

Blessed Carlo Acutis Catholic School, Merthyr Tydfil

Drainage Strategy Report

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1 Introduction

1.1.1 Cambria Consulting Ltd have been appointed by Willmott Dixon Construction on behalf of Merthyr Tydfil County Borough Council to develop a Drainage Strategy Report in support of a planning and SAB application for the development of the new school Blessed Carlo Acutis Catholic School (3-16 All Through School), in Merthyr Tydfil.

1.1.2 As a result of the enactment of Schedule 3 of the Flood Management Act 2010 by Welsh Government, the development will require Sustainable Drainage (SuDS) approval, as well as planning approval, in order to be constructed.

1.1.3 The objectives of this report are:

- Identify suitable outfall locations for the Surface Water and Foul Water from the proposed development.
- Undertake hydraulic calculations to identify peak design flows or restrictions to the development and any subsequent attenuation requirements.
- Consult with the SAB and Dwr Cymru Welsh Water regarding the proposals.
- Provide a schematic layout of the proposed foul and surface water drainage proposals.
- Demonstrate compliance with the National SuDS standards.

2 Site Description

2.1 Site Location

2.1.1 The site is located north of Merthyr Tydfil town center, immediately off Galon Uchaf Road, with the postcode being CF47 9AN and is located around the Ordnance Survey Grid Reference 305248E, 207736N. The site is approximately 9.7 ha across three separate parcels.

2.1.2 The three separate parcels consist of, the existing upper and lower school (north and south) and Galon Uchaf park to the west. The upper and lower school are separated by Gwaunfarren Road are connected via a pedestrian tunnel that passes underneath. Galon Uchaf park is separated by Galon Uchaf road to the existing school site.

2.1.3 The site location is shown in Figure 2-1 below.



Figure 2-1 - Site location map (Google Earth Pro)

2.2 Topography

2.2.1 A Topographical & Utility Survey (PAS:128 – Type B) was undertaken Gwalia Surveyors in Feb/March 2021 with further surveys undertaken for the existing school site in September 2021 and August 2022.

2.2.2 There is an existing level change from the extreme north to south of c. 18.5m (274.5 to 256.0m AOD) on the upper site and c.20.0m (261.0 to 241.0m AOD) on the lower site.

2.2.3 Gwaunfarren Road splits the two sites and crowns centrally around 261.5m AOD and falls to 257m AOD at Galon Uchaf Road and 254.5m AOD beyond the eastern boundary of the site.

2.2.4 The topographical survey shows slopes ranging from 1 in 40 in and around hardstanding areas to 1 in 2 for embankments with spot levels in the range of 275m to 232m AOD.

2.2.5 Refer to *Appendix* A for a copy of the Gwalia Topographical & Utilities surveys.



Figure 2-3 – Southeast Corner, Northern Site



Figure 2-2 Embankment Falling South of Gwaunfarren Road



Figure 2-4 – South of the Southern Site

2.3 Ground Conditions

2.3.1 Integral Technique undertook an intrusive site investigation in August 2022. Along with a desk study of the sites' geology and history, intrusive ground conditions were undertaken comprising of the following:

- 21 No. machine excavated soil infiltration tests.
- 4 No. falling head percolation tests.
- 27 No. windowless sample boreholes.
- 2 No. machine excavated trial pits.
- 14 No. hand dug trial pits/foundation inspection pits.
- 25 No. CBR tests.

2.3.2 Geology records shows the site to be underlain by South Wales Lower Coal Measures Formation of the Carboniferous period. These rocks typically comprise grey, productive, coal-bearing, mudstones/siltstones, with seatearths and minor sandstones. Superficial Devensian Till deposits of the Quaternary period are indicated to overlie the solid strata. These are typically poorly sorted and variable in nature comprising clays, sands, and gravel.

2.3.3 Soakaway testing was carried out in 21 trial pit locations (SA101-SA111, SA201-SA213). The results of the BRE Digest 365 soakaway testing undertaken on site has shown limited infiltration potential on the site, with 17 out of the 21 BRE 365 soakaway tests only able to complete one full testing cycle. Insufficient infiltration was observed in all test locations across the site, and it was not possible to calculate a design infiltration rate/soil permeability.

2.3.4 With respect to the risks to human health the majority of the analysed chemical elements or compounds are present at concentrations below the appropriate thresholds. However, initial screening indicates exceedances of beryllium and several PAH compounds. Asbestos was not detected within the screened samples.

2.3.5 Within the underlying clay soils, minor groundwater seepages were encountered at variable depths. A water strike was noted within WS176 immediately after drilling within the peaty/organic made ground. The water strike noted within WS179 was recorded within the reworked clay material. This is likely indicative of a perched water body/pocket within the cohesive soils.

2.4 Flood Risk

2.4.1 The site is significantly located above the flood plain of the river Taff, and as shown in Figure 2-5 overleaf, the site is completely within in Zone A and a little risk of flooding from Fluvial sources according to NRW Development Advice Maps.

2.4.2 Figure 2-6 shows the site is at little risk of flooding from rivers, sea, and surface water. Surface water flood risk is generally confined to the watercourse corridor to the east of the site. However, there are some minor pockets of medium and high surface water flood risk areas which are located around the existing buildings. Design measures will need to be adopted to minimise the risk as far as possible.

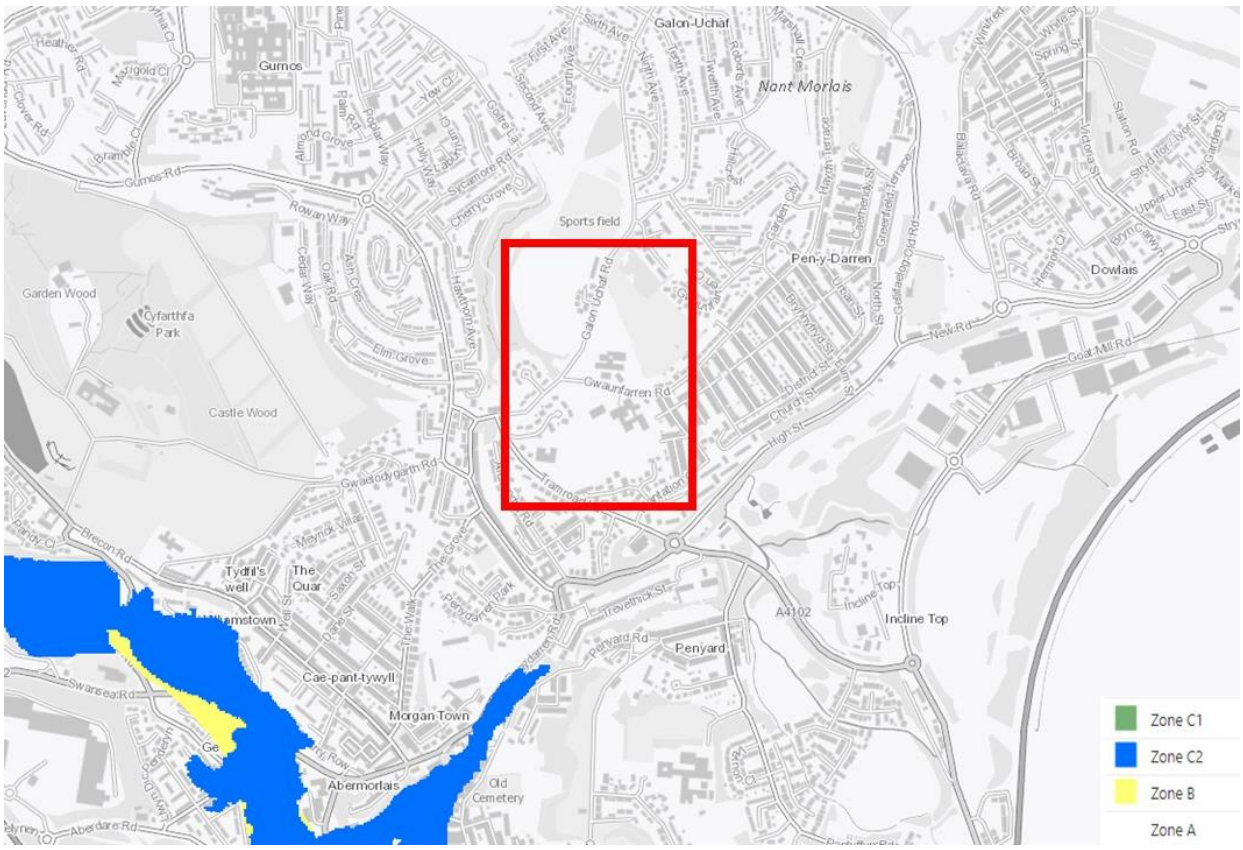


Figure 2-5 – Extract from NRW Development Advice Map

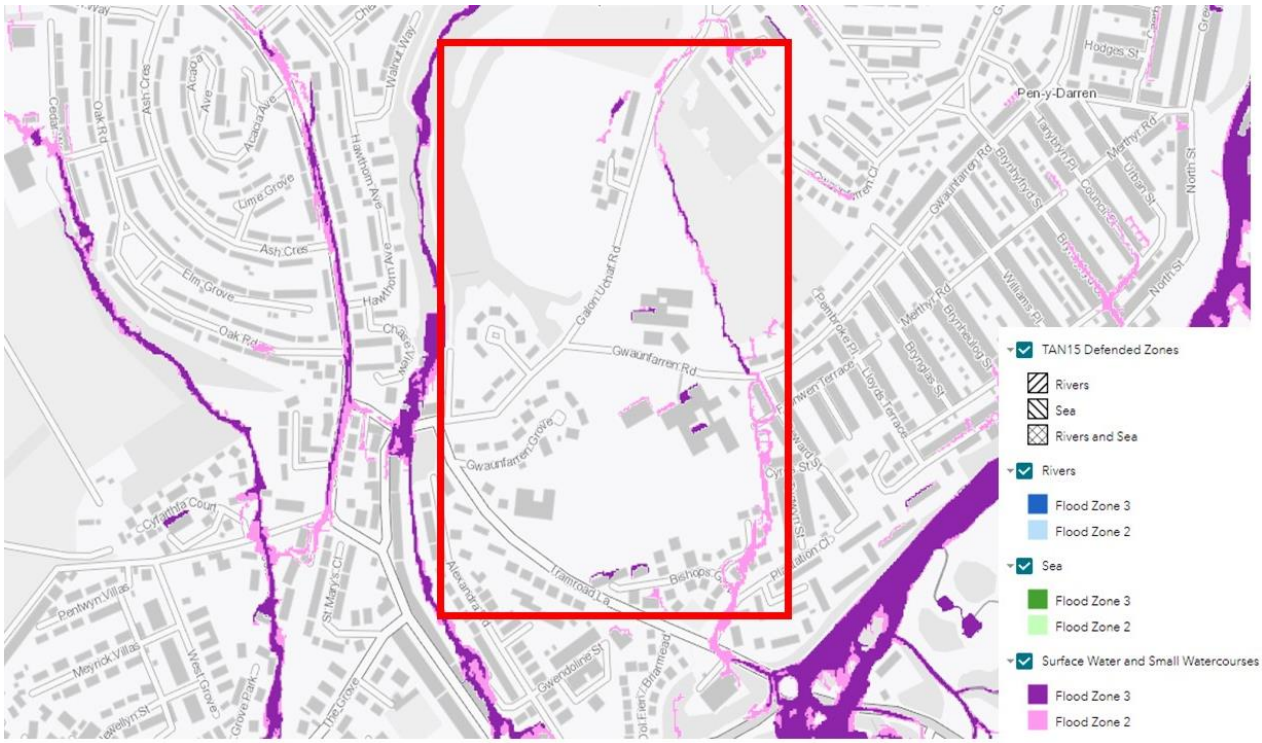


Figure 2-6 – Extract from NRW Flood Map for Planning

2.5 Proposed Development

2.5.1 Full planning permission is sought for the proposed construction of the new VA Catholic 3-16 All Through School, which is to be constructed on the existing Bishop Hedley School site, under the name of Blessed Carlo Acutis Catholic School.

2.5.2 The proposed All Through School will accommodate a 525 primary school with 100 full time equivalent pupil place nursery, and a 600 pupil (4 form entry) Secondary School. Both schools will be combined via one building located on the northern site which will comprise of multiple interconnected areas split over 2/3 storeys. The southern site will accommodate the majority of parking areas and sports facilities, including the extended sports hall. A new grass sports pitch is proposed to the west of the school site access via a new footpath connection

2.5.3 The proposed masterplan has been produced by Atkins Architects, an extract of the layout is shown in Figure 2-7 below and included in *Appendix B*.



Figure 2-7 – Proposed Site Layout (Atkins Architects)

3 Existing Drainage

3.1.1 Welsh Water records show there are no public surface water sewers within the site. The nearest foul system is a 150mm diameter public combined sewer located rear of Seward Street. A 300mm concrete surface water sewer is shown beyond the northern boundary outfalling into the ordinary watercourse separating the upper site and the allotments to the northeast.



Figure 3-1 – Extract of Welsh Water Records

3.1.2 A Topographical & Utility Survey was undertaken by Gwalia Surveyors Feb/March 2021 with further surveys undertaken for the existing school site in Sept 2021 and Aug 2022 and traced the location of the surface water networks present on site. Draintech were commissioned to provide an in-depth CCTV survey in November 2022 to confirm the exact location, condition, and outfall for the networks on site.

3.1.3 A copy of the Draintech CCTV Survey is included in *Appendix* C.

Phase 1 (Southern)

3.1.4 The CCTV Survey provided by Draintech, shows that there is surface water network that serves the southern site of the existing school. Following the topography of the site the network gravitates towards the south where it reaches the 225mm outfall. The outfall connects to an unknown private culverted watercourse south of the site within Plantation Close. There is a combined foul sewer network that serves the southern site and connects into the larger 225mm combined sewer east, where the run gravitates towards the southeastern corner and connects into the public 225mm combined sewer within Plantation Close.

3.1.5 The drainage report provided by Draintech, indicates that the condition of the pipes are generally poor throughout the site, therefore, the scope of remedial works to retained drainage will need to be assessed prior to development.

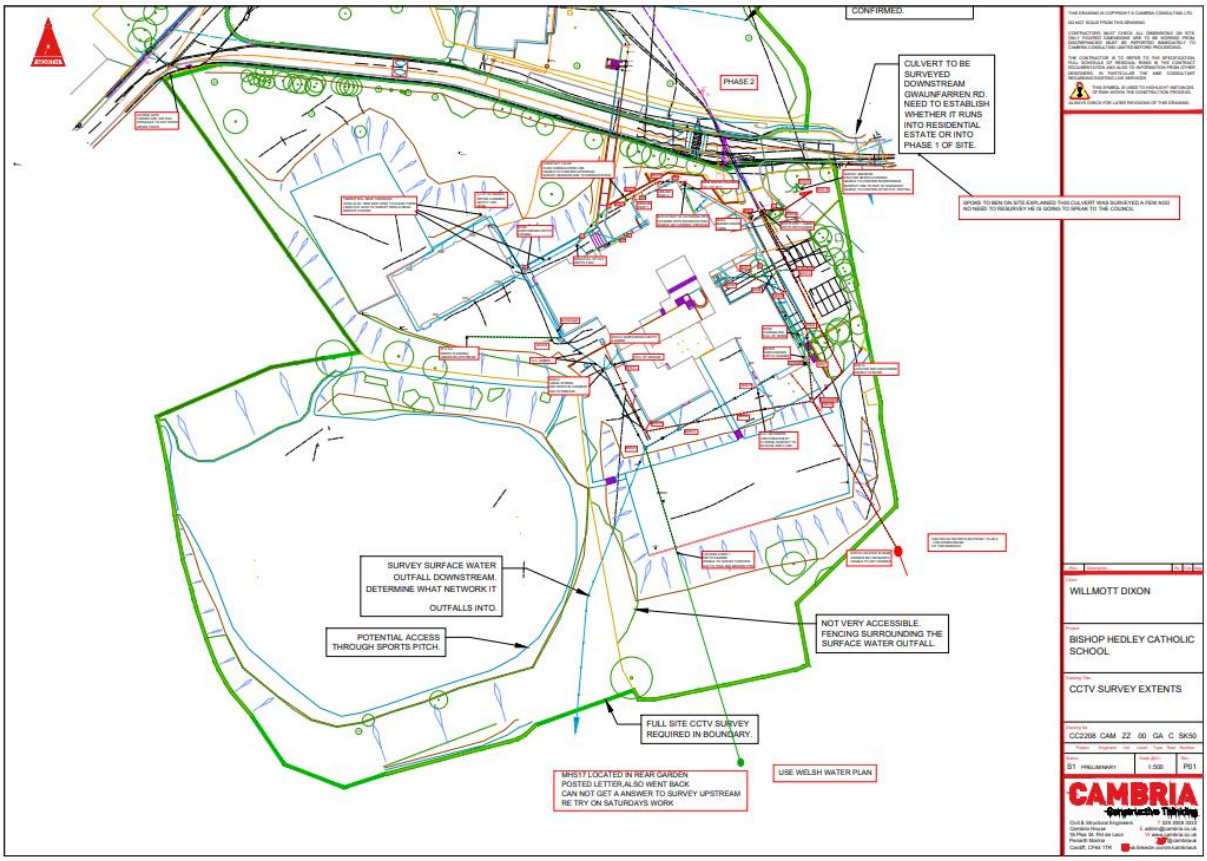


Figure 3-2 – Phase 1 CCTV Drainage Survey Reference Plan (Draintech)

Phase 2 (Northern)

3.1.6 The Topographical & Utility Survey identified an ordinary watercourse that runs along the eastern boundary of Phase 2 and traced a surface water network within the northern site. The surface water network gravitates towards the southeast following the topography of the site where the surface water is disposed into the ordinary watercourse that borders the eastern boundary of the site via a 225mm surface water drain.

3.1.7 The exact location of the outfall within the ordinary watercourse is still unknown due the mass overgrowth of vegetation on the eastern boundary of the site. An additional Topographical Survey has been requested to establish the exact alignment and level of the outfall.

3.1.8 There is a small foul network that serves the western area of the northern school site. This network connects into the combined 225mm sewer that serves the eastern area of the northern school. The 225mm combined sewer is the outfall for the northern site and runs underneath Gwaunfarren Road and runs along the eastern boundary where it connects into the southern site network and is disposed via the outfall southeast of the south site.

3.1.9 The drainage report provided by Draintech, indicates that the condition of the pipes are generally poor throughout the site, therefore, the scope of remedial works to retained drainage will need to be assessed prior to development.

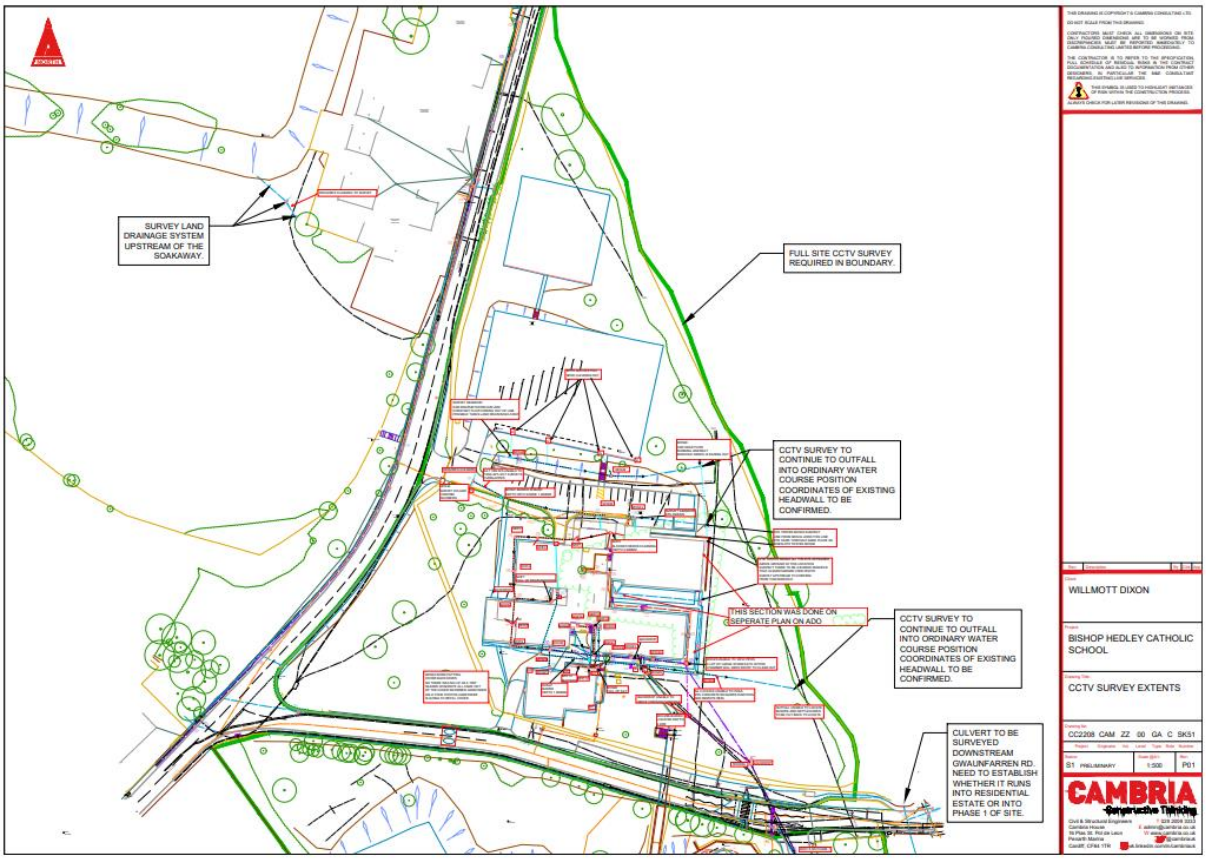


Figure 3-3 – Phase 2 CCTV Drainage Survey Reference Plan (Draintech)

Western Playing Fields

3.1.10 Within the park there is a small soakaway that has been identified on the Topographical & Utility survey. There is very little evidence of any other drainage present on site. An Ordinary Watercourse is located on the western boundary of Galon Uchaf Park The watercourse is approximately 13m lower than the western playing fields beyond steep embankments forming the western boundary of the development plateau.

4 Foul Drainage

4.1.1 Welsh Water records show there are no adopted Welsh Water sewers within the site, however, the CCTV drainage survey provided by Draintech, shows that there is a private foul sewer network that serves both the northern and southern sites of the school. The outfall of the private foul network was located southeast of the southern site and connects into the 225mm public combined sewer located within Plantation Close south of the site.

4.1.2 A predevelopment enquiry response provided by Welsh Water, deemed there are two suitable outfall locations that are suitable and provide sufficient capacity for the proposed foul sewer network. A 150mm public combined sewer that runs rear of Seward Street, east of the southern site or the to the 225mm public combined sewer at or downstream of SO05071361 to the west of the site in Gwaunfarren Road as indicated on the extract of public sewer record provided.

4.1.3 The outfall of the private foul network connects to the 150mm public combined sewer that runs east of the site. As stated by Welsh Water this is deemed a suitable outfall location and provides sufficient capacity for the proposed network. Therefore, it proposed that the existing outfall is retained.

4.1.4 A copy of the predevelopment enquiry response is included in *Appendix D.*

Phase 1 (Southern)

4.1.5 It is proposed to retain specific foul drainage runs within the network to continue to provide a foul network connection to the northern site and reutilise the existing outfall location in the southeast. The outfall of the foul sewer connects into the 150mm public combined sewer within Plantation Close which has been identified by Welsh Water as a suitable outfall connection for the proposed site.

4.1.6 The existing sports hall will undergo an extension as part of the redevelopment to provide a changing, washing and toilet facility to the pupils of the school. The extension of the sports hall requires a new foul drainage network that will connect into the retained foul network on site.

4.1.7 All connections that are not being reutilised within the existing network will be removed or grouted.

Phase 2 (Northern)

4.1.8 It is proposed to design a new foul drainage network for the northern site to align with the new school. The foul sewer south of the northern site that provides a connection to the southern site is proposed to be retained and utilized as the outfall location for the new school.

4.1.9 The connecting foul run will be live during phase 1 and is required to be protected during the construction works.

Western Playing Fields

4.1.10 There are no proposals within the western playing fields that require a foul drainage connection.

5 Surface Water Drainage

5.1.1 In October 2018, Welsh Government published the 'Statutory standards for sustainable drainage systems – designing, constructing, operating, and maintaining Surface Water Drainage Systems'. This standard is now mandatory for new developments with either a construction area greater than 100m² or more than 1 dwelling.

5.1.2 The principles that underpin the design of surface water management schemes to meet the standards area as follows:

- Manage water on or close to the surface and as close to the source of the runoff as possible;
- Treat rainfall as a valuable natural resource
- Ensure pollution is prevented at source, rather than relying on the drainage system to treat or intercept it;
- Manage rainfall to help protect people from increased flood risk, and the environment from morphological and associated ecological damage resulting from changes in flow rates, patterns and sediment movement caused by the development;
- Take account of likely future pressures on flood risk, the environment and water resources such as climate change and urban creep;
- Use the SuDS Management Train, using drainage components in series across a site to achieve a robust surface water management system (rather than using a single "end of pipe" feature, such as a pond, the serve the whole development);
- Maximise the delivery of benefits for amenity and biodiversity;
- Seek to make the best use of available land through multifunctional usage of public spaces and the public realm;
- Perform safely, reliably and effectively over the design life of the development taking into account the need for reasonable levels of maintenance;
- Avoid the need for pumping where possible;
- Be affordable, taking into account both construction and long-term maintenance costs and the additional environmental and social benefits afforded by the system

5.2 Standard S1 – Surface Water Runoff Destination

5.2.1 This standard reviews the disposal routes for surface water run-off. The destinations are split into 5 levels with level 1 being the most preferential and level 5 being the least preferred and only used in exceptional circumstances.

Priority Level 1: Surface water runoff is collected for use;

5.2.2 There are no known issues or stresses on the local Mains Water supply network within the vicinity of the site.

5.2.3 The installation of rainwater harvesting tanks is deemed feasible within the proposal with consideration of the school water demand.. The rainwater harvesting system will deal with the eastern roof areas of the proposed school and help reduce the consumption of potable water on site. This is primarily proposed to assist with the 5mm interception criteria compliance in Standard S2, discussed further in section 5.3. The system will also form part of an activated attenuation feature for the larger design storm events using telemetry controls.

5.2.4 All rainwater harvesting systems are provided with emergency overflows and therefore lower priority levels will need to be considered for surface water disposal from the site.

Priority Level 2: Surface water runoff is infiltrated to ground;

5.2.5 As discussed in Section 2.3, an intrusive investigation has been undertaken by Integral Geotechnique, which has confirmed via BRE 365 Digest infiltration testing, that there was insufficient infiltration recorded within all 21 soakaway test locations, and it was not possible to calculate a design infiltration rate/soil permeability.

5.2.6 A soakaway solution is therefore not deemed suitable for the site. A lower priority level will need to be considered for surface water disposal from the site.

