient car parking would be available in the compound for all persons requiring this, but that will be determined by the Principal Contractor. It should be noted that there are parking restrictions (time restrictions and/or yellow lines) on some of the surrounding roads, however, there are public car parks available within walking distance of this site, and (as previously mentioned) public transport is also available locally. There is also the developer's site at Harriet Street which could be used to remove any reliance on public and on-street parking.
- **Emergency work** (where required) must be done in full liaison with City Council representatives and any other statutory persons, i.e. emergency services and HSE. The Principal Contractor will be expected to identify these arrangements within their construction phase health and safety plan, which must also include emergency procedures for the site.
- **Party Wall works** (where applicable) will be done in full compliance with Party Wall Awards and with the input of key personnel, i.e. structural engineer, party wall surveyor.

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- **Scaffolding** requirements will be assessed with appropriate permits applied for by the appointed Principal Contractor. All scaffolding will be erected, maintained, inspected and used in accordance with the Work at Height Regulations and relevant British/European standards.
- **Hoardings** will be erected, which will provide protection for members of the public from construction works, and which also prevent unauthorised access to the site. These hoardings should cause minimum disruption and impact to members of the public and will consider the needs of highway and car park users, particularly the disabled. Hoardings may be subject to a Temporary Works design, and, in accordance with CDM 2015. The Principal Contractor must apply for any appropriate permits and licenses required.
- **Temporary lighting** will undoubtedly be required during winter working and this will be designed to avoid light pollution and disturbance to neighbours. External floodlighting is to be avoided wherever possible but H&S considerations will form part of Risk Assessments in this regard. The external scaffold and hoarding will require warning lights (as per normal practice).
- **Oversailing** The Principal Contractor (ARTEZ) has confirmed that crane lifts will be required and all oversailing agreements and licenses will be in place before works commence.
- **Use of access equipment:** Mobile elevated working platforms (MEWPs) may be utilised for some areas and the Principal Contractor will need to ensure that only trained and competent persons operate this type of equipment.
- **Site security:** this will be the responsibility of the Principal Contractor and the details will be identified in the Construction phase Plan (CPP). However, it is anticipated that, if any machinery or construction vehicles remain on site (out of normal working hours) these will be made secure by sheeting and disabling same.

6.3 Details of Site Compounds, storage of plant and materials

The arrangements for site accommodation and welfare are still to be finally agreed, however, the Principal Contractor will ensure that facilities are fully compliant with the requirements of the Construction (Design and Management) Regulations 2015, in this regard.

With respect to the storage of plant and materials, as previously detailed, this will be within the confines of the site. Careful management of materials, equipment and storage are to be followed. The delivery, storage and movement of materials around the site shall not adversely affect the day-to-day usage of surrounding land uses. Management of deliveries and the amounts brought to site on a daily basis will be considered and organised in such a way as to not have excessive amounts building up. (Consideration will be given to “Just in Time” procurement).

Suppliers and contractors will be made aware of the transport routes to be adopted. Delivery vehicles will be directed to the site entrance depending on what is being delivered. Deliveries are to be pre booked for delivery times to the site, which are co-ordinated by a site representative,

6.4 Temporary highway works or closures

At this stage it is **not** envisaged that any such works will be required, but liaison will occur with the Local Authority should this change at any point. The use of a mobile crane (referred to above) **should**

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not require any temporary road closure, but if it does then the appropriate permission(s) will be sought, as necessary.

Swept path diagrams have been produced for construction vehicles delivering to, or working within, the site. A dilapidation survey (including photographs) will be undertaken to all affected carriageways or footways, relative to construction vehicle route(s) immediately surrounding this site.

6.5 Access for Construction Traffic

Currently, the only vehicular access to the site is via Silk Street, the only other organization requiring access to this road is E.N.W.L. Artez have made formal arrangement for this access to be maintained throughout the build process. Outside the overall site, there is a constant flow of traffic on all of the surrounding streets. This has been taken into consideration as part of the Traffic Management Plan, particularly when deliveries to site are occurring and this will be managed. A separate pedestrian entrance/exit onto site will be formed.

Most vehicles will be delivering materials, although initially there will be a number removing excavated/demolition materials, equipment and surplus-waste materials. Where piling work is required this will be from a temporary piling mat, constructed for that purpose.

The types of lorries and materials will vary duration the course of the construction. Initially lorries will be for waste removal and concreting activities; followed by masonry, windows and roofing; then by internal finishing materials such as joinery items, electrical, plumbing and mechanical materials and equipment, and furniture, and eventually for the removal of scaffolding and the delivery of paving materials. Any vehicle that is open topped carrying aggregate or excavated material will be fitted with an automatic cover to control dust.

The number of lorries arriving on site should be minimal, but this will vary depending on the activities being progressed at any particular time.

Access/egress arrangements for the site will allow for safe pedestrian and vehicular access onto site that has the least impact on members of the public and surrounding land uses.

Trained and competent banks-men will control all vehicular movement in and around the site.

Deliveries will be timed to avoid busy rush hour periods and also a build up of site traffic. Construction vehicles will not be allowed to wait on surrounding streets, save for when waiting to be unloaded/loaded in the designated loading bays.

Due to space restrictions, any large vehicles, which have to enter into the site, will have to use the dedicated entrance. This manoeuvre will be strictly controlled by a 'banksman' to minimize any risk. All vehicles will exit the site in a forward gear, i.e. no reversing will be allowed onto Radium Street.

Liaison will occur with affected neighbours throughout the construction phase.

Wheel washing facilities

Because there will be minimal excavation work and this will all be contained within the site, it is likely that there will be no requirement for dedicated wheel washing facilities or indeed any space available to provide same. However, a jet wash hose will be provided, located inside the site entrance, should it be necessary to remove any surplus material from vehicle wheels, before entering onto a public highway. Should any excavated materials be accidentally deposited on the highway, these will be removed a.s.a.p. using a road sweeper machine.

