Appendix F – Metro Rod Wincan Report

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12th September 2017

CCTV SURVEY REPORT

Client:	Opus International Consultants (UK) Ltd
Site Address:	Ipsen Biopharm, Ash Road North, Wrexham, LL13 9UF
Job Number:	396204
Date of Survey:	6th September 2017
Additional Ref:	

Summary of Works

The engineers attended site and carried out CCTV surveying of culvert including sonde location of drainage run. The information gathered from this was communicated to PM Surveys on site.

CCTV Survey Findings

Please see our included Wincan VX Report which details condition of pipe, pipe length, pipe diameters, manhole depths, construction materials and also included Site Plan detailing drainage layout.

We would like to highlight the following sections as worthy of further comment or requiring additional attention:

Section 1/ C1 to C2 – The culvert is in a good, clean, serviceable condition. A few items were highlighted on the report including minor encrustation, a metal object in invert, a hole where mortar is missing on a joint and a poorly constructed butt joint (from 900mm to 750mm) where water is seeping into the culvert (likely ground waters).

Section 2/ C2 to C3 (Headwall) - The culvert is in a good, clean, serviceable condition. The survey has highlighted that a few of the re-bars within the concrete appear to be exposed however, this is likely a fault during casting. Some minor encrustation was also highlighted on a singular joint.

Section 3/ C3 to C4 - The culvert is in a good, clean, serviceable condition. The survey revealed a potential entry point for ground water (or leak from service) at approx. 0.89mts (but may be hidden connection). This is entering the culvert at a steady pace (dripping). We also discovered that a cast iron pipe has likely been moled through the culvert at approx. 14.04mts which is also allowing water to ingress (dripping) through the holes where the pipe has broken through.

Section 4/ C4 to Downstream - The culvert appears in a serviceable condition however, we were forced to abandon survey at approx. 58mts due to high water level within the pipe. Our engineers attempted to locate the outfall position or further manholes downstream however, as

the area was considerably overgrown with brambles etc. this was not feasible. We were also unable to trace any of this length due to the overgrowth but are confident the drain continues in a straight line parallel to the boundary fence.

We trust that the above meets with your approval; should you wish to discuss any of the above comments, please do not hesitate to contact us.

Yours Sincerely,

Chris Bow
Technical Manager

Special Notes

a) The prices offered are for the work described only and do not include for any work which becomes apparent or necessary once work commences. If this situation arises, we reserve the right to re-negotiate our quotation.

b) The prices are based on the assumption that our engineers can commence work upon arrival to site, that continuity of work can be achieved and that the work is to take place on a non-emergency basis, unless otherwise stated. If downtime is experienced due to circumstances beyond our control, a charge pro-rata of the agreed rate will be made for that period.

c) All manholes must be accessible with vehicular access being available where appropriate and access points being available to all blind connections.

d) Should we be required to enter any confined space as defined by the Health & Safety at Work Act or any manhole chamber deeper than 1.2 metres, we reserve the right to amend our quotation to include for the required safety equipment to satisfy Health & Safety legislation.

e) Jetting included within the proposal is based on the removal of silt (maximum 5-10%), loose scale and encrustation within the pipe work. Should we encounter any extraordinary object(s) requiring special equipment, we will advise you immediately and we reserve the right to re-negotiate a further charge for the extra work.

f) Should during the course of the proposed work, we locate any problem area(s) of drainage requiring further investigation which prevents us from completing the work to any particular area, a separate report will be submitted. This will detail our findings together with recommendations for remedial action plus associated costs.

g) Should any manhole cover(s) or access point(s) prove difficult to remove, removal of which would result in damage to the cover/frame or access point. Each will be recorded and a report submitted detailing the extra work required to enable the necessary work to be conducted from the particular location(s).

h) Our quotation is based on the ground being firm and continuous and suitable for economical working and the method specified. No allowance has been made for rock, buried debris and clay stones, running silt or running ballast being encountered. Should obstructions be encountered during our works we reserve the right to re-negotiate our quotation.