Priority Level 3: Surface water runoff is discharged to a surface water body;

Phase 1

5.2.7 The CCTV survey undertaken by Draintech has identified that the current outfall connects into a culverted watercourse via a surface water network south of the site.

5.2.8 It is therefore proposed to connect the proposed redevelopment of Phase 1 into the existing outfall and retain the use of the culverted watercourse to mimic the predevelopment conditions currently used.

Phase 2

5.2.9 An Ordinary Watercourse runs north to south along the eastern boundary of Phase 2. The CCTV survey undertaken by Draintech proved that there is a surface water connection that serves the existing building and benefits from an outfall located within the Ordinary Watercourse.

5.2.10 It is therefore proposed to connect the surface water from the new development in Phase 2 into the existing outfall connected to the Ordinary Watercourse to mimic predevelopment conditions.

Western Playing Fields

5.2.11 The Topography & Utility survey undertaken by gwalia show a large steep embankment down into an Ordinary Watercourse to the west of the site.

5.2.12 It is proposed to dispose the runoff from the field into a swale feature to the west of the playing field. The swale will feature an overflow feature that disperses the runoff naturally down the embankment into the ordinary watercourse.

Priority Level 4: Surface water runoff is discharged to a surface water sewer, highway drain or other drainage;

5.2.13 Not considered, a higher priority level is feasible.

Priority Level 5: Discharge to a Combined Sewer

5.2.14 Not considered, a higher priority level is feasible.

5.2.15 Some smaller elements of the works within the S278 works will require the existing highway drainage network to be reutilized. It is suspected that the some of the surrounding highway drainage connects into the Public Combined Sewerage network. Any such works will be agreed with Welsh Water with reference to the assessment of alternative disposal routes.

5.3 Standard S2 – Surface Water Hydraulic Control

Brownfield (Phase 1 & Phase 2)

5.3.1 Proposed Drainage catchment plans, BCA-CAM-VX-XX-DR-C-1500,1501 & 1502 included in *Appendix E* show a total impermeable catchment area for the Northern, Southern & Western parcels of the site.

5.3.2 The northern and southern catchments of Bishop Hedley are considered brownfield and benefitting from positive surface water drainage networks. It is therefore proposed to offer a 30% betterment to the 1 in 30 year discharge rates runoff rates from the site in accordance with G2.24 of the National SuDs Standards. This in principle has been accepted by the SAB subject to proving the outfall(s) are in suitable condition.

5.3.3 Below is a summary table for each catchment and maximum outflows for each design return period. Copies of the existing hydraulic model networks and simulation results are included in *Appendix F.*

Table. 1:Phase 1 (Southern Catchment)

Return Period (Yr)	Existing Brownfield Discharge Rate (l/s)	30% Betterment Discharge Rate (l/s)
1 in 1 year	30.8	21.56
1 in 30 year	**36**	**25.2**
1 in 100 year	36.8	25.76

Table 2:Phase 2 (Northern Catchment)

Return Period (Yr)	Existing Brownfield Discharge Rate (l/s)	30% Betterment Discharge Rate (l/s)
1 in 1 year	47.2	33.04
1 in 30 year	**66**	**46.2**
1 in 100 year	73	51.1

5.3.4 The surface water drainage strategy proposes a discharge restriction for the 1 in 30 year brownfield discharge rate. The southern site will be restricted to ***25.2l/s*** and the northern site will be restricted to ***46.2l/s.***

5.3.5 Outline attenuation storage volumes have been assessed using the Quick Storage Estimate tool in Microdrainage. Copies of the quick storage estimate calculations are included in *Appendix F.* The attenuation requirements for phase 1 (Southern) and phase 2 (Northern) sites are summarised in Table 3 below. The calculations are based on FEH rainfall and CV values of 1.

Table 3: Attenuation Storage Volume Range (1 in 100 year + 40%CC)

Storm Event	Minimum Storage Volume (m^3)	Maximum Storage Volume (m^3)
Southern Site (1.067ha, 25.2l/s)	605	1056
Northern Site (1.366ha, 46.2l/s)	638	1160

5.3.6 The attenuation storage will be delivered through a combination of above and below ground features. Attenuation storage will be maximised within raingardens and shallow swales throughout the site. Due to the site topography and development proposals not all attenuation storage can be stored above ground, storage will be provided within the open graded subbase beneath the permeable paving, porous MUGAs, and Raingardens. Supplementary underground cellular storage crates will be required.

5.3.7 Preliminary drainage strategy drawings, BCA-CAM-VX-XX-DR-C-0500 & 501 are included in *Appendix G.* This shows the principle SuDS areas and general routing of the drainage networks.

5.3.8 To assist in meeting the 5mm interception criteria, permeable surfaces will be used in the majority of the hardstanding areas outside of the access junction and main access road. A rainwater harvesting system is proposed for the eastern roof catchment. The remainder of interception will be provided by a combination of raingardens and swales.

5.3.9 A mix of SuDS features are proposed as part of a SuDS treatment train. This includes the use of permeable paving, raingardens, dry shallow swales and filter drains. Proprietary treatment chambers will be used for locally constrained catchments.

Greenfield (Western Playing Fields)

5.3.10 A proposed Drainage catchment plan, BCA-CAM-VX-XX-DR-C-1502, included in *Appendix E* shows a total impermeable catchment area of the western playing fields to be 1.035ha. The playing field will be lined to prevent infiltration into the potentially contaminated ground below and will be provided with a positive drainage system designed by the specialist supplier.

5.3.11 It is proposed to restrict the playing field runoff to greenfield runoff rates, which have been calculated using the ICP SUDS method, within MicroDrainage, and summarized in Table 5 below;

Table 5: Western Playing Fields Greenfield Runoff Rates (ICP SUDS)

Storm Event	Greenfield Runoff Rate (l/s/ha)	Restricted Greenfield Runoff Rates (l/s)
QBar	**14.5**	**15**
1 in 1 year	12.7	13.1
1 in 30 year	25.6	26.5
1 in 100 year	31.6	32.7

5.3.12 The surface water drainage strategy proposes a discharge restriction of QBar ***14.5l/s/ha*** which equates to ***15l/s*** for the western playing fields.

5.3.13 Outline attenuation storage volumes have been assessed using the Quick Storage Estimate tool in Microdrainage. Copies of the greenfield run off rate and quick storage estimate calculations are included in *Appendix F.* The attenuation requirements for the western playing fields are summarised in Table 6 below. The calculations are based on FEH rainfall and CV values of 1.

Table 6: Attenuation Storage Volume Range (1 in 100 year + 40%CC)

Storm Event	Minimum Storage Volume (m^3)	Maximum Storage Volume (m^3)
Western Playing Fields (1.035ha, 15l/s)	743	1413

5.3.14 The attenuation storage will be delivered through both above and below ground storage. Attenuation storage will be maximised within the swale features to the west, with supplementary storage provided within the subbase of new playing field.

5.3.15 A preliminary drainage strategy drawing, BCA-CAM-VX-XX-DR-C-0502 included in *Appendix G* shows the principal SUDs areas.

5.4 Standard S3 – Water Quality

5.4.1 The sensitivity of the receiving water body (culverted watercourse) would need to be agreed with the SAB. Sufficient levels of treatment within a SUDs treatment train will be needed prior to surface water runoff being discharged from site.

5.4.2 The Simple Index Approach method should be adopted to ensure sufficient treatment measures are in place. Due to the site's usage it's likely some areas of the site would be deemed as having a medium-high pollution potential. This would likely need three levels of SUDs treatment for some areas.

5.4.3 A mix of SuDS features are proposed as part of a SuDS treatment train. This includes the use of permeable paving, bioretention / rain gardens, swales, and filter drains.

5.5 Standard S4 – Amenity

The integration of above ground SUDs features has been maximised throughout the development. The school entrance and playground adjacent to the primary school consists of multiple planted raingardens taking direct runoff from the roof canopies and footways. Larger raingardens and swales are included within the staff car park and bus drop-off area, breaking large swathes of hardstanding. Running water will be visible at surface within the swale features in the western playing fields which will have a series of cascading check dams. A SuDs / nature area is incorporated in the southern corner of the site offering an outdoor educational space.

5.6 Standard S5 – Biodiversity

5.6.1 A landscaping strategy has been produced by Atkins and includes a significant coverage of new tree planting, amenity planting, marginal planting, wildflower grass areas etc. to compliment the development and SUDs features.

5.6.2 The drainage design maximises the use of above ground, soft, SuDs features whilst respecting the topographical constraints on the site.

5.7 Standard S6 - Design of drainage for Construction, Operation and Maintenance and Structural Integrity

5.7.1 The SuDS solution has been designed in accordance with the SuDS manual and the site is generally served by shallow SuDS features, reducing the capital cost and long term maintenance costs of the scheme.

5.7.2 It is anticipated the client will maintain and own the site and therefore all SuDS features will be privately maintained and not offered for adoption by the SAB.

5.7.3 There are no inherent safety issues with the proposed scheme. Generally, the above ground SuDS features will be dry during normal conditions and very limited in terms of water depths during extreme events. All SuDS features are located in areas with good surveillance. Any residual risks associated with the SuDs features will be highlighted within the designer's risk assessment submitted as part of the SuDS application.

6 Conclusions

6.1.1 Welsh Water have confirmed there is sufficient capacity within the sewerage network for the additional peak foul flows generated by the development. The foul drainage will connect into the 150mm diameter public combined sewer on Plantation Close via the existing sewer southeast of the site.

6.1.2 Infiltration solutions has been discounted on site via BRE Digest 365 soakaway testing. It is therefore proposed to discharge to the ordinary watercourse / culverted watercourse to the south of the site, mimicking predevelopment conditions.

6.1.3 The peak discharge will for the ***southern*** site will be restricted to ***25.2 l/s*** and will require attenuation storage in the range of ***605– 1056m³*** for the 1 in 100 year +40% climate change storm event.

6.1.4 The peak discharge will for the ***northern*** site will be restricted to ***46.2 l/s*** and will require attenuation storage in the range of ***638 – 1160m³*** for the 1 in 100 year +40% climate change storm event.

6.1.5 The peak discharge will for the ***western playing fields*** will be restricted to ***15 l/s*** and will require attenuation storage in the range of ***743 – 1413m³*** for the 1 in 100 year +40% climate change storm event.

6.1.6 The SuDs and landscaping scheme design by Atkins will bring multiple amenity and biodiversity benefits to the area and produce opportunities for nature play spaces and outdoor educational areas.

6.1.7 The surface water strategy will be subject to SAB approval and further detailed design.

Appendix A: Topographical Survey

Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

A true OS coordinate was established near to the centre of the site. This survey has been correlated to this point. Further OS coordinates were established to create a true OS bearing for angle orientation.

No scale factor has been applied to this survey. The coordinates shown are arbitrary and not true OS coordinates which do have a scale factor applied.

Notes

1. Dimensions should not be scaled. All dimensions should be verified on site prior to construction.
2. All dimension and levels are in metres unless otherwise stated.
3. Some detail may have been obscured by parked vehicles, stored materials, overgrown vegetation, and leaf litter.
4. All data shall remain Copyright of Gwalia Surveyors unless formally agreed otherwise.
5. The surveyed boundary features may not be legal boundaries.
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Key to Abbreviations

Inspection Covers & Chambers

AV	Air Valve
BH	Borehole
BT	British Telecom Cover
CDP	Cable Draw Pit
CW	Combined Water
Dr.Ch.	Drainage Channel
Elec.	Electric Inspection Cover
ER	Earth Rod
FH	Fire Hydrant
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IC	Inspection Cover
KO	Kerb Outlet
MH	Manhole
RE	Rodding Eye
SC	Stop Cock
SV	Stop Valve
SW	Storm Water
TV	Cable Television Cover
UL	Uplighter
UTL	Unable to Lift
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WO	Washout

Walls & Fence Types

Bl.	Block Wall
Br.	Brick Wall
B/W	Barbed Wire Fence
C/B	Close Boarded Fence
C/I	Corrugated Iron Fence
C/L	Chain Link Fence
C/P	Concrete Post
Gab.	Gabion Wall
H/R	Hand Rail
I/R	Iron Railings
Pal.	Pallisade Fence
P/R	Post & Rail Fence
P/W	Post & Wire Fence
Ret.	Retaining Wall
St.	Stone Wall

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
EP	Electricity Pole
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LP	Lamp Post
MP	Marker Post
P	Post
PB	Post Box
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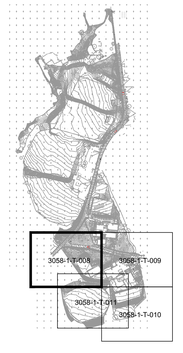
Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
h	Feature Height (m)
IL	Invert Level
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Soffit	Soffit Level
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Linetypes & Symbols

- Banks
- Buildings
- Building Overhead
- Change of Surface
- Fences
- Kerbs
- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water
- Foul Water
- Storm Water
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout



Rev.	Date	Drawn	Details
A	21.09.2021	DR	Additional playing field added

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8SQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: DB	Checked: DR
Date: 16.08.2021	Scale: 1:200 @ A0
Drawing Number: 3058-1-T-008	Rev. A

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Street Furniture

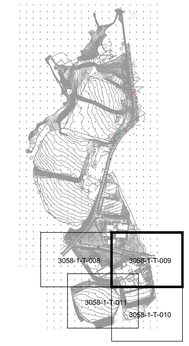
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- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water (CW)
- Foul Water (FW)
- Storm Water (SW)
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout

N



Rev.	Date	Drawn	Details
A	21.09.2021	DR	Additional playing field added

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Topographical Survey

Project: Bishop Hedley School

Client: Cambria

Drawn:	DB	Checked:	DR
Date:	16.08.2021	Scale:	1:200 @ A0

Drawing Number: 3058-1-T-009 Rev. A

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Coordinate System

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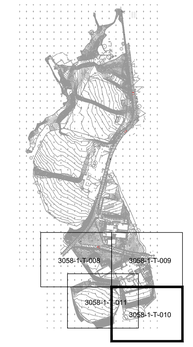
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Rev.	Date	Drawn	Details
A	21.09.2021	DR	Additional playing field added

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Unit 1, Link Trade Park,
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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: DB	Checked: DR
Date: 16.08.2021	Scale: 1:200 @ A0
Drawing Number: 3058-1-T-010	Rev. A

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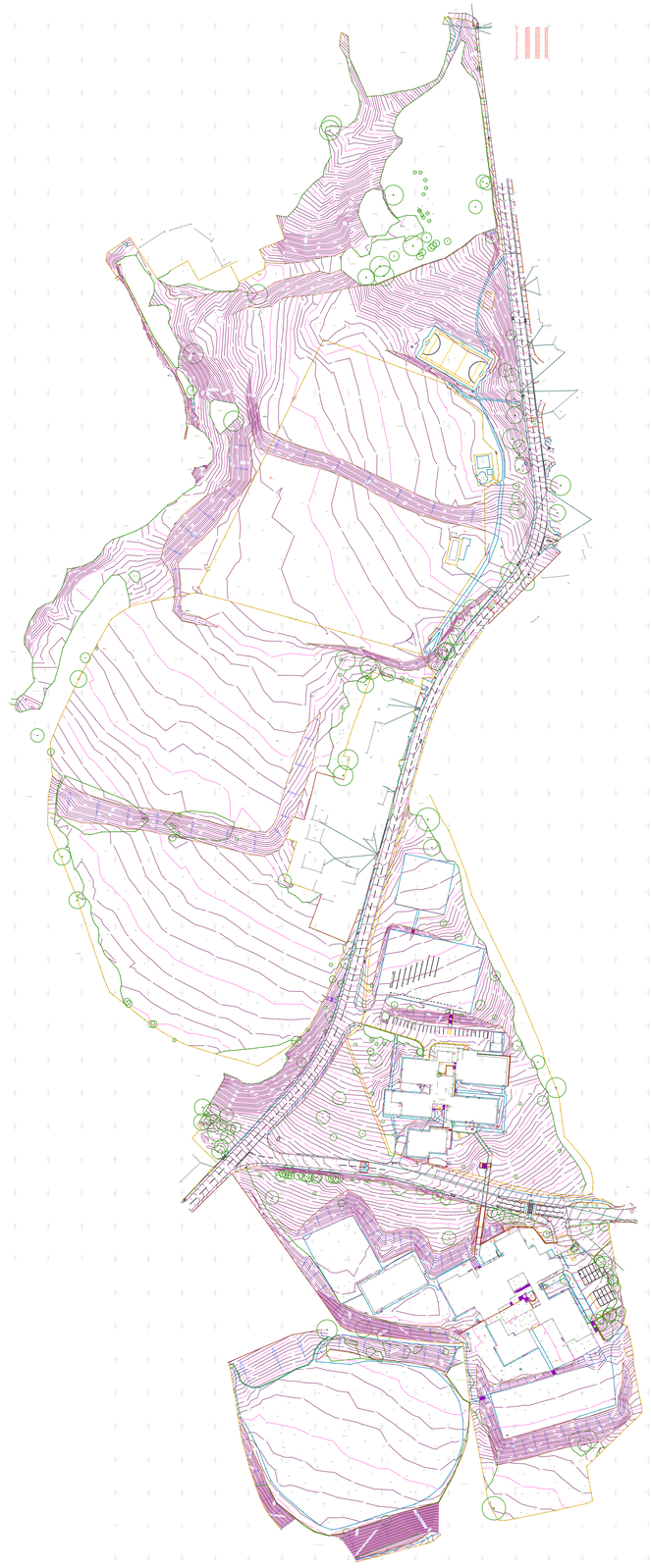


Rev.	Date	Drawn	Details
A	21.09.2021	DR	Additional playing field added

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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: DB	Checked: DR
Date: 16.08.2021	Scale: 1:200 @ A0
Drawing Number: 3058-1-T-010	Rev. A

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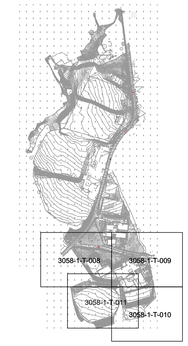
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Sheet Layout

N



Rev.	Date	Drawn	Details
A	21.09.2021	DR	Additional playing field added

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Unit 1, Link Trade Park,
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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Topographical Survey

Project: Bishop Hedley School

Client: Cambria

Drawn:	DB	Checked:	DR
Date:	16.08.2021	Scale:	N.T.S.

Drawing Number: 3058-1-T-Overview

Rev.: A

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Station	Easting	Northing	Level
399	305348.543	207935.490	290.465
A1	305366.151	207490.920	268.946
A2	305325.173	207488.677	269.500
A3	305393.357	207476.207	265.300
A4	305305.233	207481.161	265.472
A4A	305304.233	207482.041	263.472
A3A	305339.748	207469.879	264.772
A3B	305324.271	207443.743	264.481
A3C	305326.638	207423.239	263.982
A3D	305292.683	207423.859	263.750
A3E	305362.087	207419.540	262.718
A3E1	305359.244	207397.516	261.520
A3F	305292.812	207416.798	261.897
A3G	305408.260	207439.442	261.838
A4A	305283.487	207494.712	271.339
F1	305246.744	207597.080	276.127
F2	305202.620	207729.241	278.680
F3	305249.249	207845.758	281.630
F4	305279.403	207913.161	282.860
F4A	305331.362	207960.032	281.096
F3B	305191.808	207870.240	271.788
F4A	305331.362	207960.032	281.096
G1	305349.572	207686.193	276.863
G2	305417.608	207766.050	282.807
G3	305407.715	207890.356	291.475
G1A	305307.510	207707.415	278.950
K1	305315.872	207574.597	273.685
K2	305252.071	207415.243	259.988
K2A	305326.098	207397.570	261.696
K2B	305419.448	207362.942	256.266
KYLE1	305277.183	207678.073	279.211

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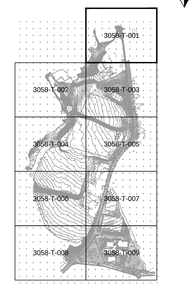
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Sheet Layout



Rev.	Date	Drawn	Details

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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: KB	Checked: DR
Date: 25.02.2021	Scale: 1:200 @ A0
Drawing Number: 3058-T-001	Rev.

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Notes

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Key to Abbreviations

Inspection Covers & Chambers

AV	Air Valve
BH	Borehole
BT	British Telecom Cover
CDP	Cable Draw Pit
CW	Combined Water
Dr.Ch.	Drainage Channel
Elec.	Electric Inspection Cover
ER	Earth Rod
FH	Fire Hydrant
FW	Foul Water
G.	Gully
GC	Gas Cock
GV	Gas Valve
IC	Inspection Cover
KO	Kerb Outlet
MH	Manhole
RE	Rodding Eye
SC	Stop Cock
SV	Stop Valve
SW	Storm Water
TV	Cable Television Cover
UL	Uplighter
UTL	Unable to Lift
WM	Water Meter
WO	Washout

Walls & Fence Types

Bl.	Block Wall
Br.	Brick Wall
BW	Barbed Wire Fence
C/B	Close Boarded Fence
C/I	Corrugated Iron Fence
C/L	Chain Link Fence
C/P	Concrete Post
Gab.	Gabion Wall
H/R	Hand Rail
I/R	Iron Railings
Pal.	Palisade Fence
P/R	Post & Rail Fence
P/W	Post & Wire Fence
Ret.	Retaining Wall
St.	Stone Wall

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
EP	Electricity Pole
FB	Flower Bed
JB	Junction Box
LP	Lamp Post
MP	Marker Post
P	Post
PB	Post Box
RS	Road Sign
RWP	Rain Water Pipe
SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

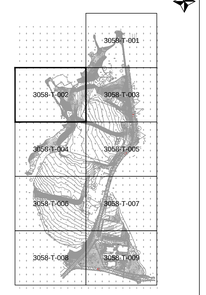
Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
h	Feature Height (m)
IL	Invert Level
SL	Sump Level
Soffit	Soffit Level
WL	Water Level

Linetypes & Symbols

- Banks
- Buildings
- Building Overhead
- Change of Surface
- Fences
- Kerbs
- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water
- Foul Water
- Storm Water
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout



Rev.	Date	Drawn	Details

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: KB	Checked: DR
Date: 25.02.2021	Scale: 1:200 @ A0
Drawing Number: 3058-T-002	Rev.

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Key to Abbreviations

Inspection Covers & Chambers

AV	Air Valve
BH	Borehole
BT	British Telecom Cover
CDP	Cable Draw Pit
CW	Combined Water
Dr.Ch.	Drainage Channel
Elec.	Electric Inspection Cover
ER	Earth Rod
FH	Fire Hydrant
FW	Foul Water
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GC	Gas Cock
GV	Gas Valve
IC	Inspection Cover
KO	Kerb Outlet
MH	Manhole
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SC	Stop Cock
SV	Stop Valve
SW	Storm Water
TV	Cable Television Cover
UL	Uplighter
UTL	Unable to Lift
WM	Water Meter
WO	Washout

Walls & Fence Types

Bl.	Block Wall
Br.	Brick Wall
BW	Barbed Wire Fence
CfB	Close Boarded Fence
CI	Corrugated Iron Fence
CL	Chain Link Fence
C/P	Concrete Post
Gab.	Gabion Wall
H/R	Hand Rail
I/R	Iron Railings
Pal.	Palisade Fence
P/R	Post & Rail Fence
P/W	Post & Wire Fence
Ret.	Retaining Wal
St.	Stone Wall

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
EP	Electricity Pole
FB	Flower Bed
JB	Junction Box
LP	Lamp Post
MP	Marker Post
P	Post
PB	Post Box
RS	Road Sign
RWP	Rain Water Pipe
SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
h	Feature Height (m)
IL	Invert Level
SL	Sump Level
Soffit	Soffit Level
WL	Water Level

Linetypes & Symbols

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- Buildings
- Building Overhead
- Change of Surface
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- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water
- Foul Water
- Storm Water
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout

Rev.	Date	Drawn	Details

Gwalia SURVEYORS

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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk

LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: KB	Checked: DR
Date: 25.02.2021	Scale: 1:200 @ A0
Drawing Number: 3058-T-003	Rev.

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Key to Abbreviations

Inspection Covers & Chambers

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CDP	Cable Draw Pit
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Dr.Ch.	Drainage Channel
Elec.	Electric Inspection Cover
ER	Earth Rod
FH	Fire Hydrant
FW	Foul Water
G	Gully
GC	Gas Cock
GV	Gas Valve
IC	Inspection Cover
KO	Kerb Outlet
MH	Manhole
RE	Rodding Eye
SC	Stop Cock
SV	Stop Valve
SW	Storm Water
TV	Cable Television Cover
UL	Uplighter
UTL	Unable to Lift
WM	Water Meter
WO	Washout

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
h	Feature Height (m)
IL	Invert Level
SL	Sump Level
Soff.	Soffit Level
WL	Water Level

Walls & Fence Types

Bl.	Block Wall
Br.	Brick Wall
BW	Barbed Wire Fence
CfB	Close Boarded Fence
CI	Corrugated Iron Fence
CrL	Chain Link Fence
C/P	Concrete Post
Gab.	Gabion Wall
H/R	Hand Rail
I/R	Iron Railings
Pal.	Palisade Fence
P/R	Post & Rail Fence
P/W	Post & Wire Fence
Ret.	Retaining Wall
St.	Stone Wall

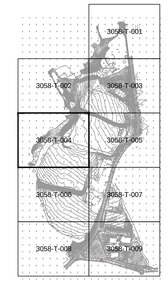
Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
EP	Electricity Pole
FB	Flower Bed
JB	Junction Box
LP	Lamp Post
MP	Marker Post
P	Post
PB	Post Box
RS	Road Sign
RWP	Rain Water Pipe
SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

Linetypes & Symbols

- Banks
- Buildings
- Building Overhead
- Change of Surface
- Fences
- Kerbs
- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water
- Foul Water
- Storm Water
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout



Rev.	Date	Drawn	Details

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Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 · London: 020 3011 1099
W: gwaliasurveyors.co.uk

LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: KB	Checked: DR
Date: 25.02.2021	Scale: 1:200 @ A0
Drawing Number: 3058-T-004	Rev.

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Key to Abbreviations

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UL	Uplighter
UTL	Unable to Lift
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WO	Washout

Walls & Fence Types

Bl.	Block Wall
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C/P	Concrete Post
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P/R	Post & Rail Fence
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Ret.	Retaining Wal
St.	Stone Wall

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
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MP	Marker Post
P	Post
PB	Post Box
RS	Road Sign
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SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
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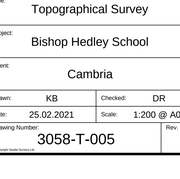
Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
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IL	Invert Level
SL	Sump Level
Soff.	Soffit Level
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Linetypes & Symbols

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- Building Overhead
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- Fences
- Kerbs
- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water
- Foul Water
- Storm Water
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout



Rev.	Date	Drawn	Details

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Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 · London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Topographical Survey

Project: Bishop Hedley School

Client: Cambria

Drawn:	KB	Checked:	DR
Date:	25.02.2021	Scale:	1:200 @ A0

Drawing Number: 3058-T-005 Rev.