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Recycling/disposing of waste

The legal requirement to produce a Site Waste Management Plan was removed in 2013, however, the Principal Contractor will be required to produce and define a waste management hierarchy of control (i.e. a Waste Management Strategy). This should include:

- Mitigation of waste generated
- Re-use of materials where possible
- Recycling of materials
- Disposal of remaining waste at a suitable facility.

Waste produced during the construction process is to be cleared on a regular (ideally daily) basis. On each floor of the buildings, a series of paladin bins will be deposited within easy reach of the workstations. Contractors are to deposit waste in these bins during the day. The bins are then should be transported to the skip via a hoist, to reduce manual handling to the minimum.

Because of space limitations on this site, it is not envisaged that many skips can be positioned on site. Therefore, to reduce the amount of waste for landfill, waste is to be segregated at the waste transfer station into the following categories:

- Cat A: Hazardous waste i.e. paint tins, mastic tubes etc.
- Cat B: Metal
- Cat C: General waste / building debris

6.6 Details of temporary works to ensure that the adopted carriageway is protected from subsidence during construction

It is likely the external facade will be erected using mast climbers, these should reduce the load placed on the highway. However, as the building will be nine storeys high there **may** be a need to appoint a Temporary Works Designer to independently check that design.

6.7 Details of how excavated materials will be contained with the site and prevented from entering drainage network

The Principal Contractor will be required to undertake Risk Assessments and to prepare Method Statements before commencement, and those RAMS should identify how this issue will be addressed. CCTV surveys will be undertaken within affected drains both before (and after) construction works, and temporary protection will be provided above existing entry points. NB. this is **not** anticipated to be a significant risk in relation to the existing drainage system.

7.0 Summary Statement

The Construction Design and Management Regulations 2015 will apply to this project and all appropriate controls and systems will be in place to comply with the standards of the Regulations and associated guidance.

Every stage of the project will be risk assessed and appropriate controls applied, sub-contractors will be pre-vetted and will be subject to extensive pre-contract requirements of information transfer and risk assessment.

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A fundamental aspect of the Principal Contractor's role is the development of a **Construction Phase Plan**, which will take account of all known risks, which have been identified at pre-construction stage by the Principal Designer/CDM Consultant, the Design Team and also through site investigations.

The Construction Phase Plan will describe arrangements and procedures for managing these key risk areas in more detail, as well as any future risk, and also the resources, including personnel, which will be applied to the scheme and which will ensure the Health and Safety of all those working on or affected by the project works.

The Principal Contractor will be required to have an ongoing process of monitoring health and safety standards throughout its organisation. This is normally done directly (on site) by the site management team through regular inspections, toolbox talks etc. and also via the risk assessment process both during the completion of risk assessments and then by monitoring the effectiveness of risk control measures, which have been implemented. Site managers will also undertake regular reviews of safety on site, including any accidents or incidents and any matters raised will be dealt with accordingly.

Health and safety is incorporated as a fundamental aspect of the overall project review, which will occur and this monitoring and review process will be supported by the **Principal Designer** (CDM). We are also available to undertake independent inspections on this site, if required.

The Principal Contractor will at the earliest possible stage of the project enter into dialogue with all relevant parties, including neighbours to ensure there is effective coordination throughout all stages of construction.

Appendices attached

- A. Planning Conditions
- B. Control of Dust RAMS
- C. Site waste management plan
- D. Emergency Response
- E. TMP
- F. Waste Logistics
- G. Construction vehicles
- H. First Aid and Emergency Response

END OF THE CONSTRUCTION METHODOLOGY AND MANAGEMENT STATEMENT.

Prepared for M4nchester Two Ltd



TECHNICAL DESIGN NOTE

Project name	One Silk Street Limited, Manchester		
Design note title	Drainage Planning Condition		
Document reference	C-13149-TN-002		
Author	L W Pilsbury		
Revision	P01		
Date	10 March 2022	Approved	☐

Bengal Street, Manchester, Reference Planning Application : 120893/FO/2018

With reference to the above planning application this note and the attached information has been prepared to discharge the below planning condition

The condition reads as follows:

Drainage Maintenance Management

Prior to the first occupation of the development, details of the implementation, maintenance and management of the sustainable drainage scheme shall be submitted for approval in writing by the City Council, as Local Planning Authority. For the avoidance of doubt this shall include:

Verification reporting providing photographic evidence of construction;

Management and maintenance plan for the lifetime of the development which shall include the arrangements adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

To enable the above condition to be discharged the following information is attached to this note:

- Drawing BGS-HYD-XX-XX-DR-C-0001 Rev C01 - Drainage Layout
- Drawing BGS-HYD-XX-XX-DR-C-0012 Rev C01 - Standard Details Sheet 3
- EC5015 090221 Inspection Letter

Verification report providing photographic evidence of construction;

The following photographs were taken of the below ground drainage construction during site inspections dated between 13/05/20 and 16/09/20.

The indicate the construction of chambers, oversized storage pipework, and complex flow control chambers in conjunction with the proposed drainage layout and construction detail drawings.



Photo 1 – As built Chamber



Photo 2 – Installation of Winsor Interceptor on outfall of flow control chamber



Photo 3 – Flow Control Chamber Construction – Incoming 600mm diameter storage pipe



Photo 4 – PPIC Construction

United Utilities Inspection Notice – S106;

The below inspection letter, received from United Utilities dated 09/02/2021, confirms the final approval for the S106 connection application into the public combined sewer within Radium Street.

United Utilities Water Ltd

Developer Services & Metering

Your Reference	EC5015
Our Reference	4200030683
Date	09/02/2021

Dear Sir/Madam

Location:	Radium Street, Ancoats, Manchester
-----------	------------------------------------

I am writing to you in reference to your recent sewer connection application. I can confirm that the connection has been inspected at Radium Street, Ancoats, Manchester and is deemed as satisfactory.

Please accept this letter as our final approval for this sewer connection.