i) Metro Rod do not accept any financial liabilities that may arise due to failed re-lining works. The lining process always has an element of risk due to numerous factors and by acceptance of our quotation an agreement has been reached that the client has accepted/acknowledged the risks involved. Metro Rod will be happy to work with the client to carry out necessary works to resolve failed liners however; this may be subject to additional costs (upon review for each individual case).

j) Our quotation does not include for any major dewatering systems or tanking systems to prevent major water ingress from entering any excavations which may be undertaken.

k) The prices offered are based on normal working hours which equate to weekdays, Monday to Friday between the hours of 9am to 5pm, unless otherwise stated.

l) Our quotation is subject to adequate access.

m) The price quoted is valid for 90 days from the date of quotation.

n) All prices are subject to VAT at the current rate.

m) This quotation is subject to Metrorod's Terms and Conditions which are available upon on request.

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Project

Project Name	Opus Ipsen Biopharm 396204
Description	
Start Date	12/09/2017

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Opus Ipsen Biopharm 396204		**12/09/2017**

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Scoring Summary

Project Name :	Project Number :	Date :
Opus Ipsen Biopharm 396204		**12/09/2017**

Structural Defects

Section	Pipe Ref	Grade	Description
1	C2X	4	Hole in drain/sewer at joint at 10 o'clock

Grade 3: Best practice suggests consideration should be given to repairs in the medium term.
Grade 4: Best practice suggests consideration should be given to repairs to avoid a potential collapse.
Grade 5: Best practice suggests that this pipe is at risk of collapse at any time. Urgent consideration should be given to repairs to avoid total failure

Service / Operational Defects

Section	Pipe Ref	Grade	Description
1	C2X	5	Other obstacles, other object in invert at 6 o'clock, 5% cross-sectional area loss
2	C3/H.wallX	3	Attached deposits, encrustation from 5 o'clock to 7 o'clock, 5% cross-sectional area loss
3	C1X	5	Other obstacles, other from 3 o'clock to 9 o'clock, 10% cross-sectional area loss

Grade 3: Best practice suggests consideration should be given to maintenance activities in the medium term.
Grade 4: Best practice suggests consideration should be given to maintenance activity to avoid potentia blockages.
Grade 5: Best practice suggests that this pipe is at a high risk of backing up or causing flooding.

Abandoned Surveys

Section	Pipe Ref	Description
4	C4X	Survey abandoned

Information

These summaries are based on the SRM grading from the WRC.

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Project Information

Project Name	Client's ref :	Contractor's ref :	Date:
Opus Ipsen Biopharm 396204			**12/09/2017**

Description

Client

Company: Opus International Consultants (UK) Ltd
Contact:
Department:
Street:
City:
Phone:
Fax:
Mobile:
E-Mail:

Site

Company: Ipsem Biopharm
Contact:
Department:
Street: Ash Road North
City: Wrexham, LL13 9UF
Phone:
Fax:
Mobile:
E-Mail:

Contractor

Company: Metro Rod (Deeside)
Contact: Chris Bow
Department:
Street: Unit 27 Drome Road, Deeside Industrial Estate
City: Flintshire, CH5 2NY
Phone: 01244 288809
Fax:
Mobile:
E-Mail: deeside@metrorod.co.uk

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Legend of Classification (Section)