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Coordinate System

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Walls & Fence Types

Bl.	Block Wall
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Street Furniture

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RWP	Rain Water Pipe
SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

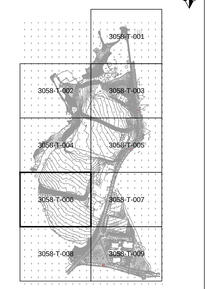
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SL	Sump Level
Soff.	Soffit Level
WL	Water Level

Linetypes & Symbols

- Banks
- Buildings
- Building Overhead
- Change of Surface
- Fences
- Kerbs
- Overhead Cables
- Ridges & Eaves
- Steps
- Walls
- Vegetation
- Tree Canopy
- Combined Water (CW)
- Foul Water (FW)
- Storm Water (SW)
- Banking
- Flow Direction
- Gate
- Survey Station
- Tree

Sheet Layout



Rev.	Date	Drawn	Details

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Topographical Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: KB	Checked: GC
Date: 25.02.2021	Scale: 1:200 @ A0
Drawing Number: 3058-T-006	Rev.

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Coordinate System

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Key to Abbreviations

Inspection Covers & Chambers

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Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
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Measurement Descriptions

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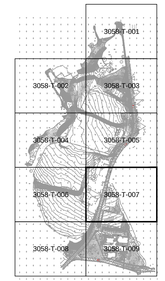
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B	Bollard
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- Vegetation
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- Flow Direction
- Gate
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- Tree

Sheet Layout



Rev.	Date	Drawn	Details

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Topographical Survey

Project: Bishop Hedley School

Client: Cambria

Drawn:	KB	Checked:	DR
Date:	25.02.2021	Scale:	1:200 @ A0

Drawing Number: 3058-T-007 Rev.

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Coordinate System
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CfB Close Boarded Fence
CI Corrugated Iron Fence
CL Chain Link Fence
C/P Concrete Post
Gab. Gabion Wall
HR Hand Rail
I/R Iron Railings
Pal. Pallisade Fence
P/R Post & Rail Fence
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Ret. Retaining Wall
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Ground Surface Types
Asp. Asphalt
B/P Block Paviors
Conc. Concrete
Pav. Concrete Paving
Tac. Tactile Paving
Street Furniture
B Bollard
BB Belisha Beacon
DP Down Pipe
EP Electricity Pole
FB Flower Bed
JB Junction Box
LP Lamp Post
MP Marker Post
P Post
PB Post Box
RS Road Sign
RWP Rain Water Pipe
SP Sign Post
Stay Stay Wire
SVP Soil Vent Pipe
TCB Telephone Call Box
TL Traffic Light
TP Telegraph Pole
VP Vent Pipe
Measurement Descriptions
CL Cover Level
d Depth (m)
dia. Diameter (mm)
FFL Finished Floor Level
h Feature Height (m)
IL Invert Level
SL Sump Level
Soff Soffit Level
WL Water Level
Linetypes & Symbols
Banks
Buildings
Building Overhead
Change of Surface
Fences
Kerbs
Overhead Cables
Ridges & Eaves
Steps
Walls
Vegetation
Tree Canopy
Combined Water
Foul Water
Storm Water
Banking
Flow Direction
Gate
Survey Station
Tree
Sheet Layout
N
3058-T-001
3058-T-002
3058-T-003
3058-T-004
3058-T-005
3058-T-006
3058-T-007
3058-T-008
3058-T-009
Rev. Date Drawn Details
Gwalia SURVEYORS
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W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM
Title: Topographical Survey
Project: Bishop Hedley School
Client: Cambria
Drawn: KB
Checked: DR
Date: 25.02.2021
Scale: 1:200 @ A0
Drawing Number: 3058-T-008
Rev.
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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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5. This surveyed boundary features may not be legal boundaries.
6. Gwalia Surveyors cannot accept any responsibility for any damage to computer systems from viruses which may be contained in the data/files supplied.

Key to Abbreviations

Inspection Covers & Chambers

AV	Air Valve
BH	Borehole
BT	British Telecom Cover
CDP	Cable Draw Pit
CW	Combined Water
Dr.Ch.	Drainage Channel
Elec.	Electric Inspection Cover
ER	Earth Rod
FH	Fire Hydrant
FW	Foul Water
G	Gully
GC	Gas Cock
GV	Gas Valve
IC	Inspection Cover
KO	Kerb Outlet
MH	Manhole
RE	Rodding Eye
SC	Stop Cock
SV	Stop Valve
SW	Storm Water
TV	Cable Television Cover
UL	Uplighter
UTL	Unable to Lift
WM	Water Meter
WO	Washout

Walls & Fence Types

Bl.	Block Wall
Br.	Brick Wall
BW	Barbed Wire Fence
CfB	Close Boarded Fence
CI	Corrugated Iron Fence
CrL	Chain Link Fence
CP	Concrete Post
Gab.	Gabion Wall
HR	Hand Rail
IR	Iron Railings
Pal.	Palisade Fence
P/R	Post & Rail Fence
P/W	Post & Wire Fence
Ret.	Retaining Wal
St.	Stone Wall

Ground Surface Types

Asp.	Asphalt
B/P	Block Paviors
Conc.	Concrete
Pav.	Concrete Paving
Tac.	Tactile Paving

Street Furniture

B	Bollard
BB	Belisha Beacon
DP	Down Pipe
EP	Electricity Pole
FB	Flower Bed
JB	Junction Box
LP	Lamp Post
MP	Marker Post
P	Post
PB	Post Box
RS	Road Sign
RWP	Rain Water Pipe
SP	Sign Post
Stay	Stay Wire
SVP	Soil Vent Pipe
TCB	Telephone Call Box
TL	Traffic Light
TP	Telegraph Pole
VP	Vent Pipe

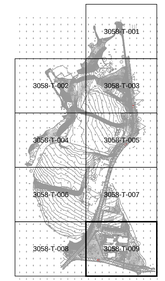
Measurement Descriptions

CL	Cover Level
d	Depth (m)
dia.	Diameter (mm)
FFL	Finished Floor Level
h	Feature Height (m)
IL	Invert Level
SL	Sump Level
Soff.	Soffit Level
WL	Water Level

Linetypes & Symbols

Banks, Buildings, Building Overhead, Change of Surface, Fences, Kerbs, Overhead Cables, Ridges & Eaves, Steps, Walls, Vegetation, Tree Canopy, Combined Water, Foul Water, Storm Water, Banking, Flow Direction, Gate, Survey Station, Tree

Sheet Layout



Rev.	Date	Drawn	Details

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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Topographical Survey

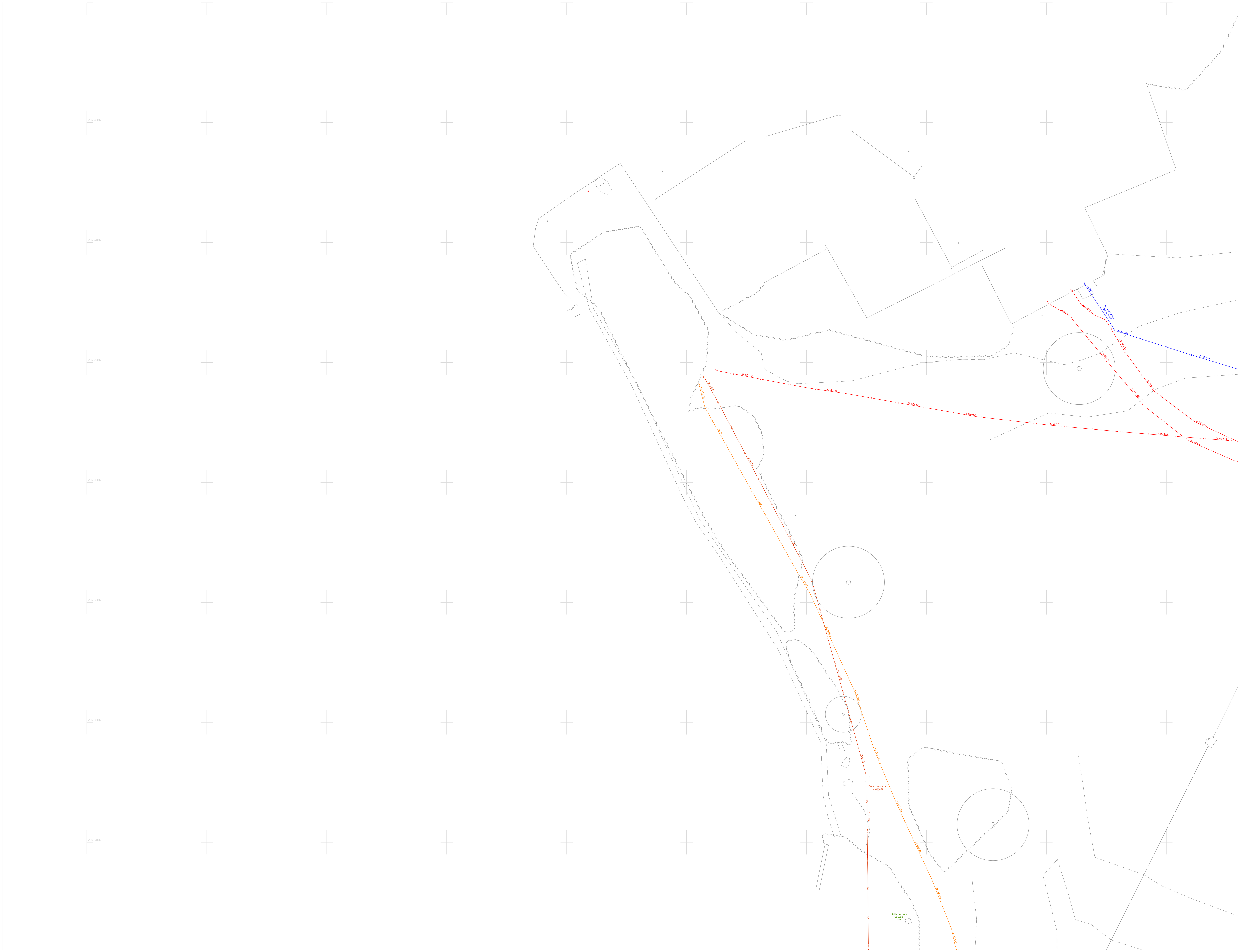
Project: Bishop Hedley School

Client: Cambria

Drawn:	KB	Checked:	DR
Date:	25.02.2021	Scale:	1:200 @ A0

Drawing Number: 3058-T-009 Rev.

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Coordinate System

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Utilities Abbreviations

AR	Assumed Route	OS	Off Site
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CR	Cable Rising	ST	Steel
CW	Combined Water	STATS	Statutory Undertakers
DI	Ductile Iron	SW	Storm Water
EOT	End of Trace	TFR	Taken From Records
FW	Foul Water	UTL	Unable to Lift
MH	Manhole	UTT	Unable to Trace
MW	Monitoring Well	WS	Weak Signal
NS	No Signal		

Measurement Descriptions

CL	Cover Level
CD	Chamber Depth
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IL	Invert Level
SD	Soffit Depth
SL	Sump Level
WL	Water Level

Duct Abbreviations

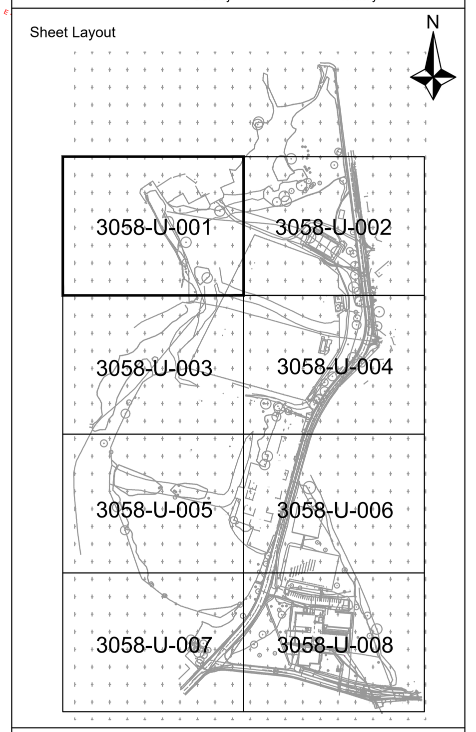
1w	1 way - 1 duct
2w	2 way - flat
2w 1-2	2 way - 1wide-2deep
4w 2-2	4 way - 2wide-2deep
6w 3-2	6 way - 3wide-2deep

Utility Linetypes & Hatch Descriptions

Control	Traffic Signal Cable
	Ducting
Drainage	Combined Water Drainage
	Foul Water Drainage
	Surface Water Drainage
Electric	Electricity Cable
	Electricity Cable - High Voltage
	Electricity Cable - Low Voltage
Gas	Gas Main
Pipes	Fuel Line
	Heating Main
	Vent Line
Telecoms	British Telecom Cable
	Telecommunications Cable
Water	Water Main
Unknown	GPR Trace - Unidentified
	RFL Trace - Unidentified
	EML Survey Extents
	GPR Survey Extents
	Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Utilities Survey

Project: Bishop Hedley School

Client: Cambria

Drawn: AJ	Checked: DR	Date: 09.03.2021	Scale: 1:200 @ A0

Drawing Number: 3058-U-001

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Measurement Descriptions

CL	Cover Level	
CO	Chamber Depth	
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IL	Invert Level	
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Duct Abbreviations

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6w 3-2	6 way - 3wide-2deep

Utility Linetypes & Hatch Descriptions

Control
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- Ducting

Drainage
- Combined Water Drainage
- Foul Water Drainage
- Surface Water Drainage

Electric
- Electricity Cable
- Electricity Cable - High Voltage
- Electricity Cable - Low Voltage

Gas
Pipes
- Gas Main
- Fuel Line
- Heating Main
- Vent Line

Telecoms
- British Telecom Cable
- Telecommunications Cable

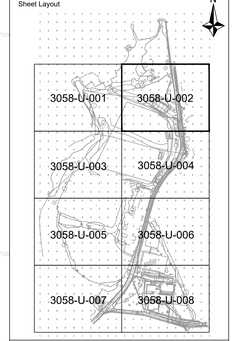
Water
- Water Main

Unknown
- GPR Trace - Unidentified
- RFL Trace - Unidentified

- EML Survey Extents
- GPR Survey Extents
- Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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Cardiff: 029 2111 1700 London: 020 3011 1099
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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

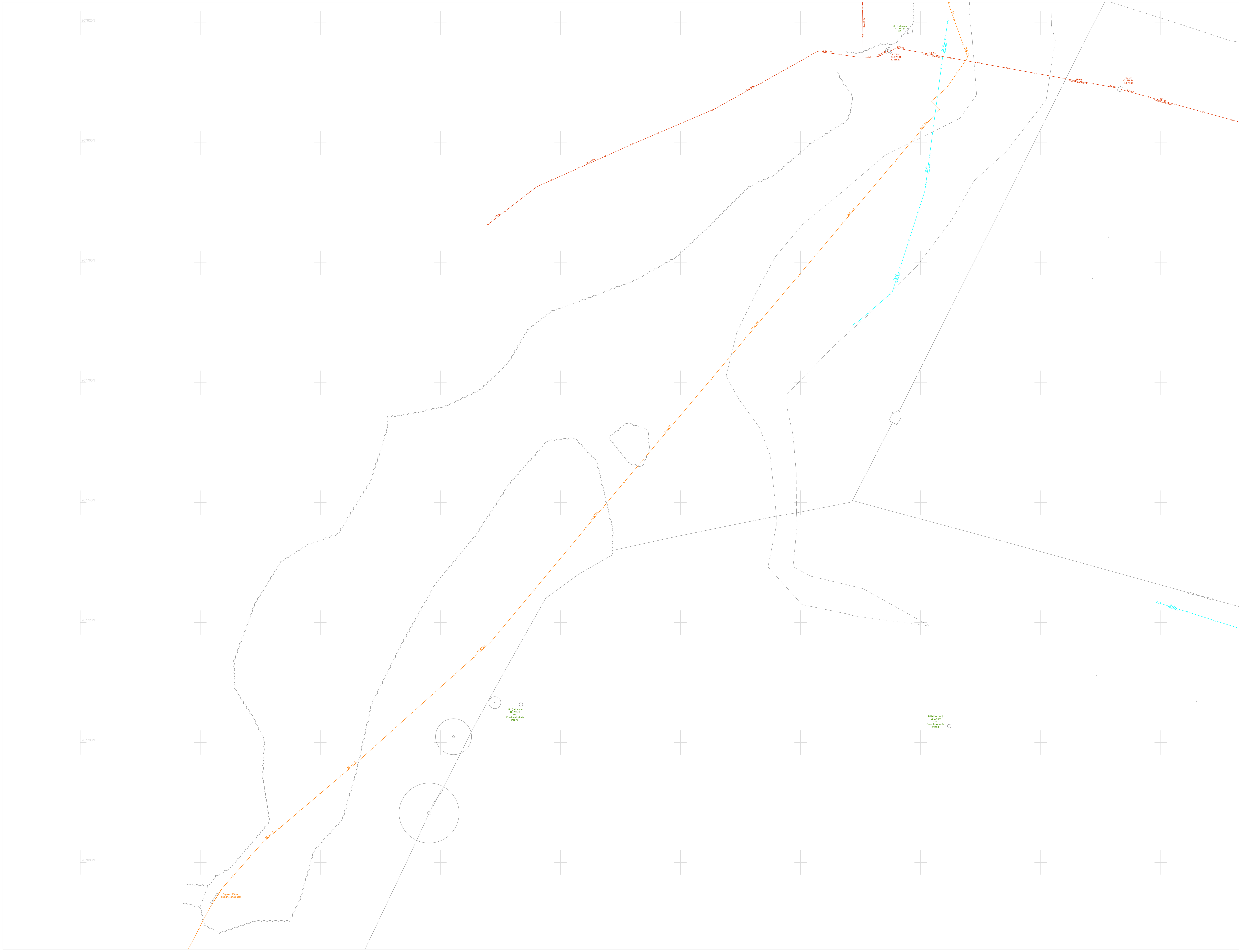
Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	AJ	Checked:	DR	Date: 09.03.2021	Scale: 1:200 @ A0

Drawing Number: 3058-U-002

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Utility Linetypes & Hatch Descriptions

Control	TS	Traffic Signal Cable
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Drainage	CW	Combined Water Drainage
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Water	W	Water Main
Unknown	GPR	GPR Trace - Unidentified
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		EML Survey Extents
		GPR Survey Extents
		Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout

N

3058-U-001 | 3058-U-002
3058-U-003 | 3058-U-004
3058-U-005 | 3058-U-006
3058-U-007 | 3058-U-008

Rev.	Date	By	Description	Checked
-	-	-	-	-

Gwalia SURVEYORS

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Cardiff: 029 2111 1700 London: 020 3011 1099
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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Utilities Survey

Project: Bishop Hedley School

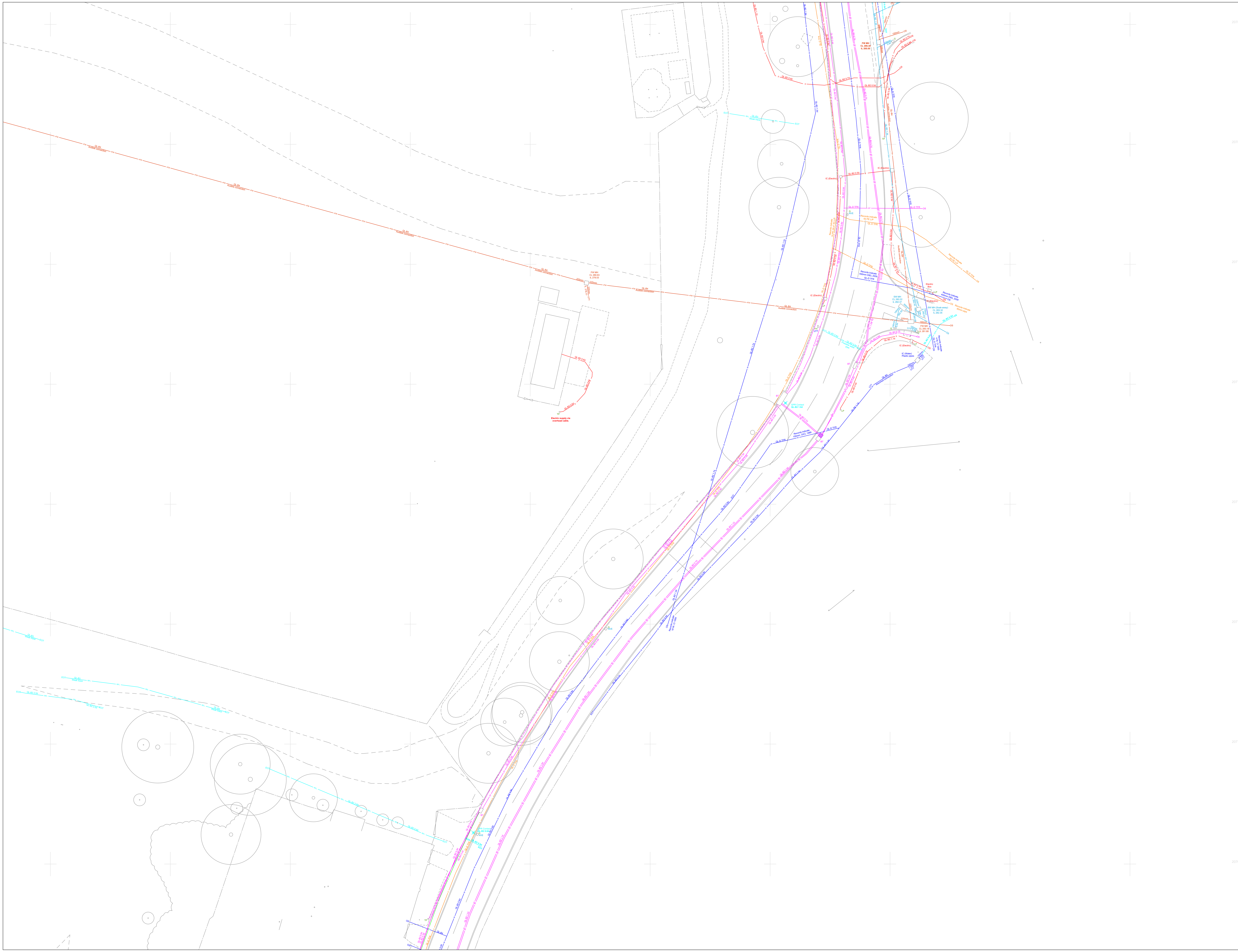
Client: Cambria

Drawn: AJ | Checked: DR | Date: 09.03.2021 | Scale: 1:200 @ A0

Drawing Number: 3058-U-003

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Duct Abbreviations

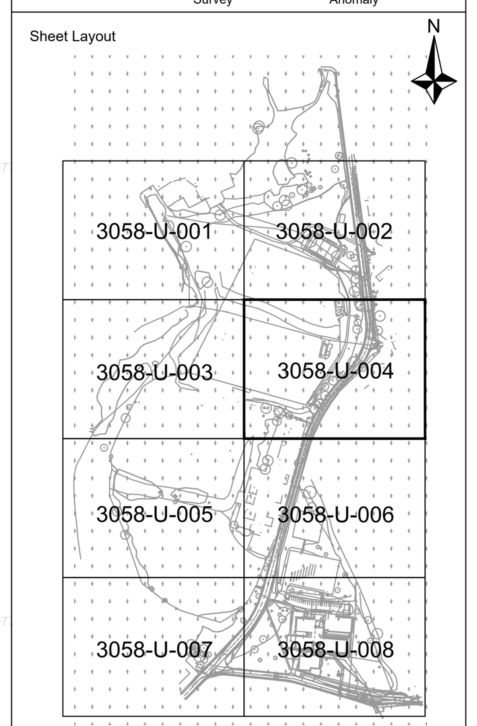
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Utility Linetypes & Hatch Descriptions

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Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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Unit 1, Link Trade Park,
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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title: Utilities Survey

Project: Bishop Hedley School

Client: Cambria

Drawn: AJ | Checked: DR | Date: 09.03.2021 | Scale: 1:200 @ A0

Drawing Number: 3058-U-004

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Utilities Abbreviations

AR	Assumed Route	OS	Off Site
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CR	Cable Rising	ST	Steel
CW	Combined Water	STATS	Statutory Undertakers
DI	Ductile Iron	SW	Storm Water
EOT	End of Trace	TFR	Taken From Records
FW	Foul Water	UTL	Unable to Lift
MH	Manhole	UTT	Unable to Trace
MW	Monitoring Well	WS	Weak Signal
NS	No Signal		

Measurement Descriptions

CL	Cover Level
CD	Chamber Depth
d	Depth (m)
dia.	Diameter (mm)
IL	Invert Level
SD	Soffit Depth
SL	Sump Level
WL	Water Level

Duct Abbreviations

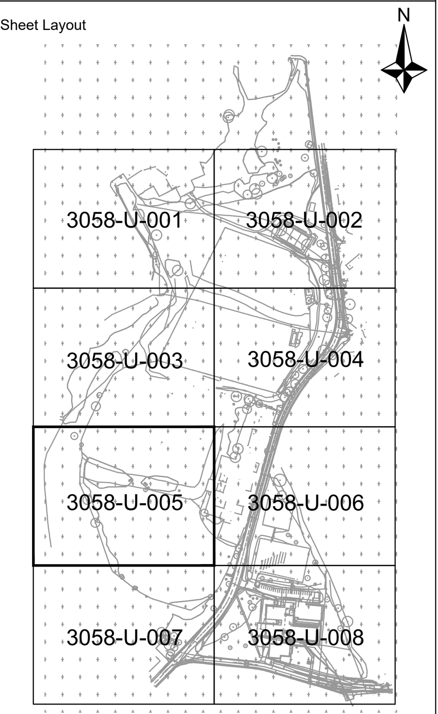
1w	1 way - 1 duct
2w	2 way - flat
2w 1-2	2 way - 1wide-2deep
4w 2-2	4 way - 2wide-2deep
6w 3-2	6 way - 3wide-2deep

Utility Linetypes & Hatch Descriptions

Control	TS	Traffic Signal Cable
	D	Ducting
Drainage	CW	Combined Water Drainage
	FW	Foul Water Drainage
	SW	Surface Water Drainage
Electric	E	Electricity Cable
	HV	Electricity Cable - High Voltage
	LV	Electricity Cable - Low Voltage
Gas	G	Gas Main
Pipes	F	Fuel Line
	H	Heating Main
	V	Vent Line
Telecoms	BT	British Telecom Cable
	C	Telecommunications Cable
Water	W	Water Main
Unknown	GPR	GPR Trace - Unidentified
	RFL	RFL Trace - Unidentified
		EML Survey Extents
		GPR Survey Extents
		Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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Ofcom Constructionline British Chambers of Commerce
QMS ISO 9001 REGISTERED FIRM Achilles THE SURVEY ASSOCIATION EUROPEAN GPR ASSOCIATION 115 / 403 / 2015 / 2

Title: Utilities Survey

Project: Bishop Hedley School

Client: Cambria

Drawn: AJ | Checked: DR | Date: 09.03.2021 | Scale: 1:200 @ A0

Drawing Number: 3058-U-005

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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CD	Chamber Depth
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6w 3-2	6 way - 3wide-2deep