Should you need to enquire about this application please telephone our Customer Service Centre on 0345 072 6067 and quote the above reference number.

Yours faithfully

Louise Dack

Developer Services and Metering

United Utilities Water Ltd
Developer Services Network Delivery
2nd Floor, Grasmere House
Lingley Green Ave, Great Sankey
Warrington
WA5 3LP

Telephone : 0345 072 6067
WastewaterDeveloperServices@uuplc.co.uk

Do you really need to print me?
Really? Think of the trees!
unitedutilities.com



United Utilities Inspection Notice

This form is to confirm a new connection has been made
to an existing public sewer under Section 106 of the
Water Industry Act 1991



Water for the North West

Site details: Details of the site or premise that have been connected to the public sewer	
United Utilities notification reference (EC/NC/SC/WC)	EC5015
Site address	Radium Street, Ancoats, Manchester
Development type	New property

Contractor Details	
Contractor name / Company Name	Sub-Tech Contracts Ltd
Contractor Email Address	info@sub-tech.co.uk
Works Supervisor	Shpetim Lulaj
Confirm sewer 'log on' & 'log off' procedure followed	Yes ☒ No ☐

Principal Contractor Details (if applicable)	
Company name (if applicable)	JRL Structures Ltd
Name of Contact for Project	Darren Hynes
Email Address	darren.hynes@jreddington.co.uk
Number of site inspections conducted by United Utilities	1

Connection details	
Sewer connection type	Combined
Combined sewer pipesize diameter	300mm
Connecting into:	457x685mm brick Existing Sewer Type Combined
Connecting to asset:	a saddle
Connection Location	Radium Street

Outcome	
Connection status	Satisfactory

Comments
I can confirm that the Combined Sewer connection is SATISFACTORY - 300mm Combined Sewer connecting into the 457x685mm brick Combined connected via a saddle in Radium Street

Approved: I confirm the sewer connection detailed above has been satisfactorily completed and inspected

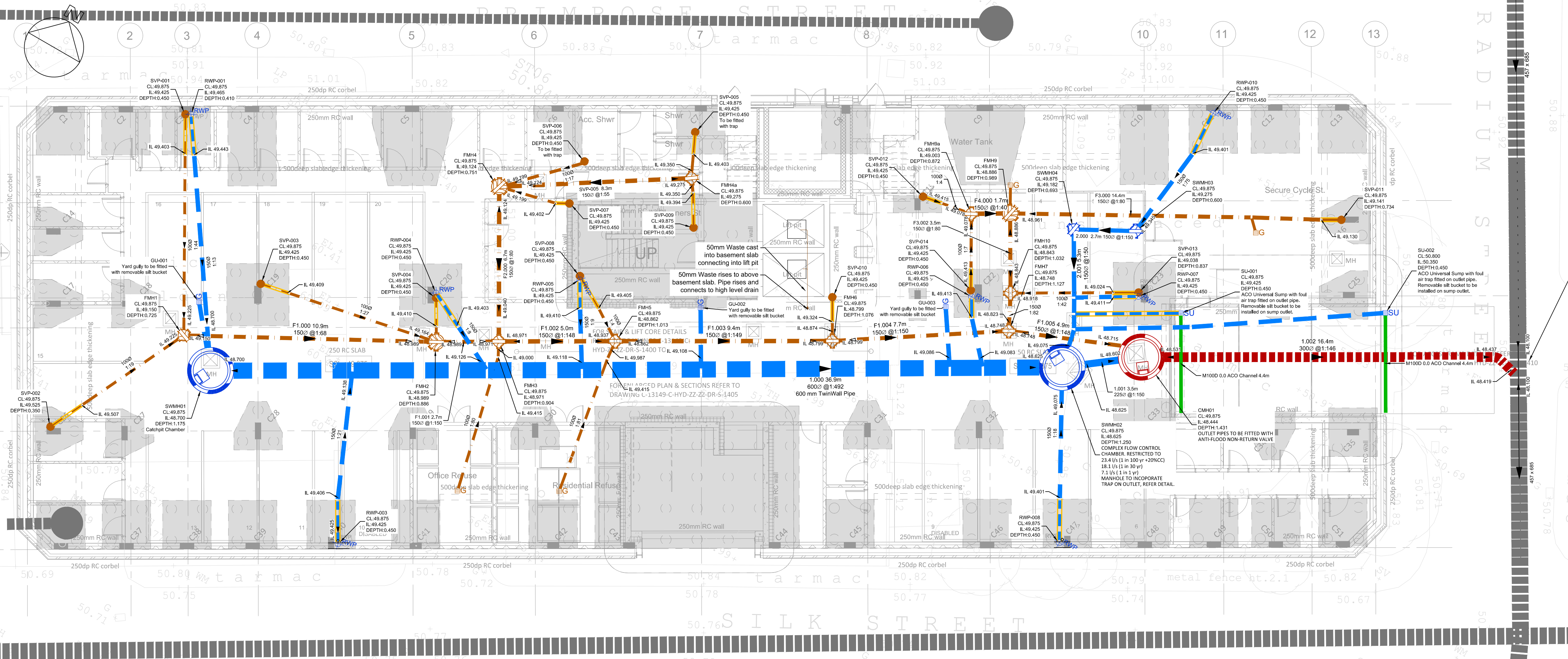
Developer Services Inspector	Phil Harper
Date of Inspection	08/02/2021

Management and Maintenance;

To enable the water treatment process and operation of the sustainable drainage scheme throughout its lifetime the drainage network shall require maintenance. The maintenance strategy and responsibilities are as set out in the table below.