Project Name	Project Number:	Date:
Opus Ipsen Biopharm 396204		**12/09/2017**

1:	Brick: No Structural Defects Pipe: No Structural Defects Acceptable Structural Condition
2:	Brick: Minor cracking, Surface mortar loss, Spalling slight, Wear slight Pipe: Circumfrential crack, Moderate joint defects, Spalling slight, Wear slight Minor collapse risk in short term but potential for further deterioration
3:	Brick: Total mortorloss without other defects, single brick displaced, Deformation up to 5%, Spalling medium, Wear medium Pipe: Fractures with deformation up to 5%, Longitudinal cracking or mulitple cracking, Minor loss of level, More severe joint ! Collapse unlikely in near future but future deterioration likely !
4:	Brick: Total mortorloss with deformation greater than 10%, Deformation up to 10% and fractured, Displaced/hanging brickwork, Small number of missing bricks Pipe: Broken, Deformation up to 10% and broken, Fractured with deformation 5 - 10%, Multiple fractures, serious loss of level, Spalling large, Wear large !! Collapse likely in foreseeable future !!
5:	Brick: Already collapsed, Missing invert, Deformation over 10% and fractured, Displaced/hanging brickwork and deformation over 10%, Extensive missing bricks Pipe: Already collapsed, Deformation over 10% and broken, Extensive areas of fabric missing, Fractured with deformation over 10% !!! Collapsed or collapse imminent !!!

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Section Profile

Project Name	Project Number:	Date:
Opus Ipsen Biopharm 396204		**12/09/2017**

Nr.	Upstream MH	Downstream MH	Date	Street	Material	Expected length	Inspected length
2	C3/H.wall	C2	12/09/2017		Concrete pipe	32.90	32.90

1 x Circular 750 = 32.90 Expected length (32.90 Inspected length)

Nr.	Upstream MH	Downstream MH	Date	Street	Material	Expected length	Inspected length
1	C2	C1	12/09/2017		Concrete pipe	58.32	58.32
3	C1	C4	12/09/2017		Concrete pipe	52.18	52.18
4	C4	Downstream	12/09/2017		Concrete pipe	59.36	59.36

3 x Circular 900 = 169.86 Expected length (169.86 Inspected length)

Total: 4 = 202.76 Expected length (202.76 Inspected length)

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Inspection Report

Section Number :	Date :	Client's Ref :	Weather :	Critial Drain/Sewer:	PLR :
1	**12/09/2017**		**No rain or snow**		**C2X**
Operator :	Vehicle :	Camera :	Preset :	Cleaned :	Type of Drain :
Chris Bow		**Crawler**		**no**	**Gravity drain/sewer**

Place:		Direction:	**C1 ← C2**	US MH:	**C2**
Road:		Catchment:		US Depth:	**2.15**
Location:		Total Length	**58.32**	DS MH:	**C1**
Surface Cover:		Pipe Length:		DS Depth:	**2.47**

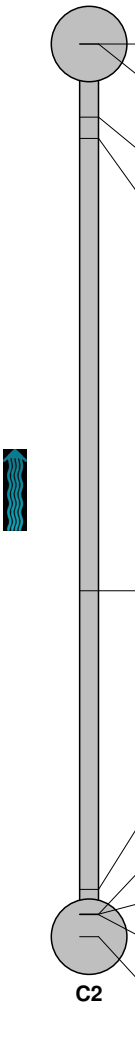
Use:	**Surface water**	Pipe Shape:	**Circular**
Year Laid:		Width / Height	**900 / 0**
Purpose:	**Sample survey to determine asset condition**	Flow Control:	**No flow control**
Lining:		Pipe Material:	**Concrete pipe**

Comment:
Recommendation:

1:493

Depth: 2.47

C1



C2

Depth: 2.15

Position m	Code	Observation	Grade
0.00	WL	Water level, 0% of the vertical dimension	0
0.00	MH	Start node type, manhole, reference number: C1	0
4.78	DEE	Attached deposits, encrustation from 4 o'clock to 7 o'clock, 3% cross-sectional area loss	2
6.17	WL	Water level, 3% of the vertical dimension: holding back behind minor encrustation	0
35.72	OBX	Other obstacles, other object in invert at 6 o'clock, 5% cross-sectional area loss: metal object	5
55.23	HJ	Hole in drain/sewer at joint at 10 o'clock: grout missing from joint	4
56.85	OJL	Open joint, large: reduction in pipe diameter appears to be butt joint and filled with combination of blocks/mortar	1
56.85	IS	Infiltration, seeping at 9 o'clock: staining suggesting water ingress through joint	0
56.88	SC	Dimension of drain/sewer changes, 750mm high, 750mm wide	0
58.32	MHF	Finish node type, manhole, reference number: C2	0