Utility Linetypes & Hatch Descriptions

Control
- TL — Traffic Signal Cable
- D — Ducting

Drainage
- DR — Combined Water Drainage
- FM — Foul Water Drainage
- SD — Surface Water Drainage

Electric
- E — Electricity Cable
- HV — Electricity Cable - High Voltage
- LV — Electricity Cable - Low Voltage

Gas
- G — Gas Main

Pipes
- F — Fuel Line
- H — Heating Main
- V — Vent Line

Telecoms
- BT — British Telecom Cable
- TC — Telecommunications Cable

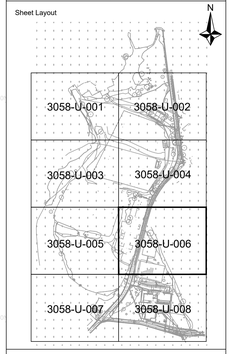
Water
- W — Water Main

Unknown
- UNK — GPR Trace - Unidentified
- RFL — RFL Trace - Unidentified

- EML Survey Extents
- GPR Survey Extents
- Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: AJ	Checked: DR · Date: 09.03.2021 · Scale: 1:200 @ A0
Drawing Number:	3058-U-006

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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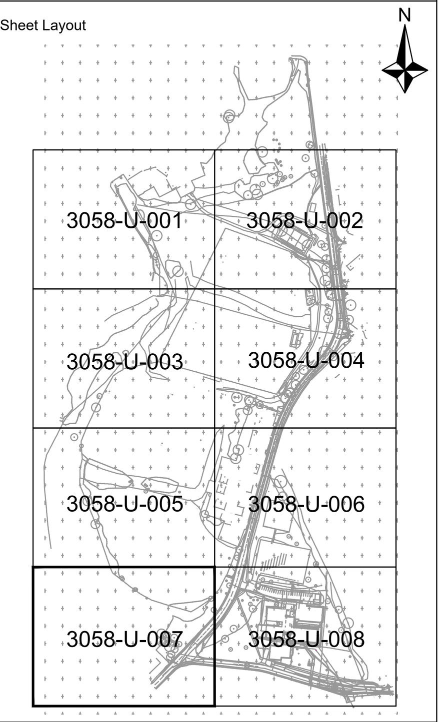
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	EML Survey Extents
	GPR Survey Extents
	Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn: AJ	Checked: DR	Date: 09.03.2021	Scale: 1:200 @ A0

Drawing Number: 3058-U-007

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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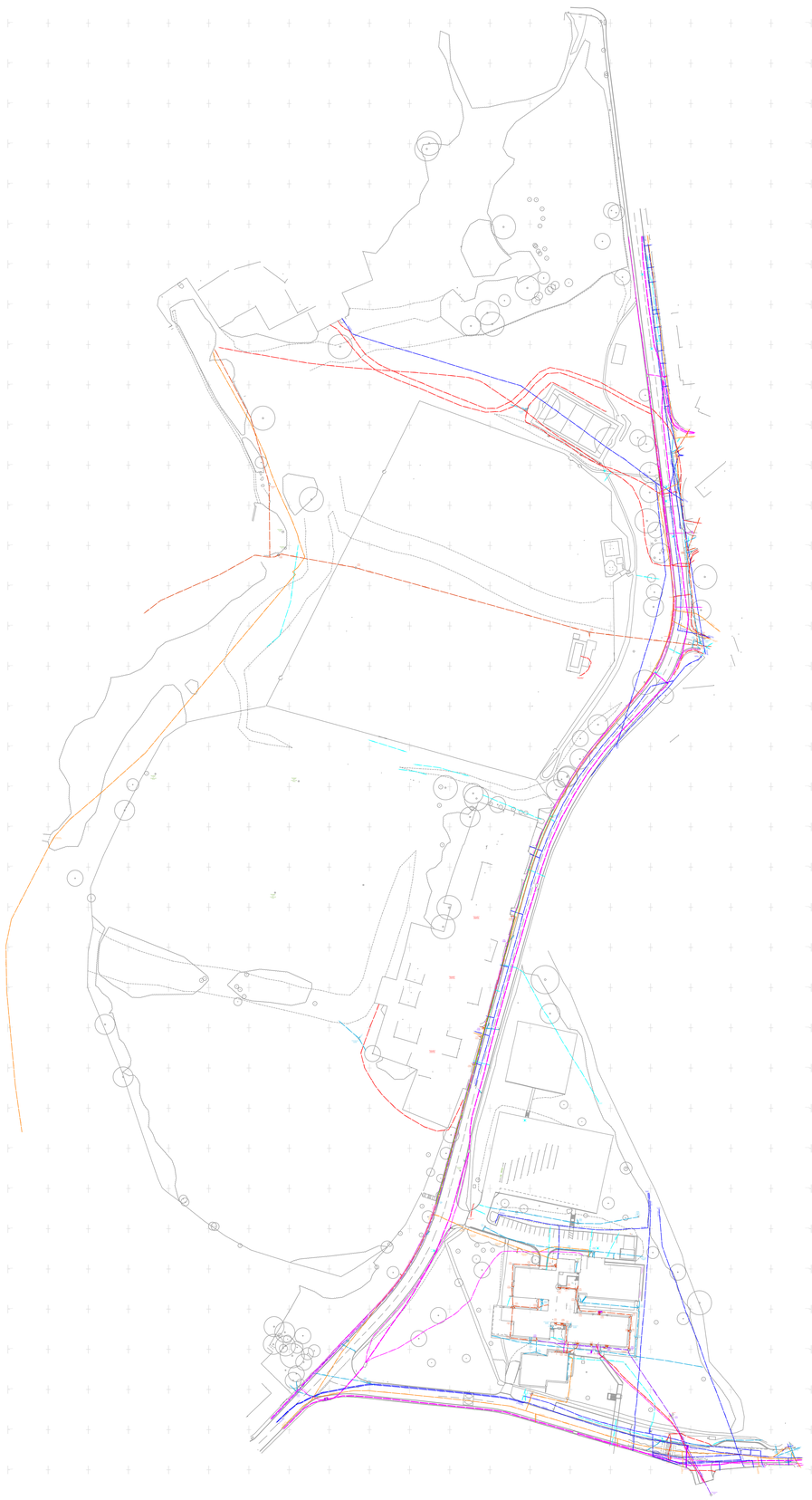
Rev.	Date	By	Description	Checked
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Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: AJ	Checked: DR Date: 09.03.2021 Scale: 1:200 @ A0
Drawing Number:	3058-U-008

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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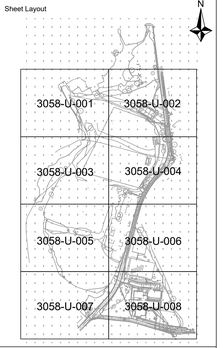
1w	1 way - 1 duct
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Utility Linetypes & Hatch Descriptions

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	GPR Survey Extents
	Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked
-	-	-	-	-

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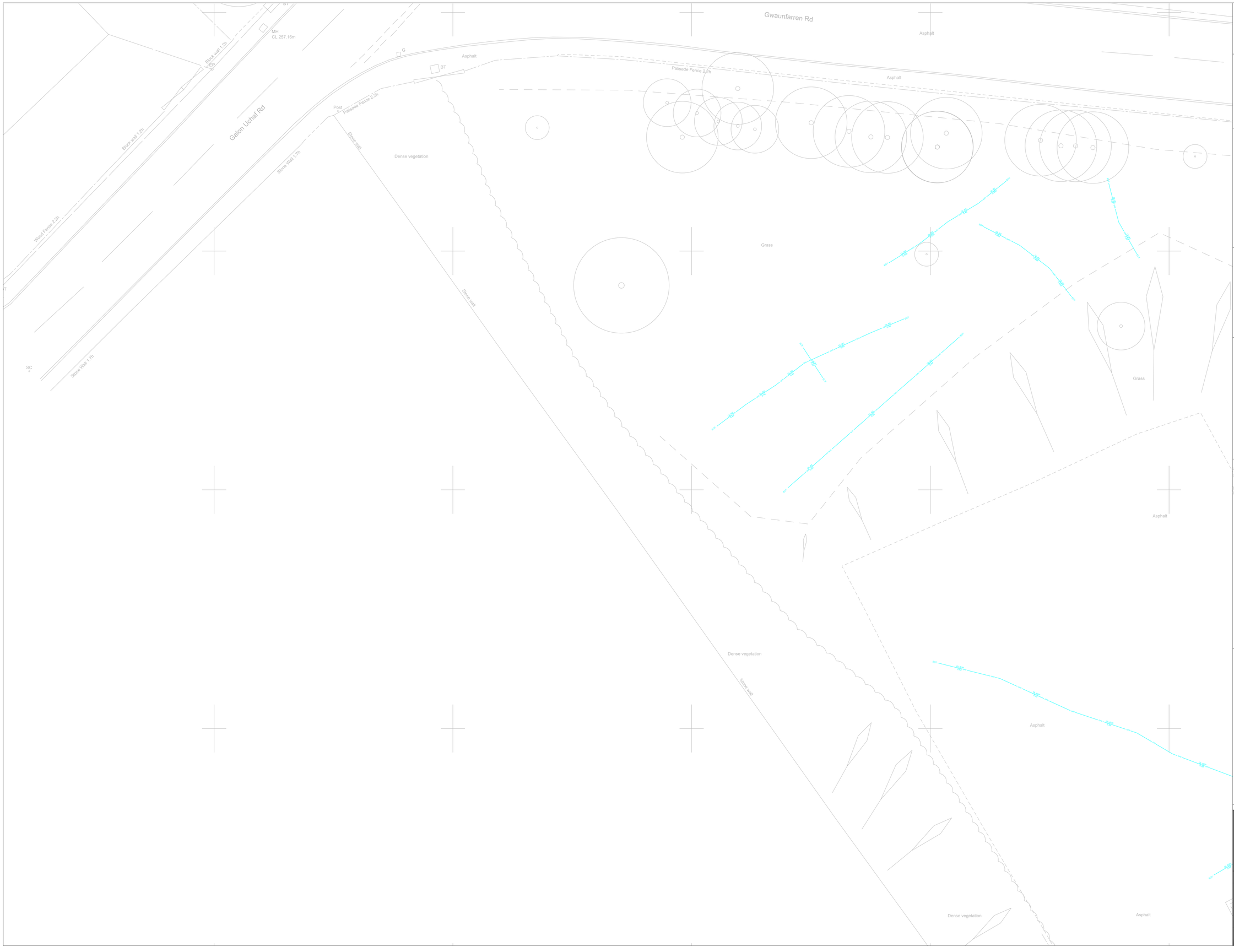
Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	AJ	Checked:	DR	Date: 09.03.2021	Scale: N.T.S

Drawing Number: 3058-U-Overview

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Detection method for EML - M??

Detection method for GPR - M??

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Utility Linetypes & Hatch Descriptions

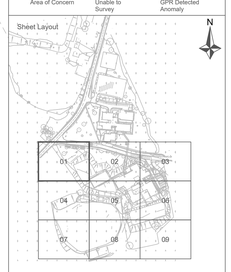
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	EML Survey Extents
	GPR Survey Extents
	Area of Concern

Area of Concern

Unable to Survey

GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	1:100 @ A0

Drawing Number: 3214-U-01

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Detection method for GPR - M7?

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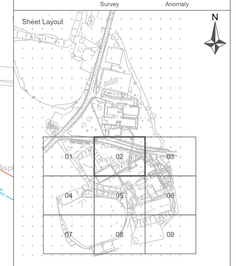
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Utility Linetypes & Hatch Descriptions

- Control: Traffic Signal Cable; Ducting
- Drainage: Combined Water Drainage; Foul Water Drainage; Surface Water Drainage
- Electric: Electricity Cable; Electricity Cable - High Voltage; Electricity Cable - Low Voltage
- Gas: Gas Main
- Pipes: Fuel Line; Heating Main; Vent Line
- Telecoms: British Telecom Cable; Telecommunications Cable
- Water: Water Main
- Unknown: GPR Trace - Unidentified; RFL Trace - Unidentified
- EML Survey Extents
- GPR Survey Extents
- Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	1:100 @ A0

Drawing Number: 3214-U-02

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

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Detection method for EML - M??

Detection method for GPR - M??

Notes

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Utilities Abbreviations

AR	Assumed Route	OS	Off Site
BD	Backdrop	PE	Polyethylene
CI	Cast Iron	PR	Pipe Rising
CR	Cable Rising	ST	Steel
CW	Combined Water	STATS	Statutory Undertakers
DI	Ductile Iron	SW	Storm Water
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Measurement Descriptions

CL	Cover Level
CD	Chamber Depth
d	Depth (m)
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IL	Invert Level
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SL	Sump Level
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Duct Abbreviations

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2w 1-2	2 way - 1wide-2deep
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Utility Linetypes & Hatch Descriptions

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- Ducting

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- Foul Water Drainage
- Surface Water Drainage

Electric
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- Electricity Cable - High Voltage
- Electricity Cable - Low Voltage

Gas
- Gas Main

Pipes
- Fuel Line
- Heating Main
- Vent Line

Telecoms
- British Telecom Cable
- Telecommunications Cable

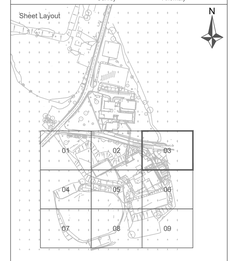
Water
- Water Main

Unknown
- GPR Trace - Unidentified
- RFL Trace - Unidentified

- EML Survey Extents
- GPR Survey Extents
- Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	1:100 @ A0

Drawing Number: 3214-U-03

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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Detection method for EML - M7? | Detection method for GPR - M7?

Notes

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Duct Abbreviations

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	EML Survey Extents
	GPR Survey Extents
	Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

Gwalia SURVEYORS
Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn: NJ	Checked: DR	Date: 18.08.2022	Scale: 1:100 @ A0

Drawing Number: 3214-U-04

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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Detection method for EML - M7? | Detection method for GPR - M7?

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Duct Abbreviations

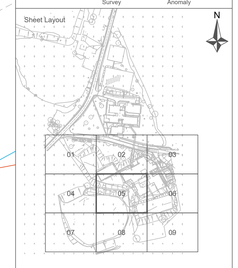
1w	1 way - 1 duct
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- GPR Survey Extents
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Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: NJ	Checked: DR | Date: 18.08.2022 | Scale: 1:100 @ A0
Drawing Number:	3214-U-05

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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Duct Abbreviations

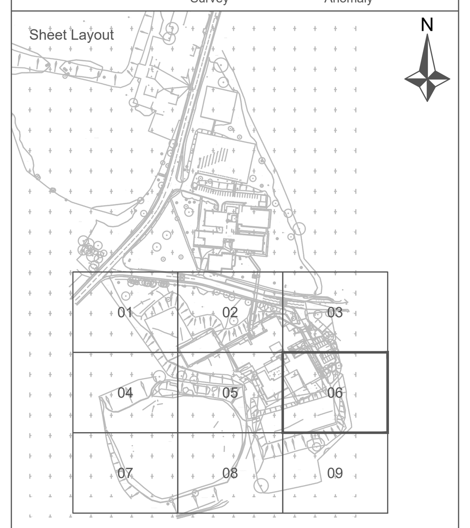
1w	1 way - 1 duct
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Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



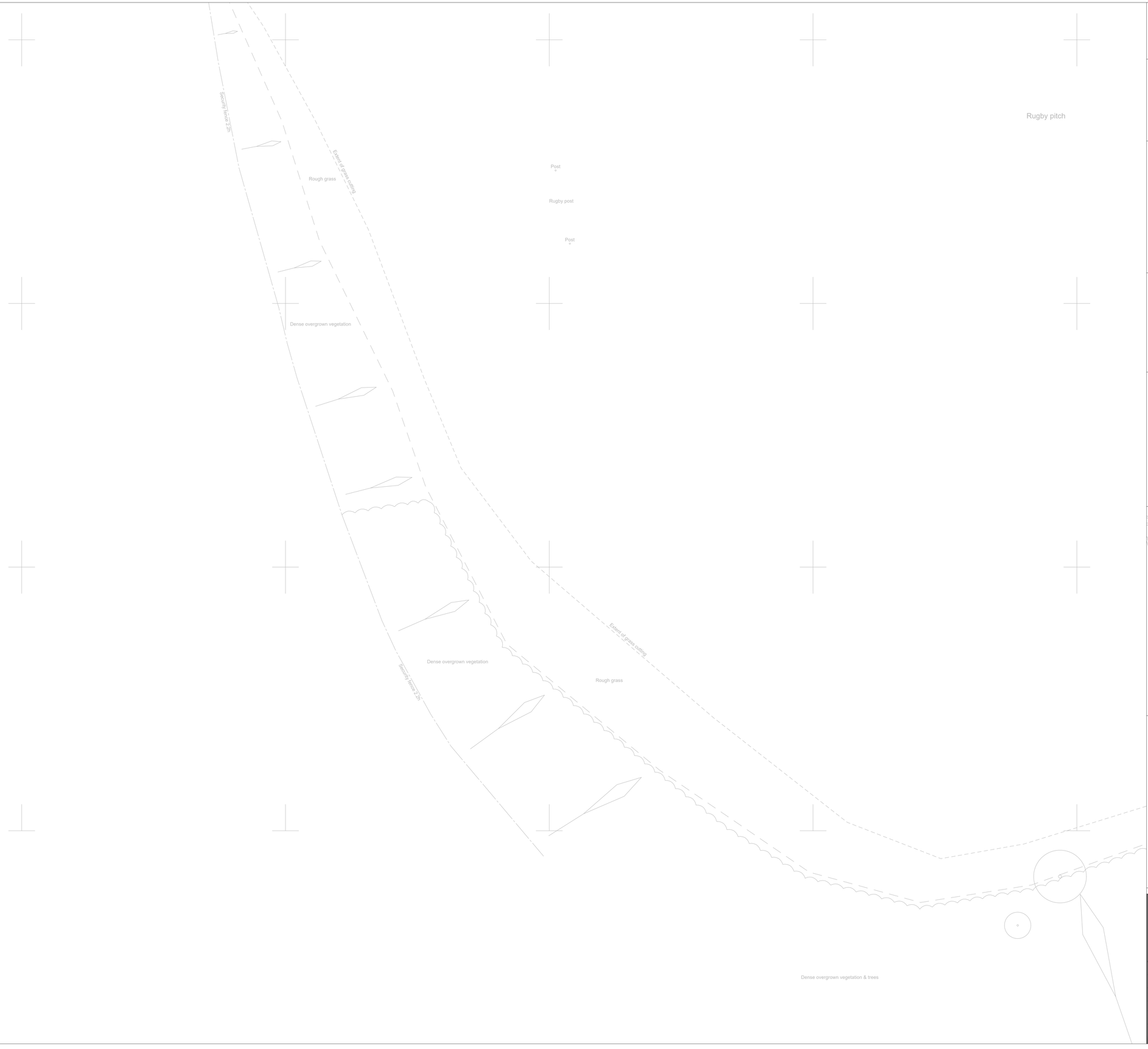
Rev.	Date	By	Description	Checked

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Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria
Drawn: NJ / Checked: DR / Date: 18.08.2022 / Scale: 1:100 @ A0	
Drawing Number:	3214-U-06

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

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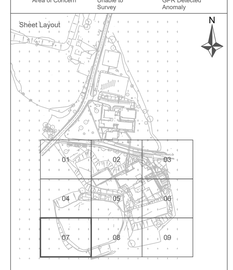
EML Survey Extents

GPR Survey Extents

Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

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Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	1:100 @ A0

Drawing Number: 3214-U-07

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Rugby post

Post

Dense overgrown vegetation & trees

Dense vegetation

D4
246.884

Drainage channel

Grass

Extent of grass cutting

Dense vegetation

Dense overgrown vegetation & trees

Overgrown redgra

Extent of grass cutting

Rough grass

Extent of grass cutting

Rough grass

Security fence 2.2m

Dense overgrown vegetation & trees

Drain

Security fence 2.2m

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FW	Foul Water	UTL	Unable to Lift
MH	Manhole	UTT	Unable to Trace
MW	Monitoring Well	WS	Weak Signal
NS	No Signal		

Measurement Descriptions

CL	Cover Level	
CD	Chamber Depth	
d	Depth (m)	
dia.	Diameter (mm)	
IL	Invert Level	
SD	Soffit Depth	
SL	Sump Level	
WL	Water Level	

Duct Abbreviations

1w	1 way - 1 duct
2w	2 way - flat
2w 1-2	2 way - 1wide-2deep
4w 2-2	4 way - 2wide-2deep
6w 3-2	6 way - 3wide-2deep

Utility Linetypes & Hatch Descriptions

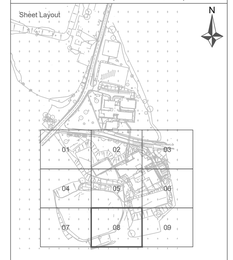
Control	Traffic Signal Cable
	Ducting
Drainage	Combined Water Drainage
	Foul Water Drainage
	Surface Water Drainage
Electric	Electricity Cable
	Electricity Cable - High Voltage
	Electricity Cable - Low Voltage
Gas	Gas Main
Pipes	Fuel Line
	Heating Main
	Vent Line
Telecoms	British Telecom Cable
	Telecommunications Cable
Water	Water Main
Unknown	GPR Trace - Unidentified
	RFL Trace - Unidentified
	EML Survey Extents
	GPR Survey Extents
	Area of Concern

Area of Concern

Unable to Survey

GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

Gwalia SURVEYORS

Unit 1, Link Trade Park,
Penarth Road, Cardiff, CF11 8TQ.
Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk

LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn: NJ	Checked: DR	Date: 18.08.2022	Scale: 1:100 @ A0

Drawing Number: 3214-U-08

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Coordinate System

This survey has been oriented to the Ordnance Survey (OS) National Grid and Datum using GPS observations and the OS Active Network.

A true OS coordinate was established near to the centre of the site. This survey has been correlated to this point. Further OS coordinates were established to create a true OS bearing for angle orientation.

No scale factor has been applied to this survey. The coordinates shown are arbitrary and not true OS coordinates which do have a scale factor applied.

PAS 128 Quality Levels

D - Location abstracted from records. Indicative information only.

C - Location is demonstracted by visual reference to street furniture, topographical features, or evidence of street works such as trench scars. Indicative information only.

B4 - Location is suspected to exist but has not been detected. Indicative information only.

B3 - Horizontal location of the utility detected by one geophysical technique.

B2 - Horizontal and vertical location of the utility detected by one geophysical technique.

B1 - Horizontal and vertical location of the utility detected by multiple geophysical techniques.

A - Horizontal and vertical location of the top and/or bottom of the utility established from an inspection chamber, manhole, or excavations.

Detection method for EML - M??

Detection method for GPR - M??

Notes

1. Dimensions should not be scaled. All dimensions should be verified on site prior to construction.
2. All dimensions and levels are in metres unless otherwise stated.
3. Some detail may have been obscured by parked vehicles, stored materials, overgrown vegetation, and leaf litter.
4. All drainage and utility service information has been determined without man entry into chambers. Pipe diameters and levels should be verified before works commence.
5. Drainage connections have been proven by sounding only and are presumed to be straight between chambers unless otherwise stated.
6. Utility type has been identified to the best of the surveyor's ability and local site evidence. No guarantee of correct identification can be given.
7. All apparatus shall be treated as live unless proved otherwise by the asset owner.
8. Any information added from record drawings or STATS plans is not guaranteed. Historic record information is often incomplete and innaccurate and cannot be relied upon.
9. Where a single line has been illustrated on this darwing it may represent multiple pipes or cables.
10. Gwalia Surveyors cannot accept any responsibility for any damage to computer systems from viruses which may be contained in the data/files supplied.
11. All data shall remain Copyright of Gwalia Surveyors unless formally agreed otherwise.

Utilities Abbreviations

AR	Assumed Route	OS	Off Site
BD	Backdrop	PE	Polyethylene
CI	Cast Iron	PR	Pipe Rising
CR	Cable Rising	ST	Steel
CW	Combined Water	STATS	Statutory Undertakers
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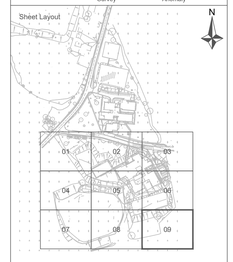
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Utility Linetypes & Hatch Descriptions

- Control — Traffic Signal Cable; Ducting
- Drainage — Combined Water Drainage; Foul Water Drainage; Surface Water Drainage
- Electric — Electricity Cable; Electricity Cable - High Voltage; Electricity Cable - Low Voltage
- Gas — Gas Main
- Pipes — Fuel Line; Heating Main; Vent Line
- Telecoms — British Telecom Cable; Telecommunications Cable
- Water — Water Main
- Unknown — GPR Trace - Unidentified; RFL Trace - Unidentified
- EML Survey Extents
- GPR Survey Extents
- Area of Concern

Area of Concern | Unable to Survey | GPR Detected Anomaly

Sheet Layout



Rev.	Date	By	Description	Checked

Gwalia SURVEYORS
Unit 1, Link Trade Park,
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Cardiff: 029 2111 1700 London: 020 3011 1099
W: gwaliasurveyors.co.uk
LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	1:100 @ A0

Drawing Number: 3214-U-09

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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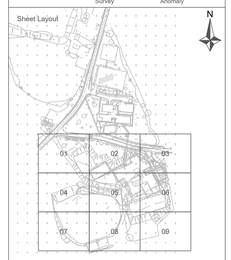
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LAND | UTILITIES | BUILDING | BOUNDARY | BIM

Title:	Utilities Survey
Project:	Bishop Hedley School
Client:	Cambria

Drawn:	Checked:	Date:	Scale:
NJ	DR	18.08.2022	N.T.S.