Component to be maintained	Actions	Frequency	Responsibility of:
Site wide external areas	Site to be generally kept free from litter and debris which may enter the drainage system.	On-going	Site owner and facility operator
Cellular attenuation tank and flow control device	Inspection of manholes upstream and downstream of the attenuation for silt build up (every 3 months) and maintenance (annual) in accordance with the manufacturer's specification, to maintain cleanliness and correct design flows in and out of the attenuation system. Any silt shall be removed directly and not washed through the attenuation.	Inspections (3 months), Maintenance (Yearly)	Site owner and facility operator
General network inc. pipes/ manholes/ catchpits	Manholes covers to be lifted and inspected for sediment build up, remove as required	Yearly	Site owner and facility operator

Structure Table						
Structure Name	Internal Diameter	Type	Cover Level	Invert Level	Depth	Northing
CMH01	1200ø	Manhole Type B	49.875	48.444	1.431	C250 385011.339 398864.657
FMH1	450ø	PPIC	49.875	49.150	0.725	C250 384974.944 398844.735
FMH2	600ø	PPIC	49.875	48.989	0.886	C250 384984.563 398849.958
FMH3	450ø	PPIC	49.875	48.971	0.904	C250 384986.893 398851.330
FMH4	600ø	PPIC	49.875	49.124	0.751	C250 384983.580 398857.139
FMH4a	450ø	PPIC	49.875	49.275	0.600	C250 384990.577 398861.623
FMH5	450ø	PPIC	49.875	48.862	1.013	C250 384991.259 398853.864
FMH6	450ø	PPIC	49.875	48.799	1.076	C250 384999.395 398858.572
FMH7	450ø	PPIC	49.875	48.748	1.127	C250 385005.794 398862.770
FMH9	600ø	PPIC	49.875	48.886	0.989	C250 385003.300 398867.204
FMH9a	450ø	PPIC	49.875	49.003	0.872	C250 385001.857 398866.350
FMH10	450ø	PPIC	49.875	48.843	1.032	C250 385005.042 398864.222
SWMH01	1500ø	Catchpit Chamber with 300mm Sump	49.875	48.700	1.175	C250 384976.714 398843.991
SWMH02	1500ø	Flow Control	49.875	48.625	1.250	C250 385008.583 398862.560
SWMH03	450ø	PPIC	49.875	49.275	0.600	C250 385008.386 398869.252
SWMH04	450ø	PPIC	49.875	49.182	0.693	C250 385006.034 398867.978



NOTE:

Information shown on this layout is based upon existing drainage depths and images provided by J.Reddington on 20.02.20.

RWP & SVP Pop up locations are taken from West Lancashire Group drawing "16082-WLC-ZZ-00-DR-M-5201" rev P6 received 24.02.20, and FCH Architects drawing "P16082-FCH-BA-B1-DR-DR-A-3030" dated 10.03.20.

C01	OUTLET CONNECTION REVISED FROM NEW CHAMBER AS PER JRL REQUEST					
	L. W. PILSBURY	23.09.20	R. HENSHALL	23.09.20	R. HENSHALL	23.09.20
P07	AMENDMENTS TO GRADIENTS AND LEVELS TO SUIT 75mm STEP AS PER JRL COMMENTS. FLOW CONTROL CHAMBER RELOCATED.					
	L. W. PILSBURY	08.04.20	J. HAYDEN	08.04.20	R. HENSHALL	08.04.20
P06	POP-UPS REVISED TO REFLECT WLJ DRAWING REV P6					
	L. W. PILSBURY	19.03.20	R. HENSHALL	19.03.20	R. HENSHALL	19.03.20
P05	POP-UPS REVISED FOLLOWING JRL COMMENTS					
	L. W. PILSBURY	17.03.20	R. HENSHALL	17.03.20	R. HENSHALL	17.03.20
P04	ACO CHANNEL DRAIN SPECIFIED					
	L. W. PILSBURY	03.03.20	R. HENSHALL	03.03.20	R. HENSHALL	03.03.20
P03	OUTFALL LOCATION REVISED					
	L. W. PILSBURY	26.02.20	J. HAYDEN	26.02.20	R. HENSHALL	26.02.20
P02	PRELIMINARY ISSUE					
	J. HAYDEN	29.11.19	J. HAYDEN	29.11.19	J. HAYDEN	29.11.19
P01	PRELIMINARY ISSUE					
	G. WARSAMA	11.10.19	J. HAYDEN	11.10.19	J. HAYDEN	11.10.19
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

- NOTES:**
- THIS DRAWING IS NOT TO BE SCALED.
 - THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND LEVELS ON SITE.
 - 'MARKED UP' DRAWINGS ARE TO BE PROVIDED TO THE ENGINEER UPON COMPLETION TO ENABLE PRODUCTION OF 'AS BUILT' DRAWING IN ACCORDANCE WITH CONSTRUCTION (DESIGN & MANAGEMENT): 2015 REGULATIONS 22(j).
 - THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.
 - THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATION AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
 - ALL EXTERNAL DRAINAGE WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH 'CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY' 7th EDITION FOR ADOPTABLE DRAINAGE, AND TO THE RELEVANT PROJECT SPECIFICATION AS DIRECTED BY THE ENGINEER FOR PRIVATE DRAINAGE.
 - PIPE MATERIAL SHALL BE AS FOLLOWS:
1000 TO 2250 - CLAYWARE TO BS EN 295
3000 AND ABOVE - CONCRETE TO BS EN 1916
DRAINAGE PROPOSED FOR ADOPTION TO COMPLY WITH THE MATERIALS SPECIFIED ABOVE.