4.78m // 00:00:59.88 //

35.72m // 00:03:25.01 //

55.23m // 00:05:48.47 //

56.85m // 00:06:03.41 //

56.85m // 00:06:18.84 //

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
2	100.0	1.7	1.7	4.0	2	10.0	0.2	11.0	5.0

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Section Pictures - 12/09/2017 - C2X

Section Number :	Survey Direction :	PLR :	Client's Ref :	Contractor's Ref :
1	**C1 ← C2**	**C2X**		

C2X_d2a7c5d0-a28b-47b8-ab8c-a537c3cedf05_20170912_081251_626.jpg, 00:00:59, 4.78m
Attached deposits, encrustation from 4 o'clock to 7 o'clock, 3% cross-sectional area loss

C2X_cf1d6884-148c-4efe-a6a2-4aed3da1a56c_20170912_081617_357.jpg, 00:03:25, 35.72m
Other obstacles, other object in invert at 6 o'clock, 5% cross-sectional area loss

C2X_0138c975-5a35-443c-a87d-6be0f242e17a_20170912_082116_611.jpg, 00:05:48, 55.23m
Hole in drain/sewer at joint at 10 o'clock

C2X_957cfd90-7a00-4091-8a0f-8d68fef4e719_20170912_082246_721.jpg, 00:06:03, 56.85m
Open joint, large

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Section Pictures - 12/09/2017 - C2X

Section Number :	Survey Direction :	PLR :	Client's Ref :	Contractor's Ref :
1	**C1 ← C2**	**C2X**		

C2X_31188478-1998-4a09-aba1-750844f5a89a_20170912_082435_256.jpg, 00:06:18, 56.85m
Infiltration, seeping at 9 o'clock

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Inspection Report

Section Number :	Date :	Client's Ref :	Weather :	Critial Drain/Sewer:	PLR :
2	**12/09/2017**		**No rain or snow**		**C3/H.wallX**
Operator :	Vehicle :	Camera :	Preset :	Cleaned :	Type of Drain :
Chris Bow		**Crawler**		**no**	**Gravity drain/sewer**

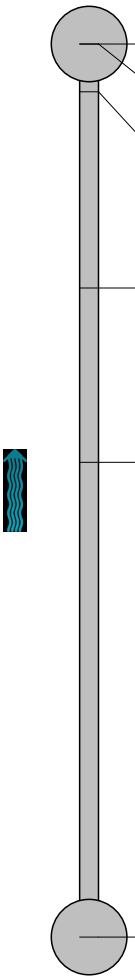
Place:		Direction:	**C2 ← C3/H.wall**	US MH:	**C3/H.wall**
Road:		Catchment:		US Depth:	**1.80**
Location:		Total Length	**32.90**	DS MH:	**C2**
Surface Cover:		Pipe Length:		DS Depth:	**2.15**

Use:	**Surface water**	Pipe Shape:	**Circular**
Year Laid:		Width / Height	**750 / 0**
Purpose:	**Sample survey to determine asset condition**	Flow Control:	**No flow control**
Lining:		Pipe Material:	**Concrete pipe**

Comment:
Recommendation:

1:278

Depth: 2.15
C2



C3/H.wall
Depth: 1.80

Position m	Code	Observation	Grade
0.00	WL	Water level, 0% of the vertical dimension	0
0.00	MH	Start node type, manhole, reference number: C2	0
1.76	REM	General remark: re-bar in concrete exposed in areas	0
8.99	DEE	Attached deposits, encrustation from 5 o'clock to 7 o'clock, 5% cross-sectional area loss	3
15.41	WL	Water level, 3% of the vertical dimension	0
32.90	MHF	Finish node type, manhole, reference number: 33	0

1.76m // 00:00:38.10 //

8.99m // 00:01:40.28 //

32.90m // 00:03:50.93 //

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0.0	0.0	0.0	1.0	1	2.0	0.1	2.0	3.0