Drawing Number: 3214-U-Overview

Project	Originator	Zone	Level	Type	Role	Number	Revision	Status
-	-	-	-	-	-	-	-	-

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Appendix B: Proposed Site Layout



Scale 1 : 1000

0 20 50 100 m

EXISTING

- EXISTING TREES / VEGITATION RETAINED - Refer to Arboriculturists report and drawings
- EXISTING AMENITY GRASS To be retained and made good where required
- EXISTING WATER COURSE

PROPOSED SOFT LANDSCAPE

- AMENITY GRASS - Refer Site wide planting plan
- WILDFLOWER GRASS - Refer Site wide planting plan
- GRASS CRETE - Refer Site wide planting plan
- SUDS PLANTING - Refer Site wide planting plan
- SHRUB PLANTING - Refer Site wide planting plan
- HEDGE PLANTING - Refer Site wide planting plan
- WOODLAND MIX PLANTING - Refer Site wide planting plan
- PROPOSED TREE PLANTING - Refer Site wide planting plan No. tbc

PROPOSED HARD LANDSCAPE

- PEDESTRIAN PERMEABLE MACADAM To Engineers detail and spec.
- PEDESTRIAN PERMEABLE BLOCK PAVING Size: TBC Type: TBC Colour: TBC
- VEHICULAR PERMEABLE MACADAM To Engineers detail and spec.
- VEHICULAR PERMEABLE BLOCK PAVING Size: TBC Type: TBC Colour: TBC
- PERMEABLE MUGA / 3G PITCH To specialists detail & spec.
- CONCRETE BASE To Engineers Details & Spec.
- TACTILE HAZARD WARNING PAVING to pedestrian crossing points and top and bottom of steps Size: 400x400x50mm Type: TBC Colour: TBC
- PROPOSED STEPS WITH HAND RAILS Finish:TBC Handrail Finish:TBC

FENCING / WALLS / TERRACING

- SITE FENCING / BOUNDARY EXISTING TREATMENTS - Please refer to Drawings: ATK-XX-DR-LA-432009 - LANDSCAPE SITE WIDE FENCING GA ATK-XX-DR-LA-432010 - LANDSCAPE FENCING GA - NORTH SITE ATK-XX-DR-LA-432011 - LANDSCAPE FENCING GA - SOUTH SITE ATK-XX-DR-LA-432012 - LANDSCAPE FENCING GA - WEST SITE (RUGBY PITCH)
- PROPOSED FEATURE WALL - 2.2m High Type: TBC
- PROPOSED TERRACING 1.3m high Type: TBC

FURNITURE

- COVERED CYCLE STORAGE 112no. Spaces TYPE: TBC
- BOLLARDS - Locations TBC Type:TBC Size:TBC Finish: TBC Qty:TBC
- BINS - Locations TBC Type:TBC Size:TBC Finish: TBC Qty:TBC
- BENCHES - Locations TBC Type:TBC Size:TBC Finish: TBC Qty:TBC
- TEAM DUG OUTS & STORAGE - Locations TBC Type:TBC Size:TBC Finish: TBC Qty:TBC

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION

MAINTENANCE/CLEANING

DECOMMISSIONING/DEMOLITION

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Rev.	Date	Description	By	Chk'd	App'd
P04	01/05/2023	Updated inline with comments for Planning	AE	DW	SW
P03	22/02/2023	Planning Issue	AE	DW	SW
P02	27/10/2022	WIP ISSUE	AE	SW	JH
P01	14/09/2022	STAGE 2 ISSUE	AE	SW	JH

Drawing Suitability: FOR INFORMATION

Status: S2

ATKINS
Member of the SNC-Lavalin Group
Tel:
www.atkinsglobal.com
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Client: Willmott Dixon Construction Ltd

Project Title: Blessed Carlo Acutis Catholic School

Drawing Title: LANDSCAPE GENERAL ARRANGEMENT

Scale	Designed	Drawn	Checked	Authorised
As indicated	AE	AE	DW	SW
Original Size	**Date**	**Date**	**Date**	**Date**
A1	15/02/23	15/02/23	1602/23	16/02/23

Drawing Number: BCA-ATK-XX-XX-DR-LA-423001

Revision: P04

Atkins Project Number: Project Number

Appendix C: Draintech Culvert Survey

NORTH

CONFIRMED.

PHASE 2

CULVERT TO BE SURVEYED DOWNSTREAM GWAUNFARREN RD. NEED TO ESTABLISH WHETHER IT RUNS INTO RESIDENTIAL ESTATE OR INTO PHASE 1 OF SITE.

SPOKE TO BEN ON SITE EXPLAINED THIS CULVERT WAS SURVEYED A FEW AGO NO NEED TO RESURVEY HE IS GOING TO SPEAK TO THE COUNCIL

ACCESS GATE
TANKER AND VAN WILL STRUGGLE TO GET DOWN GRASS TRACK

TANKER WILL NEED 100M BACK HOSE ALSO 100M SIDE HOSE TO CLEAN THESE LINES OUT ALSO TO SURVEY WOULD NEED REMOTE PUSHER

A LOT OF DEBRIS WITHIN CHAMBER DEPTH 1.000 MHS6

CONSTANT CLEAR FLOW COMING DOWN LINE UNABLE TO CONFIRM UPSTREAM SURVEY ABANDON DUE TO ENCRUSTATION

MHC1
MHS1
GREASE TRAP 1
GREASE TRAP 2
MHC2
MHS2 NEEDS CLEANING FULL OF SILT

SURVEY ABANDON
2.5M LINE NEEDS CLEANING
UNABLE TO CONFIRM DOWNSTREAM
SUSPECT LINE TO RUN TO SOAKAWAY
UNABLE TO CONFIRM AFTER DYE TESTING

MHS18
MHC18
MHC4
MHC19
MHC3 START OF OUTGOING PIPE COVERED WITH ENCRUSTATION UNABLE GET CAMERA THROUGH
MHS3 BURIED UNDER CABIN
MHC15 UTR 1.140MM DEPTH WITH SONDE

MHS5 SURCHARGED DEPTH 0.970MM

MHS4 FULL OF SILT DEPTH 0.640

MHC7
BACKDROP
MHC13
MHS7
MHS8
MHC5
MHC6
MHS9 CHANNALING FULL OF DEBIS
MHS10 SURCHARGED DEPTH 0.630MM
2X150MM
MHC14 LOCATED AND UNCOVERED UNABLE TO RAISE
MHS11
BACKDROP MHC8
MHC9
MHC10
MHS12
MHS13
S.A 1.5M DEBRIS LINE CONSTANLEY FLOWING SUSPECT TO BE SOAK AWAY LINE
225MM

BLOCKAGE
MHS15
27.2 S.A NEEDS CLEANING UNKNOWN UPSTREAM
S.A. DEBRIS
MHC12 SURCHARGED DEPTH 3.440MM
FULL OF GREASE
MHC11
MHS14 LARGE STONES AND WOOD IN CHAMBER HAD TO REMOVE

LOCATED POINT 1 DEPTH 3.640MM UNABLE TO SURVEY FURTHER DUE TO HOLE AND BROKEN PIPE

MHC16 LOCATED IN REAR GARDEN MAY BE BURIED UNABLE TO GET ANSWER

USE WELSH WATER PLAN PHASE 1 PLAN 2 FOR DOWNSTREAM OF THIS MANHOLE

SURVEY SURFACE WATER OUTFALL DOWNSTREAM. DETERMINE WHAT NETWORK IT OUTFALLS INTO.

POTENTIAL ACCESS THROUGH SPORTS PITCH.

NOT VERY ACCESSIBLE. FENCING SURROUNDING THE SURFACE WATER OUTFALL.

FULL SITE CCTV SURVEY REQUIRED IN BOUNDARY.

MHS17 LOCATED IN REAR GARDEN
POSTED LETTER,ALSO WENT BACK
CAN NOT GET A ANSWER TO SURVEY UPSTREAM
RE TRY ON SATURDAYS WORK

USE WELSH WATER PLAN

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THE CONTRACTOR IS TO REFER TO THE SPECIFICATION, FULL SCHEDULE OF RESIDUAL RISKS IN THE CONTRACT DOCUMENTATION AND ALSO TO INFORMATION FROM OTHER DESIGNERS, IN PARTICULAR THE M&E CONSULTANT REGARDING EXISTING LIVE SERVICES.

THIS SYMBOL IS USED TO HIGHLIGHT INSTANCES OF RISK WITHIN THE CONSTRUCTION PROCESS.

ALWAYS CHECK FOR LATER REVISIONS OF THIS DRAWING.

Rev.	Description	By	Chk	App

Client:
WILLMOTT DIXON

Project:
BISHOP HEDLEY CATHOLIC SCHOOL

Drawing Title:
CCTV SURVEY EXTENTS

Drawing No.
CC2208 CAM ZZ 00 GA C SK50
Project Originator Vol. Level Type Role Number

Status:	Scale @A1:	Rev:
S1 PRELIMINARY	1:500	P01

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Constructive Thinking
Civil & Structural Engineers
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E admin@cambria.co.uk
W www.cambria.co.uk
@cambriauk
uk.linkedin.com/in/cambriauk

NORTH

SURVEY LAND DRAINAGE SYSTEM UPSTREAM OF THE SOAKAWAY.

REQUIRES CLEANING TO SURVEY

FULL SITE CCTV SURVEY REQUIRED IN BOUNDARY.

SURVEY ABANDON
0.2M ENCRUSTATION,OJM,JDM
CONSTANT FLOW COMING OUT OF LINE
POSSIBLE TAKES LAND DRAIN/SOAK AWAY

BOTH GULLIES FULL
NEED CLEANING OUT

MHS30
CAN HEAR FLOW
RUNNING UNERSILT
MANHOLE NEEDS CLEANING OUT

CCTV SURVEY TO CONTINUE TO OUTFALL INTO ORDINARY WATER COURSE POSITION COORDINATES OF EXISTING HEADWALL TO BE CONFIRMED.

REQUIRES CLEANING

SA 7.18M D/S UNABLE TO PASS 40% SILT SURVEYS OVERLAPPED

MHS34
SURVEY D/S AND CONFIRM INCOMERS

MHS31 BURIED IN BUSH
DEPTH WITH SONDE 1.920MM

SURVEY ABANDON
45% DEBRIS

DYE TESTED MHS33 SUSPECT
LINE FROM MHS33 JOINS THIS LINE
DYE CAME THROUGH SAME PLACE AS
WHEN DYE TESTED MHS30

MHF5
BLOCKED NEEDS CLEANING
DEPTH 0.660MM

DYE TESTED MHS30 ALL THE DYE APPEARED
ABOVE GROUND IN THIS LOCATION.
SUSPECT THERE TO BE A BURIED MANHOLE
THAT IS SURCHARGED VIEW PHOTO
SURVEY UPSTREAM TO CONFIRM
FROM THIS MANHOLE

MHF7
FULL OF ENCRUSTATION

THIS SECTION WAS DONE ON SEPERATE PLAN ON ADO

CCTV SURVEY TO CONTINUE TO OUTFALL INTO ORDINARY WATER COURSE POSITION COORDINATES OF EXISTING HEADWALL TO BE CONFIRMED.

MHC25 UNABLE TO VIEW PIPES
A LOT OF LARGE STONES ETC WITHIN
CHAMBER WILL NEED ENTRY TO CLEAN OUT

MHS24 WHEN PUTTING
COVER BACK DOWN
SO THERE WAS NO LIP AS A TRIP
HAZARD CONCRETE ALL CAME OUT
OF THE COVER INFORMED CARETAKER
ASLO TOOK PHOTOS,CARETAKER
IS GOING TO REFILL COVER

MHS27
BURIED
DEPTH 1.280MM

MHS22
FULL OF SILT

BACKDROP UNABLE TO
DRIVE THROUGH MANHOLE

SA 3.21M D/S UNABLE TO PASS
25% CONCRETE REQUIRES WARTHOG
AND REMOTE REEL

OUTFALL UNABLE TO LOCATE
BUSHES AND NETTLES NEED
TO BE CUT BACK TO LOCATE

MHC25B-BURIED
LOCATED DEPTH
2.23M

CULVERT TO BE SURVEYED DOWNSTREAM GWAUNFARREN RD. NEED TO ESTABLISH WHETHER IT RUNS INTO RESIDENTIAL ESTATE OR INTO PHASE 1 OF SITE.

MHC25A

MHC15 ON PHASE 1

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Project:
BISHOP HEDLEY CATHOLIC SCHOOL

Drawing Title:
CCTV SURVEY EXTENTS

Drawing No.
CC2208 CAM ZZ 00 GA C SK51
Project Originator Vol. Level Type Role Number

Status:
S1 PRELIMINARY

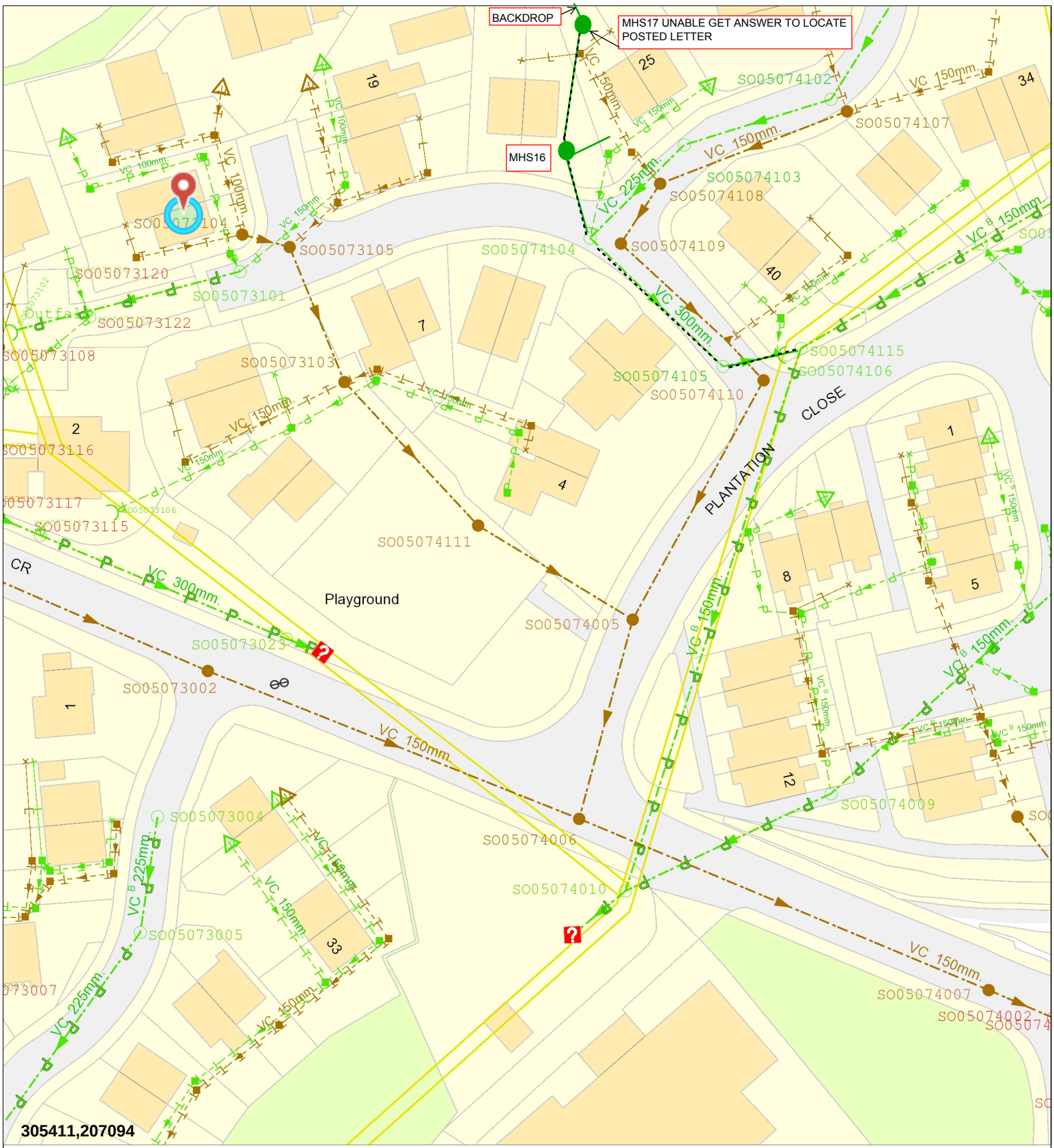
Scale @A1:
1:500

Rev:
P01

CAMBRIA
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Civil & Structural Engineers
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uk.linkedin.com/in/cambriauk

Draintech Surveys ltd
Job/Plan ref: 15410 - 01 - 003





Scale: 1:750

02/11/2022

EXACT LOCATION OF ALL APPARATUS TO BE DETERMINED ON SITE

Dŵr Cymru Welsh Water

LEGEND

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
- Non Dwr Cymru
- Existing Distribution Main
- Inspection Chamber
- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain

NB: Sewer symbol colour indicates the sewer type.

RED - Combined
GREEN - Surface Water
BROWN - Foul

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Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dwr Cymru Cyfyngedig ('the Company') gives this infirmation as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby by the company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 based particular, but without prejudice to be generality of that foregoing, it should be noted that the records that are available to the company may not disclose the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of thisinformation is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damageto its apparatus.

DRAINTECH

helping to improve the drainage network

Drainage Survey Report

Job Number : 15410

Project Number: 1

Project Name: Bishop Hedley Catholic School

Company: Cambria Consulting Ltd

Site Date: 31-10-2022

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

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Project Information

Project Name	Project Number	Project Date
15410 BISHOP HEDLEY CATHOLIC SCHOOL	1	31/10/2022

Client

Company: Cambria Consulting Ltd
Contact: Daniel Coles

Site

Company: Draintech Surveys Ltd
Contact: Dennis Vokes

Contractor

Company: Draintech Surveys Ltd
Department: Process Co-Ordinator
Street: Atlantic House, Charnwood park
Town or City: CF31 3PL

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Section Inspection - 31/10/2022 - UNKNOWNX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	31/10/22	8:53	1	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

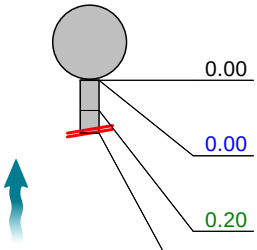
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.35 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	0.35 m	**Downstream Node:**	MHS1
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.310 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments: CONSTANT CLEAR FLOW (GROUND WATER)
Recommendations: None specified

Scale: 1:50

Depth: 0.31 m
MHS1



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS1	00:00:11		
0.00	WL	Water level, 10% of the vertical dimension	00:00:12		
0.20	DEE	Attached deposits, encrustation, from 4 to 7 o'clock, 25% cross-sectional area loss	00:00:16		4
0.35	SA	Survey abandoned: UNABLE PUSH THROUGH ENCRUSTATION	00:00:37		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	14.3	5.0	5.0

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Section Inspection - 31/10/2022 - MHS1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	31/10/22	9:58	1	No Rain Or Snow	No	MHS1X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS1
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	1.32 m	**Upstream Pipe Depth:**	0.310 m
Location:	Other(stateincomments)	**Total Length:**	1.32 m	**Downstream Node:**	MHC1
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 0.31 m **MHS1**						
	0.00	MH	Start node type, manhole, reference number : MHS1	00:00:07		
	0.00	WL	Water level, 10% of the vertical dimension: CLEAR CONSTANT FLOW	00:00:08		
	1.32	MHF	Finish node type, manhole reference number: MHC1	00:00:37		
MHC1 **Depth: m**						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

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Section Inspection - 31/10/2022 - G.T. 1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	31/10/22	10:02	1	No Rain Or Snow	No	G.T. 1X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	G.T. 1
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.25 m	**Upstream Pipe Depth:**	0.930 m
Location:	Other(stateincomments)	**Total Length:**	0.25 m	**Downstream Node:**	MHC1
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.640 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC1	00:00:06		
0.00	WL	Water level, 5% of the vertical dimension	00:00:06		
0.20	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:08		2
0.25	MHF	Finish node type, manhole reference number: G.T. 1: GREASE TRAP 1	00:00:36		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	4.0	1.0	4.0

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Section Inspection - 31/10/2022 - MHC1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	1	31/10/22	10:05	1	No Rain Or Snow	No	MHC1X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC1
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.33 m	**Upstream Pipe Depth:**	0.640 m
Location:	Other(stateincomments)	**Total Length:**	0.33 m	**Downstream Node:**	MHC2
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.840 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC1	00:00:12		
0.00		WL	Water level, 20% of the vertical dimension	00:00:12		
0.00		DEG	Attached deposits, grease, from 7 to 5 o'clock, 15% cross-sectional area loss	00:00:19		3
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 20% cross-sectional area loss, Start: UNDERFLOW	00:00:34		
0.33	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 20% cross-sectional area loss, End: UNDERFLOW	00:00:53		3
0.33		SA	Survey abandoned: UNABLE PUSH THROUGH GREASE AND ENCRUSTATION	00:00:54		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	4.0	12.1	4.0	5.0

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Section Inspection - 31/10/2022 - MHC1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	31/10/22	10:05	1	No Rain Or Snow	No	MHC1X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC1
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	5.01 m	**Upstream Pipe Depth:**	0.640 m
Location:	Other(stateincomments)	**Total Length:**	5.01 m	**Downstream Node:**	MHC2
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.840 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC2	00:00:10		
0.00		WL	Water level, 20% of the vertical dimension	00:00:11		
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:16		
1.30		DER	Settled deposits, coarse, 20% cross-sectional area loss: PUSHING UP LINE	00:00:35		3
2.43	S02	CUW	Loss of vision, camera under water, Start: IN AND OUT OF FLOW	00:00:48		
5.01		DEG	Attached deposits, grease, from 7 to 6 o'clock, 95% cross-sectional area loss: #	00:01:20		5
5.01	F02	CUW	Loss of vision, camera under water, End: IN AND OUT OF FLOW	00:01:22		
5.01	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:23		2
5.01		SA	Survey abandoned: LINE NEEDS CLEANING	00:01:24		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	11.0	3.4	17.0	5.0

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Section Inspection - 31/10/2022 - G.T. 2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	31/10/22	10:16	1	No Rain Or Snow	No	G.T. 2X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	G.T. 2
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.31 m	**Upstream Pipe Depth:**	1.120 m
Location:	Other(stateincomments)	**Total Length:**	0.31 m	**Downstream Node:**	MHC2
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.840 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC2	00:00:07		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss: PATCHY	00:00:09		2
0.31	MHF	Finish node type, manhole reference number: G.T. 2: GREASE TRAP 2	00:00:24		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	3.2	1.0	4.0

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Section Inspection - 31/10/2022 - MHC2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	1	31/10/22	10:23	1	No Rain Or Snow	No	MHC2X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC2
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	6.51 m	**Upstream Pipe Depth:**	0.840 m
Location:	Other(state in comments)	**Total Length:**	6.51 m	**Downstream Node:**	MHC3
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.100 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:57



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC2	00:00:14		
0.00		WL	Water level, 10% of the vertical dimension	00:00:15		
0.20		DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:16		2
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:17		
1.45		DEEJ	Attached deposits, encrustation at joint, from 9 to 11 o'clock, 5% cross-sectional area loss	00:00:39		2
4.37		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:01:07		3
5.40		DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 15% cross-sectional area loss	00:01:17		3
5.40		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:01:19		3
5.88		WL	Water level, 25% of the vertical dimension	00:01:30		
6.41	S02	CUW	Loss of vision, camera under water, Start	00:01:38		
6.42		DEG	Attached deposits, grease, from 7 to 11 o'clock, 45% cross-sectional area loss	00:02:11		4
6.50	F02	CUW	Loss of vision, camera under water, End	00:02:34		
6.50	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:51		2
6.51		SA	Survey abandoned: LINE NEEDS CLEANING UNABLE PASS GREASE	00:02:53		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	7	6.0	3.1	20.0	4.0

Draintech Surveys Ltd
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Section Inspection - 31/10/2022 - MHC2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	1	31/10/22	10:23	1	No Rain Or Snow	No	MHC2X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC2
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	2.45 m	**Upstream Pipe Depth:**	0.840 m
Location:	Other(stateincomments)	**Total Length:**	2.45 m	**Downstream Node:**	MHC3
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.100 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 1.10 m **MHC3**					
0.00	MH	Start node type, manhole, reference number : MHC3	00:00:07		
0.00	WL	Water level, 20% of the vertical dimension	00:00:08		
0.51	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:00:20		3
1.50	DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 10% cross-sectional area loss	00:00:33		3
2.45	DER	Settled deposits, coarse, 35% cross-sectional area loss	00:00:53		4
2.45	SA	Survey abandoned: DUE TO DEBRIS AND ENCRUSTATION	00:00:55		
MHC2 **Depth: 0.84 m**					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	5.0	3.7	9.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	1	31/10/22	11:18	1	No Rain Or Snow	No	MHC3X

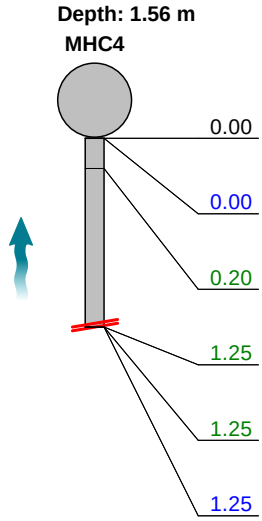
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC3
Road:	Bishop Headley Catholic School Pha	**Inspected Length:**	1.25 m	**Upstream Pipe Depth:**	1.100 m
Location:	Other(state in comments)	**Total Length:**	1.25 m	**Downstream Node:**	MHC4
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.560 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC4	00:00:07		
0.00	WL	Water level, 10% of the vertical dimension	00:00:08		
0.20	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:00:12		3
1.25	DER	Settled deposits, coarse, 35% cross-sectional area loss	00:00:28		4
1.25	DEE	Attached deposits, encrustation, from 2 to 7 o'clock, 20% cross-sectional area loss	00:00:53		3
1.25	SA	Survey abandoned: UNABLE PASS DEBRIS	00:00:54		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	5.0	6.2	9.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	1	31/10/22	11:22	1	No Rain Or Snow	No	MHC4X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC4
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	25.70 m	**Upstream Pipe Depth:**	1.560 m
Location:	Other(state in comments)	**Total Length:**	25.70 m	**Downstream Node:**	MHC5
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:223



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC4	00:00:07		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:08		
1.50		DEEJ	Attached deposits, encrustation at joint, from 4 to 5 o'clock, 10% cross-sectional area loss	00:00:27		3
6.08		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:02		2
7.90		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:52		2
10.90		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:02:12		2
12.72	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:02:22		
20.93		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:02:54		3
25.53		WL	Water level, 20% of the vertical dimension	00:03:16		
25.70	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:03:23		2
25.70	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:03:25		2
25.70		MHF	Finish node type, manhole reference number: MHC5	00:03:26		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	7	3.0	1.8	46.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHS7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	1	31/10/22	11:44	1	No Rain Or Snow	No	MHS7X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS7
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.20 m	**Upstream Pipe Depth:**	0.750 m
Location:	Other(stateincomments)	**Total Length:**	0.20 m	**Downstream Node:**	MHS8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.720 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 0.75 m						
MHS7						
0.00		MH	Start node type, manhole, reference number : MHS7	00:00:11		
0.00		WL	Water level, 10% of the vertical dimension	00:00:11		
MHS8						
0.20	S01	DER	Settled deposits, coarse, 50% cross-sectional area loss, Start	00:00:13		
0.20	F01	DER	Settled deposits, coarse, 50% cross-sectional area loss, End	00:00:28		4
0.20		SA	Survey abandoned: DUE TO DEBRIS	00:00:30		
Depth: 0.72 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	0.0	0.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	1	31/10/22	11:49	1	No Rain Or Snow	No	MHC7X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC7
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	17.65 m	**Upstream Pipe Depth:**	1.230 m
Location:	Other(state in comments)	**Total Length:**	17.65 m	**Downstream Node:**	MHC5
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.340 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:153