- N.B PVCu PIPES TO BE EN 1401-1:1998 MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER. PIPES OF LESS THAN 400MM DIAMETER TO HAVE A RESISTANCE OF 270 BAR.
- ALL FOUL PIPES ARE TO BE 1000 UNLESS STATED OTHERWISE OR TO SUIT ABOVE GROUND PIPEWORK. SURFACE WATER PIPE DIAMETERS ARE AS INDICATED
 - PIPE GRADIENTS UNLESS SHOWN ARE:
FOUL:
MINIMUM GRADIENT WITH W.C. TO BE 1:80.
 - UNLESS OTHERWISE NOTED INVERT LEVEL AT REST BEND TO BE 450mm BELOW FFL
 - CLAY AND CONCRETE PIPES SHALL BE BEDDED ON CLASS S BEDDING UNLESS COVER IS LESS THAN 1.2m IN TRAFFICKED AREAS, THEN CLASS Z BEDDING. DRAINAGE PROPOSED FOR ADOPTION TO COMPLY WITH THE BEDDINGS SPECIFIED ABOVE.
 - WHERE THE CROWN OF THE PIPE IS WITHIN 300MM OF THE UNDERSIDE OF THE SLAB, THE PIPEWORK SHOULD BE SURROUNDED WITH 150MM CONCRETE.
 - UPVC PIPES SHALL BE BEDDED ON CLASS P BEDDING UNLESS COVER IS LESS THAN 1.2m IN TRAFFICKED AREAS, THEN CLASS Q OR Z BEDDING.
 - BACKFILL TO TRENCHES MAY BE SUITABLE EXCAVATED MATERIAL IN LANDSCAPED AREAS & UNDER DRIVEWAYS, PATIOS ETC. TYPE 1 GRANULAR MATERIAL TO BE USED UNDER HARDSTANDINGS AND ROADS.
 - DESIGN OF THE DRAINAGE CHANNELS IS INDICATIVE ONLY. DETAILED DESIGN SHALL BE UNDERTAKEN BY THE CONTRACTOR'S PREFERRED CHANNEL MANUFACTURER/ SUPPLIER.
 - ALL MANHOLE AND DRAINAGE CHANNEL COVERS SHALL COMPLY WITH BS EN 124. FOR DETAILS OF COVER TYPE & LOCATION, PLEASE REFER TO THE MANHOLE SCHEDULE. ALL MANHOLE COVERS WITHIN BUILDING FOOTPRINT SHALL BE RECESSED & DOUBLE SEALED.
 - VENTILATION SHALL BE PROVIDED AT THE HEAD OF FOUL DRAINAGE RUNS. FOR SETTING OUT OF SOIL AND RAINWATER PIPES, SEE ARCHITECT'S LAYOUT "P16082-FCH-BA-B1-DR-A-3030" REV ""
 - ACCESS FOR RODDING/JETTING SHALL BE PROVIDED TO ALL SOIL AND RAINWATER DOWNPIPES ABOVE BASEMENT FLOOR LEVEL.
 - FOR DETAILS OF MANHOLE TYPES AND PIPE BEDDING ETC, SEE STANDARD DETAIL DRAWING(S).
 - COVER LEVELS SHOWN ARE APPROXIMATE. COVERS SHOULD BE ADJUSTED TO MATCH SURROUNDING FINISH LEVELS.
 - THE CONTRACTOR IS TO PROTECT EXISTING BURIED PIPES (PARTICULARLY SHALLOW PIPES) AND TREE ROOTS FROM DAMAGE CAUSED BY LOADS IMPOSED BY CONSTRUCTION.
 - ROCKERS PIPE REQUIRED WHERE DRAINAGE EXITS PAD FOUNDATION. REFER STANDARD DETAIL.
 - FOR DRAINAGE DETAILS REFER TO DRAWINGS
"BGS-HYD-XX-XX-DR-C-0010_0011- Standard details Sheet 1-2"

- LEGEND**
- Proposed Surface Water Drainage
 - Proposed Surface Water PPIC
 - Gully
 - Rain Water Pipe
 - Channel Drain SUMP
 - Channel Drain
 - Pipe through foundation
 - Proposed Foul Sewer Drainage
 - Foul Sewer Back Drop
 - Internal Gully
 - Foul Pop Up Position
 - Proposed Combined Sewer Drainage
 - Existing Foul Sewer Drainage