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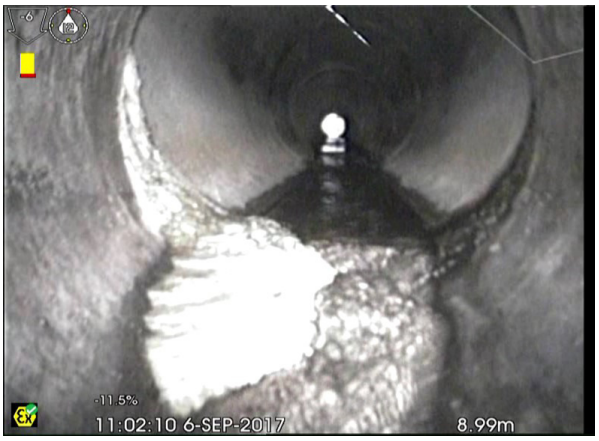
Section Pictures - 12/09/2017 - C3/H.wallX

Section Number :	Survey Direction :	PLR :	Client's Ref :	Contractor's Ref :
2	**C2 ← C3/H.wall**	**C3/H.wallX**		

C3_H.wallX_b095e7d3-d8d0-44b8-8bac-07e653b6e7ff_20170912_083155_352.jpg, 00:00:38, 1.76m
General remark



C3_H.wallX_cae23a6f-c0cc-48f1-a634-35f3af4b8d59_20170912_083506_942.jpg, 00:01:40, 8.99m
Attached deposits, encrustation from 5 o'clock to 7 o'clock, 5% cross-sectional area loss

C3_H.wallX_27b83fb0-1799-4d75-be26-7ab8e8af14b6_20170912_083905_822.jpg, 00:03:50, 32.90m
Finish node type, manhole, reference number: 33

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Inspection Report

Section Number :	Date :	Client's Ref :	Weather :	Critial Drain/Sewer:	PLR :
3	**12/09/2017**		**No rain or snow**		**C1X**
Operator :	Vehicle :	Camera :	Preset :	Cleaned :	Type of Drain :
Chris Bow		**Crawler**		**no**	**Gravity drain/sewer**

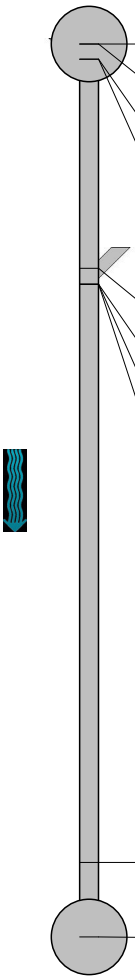
Place:		Direction:	**C1 ➔ C4**	US MH:	**C1**
Road:		Catchment:		US Depth:	**2.47**
Location:		Total Length	**52.18**	DS MH:	**C4**
Surface Cover:		Pipe Length:		DS Depth:	**2.70**

Use:	**Surface water**	Pipe Shape:	**Circular**
Year Laid:		Width / Height	**900 / 0**
Purpose:	**Sample survey to determine asset condition**	Flow Control:	**No flow control**
Lining:		Pipe Material:	**Concrete pipe**

Comment:
Recommendation:

1:441

Depth: 2.47
C1



C4
Depth: 2.70

Position m	Code	Observation	Grade
0.00	WL	Water level, 2% of the vertical dimension	0
0.00	MH	Start node type, manhole, reference number: C1	0
0.89	ID	Infiltration, dripping at 10 o'clock	0
0.89	CN	Connection other than junction at 1 o'clock, diameter: 100mm: appears to be cast iron pipe	0
13.11	CN	Connection other than junction at 10 o'clock, diameter: 100mm: assume 100mm	0
14.04	OBZ	Other obstacles, other from 3 o'clock to 9 o'clock, 10% cross-sectional area loss: cast iron pipe through pipe likely water main. water ingress on	5
14.04	ID	Infiltration, dripping at 9 o'clock	0
14.04	ID	Infiltration, dripping at 3 o'clock	0
47.83	REM	General remark: assume window cut through pipe and re-mortared in position	0
52.18	MHF	Finish node type, manhole, reference number: C4	0