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 1.23 m						
MHC7						
0.00		MH	Start node type, manhole, reference number : MHC7	00:00:08		
0.00		WL	Water level, 10% of the vertical dimension	00:00:08		
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:20		
1.43		DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 10% cross-sectional area loss	00:00:30		3
2.20		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:00:49		3
3.03	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss, Start: PATCHY	00:00:57		
6.13		WL	Water level, 10% of the vertical dimension	00:01:53		
8.58		WL	Water level, 5% of the vertical dimension	00:02:08		
17.65	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:03:10		2
17.65	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss, End: PATCHY	00:03:13		3
17.65		MHF	Finish node type, manhole reference number: MHC5	00:03:14		
MHC5						
Depth: 1.34 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	3.0	2.9	52.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHS7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	1	31/10/22	12:00	1	No Rain Or Snow	No	MHS7X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS7
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	2.35 m	**Upstream Pipe Depth:**	0.700 m
Location:	Other(stateincomments)	**Total Length:**	2.35 m	**Downstream Node:**	MHS8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.720 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS8	00:00:07		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
1.35	S01	DEE	Attached deposits, encrustation, from 3 to 9 o'clock, 35% cross-sectional area loss, Start	00:00:34		
2.35	F01	DEE	Attached deposits, encrustation, from 3 to 9 o'clock, 35% cross-sectional area loss, End	00:01:28		4
2.35		SA	Survey abandoned: UNABLE PASS ENCRUSTATION	00:01:29		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	2.1	5.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHS3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	1	31/10/22	12:11	1	No Rain Or Snow	No	MHS3X

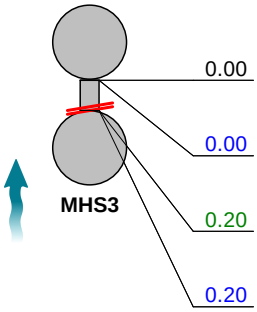
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS3
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.20 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	0.20 m	**Downstream Node:**	MHS8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.720 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS8	00:00:07		
0.00	WL	Water level, 25% of the vertical dimension: TRACING DYE WITHIN FLOW	00:00:08		
0.20	DER	Settled deposits, coarse, 25% cross-sectional area loss: UNDERFLOW	00:00:28		4
0.20	SA	Survey abandoned: UNABLE PUSH THROUGH DEBRIS	00:00:29		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	25.0	5.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHS8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
15	1	31/10/22	12:15	1	No Rain Or Snow	No	MHS8X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS8
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.93 m	**Upstream Pipe Depth:**	0.720 m
Location:	Other(stateincomments)	**Total Length:**	0.93 m	**Downstream Node:**	MHS9
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS8	00:00:05		
0.00		WL	Water level, 25% of the vertical dimension	00:00:06		
0.20	S01	DER	Settled deposits, coarse, 10% cross-sectional area loss, Start: UNDERFLOW	00:00:13		
0.93	F01	DER	Settled deposits, coarse, 10% cross-sectional area loss, End: UNDERFLOW	00:00:37		3
0.93		DEEJ	Attached deposits, encrustation at joint, from 3 to 9 o'clock, 40% cross-sectional area loss	00:00:38		4
0.93		SA	Survey abandoned: UNABLE PASS ENCRUSTATION	00:00:40		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	5.0	7.5	7.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
16	1	31/10/22	13:18	1	No Rain Or Snow	No	MHC5X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC5
Road:	Bishop Headley Catholic School Pha	**Inspected Length:**	9.56 m	**Upstream Pipe Depth:**	1.340 m
Location:	Other(state in comments)	**Total Length:**	9.56 m	**Downstream Node:**	MHC6
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	3.910 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:83



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC6	00:00:08		
0.00		WL	Water level, 10% of the vertical dimension	00:00:09		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:10		
0.20		DEE	Attached deposits, encrustation, from 4 to 7 o'clock, 10% cross-sectional area loss	00:00:12		3
1.66		WL	Water level, 25% of the vertical dimension	00:00:57		
1.96		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:01:02		3
2.33		WL	Water level, 15% of the vertical dimension	00:01:08		
2.88	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 6 o'clock, 10% cross-sectional area loss, Start: PATCHY	00:01:21		
4.95	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 6 o'clock, 10% cross-sectional area loss, End: PATCHY	00:01:51		3
6.79	S03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:02:06		
9.56	F03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:28		2
9.56	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:30		2
9.56		REM	General remark: REACHED BACKDROP	00:02:32		
9.56		MHF	Finish node type, manhole reference number: MHC5	00:02:34		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5	3.0	2.4	23.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC6X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
17	1	31/10/22	13:41	1	No Rain Or Snow	No	MHC6X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC6
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	10.46 m	**Upstream Pipe Depth:**	3.910 m
Location:	Other(state in comments)	**Total Length:**	10.46 m	**Downstream Node:**	MHC7
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:91



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC7	00:00:06		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:11		
0.26		FC	Fracture, circumferential, from 7 to 5 o'clock	00:00:38		3
2.90		DER	Settled deposits, coarse, 20% cross-sectional area loss	00:01:13		3
5.43		DEE	Attached deposits, encrustation, from 3 to 5 o'clock, 5% cross-sectional area loss	00:01:37		2
8.40		DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 10% cross-sectional area loss	00:02:01		3
8.40		WL	Water level, 5% of the vertical dimension	00:02:03		
10.46	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:40		2
10.46		MHF	Finish node type, manhole reference number: MHC6	00:02:42		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	40.0	3.8	40.0	3.0	4	3.0	1.5	16.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 31/10/2022 - MHC7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	1	31/10/22	13:56	1	No Rain Or Snow	No	MHC7X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC7
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	11.23 m	**Upstream Pipe Depth:**	1.120 m
Location:	Other(stateincomments)	**Total Length:**	11.23 m	**Downstream Node:**	MHC8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.420 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:98



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 1.12 m						
MHC7						
0.00		MH	Start node type, manhole, reference number : MHC7	00:00:04		
0.00		WL	Water level, 5% of the vertical dimension	00:00:05		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:06		
1.98		DEEJ	Attached deposits, encrustation at joint, from 7 to 8 o'clock, 10% cross-sectional area loss	00:00:28		3
7.20		DEEJ	Attached deposits, encrustation at joint, from 5 to 6 o'clock, 10% cross-sectional area loss	00:00:57		3
11.23	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:22		2
11.23		MHF	Finish node type, manhole reference number: MHC8	00:01:23		
MHC8						
Depth: 2.42 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	3.0	1.4	16.0	3.0

Draintech Surveys Ltd
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Section Inspection - 31/10/2022 - MHC13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
19	1	31/10/22	14:45	1	No Rain Or Snow	No	MHC13X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC13
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	34.77 m	**Upstream Pipe Depth:**	2.330 m
Location:	Other(state in comments)	**Total Length:**	34.77 m	**Downstream Node:**	MHC14
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:302



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 2.33 m						
MHC13						
0.00		MH	Start node type, manhole, reference number : MHC13	00:00:15		
0.00		WL	Water level, 10% of the vertical dimension	00:00:16		
0.00		REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT	00:04:06		
1.50		LD	Line deviates down	00:00:35		
3.01	S01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:04:06		
3.01	S02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:04:22		
23.12		LD	Line deviates down	00:02:43		
32.79		RF	Roots, fine	00:04:06		2
34.76	F01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:04:22		2
34.76	F02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:04:22		2
34.77		MHF	Finish node type, manhole reference number: MHC14	00:04:22		
MHC14						
Depth: m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	3.0	1.9	65.0	3.0

Draintech Surveys Ltd
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Section Inspection - 31/10/2022 - MHC15X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
20	1	31/10/22	15:14	1	No Rain Or Snow	No	MHC15X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC15
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	22.50 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	22.50 m	**Downstream Node:**	MHC13
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.330 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:195

Depth: 2.33 m
MHC13



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC13	00:00:09		
0.00		WL	Water level, 5% of the vertical dimension	00:00:10		
0.00	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: patchy	00:00:11		
1.93		REM	General remark: REACHED BACKDROP	00:00:34		
22.50	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: patchy	00:01:57		2
22.50		MHF	Finish node type, manhole reference number: MHC15	00:01:59		

MHC15
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	1.0	23.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	01/11/22	9:13	1	Rain	No	MHC14X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

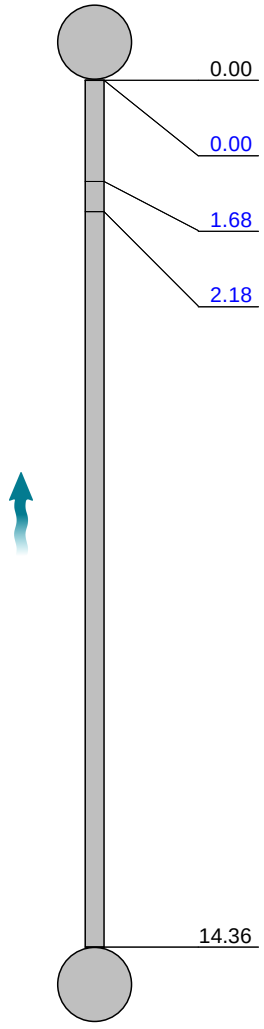
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC14
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	14.36 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	14.36 m	**Downstream Node:**	MHC8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.420 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:125

Depth: 2.42 m
MHC8



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC8	00:00:05		
0.00	WL	Water level, 0% of the vertical dimension	00:00:06		
1.68	REM	General remark: REACHED BACKDROP	00:00:29		
2.18	WL	Water level, 15% of the vertical dimension: FAST FLOW	00:03:43		
14.36	MHF	Finish node type, manhole reference number: MHC14	00:04:49		

MHC14
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC9X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
22	1	01/11/22	9:28	1	Rain	No	MHC9X

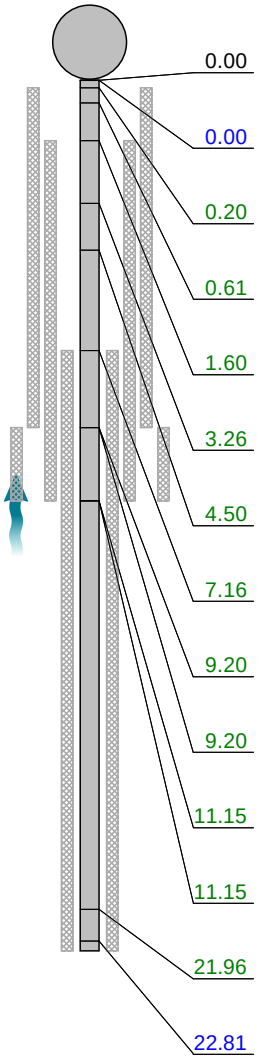
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC9
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	23.33 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	23.33 m	**Downstream Node:**	MHC8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.420 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:200



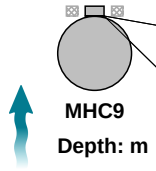
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC8	00:00:08		
0.00		WL	Water level, 10% of the vertical dimension	00:00:09		
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 5% cross-sectional area loss, Start	00:00:14		
0.61		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:25		2
1.60	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start	00:00:33		
3.26		DEE	Attached deposits, encrustation, from 4 to 6 o'clock, 20% cross-sectional area loss	00:00:46		3
4.50		DEE	Attached deposits, encrustation, from 6 to 8 o'clock, 15% cross-sectional area loss	00:00:57		3
7.16	S03	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:01:23		
9.20	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 5% cross-sectional area loss, End	00:01:42		2
9.20	S04	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:01:48		
11.15	F04	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:02:05		3
11.15	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End	00:02:06		2
21.96		DER	Settled deposits, coarse, 25% cross-sectional area loss	00:03:30		4
22.81		WL	Water level, 25% of the vertical dimension	00:03:48		

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - MHC9X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
22	1	01/11/22	9:28	1	Rain	No	MHC9X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:200	Position [m]	Code	Observation	MPEG	Photo	Grade
	23.33 F03	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:04:03		2
	23.33	MHF	Finish node type, manhole reference number: MHC9	00:04:05		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	8	6.0	2.1	50.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	1	01/11/22	9:37	1	Rain	No	MHC8X

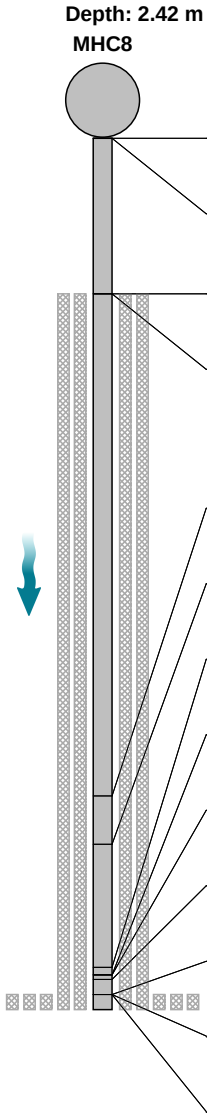
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC8
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	47.10 m	**Upstream Pipe Depth:**	2.420 m
Location:	Other(state in comments)	**Total Length:**	47.10 m	**Downstream Node:**	MHC16
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:287



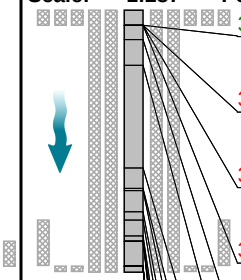
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC8	00:00:12		
0.00		WL	Water level, 10% of the vertical dimension	00:00:13		
5.93	S01	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:01:11		
5.93	S02	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:01:12		
25.02		FCJ	Fracture, circumferential at joint, from 2 to 4 o'clock	00:04:02		3
26.86		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:04:17		2
31.52		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:05:03		2
31.81		FL	Fracture, longitudinal, at 4 o'clock	00:05:07		3
31.81		FL	Fracture, longitudinal, at 8 o'clock	00:05:11		3
32.00		FL	Fracture, longitudinal, at 12 o'clock	00:05:18		3
32.55	S03	FL	Fracture, longitudinal, at 8 o'clock, Start	00:05:27		
32.55	S04	FL	Fracture, longitudinal, at 12 o'clock, Start	00:05:30		
32.55	S05	FL	Fracture, longitudinal, at 4 o'clock, Start	00:05:31		

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	1	01/11/22	9:37	1	Rain	No	MHC8X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



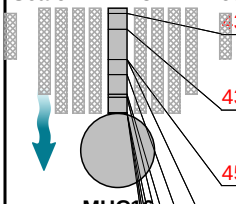
Scale: 1:287	Position [m]		Code	Observation	MPEG	Photo	Grade
	33.73		DEE	Attached deposits, encrustation, from 3 to 5 o'clock, 5% cross-sectional area loss	00:05:42		2
	33.73	F03	FL	Fracture, longitudinal, at 8 o'clock, End	00:05:44		3
	33.73	F04	FL	Fracture, longitudinal, at 12 o'clock, End	00:05:46		3
	33.73	F05	FL	Fracture, longitudinal, at 4 o'clock, End	00:05:47		3
	34.28		DEEJ	Attached deposits, encrustation at joint, from 3 to 8 o'clock, 10% cross-sectional area loss	00:05:55		3
	35.24		DEEJ	Attached deposits, encrustation at joint, from 7 to 11 o'clock, 5% cross-sectional area loss	00:06:08		2
	39.14		CCJ	Crack, circumferential at joint, from 3 to 5 o'clock	00:06:42		2
	39.93		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:06:54		2
	40.02		FCJ	Fracture, circumferential at joint, from 9 to 3 o'clock	00:07:10		3
	40.81		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:07:20		3
	41.14	S06	CLJ	Crack, longitudinal at joint, at 12 o'clock, Start	00:07:24		
	41.73		CL	Crack, longitudinal, at 5 o'clock	00:07:40		2
	41.93	S07	DEEJ	Attached deposits, encrustation at joint, from 12 to 5 o'clock, 5% cross-sectional area loss, Start	00:07:46		
	41.93		CL	Crack, longitudinal, at 8 o'clock	00:07:53		2
	41.93		DEEJ	Attached deposits, encrustation at joint, from 7 to 12 o'clock, 5% cross-sectional area loss	00:08:00		2
	42.88		IDJ	Infiltration, dripping at joint, from 11 to 12 o'clock	00:08:27		
	42.88	F06	CLJ	Crack, longitudinal at joint, at 12 o'clock, End	00:08:31		2
	42.88	F07	DEEJ	Attached deposits, encrustation at joint, from 12 to 5 o'clock, 5% cross-sectional area loss, End	00:08:36		2
	42.88	S08	FL	Fracture, longitudinal, at 12 o'clock, Start	00:08:38		
	42.88	S09	DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:08:43		

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	1	01/11/22	9:37	1	Rain	No	MHC8X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:287

Position [m]		Code	Observation	MPEG	Photo	Grade
43.32	S10	FL	Fracture, longitudinal, at 8 o'clock, Start	00:08:56		
43.92		FL	Fracture, longitudinal, at 4 o'clock	00:09:14		3
45.06	F10	FL	Fracture, longitudinal, at 8 o'clock, End	00:09:30		3
45.06		FL	Fracture, longitudinal, at 4 o'clock	00:09:33		3
45.64		IR	Infiltration, running, from 1 to 2 o'clock	00:09:44		
46.40	F08	FL	Fracture, longitudinal, at 12 o'clock, End	00:10:11		3
46.51		LR	Line deviates right	00:10:16		
47.10	F01	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:10:33		2
47.10	F02	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:10:35		2
47.10	F09	DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:10:38		2
47.10		MHF	Finish node type, manhole reference number: MHC16	00:10:40		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
16	240.0	17.2	810.0	3.0	12	4.0	2.1	100.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
24	1	01/11/22	10:31	1	Rain	No	MHC16X

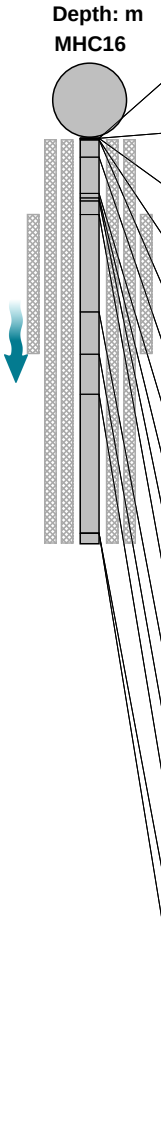
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC16
Road:	Bishop Grove	**Inspected Length:**	83.54 m	**Upstream Pipe Depth:**	
Location:	Gardens	**Total Length:**	83.54 m	**Downstream Node:**	SO05074170
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.780 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:355



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC16	00:00:06		
0.00		WL	Water level, 20% of the vertical dimension: FASTFLOW	00:00:07		
0.00		REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT	00:01:00		
0.10	S01	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:00:08		
0.10	S02	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:00:08		
0.89		CCJ	Crack, circumferential at joint, from 11 to 1 o'clock	00:00:26		2
2.62		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:44		2
2.81		CLJ	Crack, longitudinal at joint, at 12 o'clock	00:00:48		2
2.98		DEE	Attached deposits, encrustation, from 12 to 5 o'clock, 5% cross-sectional area loss	00:00:51		2
3.61	S03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:01:00		
8.18		CLJ	Crack, longitudinal at joint, at 12 o'clock	00:01:39		2
10.17	F03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:57		2
12.04		MC	Material changes, cast iron	00:02:18		
18.57		MC	Material changes, vitrified clay	00:03:11		
18.57		CCJ	Crack, circumferential at joint, from 7 to 9 o'clock	00:03:15		2

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - MHC16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
24	1	01/11/22	10:31	1	Rain	No	MHC16X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:355	Position [m]		Code	Observation	MPEG	Photo	Grade
	19.57		RFJ	Roots, fine at joint	00:03:28		2
	23.21		RFJ	Roots, fine at joint	00:03:59		2
	24.68		RF	Roots, fine	00:04:09		2
	25.05		RFJ	Roots, fine at joint	00:04:12		2
	26.97		RFJ	Roots, fine at joint	00:04:26		2
	28.78		RFJ	Roots, fine at joint	00:04:40		2
	30.59		RFJ	Roots, fine at joint	00:04:53		2
	31.56	S04	RF	Roots, fine, Start	00:05:00		
	39.97		RMJ	Roots, mass at joint, 20% cross-sectional area loss	00:06:05		3
	61.37		RMJ	Roots, mass at joint, 30% cross-sectional area loss	00:08:55		5
	66.22		RMJ	Roots, mass at joint, 15% cross-sectional area loss	00:09:50		3
	67.95	F04	RF	Roots, fine, End	00:10:07		2
	83.18		H	Hole in drain/sewer, from 1 to 4 o'clock	00:13:04		5
	83.18		OBZ	Other obstacles, other , from 1 to 5 o'clock, 20% cross-sectional area loss : CEMENT BAG WITHIN HOLE	00:13:06		5
	83.54	F01	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:14:10		2
	83.54	F02	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:14:13		2
	83.54		SA	Survey abandoned: UNABLE PASS CEMENTBAG PERTRUDING THROUGH HOLE	00:14:15		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	165.0	2.5	205.0	5.0	17	13.0	3.0	249.0	5.0

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - SOAK AWAYX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
25	1	01/11/22	11:00	1	Rain	No	SOAK AWAYX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	SOAK AWAY
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	1.13 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	1.13 m	**Downstream Node:**	MHS11
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.290 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.29 m
MHS11



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS11	00:00:22		
0.00		WL	Water level, 25% of the vertical dimension	00:00:22		
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 25% cross-sectional area loss, Start	00:00:32		
1.13	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 25% cross-sectional area loss, End	00:01:13		4
1.13		SA	Survey abandoned: NEEDS CLEANING	00:01:14		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	4.4	5.0	4.0

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - MHS10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
26	1	01/11/22	11:24	1	Rain	No	MHS10X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

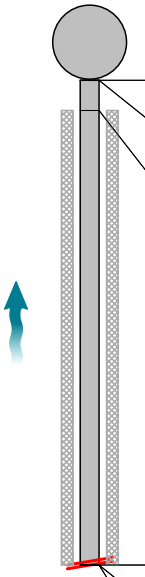
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS10
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	3.21 m	**Upstream Pipe Depth:**	0.630 m
Location:	Other(state in comments)	**Total Length:**	3.21 m	**Downstream Node:**	MHS11
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.290 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.29 m
MHS11



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS11	00:00:08		
0.00		WL	Water level, 25% of the vertical dimension	00:00:09		
0.20	S01	DES	Settled deposits, fine, 20% cross-sectional area loss, Start	00:00:15		
3.21	F01	DES	Settled deposits, fine, 20% cross-sectional area loss, End	00:01:18		3
3.21		DEZ	Attached deposits, other from 7 o'clock to 6 o'clock, 95% cross-sectional area loss: BLOCKAGE CAUSED BY RUBBISH ETC	00:01:24		5
3.21		SA	Survey abandoned: DUE TO BLOCKAGE	00:01:27		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	12.0	5.6	18.0	5.0

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - MHS11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
27	1	01/11/22	11:28	1	Rain	No	MHS11X

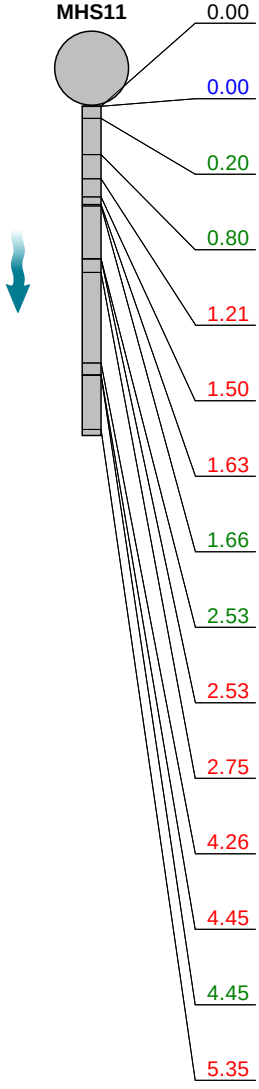
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS11
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	28.06 m	**Upstream Pipe Depth:**	1.290 m
Location:	Other(state in comments)	**Total Length:**	28.06 m	**Downstream Node:**	MHS12
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:125



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS11	00:00:06		
0.00	WL	Water level, 15% of the vertical dimension	00:00:07		
0.20	DEE	Attached deposits, encrustation, from 3 to 7 o'clock, 40% cross-sectional area loss	00:00:08		4
0.80	DEE	Attached deposits, encrustation, from 4 to 6 o'clock, 15% cross-sectional area loss	00:01:20		3
1.21	FL	Fracture, longitudinal, at 11 o'clock	00:01:29		3
1.50	FC	Fracture, circumferential, from 11 to 5 o'clock	00:01:36		3
1.63	FCJ	Fracture, circumferential at joint, from 7 to 5 o'clock	00:01:45		3
1.66	DEEJ	Attached deposits, encrustation at joint, from 3 to 7 o'clock, 35% cross-sectional area loss	00:01:47		4
2.53	DER	Settled deposits, coarse, 25% cross-sectional area loss	00:02:14		4
2.53	FLJ	Fracture, longitudinal at joint, at 3 o'clock	00:02:17		3
2.75	FC	Fracture, circumferential, from 12 to 6 o'clock	00:02:26		3
4.26	FLJ	Fracture, longitudinal at joint, at 1 o'clock	00:02:44		3
4.45	FC	Fracture, circumferential, from 7 to 5 o'clock	00:02:48		3
4.45	DEE	Attached deposits, encrustation, from 6 to 8 o'clock, 20% cross-sectional area loss	00:02:49		3
5.35	FLJ	Fracture, longitudinal at joint, at 1 o'clock	00:02:57		3

Draintech Surveys Ltd
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Section Inspection - 01/11/2022 - MHS11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
27	1	01/11/22	11:28	1	Rain	No	MHS11X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:125



Position [m]		Code	Observation	MPEG	Photo	Grade
5.56		FC	Fracture, circumferential, from 1 to 11 o'clock	00:03:01		3
6.43		WL	Water level, 10% of the vertical dimension	00:03:14		
10.76		FCJ	Fracture, circumferential at joint, from 4 to 8 o'clock	00:03:48		3
14.55		JN	Junction, at 3 o'clock, diameter 100mm	00:04:12		
15.33		FC	Fracture, circumferential, from 7 to 6 o'clock	00:04:19		3
16.10		CC	Crack, circumferential, from 7 to 6 o'clock	00:04:28		2
16.10	S01	DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:04:30		
17.88	F01	DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:04:40		2
18.70		CLJ	Crack, longitudinal at joint, at 1 o'clock	00:05:00		2
20.41		CCJ	Crack, circumferential at joint, from 12 to 2 o'clock	00:05:29		2
22.86		JN	Junction, at 3 o'clock, diameter 100mm: FLOWING	00:05:53		
24.10		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:06:03		3
26.56		CCJ	Crack, circumferential at joint, from 7 to 12 o'clock	00:06:42		2
27.16		WL	Water level, 25% of the vertical dimension	00:06:48		
28.06		DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 20% cross-sectional area loss: UNDERFLOW	00:07:18		3
28.06		MHF	Finish node type, manhole reference number: MHS12	00:07:21		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
15	80.0	17.1	480.0	3.0	8	5.0	0.9	25.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - MHC10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
28	1	01/11/22	11:44	1	Rain	No	MHC10X