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CLIENT

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PROJECT

**BENGAL STREET
MANCHESTER**

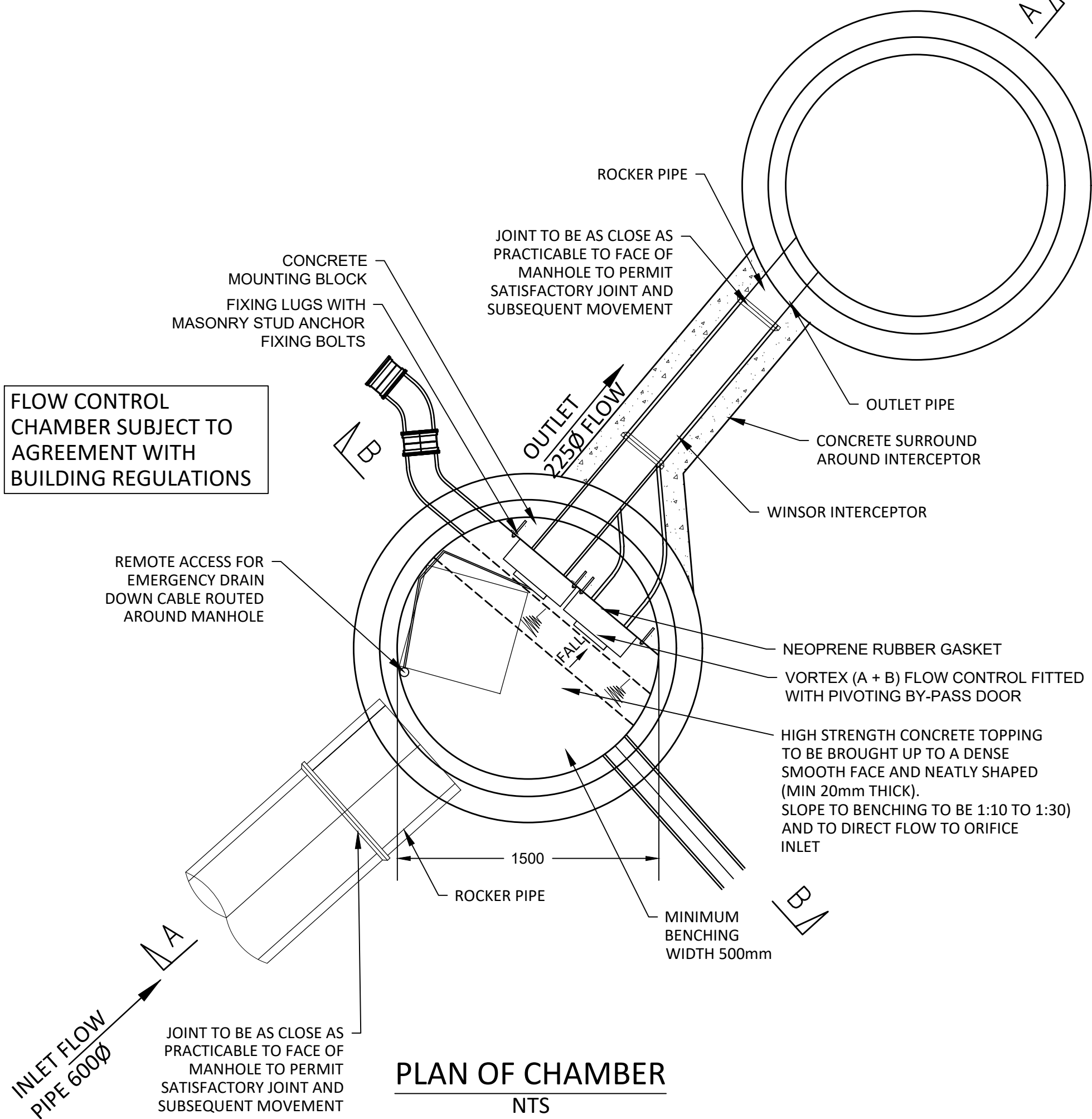