0.89m // 00:00:22.13 //

14.04m // 00:01:38.04 //

47.83m // 00:04:28.53 //

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0.0	0.0	0.0	1.0	1	10.0	0.2	10.0	5.0

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Section Pictures - 12/09/2017 - C1X

Section Number :	Survey Direction :	PLR :	Client's Ref :	Contractor's Ref :
3	**C1 ➔ C4**	**C1X**		

C1X_fad6a9a5-0175-48cf-aa51-6d8a3521a665_20170912_084205_694.jpg, 00:00:22, 0.89m
Infiltration, dripping at 10 o'clock

C1X_06a23d8d-747e-412d-b068-9f247a6ee966_20170912_084547_481.jpg, 00:01:38, 14.04m
Other obstacles, other from 3 o'clock to 9 o'clock, 10% cross-sectional area loss

C1X_424818c4-04ed-423b-ba67-503e54586c3e_20170912_085223_515.jpg, 00:04:28, 47.83m
General remark

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Inspection Report

Section Number :	Date :	Client's Ref :	Weather :	Critial Drain/Sewer:	PLR :
4	**12/09/2017**		**No rain or snow**		**C4X**
Operator :	Vehicle :	Camera :	Preset :	Cleaned :	Type of Drain :
Chris Bow		**Crawler**		**no**	**Gravity drain/sewer**

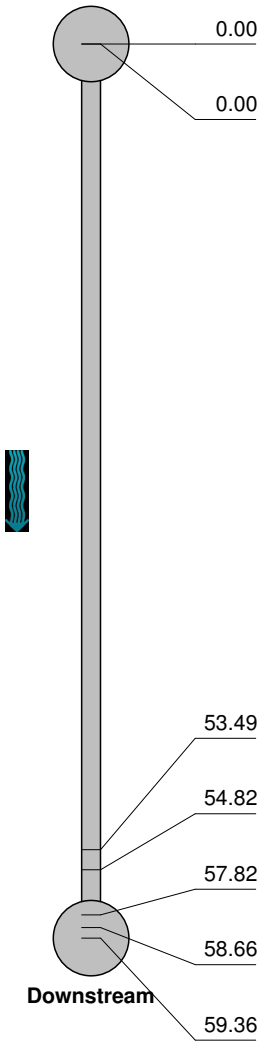
Place:		Direction:	**C4 ➔ Downstream**	US MH:	**C4**
Road:		Catchment:		US Depth:	**2.70**
Location:		Total Length	**59.36**	DS MH:	**Downstream**
Surface Cover:		Pipe Length:		DS Depth:	

Use:	**Surface water**	Pipe Shape:	**Circular**
Year Laid:		Width / Height	**900 / 0**
Purpose:	**Sample survey to determine asset condition**	Flow Control:	**No flow control**
Lining:		Pipe Material:	**Concrete pipe**

Comment:
Recommendation:

1:501

Depth: 2.70
C4

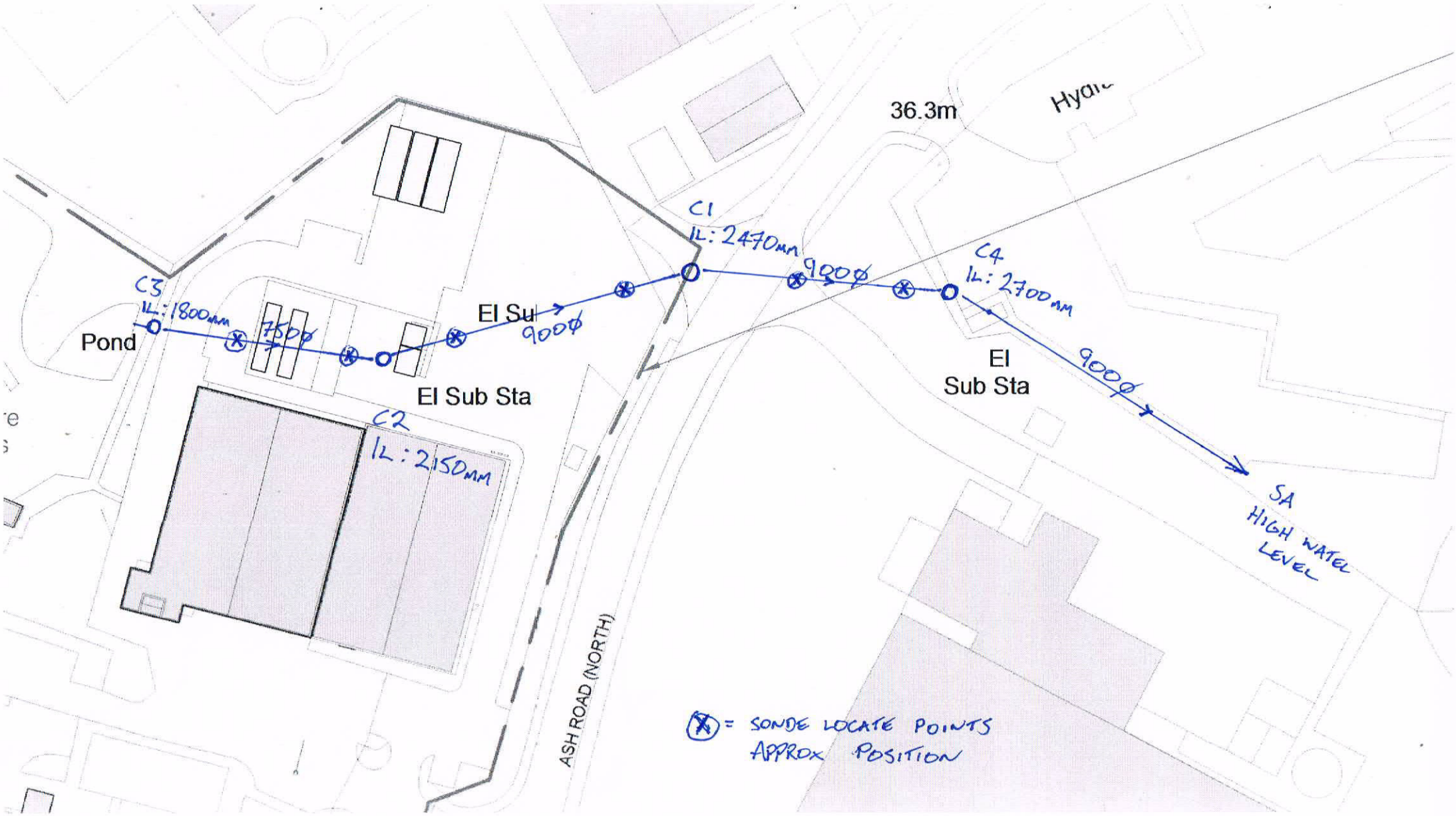


Downstream

Depth:

Position m	Code	Observation	Grade
0.00	WL	Water level, 2% of the vertical dimension	0
0.00	MH	Start node type, manhole, reference number: C4	0
53.49	WL	Water level, 5% of the vertical dimension	0
54.82	WL	Water level, 10% of the vertical dimension	0
57.82	WL	Water level, 20% of the vertical dimension	0
58.66	CUW	Loss of vision, camera under water	0
59.36	SA	Survey abandoned: due to loss of vision/high water level	0

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0


36.3m
Hyd
C1
IL: 2470mm
900ø
C4
IL: 2700mm
C3
IL: 1800mm
750ø
Pond
El Su
900ø
El Sub Sta
C2
IL: 2150mm
El
Sub Sta
900ø
SA
HIGH WATER
LEVEL
ASH ROAD (NORTH)
= SONDE LOCATE POINTS
APPROX POSITION

Appendix G – Culvert Alignment

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