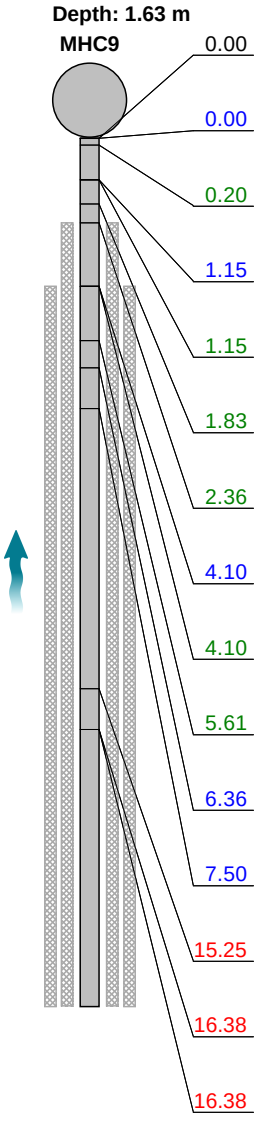
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC10
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	31.70 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	31.70 m	**Downstream Node:**	MHC9
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.630 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:209



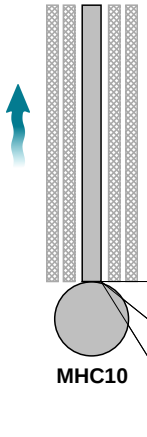
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC9	00:00:07		
0.00		WL	Water level, 5% of the vertical dimension	00:00:09		
0.20		DEE	Attached deposits, encrustation, from 4 to 8 o'clock, 25% cross-sectional area loss	00:00:14		4
1.15		WL	Water level, 20% of the vertical dimension	00:00:30		
1.15		DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:32		2
1.83		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:47		3
2.36	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:57		
4.10		WL	Water level, 5% of the vertical dimension	00:01:08		
4.10	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:01:09		
5.61		DEE	Attached deposits, encrustation, from 4 to 6 o'clock, 20% cross-sectional area loss	00:01:40		3
6.36		WL	Water level, 15% of the vertical dimension	00:01:47		
7.50		WL	Water level, 5% of the vertical dimension	00:01:57		
15.25		CCJ	Crack, circumferential at joint, from 12 to 3 o'clock	00:02:59		2
16.38		CCJ	Crack, circumferential at joint, from 7 to 11 o'clock	00:03:18		2
16.38		CCJ	Crack, circumferential at joint, from 3 to 5 o'clock	00:03:19		2

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Section Inspection - 01/11/2022 - MHC10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
28	1	01/11/22	11:44	1	Rain	No	MHC10X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:209	Position [m]	Code	Observation	MPEG	Photo	Grade
	31.70	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:05:11		2
	31.70	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:05:12		2
	31.70		MHF	Finish node type, manhole reference number: MHC10	00:05:15		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	20.0	0.9	30.0	2.0	6	5.0	2.1	68.0	4.0

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Section Inspection - 01/11/2022 - MHS15X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
29	1	01/11/22	13:09	1	Rain	No	MHS15X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS15
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	8.01 m	**Upstream Pipe Depth:**	4.240 m
Location:	Other(stateincomments)	**Total Length:**	8.01 m	**Downstream Node:**	MHS14
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:70

Depth: 4.24 m
MHS15



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS15	00:00:05		
0.00		WL	Water level, 10% of the vertical dimension	00:00:06		
6.60		WL	Water level, 95% of the vertical dimension	00:00:55		
6.60	S01	CUW	Loss of vision, camera under water, Start	00:00:57		
8.01	F01	CUW	Loss of vision, camera under water, End	00:01:17		
8.01		SA	Survey abandoned: UNABLE PUSH FURTHER CAMERA UNDERFLOW	00:01:19		

MHS14
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 01/11/2022 - UNKNOWNX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
30	1	01/11/22	13:29	1	Rain	No	UNKNOWNX

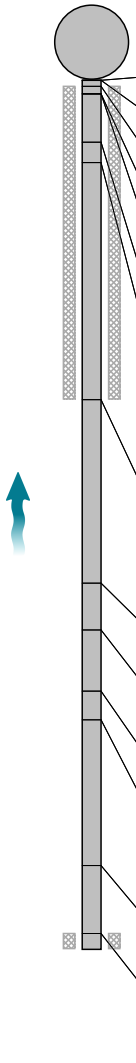
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	27.20 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	27.20 m	**Downstream Node:**	MHS15
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	4.240 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:227 **Depth: 4.24 m**
MHS15



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS15	00:00:05		
0.00		WL	Water level, 5% of the vertical dimension	00:00:05		
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:00:06		
0.43		CCJ	Crack, circumferential at joint, from 1 to 5 o'clock	00:00:54		2
0.43		WL	Water level, 15% of the vertical dimension	00:00:56		
1.88		CC	Crack, circumferential, from 7 to 6 o'clock	00:01:16		2
2.48		REM	General remark: REACHED BACKDROP	00:01:48		
9.61	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:02:32		3
15.13		WL	Water level, 5% of the vertical dimension	00:03:01		
16.53		JDM	Joint displaced, medium	00:03:11		1
18.38		DEEJ	Attached deposits, encrustation at joint, from 7 to 6 o'clock, 10% cross-sectional area loss	00:03:24		3
19.23		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:03:41		3
23.61		DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss	00:04:05		3
25.66	S02	DER	Settled deposits, coarse, 10% cross-sectional area loss, Start	00:04:22		

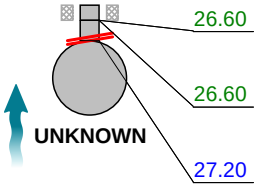
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Section Inspection - 01/11/2022 - UNKNOWNX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
30	1	01/11/22	13:29	1	Rain	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:227



Depth: m

Position [m]	Code	Observation	MPEG	Photo	Grade
26.60 F02	DER	Settled deposits, coarse, 10% cross-sectional area loss, End	00:04:48		3
26.60	DER	Settled deposits, coarse, 65% cross-sectional area loss	00:04:52		4
27.20	SA	Survey abandoned: LINE NEEDS CLEANING	00:05:24		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	10.0	0.8	21.0	2.0	6	8.0	1.3	36.0	4.0

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Section Inspection - 01/11/2022 - MHS5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
31	1	01/11/22	13:47	1	Rain	No	MHS5X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

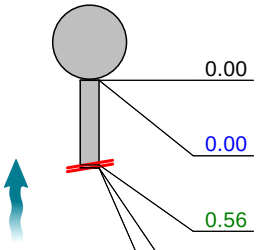
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS5
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.58 m	**Upstream Pipe Depth:**	0.970 m
Location:	Other(stateincomments)	**Total Length:**	0.58 m	**Downstream Node:**	MHS14
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	4.240 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 4.24 m
MHS14



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS14	00:00:05		
0.00	WL	Water level, 5% of the vertical dimension	00:00:06		
0.56	DER	Settled deposits, coarse, 25% cross-sectional area loss	00:00:40		4
0.58	DEZ	Attached deposits, other, from 7 to 3 o'clock, 95% cross-sectional area loss: RUBBISH	00:00:45		5
0.58	SA	Survey abandoned: DUE TO BLOCKAGE IN LINE	00:00:47		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	15.0	25.9	15.0	5.0

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Section Inspection - 01/11/2022 - MHS15X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
32	1	01/11/22	13:56	1	Rain	No	MHS15X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

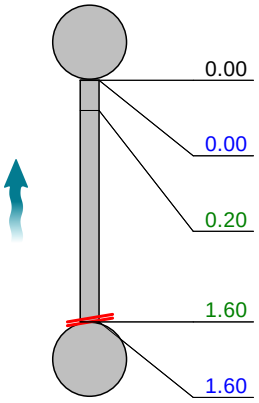
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS15
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	1.60 m	**Upstream Pipe Depth:**	4.240 m
Location:	Other(stateincomments)	**Total Length:**	1.60 m	**Downstream Node:**	MHS14
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.260 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.26 m
MHS14



MHS15
Depth: 4.24 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS14	00:00:17		
0.00	WL	Water level, 25% of the vertical dimension	00:00:18		
0.20	DER	Settled deposits, coarse, 15% cross-sectional area loss	00:00:24		3
1.60	DER	Settled deposits, coarse, 90% cross-sectional area loss: LARGE STONE IN LINE	00:00:52		5
1.60	SA	Survey abandoned: DUE TO STONE IN LINE	00:00:53		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	10.0	7.5	12.0	5.0

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Section Inspection - 01/11/2022 - MHS14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
33	1	01/11/22	13:59	1	Rain	No	MHS14X

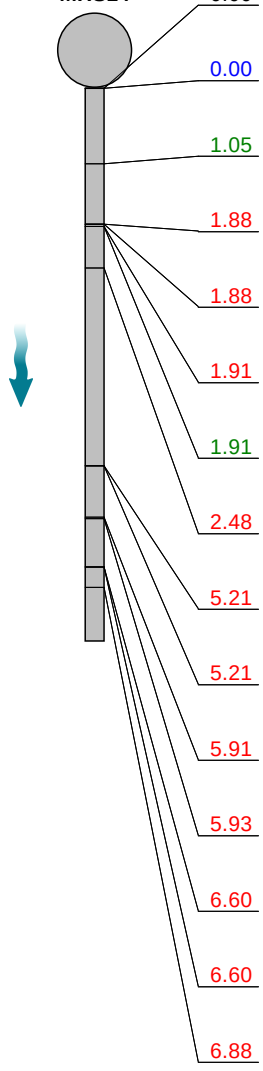
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS14
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	26.52 m	**Upstream Pipe Depth:**	1.260 m
Location:	Other(state in comments)	**Total Length:**	26.52 m	**Downstream Node:**	MHS13
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:104 **Depth: 1.26 m**



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS14	00:00:12		
0.00	WL	Water level, 15% of the vertical dimension	00:00:13		
1.05	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:54		3
1.88	FL	Fracture, longitudinal, at 8 o'clock	00:01:18		3
1.88	FL	Fracture, longitudinal, at 3 o'clock	00:01:19		3
1.91	FC	Fracture, circumferential, from 7 to 12 o'clock	00:01:23		3
1.91	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:01:25		3
2.48	FC	Fracture, circumferential, from 2 to 4 o'clock	00:01:35		3
5.21	CLJ	Crack, longitudinal at joint, at 12 o'clock	00:02:07		2
5.21	CLJ	Crack, longitudinal at joint, at 3 o'clock	00:02:09		2
5.91	FL	Fracture, longitudinal, at 7 o'clock	00:02:22		3
5.93	FC	Fracture, circumferential, from 6 to 1 o'clock	00:02:18		3
6.60	FC	Fracture, circumferential, from 7 to 6 o'clock	00:03:02		3
6.60	FL	Fracture, longitudinal, at 12 o'clock	00:03:04		3
6.88	FC	Fracture, circumferential, from 7 to 5 o'clock	00:03:30		3

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Section Inspection - 01/11/2022 - MHS14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
33	1	01/11/22	13:59	1	Rain	No	MHS14X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:104



Position [m]		Code	Observation	MPEG	Photo	Grade
8.35		DEEJ	Attached deposits, encrustation at joint, from 7 to 12 o'clock, 10% cross-sectional area loss	00:03:56		3
9.25		FL	Fracture, longitudinal, at 12 o'clock	00:04:12		3
9.41		CM	Cracks, multiple, from 7 to 6 o'clock	00:04:20		3
10.28		JN	Junction, at 9 o'clock, diameter 100mm	00:04:32		
13.02		CCJ	Crack, circumferential at joint, from 7 to 5 o'clock	00:05:01		2
13.02		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:05:04		2
14.18		CLJ	Crack, longitudinal at joint, at 3 o'clock	00:05:25		2
17.93		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:06:01		3
26.15	S01	CUW	Loss of vision, camera under water, Start	00:06:56		
26.52		DER	Settled deposits, coarse, 20% cross-sectional area loss	00:08:02		3
26.52	F01	CUW	Loss of vision, camera under water, End	00:08:04		
26.52		SA	Survey abandoned: UNABLE PUSH THROUGH DEBRIS	00:08:06		

MHS13
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
15	120.0	18.1	480.0	3.0	6	2.0	0.4	11.0	3.0

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Section Inspection - 01/11/2022 - MHC12X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
34	1	01/11/22	14:12	1	Rain	No	MHC12X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC12
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	0.55 m	**Upstream Pipe Depth:**	3.440 m
Location:	Other(stateincomments)	**Total Length:**	0.55 m	**Downstream Node:**	MHC11
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MHC11					
0.00	MH	Start node type, manhole, reference number : MHC11	00:00:10		
0.00	WL	Water level, 5% of the vertical dimension	00:00:10		
0.20	DEG	Attached deposits, grease, from 4 to 8 o'clock, 15% cross-sectional area loss	00:00:11		3
MHC12					
0.55	SA	Survey abandoned: NEEDS CLEANING	00:00:32		
Depth: 3.44 m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3.6	2.0	4.0

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Section Inspection - 01/11/2022 - MHC11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
35	1	01/11/22	14:22	1	Rain	No	MHC11X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC11
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	22.38 m	**Upstream Pipe Depth:**	0.410 m
Location:	Other(state in comments)	**Total Length:**	22.38 m	**Downstream Node:**	MHC10
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:194



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC11	00:00:15		
0.00		WL	Water level, 5% of the vertical dimension	00:00:15		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:16		
0.20		DEG	Attached deposits, grease, from 5 to 7 o'clock, 15% cross-sectional area loss: PUSHING DOWN LINE	00:00:25		3
1.38		CC	Crack, circumferential, from 7 to 5 o'clock	00:00:50		2
5.13		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:30		2
5.94		CCJ	Crack, circumferential at joint, from 10 to 3 o'clock	00:01:52		2
5.94		CLJ	Crack, longitudinal at joint, at 11 o'clock	00:01:58		2
9.13		DEE	Attached deposits, encrustation, from 12 to 3 o'clock, 5% cross-sectional area loss	00:02:22		2
9.63		CL	Crack, longitudinal, at 11 o'clock	00:02:29		2
12.13		CXI	Connection intruding, at 10 o'clock, diameter 100mm, intrusion 5%	00:02:54		5
16.18		CCJ	Crack, circumferential at joint, from 7 to 1 o'clock	00:03:31		2
21.04		CLJ	Crack, longitudinal at joint, at 3 o'clock	00:04:04		2
21.04		JDM	Joint displaced, medium	00:04:07		1
22.25		CC	Crack, circumferential, from 12 to 6 o'clock	00:04:23		2

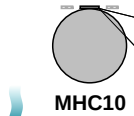
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Section Inspection - 01/11/2022 - MHC11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
35	1	01/11/22	14:22	1	Rain	No	MHC11X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:194



Position [m]		Code	Observation	MPEG	Photo	Grade
22.38	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:04:28		2
22.38		MHF	Finish node type, manhole reference number: MHC10	00:04:29		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
8	20.0	3.2	71.0	2.0	5	11.0	1.7	37.0	5.0

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Section Inspection - 01/11/2022 - MHS12X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
36	1	01/11/22	14:32	1	Rain	No	MHS12X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

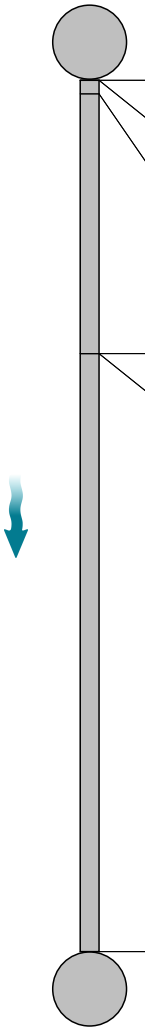
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS12
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	12.35 m	**Upstream Pipe Depth:**	1.630 m
Location:	Other(stateincomments)	**Total Length:**	12.35 m	**Downstream Node:**	MHS13
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.070 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:107

Depth: 1.63 m
MHS12



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS12	00:00:05		
0.00	WL	Water level, 20% of the vertical dimension: FASTFLOW	00:00:06		
0.20	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:11		2
3.88	FM	Fracture, multiple, from 6 to 1 o'clock	00:00:34		4
3.88	B	Broken pipe, from 6 to 1 o'clock	00:00:35		4
12.35	MHF	Finish node type, manhole reference number: MHS13	00:01:23		

MHS13
Depth: 2.07 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	160.0	13.0	160.0	4.0	1	1.0	0.1	1.0	2.0

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Section Inspection - 01/11/2022 - MHS13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
37	1	01/11/22	14:40	1	Rain	No	MHS13X

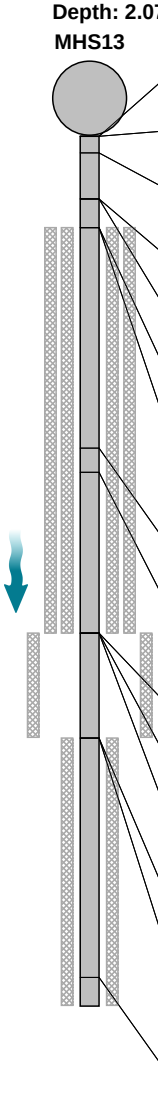
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS13
Road:	Bishop Hedley Catholic School Phase 1	**Inspected Length:**	38.04 m	**Upstream Pipe Depth:**	2.070 m
Location:	Other(state in comments)	**Total Length:**	38.04 m	**Downstream Node:**	MHS17
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:306



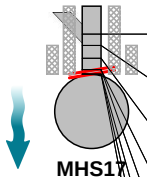
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS13	00:00:14		
0.00		WL	Water level, 10% of the vertical dimension	00:00:15		
0.70		REM	General remark: RUBBER SEAL OUT OF JOINT	00:00:47		
2.56		DEEJ	Attached deposits, encrustation at joint, from 12 to 5 o'clock, 5% cross-sectional area loss	00:01:08		2
2.56		DEEJ	Attached deposits, encrustation at joint, from 7 to 8 o'clock, 5% cross-sectional area loss	00:01:09		2
3.71	S01	DEEJ	Attached deposits, encrustation at joint, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:01:31		
3.71	S02	DEEJ	Attached deposits, encrustation at joint, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:01:32		
12.65		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:02:34		2
13.62		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:02:41		2
20.16	S03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start	00:03:31		
20.16	F01	DEEJ	Attached deposits, encrustation at joint, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:03:33		2
20.16	F02	DEEJ	Attached deposits, encrustation at joint, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:03:34		2
24.41	F03	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End	00:04:04		2
24.41	S04	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 5% cross-sectional area loss, Start	00:04:06		
34.11		OBZ	Other obstacles, other , from 1 to 3 o'clock, 5% cross-sectional area loss : RUBBER SEAL OUT OF JOINT	00:05:08		5

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Section Inspection - 01/11/2022 - MHS13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
37	1	01/11/22	14:40	1	Rain	No	MHS13X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:306 Position [m]		Code	Observation	MPEG	Photo	Grade
36.43		JNC	Junction closed, at 3 o'clock, diameter 150mm	00:05:31		
36.87	S05	FM	Fracture, multiple, from 7 to 5 o'clock, Start	00:05:41		
37.40		B	Broken pipe, from 4 to 7 o'clock	00:05:48		4
37.85		B	Broken pipe, from 5 to 7 o'clock	00:06:00		4
37.85		H	Hole in drain/sewer, from 7 to 8 o'clock	00:06:01		4
38.04	F05	FM	Fracture, multiple, from 7 to 5 o'clock, End	00:06:34		4
38.04	F04	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 5% cross-sectional area loss, End	00:06:37		2
38.04		SA	Survey abandoned: DUE TO HOLE AND BROKEN PIPE CAMERA MAY GET STUCK	00:06:39		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
4	240.0	10.5	400.0	4.0	9	11.0	1.8	67.0	5.0

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Section Inspection - 02/11/2022 - MHC16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
38	1	02/11/22	9:17	1	No Rain Or Snow	No	MHC16X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

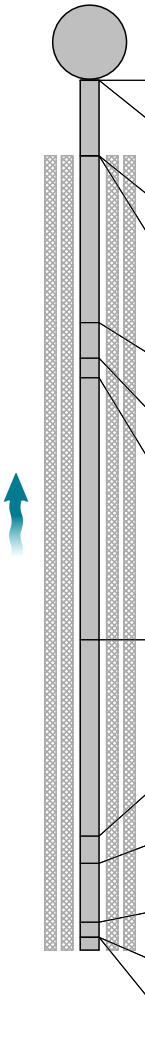
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC16
Road:	Off Plantation Close	**Inspected Length:**	8.19 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	8.19 m	**Downstream Node:**	SO05074170
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.750 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:70

Depth: 0.75 m
SO05074170



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : SO05074170	00:00:08		
0.00		WL	Water level, 10% of the vertical dimension	00:00:09		
0.70	S01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:00:12		
0.70	S02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:00:16		
2.25		CC	Crack, circumferential, from 7 to 5 o'clock	00:00:51		2
2.58		CL	Crack, longitudinal, at 11 o'clock	00:00:57		2
2.76		CCJ	Crack, circumferential at joint, from 7 to 5 o'clock	00:01:04		2
5.19		CL	Crack, longitudinal, at 12 o'clock	00:01:25		2
7.01		CC	Crack, circumferential, from 11 to 4 o'clock	00:01:49		2
7.26		CL	Crack, longitudinal, at 11 o'clock	00:01:52		2
7.81		RF	Roots, fine	00:01:58		2
7.95		H	Hole in drain/sewer, from 9 to 11 o'clock: BEEN REPAIRED WITH A CEMENT BAG	00:02:21		4
7.95		OBZ	Other obstacles, other , from 9 to 11 o'clock, 20% cross-sectional area loss : CEMENT BAG PERTUDING INTO LINE FROM HOLE	00:02:22		5

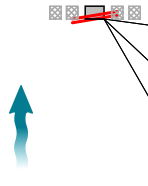
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Section Inspection - 02/11/2022 - MHC16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
38	1	02/11/22	9:17	1	No Rain Or Snow	No	MHC16X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:70



Position [m]	Code	Observation	MPEG	Photo	Grade
8.19 F02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:02:32		2
8.19 F01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:02:34		2
8.19	SA	Survey abandoned: OVERLAPPED SURVEY WITH SURVEY 24	00:02:37		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
7	80.0	17.1	140.0	4.0	4	12.0	3.3	27.0	5.0

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Section Inspection - 02/11/2022 - SO05074170X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
39	1	02/11/22	9:47	1	No Rain Or Snow	No	SO05074170X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

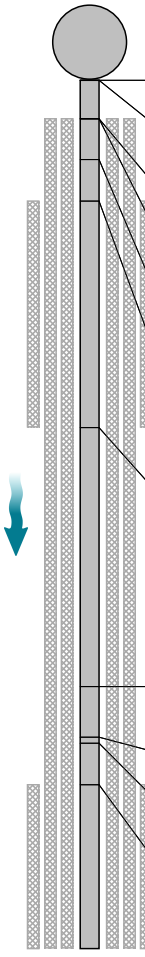
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	SO05074170
Road:	Off Plantation Close	**Inspected Length:**	18.47 m	**Upstream Pipe Depth:**	0.780 m
Location:	Other(state in comments)	**Total Length:**	18.47 m	**Downstream Node:**	MHC17
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:135

Depth: 0.78 m
SO05074170



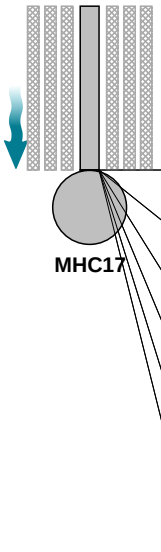
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : SO05074170	00:00:05		
0.00		WL	Water level, 15% of the vertical dimension	00:00:06		
0.70	S01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, Start	00:00:07		
0.70	S02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, Start	00:00:08		
1.42		CC	Crack, circumferential, from 12 to 5 o'clock	00:00:27		2
2.17	S03	DES	Settled deposits, fine, 10% cross-sectional area loss, Start	00:00:34		
6.21	F03	DES	Settled deposits, fine, 10% cross-sectional area loss, End	00:01:04		3
10.85		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:57		2
11.75		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:02:11		2
11.86		DEEJ	Attached deposits, encrustation at joint, from 12 to 5 o'clock, 5% cross-sectional area loss	00:02:28		2
12.60	S04	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:02:35		

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Section Inspection - 02/11/2022 - SO05074170X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
39	1	02/11/22	9:47	1	No Rain Or Snow	No	SO05074170X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:135 Position [m]		Code	Observation	MPEG	Photo	Grade
18.47		-	-	00:00:00	1	
18.47	F04	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:04:10		2
18.47		REM	General remark: DYE CAME THROUGH FROM FOUL WELSH WATER LINE IN LANE	00:04:10		
18.47	F01	DEG	Attached deposits, grease, from 7 to 8 o'clock, 5% cross-sectional area loss, End	00:04:11		2
18.47	F02	DEG	Attached deposits, grease, from 4 to 5 o'clock, 5% cross-sectional area loss, End	00:04:13		2
18.47		MHF	Finish node type, manhole reference number: NODE	00:04:20		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	10.0	0.5	10.0	2.0	7	4.0	3.0	55.0	4.0

Section Pictures - 02/11/2022 - SO05074170X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
39	Downstream	SO05074170X	1	15410



1, 00:00:00, 18.47 m
-

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Section Inspection - 02/11/2022 - MHS16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
40	1	02/11/22	11:26	1	No Rain Or Snow	No	MHS16X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

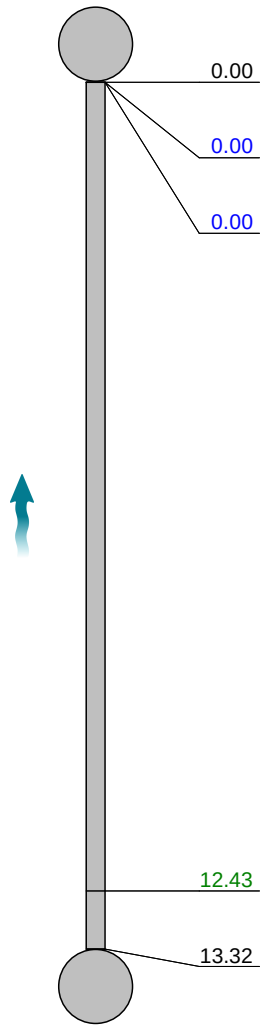
Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS16
Road:	Bishops Grove	**Inspected Length:**	13.32 m	**Upstream Pipe Depth:**	1.640 m
Location:	Road	**Total Length:**	13.32 m	**Downstream Node:**	SO05074104
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.500 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:116

Depth: 1.50 m
SO05074104



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : SO05074104	00:00:10		
0.00	WL	Water level, 5% of the vertical dimension	00:00:11		
0.00	REM	General remark: TRACING DYE IN FLOW FROM MHS13	00:00:23		
12.43	DEE	Attached deposits, encrustation, from 4 to 7 o'clock, 10% cross-sectional area loss	00:02:35		3
13.32	MHF	Finish node type, manhole reference number: MHS16	00:03:09		

MHS16
Depth: 1.64 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	0.2	2.0	3.0