TITLE

**DRAINAGE OUTFALL
REVIEW**

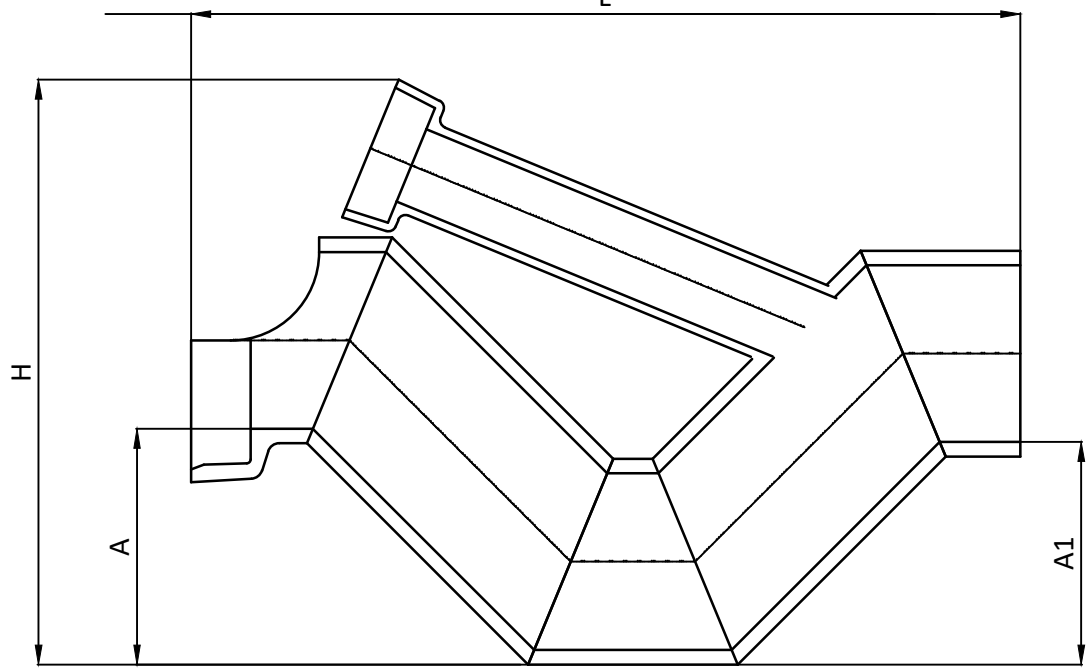
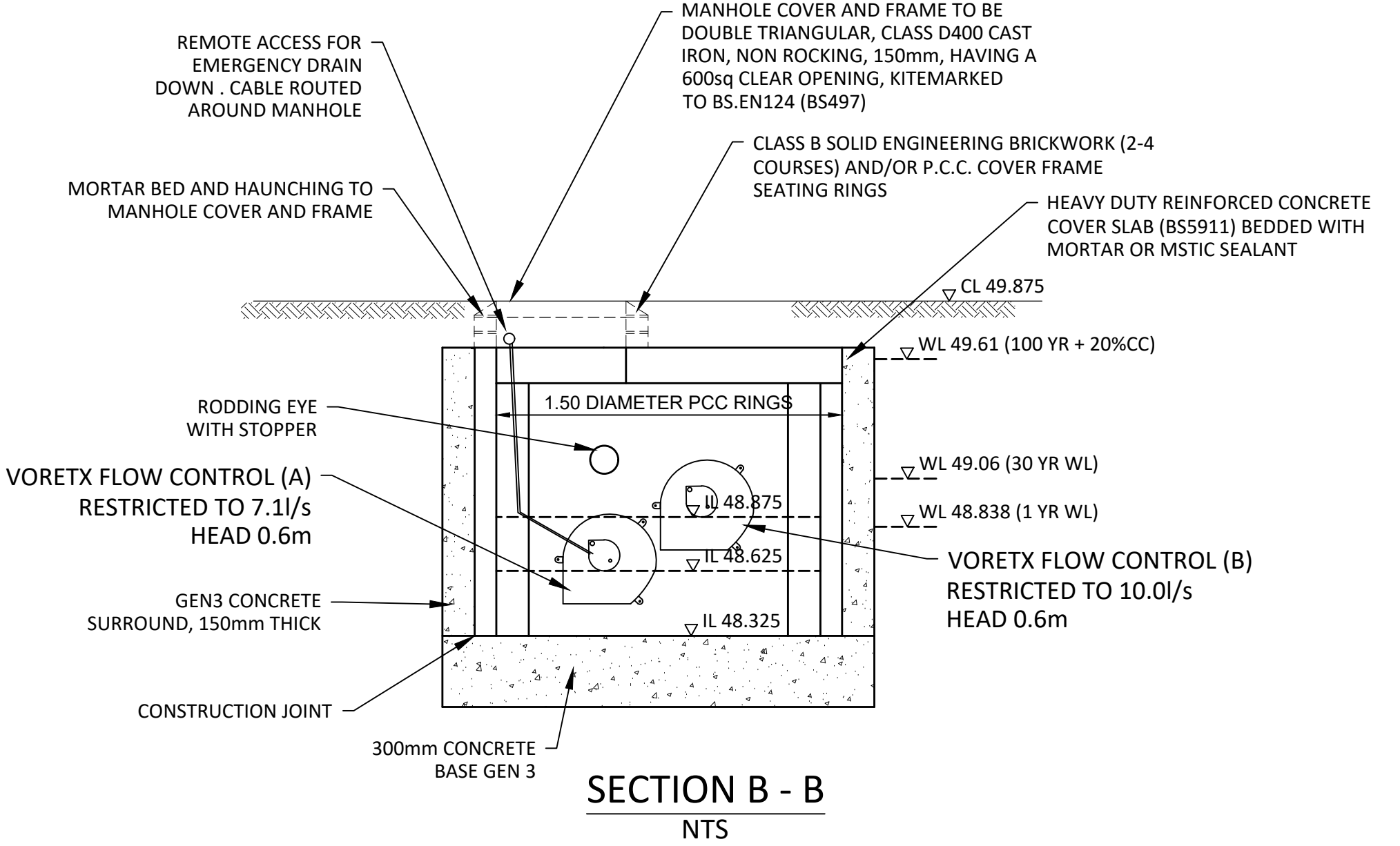
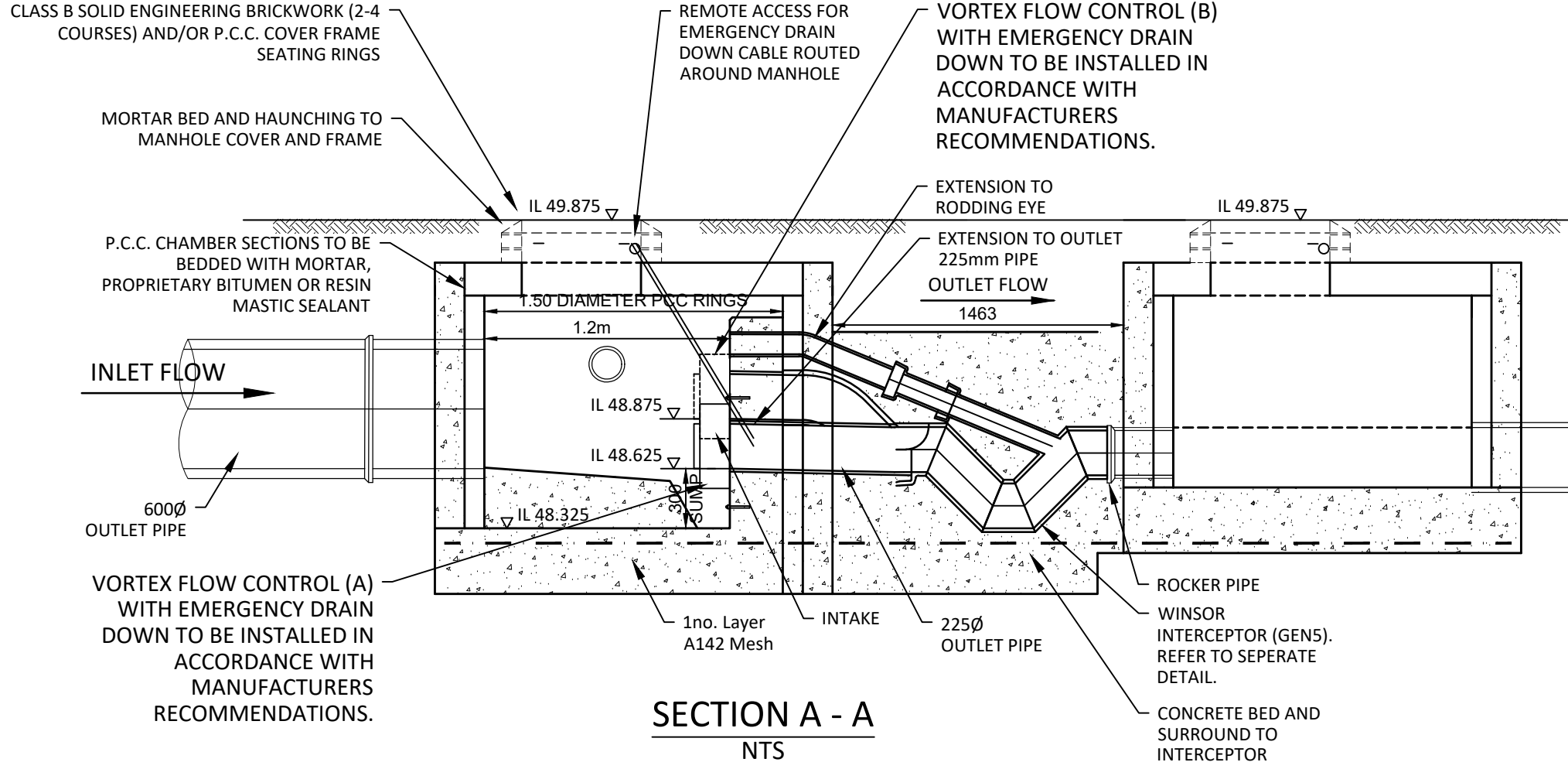
HYDROCK PROJECT NO.
C-13149

SCALE @ A1
1/100

STATUS DESCRIPTION CONSTRUCTION	STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) BGS-HYD-XX-XX-DR-C-0001	REVISION C01



PLAN OF CHAMBER
NTS
MANHOLE SWMH02 DETAIL

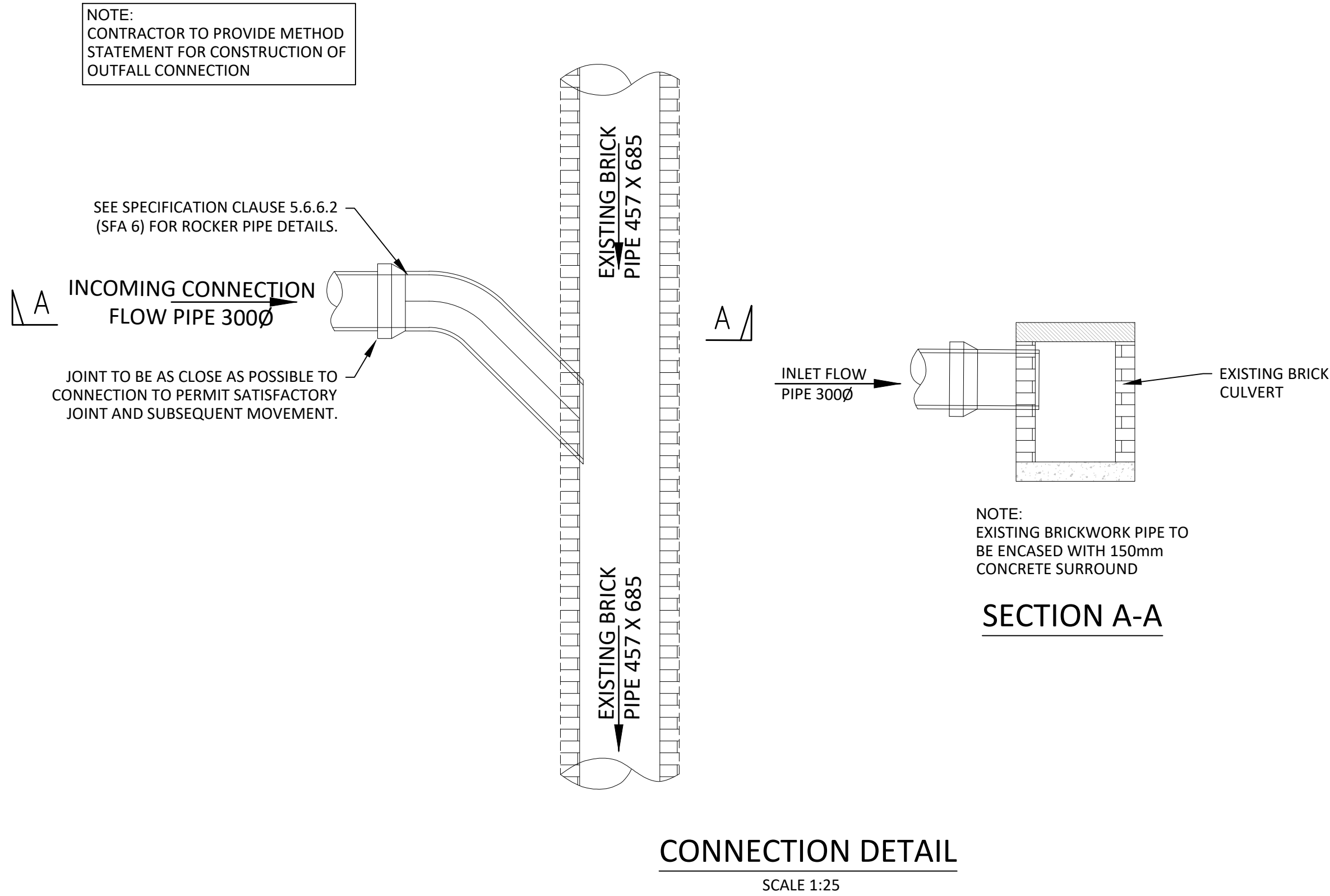


Interceptor (Winsor)	
Nominal diameter	225
Outlet diameter	225
L Overall length	1060
H Overall height	750
A1 Outlet height	285
A Inlet height	300
Code	RI1/3

- Notes -
1. Dimensions shown may vary due to manufacturing tolerances.
 2. 225 Ø units are manufactured segmentally from straight pipe.

INTERCEPTOR DETAIL (WINSOR)
BY HEPWORTH OR SIMILAR

SCALE 1:10



C01	OUTFALL CONNECTION DETAILED REVISED					
	L. W. PILSBURY	23.09.20	R. HENSHALL	23.09.20	R. HENSHALL	23.09.20
P04	OUTFALL CHAMBER MOVED TO DRAWING 0013					
	L. W. PILSBURY	05.05.20	R. HENSHALL	05.05.20	R. HENSHALL	05.05.20
P03	OUTFALL CHAMBER DETAIL AMENDED					
	L. W. PILSBURY	14.04.20	J.HAYDEN	14.04.20	R. HENSHALL	14.04.20
P02	FLOW CONTROL CHAMBER DETAIL AMENDED					
	L. W. PILSBURY	08.04.20	J.HAYDEN	08.04.20	J.HAYDEN	08.04.20
P01	PRELIMINARY ISSUE					
	L. W. PILSBURY	31.03.20	J.HAYDEN	31.03.20	J.HAYDEN	31.03.20
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE



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PROJECT

BENGAL STREET

TITLE

STANDARD DETAILS
SHEET 3

HYDROCK PROJECT NO. C-13149		SCALE @ A1 NTS	
STATUS DESCRIPTION CONSTRUCTION			STATUS S3
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) BGS-HYD-XX-XX-DR-C-0012			REVISION C01