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Section Inspection - 02/11/2022 - SO05074104X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
41	1	02/11/22	11:41	1	No Rain Or Snow	No	SO05074104X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	SO05074104
Road:	Bishops Grove	**Inspected Length:**	20.70 m	**Upstream Pipe Depth:**	1.500 m
Location:	Road	**Total Length:**	20.70 m	**Downstream Node:**	SO05074105
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.000 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:	No flow control	**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:180

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: 1.50 m			
		SO05074104			
0.00	MH	Start node type, manhole, reference number : SO05074104	00:00:11		
0.00	WL	Water level, 5% of the vertical dimension	00:00:17		
10.01	JN	Junction, at 2 o'clock, diameter 150mm	00:01:26		
11.01	JN	Junction, at 3 o'clock, diameter 150mm	00:01:35		
20.70	MHF	Finish node type, manhole reference number: SO05074105	00:02:31		
		SO05074105			
		Depth: 1.00 m			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

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Section Inspection - 02/11/2022 - SO05074105X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
42	1	02/11/22	12:00	1	No Rain Or Snow	No	SO05074105X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	SO05074105
Road:	Bishops Grove	**Inspected Length:**	9.34 m	**Upstream Pipe Depth:**	1.000 m
Location:	Road	**Total Length:**	9.34 m	**Downstream Node:**	SO05074115
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.220 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:	No flow control	**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:81

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: 1.00 m			
		SO05074105			
0.00	MH	Start node type, manhole, reference number : SO05074105	00:00:04		
0.00	WL	Water level, 10% of the vertical dimension	00:00:05		
1.29	JN	Junction, at 11 o'clock, diameter 150mm	00:00:18		
3.87	WL	Water level, 20% of the vertical dimension	00:00:32		
5.81	WL	Water level, 10% of the vertical dimension	00:00:57		
9.34	MHF	Finish node type, manhole reference number: SO05074115	00:01:32		
		SO05074115			
		Depth: 2.22 m			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
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Section Inspection - 02/11/2022 - MHS17X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
43	1	02/11/22	12:08	1	No Rain Or Snow	No	MHS17X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS17
Road:	Bishops Grove	**Inspected Length:**	19.26 m	**Upstream Pipe Depth:**	
Location:	Road	**Total Length:**	19.26 m	**Downstream Node:**	MHS16
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.640 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:167



Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 1.64 m					
MHS16					
0.00	MH	Start node type, manhole, reference number : MHS16	00:00:07		
0.00	WL	Water level, 10% of the vertical dimension: TRACING DYE WITHIN FLOW FROM MHS13	00:00:07		
0.40	LR	Line deviates right: CRAWLER UNABLE GET AROUND BEND	00:00:13		
1.16	OJL	Open joint, large	00:00:55		1
10.34	JN	Junction, at 11 o'clock, diameter 100mm	00:02:03		
11.16	JN	Junction, at 3 o'clock, diameter 150mm	00:02:17		
18.73	DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 10% cross-sectional area loss	00:03:11		3
18.74	OJL	Open joint, large	00:03:41		1
19.26	MHF	Finish node type, manhole reference number: NODE	00:03:59		
MHS17					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	2.0	0.2	4.0	1.0	1	2.0	0.1	2.0	3.0

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Section Inspection - 02/11/2022 - MHS18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
44	1	02/11/22	14:03	1	No Rain Or Snow	No	MHS18X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS18
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	2.50 m	**Upstream Pipe Depth:**	0.970 m
Location:	Gardens	**Total Length:**	2.50 m	**Downstream Node:**	UNKNOWN
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 0.97 m
MHS18



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS18	00:00:07		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	S01	DES	Settled deposits, fine, 20% cross-sectional area loss, Start	00:00:13		
2.40		RM	Roots, mass, 20% cross-sectional area loss	00:00:40		3
2.43	F01	DES	Settled deposits, fine, 20% cross-sectional area loss, End	00:00:52		3
2.50		SA	Survey abandoned: PIPE NEEDS CLEANING ROOTS AND SILT	00:00:54		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	6.0	4.0	10.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 02/11/2022 - MHC18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
45	1	02/11/22	14:16	1	No Rain Or Snow	No	MHC18X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC18
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	9.06 m	**Upstream Pipe Depth:**	0.870 m
Location:	Gardens	**Total Length:**	9.06 m	**Downstream Node:**	MHC19
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:79

Depth: 0.87 m
MHC18



MHC19
Depth: m

Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC18	00:00:04		
0.00		WL	Water level, 5% of the vertical dimension	00:00:04		
8.36		WL	Water level, 20% of the vertical dimension	00:01:05		
8.36		OJL	Open joint, large	00:01:06		1
8.71	S01	LR	Line deviates right, Start	00:01:15		
8.90		DEEJ	Attached deposits, encrustation at joint, from 5 to 8 o'clock, 15% cross-sectional area loss	00:01:25		3
9.06	F01	LR	Line deviates right, End	00:02:24		
9.06		SA	Survey abandoned: UNABLE GET OVER ENCRUSTATION	00:02:25		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	0.2	2.0	1.0	1	2.0	0.2	2.0	3.0

Draintech Surveys Ltd
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Section Inspection - 02/11/2022 - MHC18X

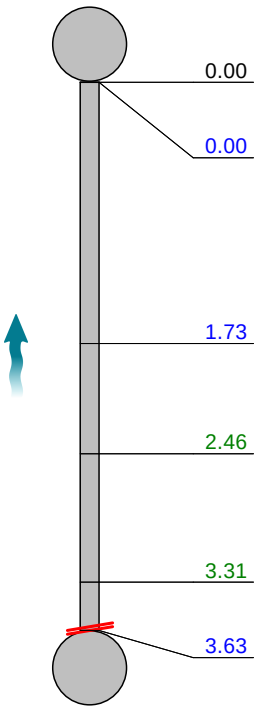
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
46	1	02/11/22	14:16	1	No Rain Or Snow	No	MHC18X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHC18
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	3.63 m	**Upstream Pipe Depth:**	0.870 m
Location:	Other(state in comments)	**Total Length:**	3.63 m	**Downstream Node:**	MHC19
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.040 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified



Scale: 1:50 Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC19	00:00:03		
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
1.73	WL	Water level, 20% of the vertical dimension	00:00:21		
2.46	DEEJ	Attached deposits, encrustation at joint, from 7 to 12 o'clock, 10% cross-sectional area loss	00:00:28		3
3.31	DEZ	Attached deposits, other, from 4 to 8 o'clock, 20% cross-sectional area loss: POSSIBLE CEMENT	00:00:40		3
3.63	SA	Survey abandoned: OVERLAPT SURVEY WITH SURVEY 45	00:00:46		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	2.0	1.1	4.0	3.0

Draintech Surveys Ltd
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Section Inspection - 02/11/2022 - MHC19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
47	1	02/11/22	14:30	1	No Rain Or Snow	No	MHC19X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC19
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	7.41 m	**Upstream Pipe Depth:**	1.040 m
Location:	Other(stateincomments)	**Total Length:**	7.41 m	**Downstream Node:**	MHC15
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:65

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: 1.04 m			
		MHC19			
0.00	MH	Start node type, manhole, reference number : MHC19	00:00:07		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
2.80	WL	Water level, 15% of the vertical dimension	00:00:47		
7.41	MHF	Finish node type, manhole reference number: MHC15	00:01:00		
		MHC15			
		Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

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Section Inspection - 03/11/2022 - MHF1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
48	1	03/11/22	9:50	1	No Rain Or Snow	No	MHF1X

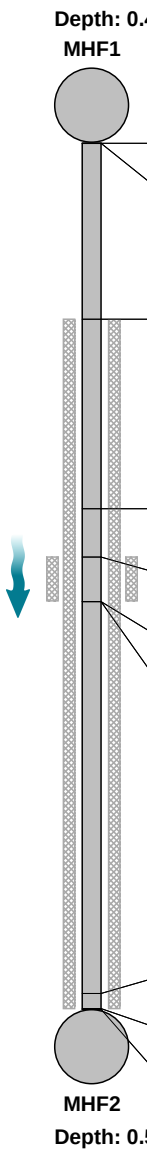
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF1
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	12.28 m	**Upstream Pipe Depth:**	0.460 m
Location:	Other(state in comments)	**Total Length:**	12.28 m	**Downstream Node:**	MHF2
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.570 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:107



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHF1	00:00:09		
0.00		WL	Water level, 5% of the vertical dimension	00:00:10		
2.50	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:36		
5.18		WL	Water level, 25% of the vertical dimension	00:01:03		
5.87	S02	CUW	Loss of vision, camera under water, Start	00:01:12		
6.50	F02	CUW	Loss of vision, camera under water, End	00:01:19		
6.50		WL	Water level, 5% of the vertical dimension	00:01:25		
12.05		CL	Crack, longitudinal, at 1 o'clock	00:02:28		2
12.27	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:33		2
12.28		MHF	Finish node type, manhole reference number: MHF2	00:02:35		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	10.0	0.8	10.0	2.0	1	1.0	0.8	10.0	2.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
49	1	03/11/22	10:06	1	No Rain Or Snow	No	MHF2X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF2
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	6.83 m	**Upstream Pipe Depth:**	0.570 m
Location:	Other(stateincomments)	**Total Length:**	6.83 m	**Downstream Node:**	MHF3
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:60

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: 0.57 m			
		MHF2			
0.00	MH	Start node type, manhole, reference number : MHF2	00:00:08		
0.00	WL	Water level, 5% of the vertical dimension	00:00:09		
6.83	MHF	Finish node type, manhole reference number: MHF3	00:01:24		
		MHF3			
		Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
50	1	03/11/22	10:14	1	No Rain Or Snow	No	MHF5X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF5
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	10.44 m	**Upstream Pipe Depth:**	0.610 m
Location:	Other(state in comments)	**Total Length:**	10.44 m	**Downstream Node:**	MHF1
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.460 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:91



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHF1	00:00:06		
0.00		WL	Water level, 5% of the vertical dimension	00:00:07		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:07		
9.01		LL	Line deviates left: SLIGHTLY	00:01:00		
10.44	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:15		2
10.44		REM	General remark: BUILD UP OF WASTE LINE BLOCKED	00:01:22		
10.44		SA	Survey abandoned: LINE NEEDS CLEANING	00:01:23		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	1.1	11.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
51	1	03/11/22	10:28	1	No Rain Or Snow	No	MHF3X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen- Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF3
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	11.00 m	**Upstream Pipe Depth:**	0.550 m
Location:	Other(state in comments)	**Total Length:**	11.00 m	**Downstream Node:**	MHF4
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.240 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:96



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 0.55 m						
MHF3						
0.00		MH	Start node type, manhole, reference number : MHF3	00:00:06		
0.00		WL	Water level, 5% of the vertical dimension	00:00:07		
6.45	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:45		
10.45		DEEJ	Attached deposits, encrustation at joint, from 7 to 11 o'clock, 5% cross-sectional area loss	00:01:09		2
11.00	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:17		2
MHF4 11.00		MHF	Finish node type, manhole reference number: MHF4	00:01:19		
Depth: 1.24 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	2.0	0.5	6.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
52	1	03/11/22	10:32	1	No Rain Or Snow	No	MHF4X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen- Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF4
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	7.88 m	**Upstream Pipe Depth:**	1.250 m
Location:	Other(state in comments)	**Total Length:**	7.88 m	**Downstream Node:**	MHF6
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.030 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:69



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 1.25 m						
MHF4						
0.00		MH	Start node type, manhole, reference number : MHF4	00:00:05		
0.00		WL	Water level, 10% of the vertical dimension	00:00:06		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:06		
7.88	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:00:55		2
7.88		REM	General remark: REACHED BACKDROP	00:00:56		
7.88		MHF	Finish node type, manhole reference number: MHF6	00:00:58		
MHF6						
Depth: 1.03 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	1.0	8.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
53	1	03/11/22	10:53	1	No Rain Or Snow	No	MHF7X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

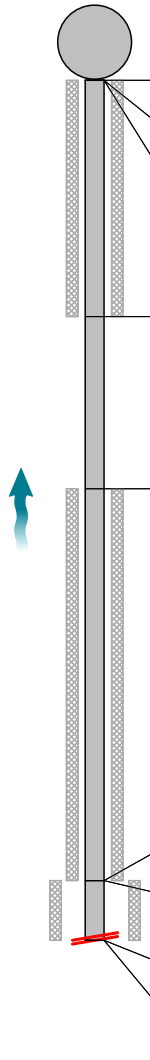
Town or Village:	Pen- Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF7
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	7.75 m	**Upstream Pipe Depth:**	0.760 m
Location:	Other(state in comments)	**Total Length:**	7.75 m	**Downstream Node:**	MHF6
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.030 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:68

Depth: 1.03 m
MHF6



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHF6	00:00:07		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.00	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:00:09		
2.13	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:00:35		3
3.68	S02	DES	Settled deposits, fine, 10% cross-sectional area loss, Start	00:00:43		
7.21	S03	DES	Settled deposits, fine, 20% cross-sectional area loss, Start	00:01:09		
7.21	F02	DES	Settled deposits, fine, 10% cross-sectional area loss, End	00:01:10		3
7.75	F03	DES	Settled deposits, fine, 20% cross-sectional area loss, End	00:01:17		3
7.75		SA	Survey abandoned: NEEDS CLEANING	00:01:18		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	4.0	2.1	16.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
54	1	03/11/22	10:53	1	No Rain Or Snow	No	MHF7X

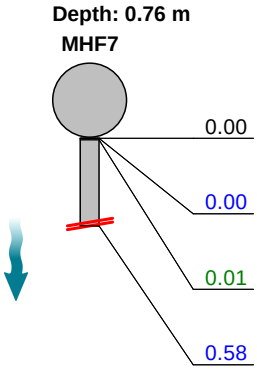
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen- Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF7
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	0.58 m	**Upstream Pipe Depth:**	0.760 m
Location:	Other(state in comments)	**Total Length:**	0.58 m	**Downstream Node:**	MHF6
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.030 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHF7	00:00:09		
0.00	WL	Water level, 20% of the vertical dimension	00:00:09		
0.01	DES	Settled deposits, fine, 60% cross-sectional area loss	00:00:12		4
0.58	SA	Survey abandoned: LINE NEEDS CLEANING	00:00:41		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	8.0	13.8	8.0	5.0

DRAINTECH
helping to improve the drainage network

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHS19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
55	1	03/11/22	11:01	1	No Rain Or Snow	No	MHS19X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

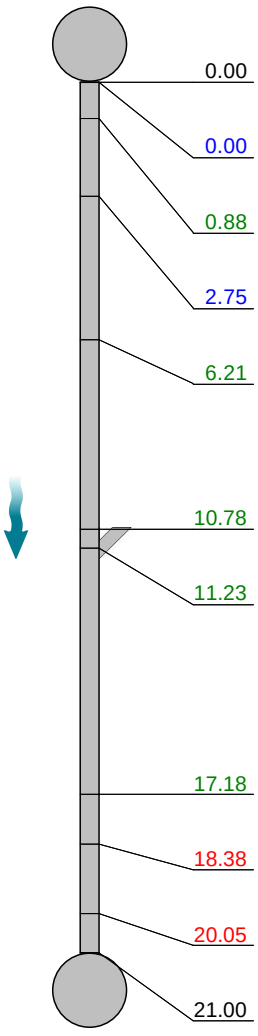
Town or Village:	Pen- Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS19
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	21.00 m	**Upstream Pipe Depth:**	0.450 m
Location:	Other(state in comments)	**Total Length:**	21.00 m	**Downstream Node:**	MHS20
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.820 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:182

Depth: 0.45 m
MHS19



MHS20
Depth: 0.82 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS19	00:00:06		
0.00	WL	Water level, 20% of the vertical dimension	00:00:07		
0.88	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:00:29		3
2.75	WL	Water level, 15% of the vertical dimension	00:00:47		
6.21	DER	Settled deposits, coarse, 15% cross-sectional area loss	00:01:14		3
10.78	DEEJ	Attached deposits, encrustation at joint, from 5 to 7 o'clock, 10% cross-sectional area loss	00:01:42		3
11.23	CXI	Connection intruding, at 10 o'clock, diameter 150mm, intrusion 5%	00:02:02		5
17.18	DER	Settled deposits, coarse, 5% cross-sectional area loss	00:02:49		2
18.38	CC	Crack, circumferential, from 7 to 2 o'clock	00:03:05		2
20.05	FCJ	Fracture, circumferential at joint, from 2 to 10 o'clock	00:03:20		3
21.00	MHF	Finish node type, manhole reference number: MHS20	00:03:31		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	40.0	2.4	50.0	3.0	5	10.0	0.8	17.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF6X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
56	1	03/11/22	11:25	1	No Rain Or Snow	No	MHF6X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF6
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	8.66 m	**Upstream Pipe Depth:**	1.030 m
Location:	Other(state in comments)	**Total Length:**	8.66 m	**Downstream Node:**	MHF8
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.290 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:75



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 1.03 m						
MHF6						
0.00		MH	Start node type, manhole, reference number : MHF6	00:00:18		
0.00		WL	Water level, 10% of the vertical dimension	00:00:19		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:20		
0.61		DEEJ	Attached deposits, encrustation at joint, from 4 to 5 o'clock, 10% cross-sectional area loss	00:00:45		3
8.66	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:20		2
8.66		MHF	Finish node type, manhole reference number: MHF8	00:01:21		
MHF8						
Depth: 1.29 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	3.0	1.3	11.0	3.0

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHF8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
57	1	03/11/22	11:31	1	No Rain Or Snow	No	MHF8X

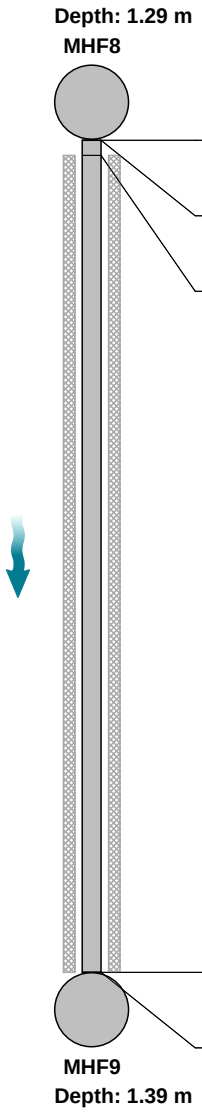
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF8
Road:	Bishop Bhedley Catholic School Pha	**Inspected Length:**	5.51 m	**Upstream Pipe Depth:**	1.290 m
Location:	Other(state in comments)	**Total Length:**	5.51 m	**Downstream Node:**	MHF9
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.390 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHF8	00:00:15		
0.00		WL	Water level, 10% of the vertical dimension	00:00:16		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:17		
5.51	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:00:46		2
5.51		MHF	Finish node type, manhole reference number: MHF9	00:00:48		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	1.1	6.0	3.0

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHF9X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
58	1	03/11/22	13:13	1	Rain	No	MHF9X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF9
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	13.35 m	**Upstream Pipe Depth:**	1.390 m
Location:	Other(state in comments)	**Total Length:**	13.35 m	**Downstream Node:**	MHC20
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:116



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 2.00 m						
MHC20						
0.00		MH	Start node type, manhole, reference number : MHC20	00:00:12		
0.00		WL	Water level, 10% of the vertical dimension	00:00:13		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:16		
5.51		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:49		2
11.53		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:16		2
12.35		DEEJ	Attached deposits, encrustation at joint, from 7 to 8 o'clock, 5% cross-sectional area loss	00:01:28		2
13.35	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:39		2
MHF9 13.35		MHF	Finish node type, manhole reference number: MHF9	00:01:41		
Depth: 1.39 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	2.0	1.3	17.0	3.0

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Section Inspection - 03/11/2022 - MHC20X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
59	1	03/11/22	13:59	1	Rain	No	MHC20X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC20
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	14.53 m	**Upstream Pipe Depth:**	2.000 m
Location:	Other(stateincomments)	**Total Length:**	14.53 m	**Downstream Node:**	MHC21
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:126

Depth: 2.00 m
MHC20



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC20	00:00:05		
0.00		WL	Water level, 10% of the vertical dimension	00:00:05		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:06		
14.53	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:14		2
14.53		MHF	Finish node type, manhole reference number: MHC21	00:01:15		

MHC21
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	1.0	15.0	3.0

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHS21X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
60	1	03/11/22	14:06	1	Rain	No	MHS21X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

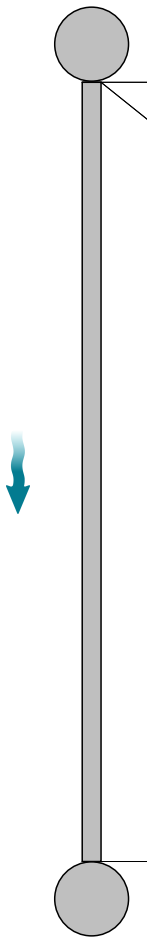
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS21
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	5.16 m	**Upstream Pipe Depth:**	0.530 m
Location:	Other(stateincomments)	**Total Length:**	5.16 m	**Downstream Node:**	MHC20
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.000 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 0.53 m
MHS21



MHC20
Depth: 2.00 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS21	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:16		
5.16	MHF	Finish node type, manhole reference number: MHC20	00:00:49		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHF11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
61	1	03/11/22	14:23	1	Rain	No	MHF11X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF11
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	1.48 m	**Upstream Pipe Depth:**	1.350 m
Location:	Other(state in comments)	**Total Length:**	1.70 m	**Downstream Node:**	MHF12
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.660 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 0.66 m						
MHF12						
	0.00	MH	Start node type, manhole, reference number : MHF12	00:00:05		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:05		
	1.48	MHF	Finish node type, manhole reference number: MHF11: ROOTS FINE IN CHAMBER	00:00:29		
MHF11						
Depth: 1.35 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHF10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
62	1	03/11/22	14:16	1	Rain	No	MHF10X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

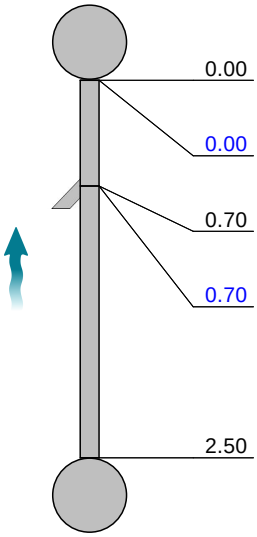
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF10
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	2.50 m	**Upstream Pipe Depth:**	1.280 m
Location:	Other (state in comments)	**Total Length:**	2.50 m	**Downstream Node:**	MHF11
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.350 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.35 m
MHF11



MHF10
Depth: 1.28 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHF11	00:00:05		
0.00	WL	Water level, 5% of the vertical dimension	00:00:07		
0.70	JN	Junction, at 3 o'clock, diameter 100mm	00:00:17		
0.70	WL	Water level, 10% of the vertical dimension	00:00:17		
2.50	MHF	Finish node type, manhole reference number: MHF10	00:00:33		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
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Section Inspection - 03/11/2022 - MHF12X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
63	1	03/11/22	14:26	1	Rain	No	MHF12X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF12
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	7.48 m	**Upstream Pipe Depth:**	0.660 m
Location:	Other(state in comments)	**Total Length:**	7.48 m	**Downstream Node:**	MHC21
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.200 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:65

Depth: 0.66 m
MHF12

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHF12	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:07		
0.45	DEEJ	Attached deposits, encrustation at joint, from 10 to 12 o'clock, 5% cross-sectional area loss	00:00:20		2
1.46	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:17		3
1.46	WL	Water level, 15% of the vertical dimension	00:00:18		
2.38	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:00:27		3
2.79	WL	Water level, 10% of the vertical dimension	00:00:32		
3.58	LL	Line deviates left	00:00:39		
3.58	DEEJ	Attached deposits, encrustation at joint, from 7 to 6 o'clock, 10% cross-sectional area loss	00:00:41		3
4.13	WL	Water level, 5% of the vertical dimension	00:00:46		
7.28	WL	Water level, 25% of the vertical dimension	00:01:06		
7.46	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 15% cross-sectional area loss	00:01:10		3
7.48	SA	Survey abandoned: DUE TO ENCRUSTATION	00:01:23		

MHC21
Depth: 1.20 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5	2.0	1.2	9.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 03/11/2022 - MHF12X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
64	1	03/11/22	14:26	1	Rain	No	MHF12X

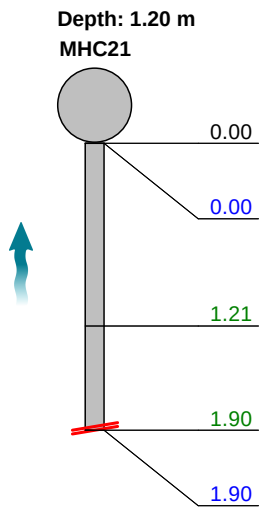
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF12
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	1.90 m	**Upstream Pipe Depth:**	0.660 m
Location:	Other (state in comments)	**Total Length:**	1.90 m	**Downstream Node:**	MHC21
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.200 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC21	00:00:07		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
1.21	DEE	Attached deposits, encrustation, from 4 to 7 o'clock, 20% cross-sectional area loss	00:00:21		3
1.90	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 20% cross-sectional area loss	00:00:42		3
1.90	SA	Survey abandoned: ENCRUSTATION OVERLAP SURVEY	00:00:43		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	2.0	2.1	4.0	3.0

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Section Inspection - 03/11/2022 - MHC21X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
65	1	03/11/22	14:35	1	Rain	No	MHC21X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

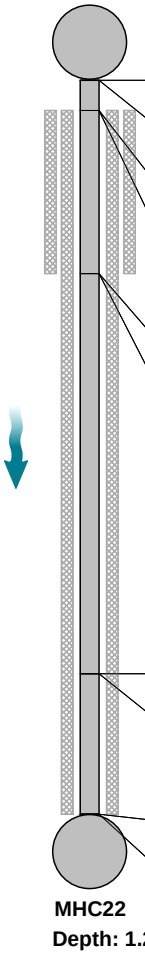
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC21
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	4.86 m	**Upstream Pipe Depth:**	1.200 m
Location:	Other(state in comments)	**Total Length:**	4.86 m	**Downstream Node:**	MHC22
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.250 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.20 m
MHC21



MHC22
Depth: 1.25 m

Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC21	00:00:08		
0.00		WL	Water level, 20% of the vertical dimension	00:00:08		
0.20	S01	DES	Settled deposits, fine, 10% cross-sectional area loss, Start	00:00:15		
0.20	S02	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:17		
1.28	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, End	00:00:27		3
1.28		WL	Water level, 5% of the vertical dimension	00:00:29		
3.93		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:52		3
3.93		WL	Water level, 15% of the vertical dimension	00:00:53		
4.86	F02	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:01		2
4.86		MHF	Finish node type, manhole reference number: MHC22	00:01:03		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	3.0	2.3	11.0	3.0

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Section Inspection - 03/11/2022 - MHC22X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
66	1	03/11/22	14:38	1	Rain	No	MHC22X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC22
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	6.26 m	**Upstream Pipe Depth:**	1.250 m
Location:	Other(state in comments)	**Total Length:**	6.26 m	**Downstream Node:**	MHC23
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.390 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:55

Depth: 1.25 m
MHC22



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC22	00:00:09		
0.00		WL	Water level, 10% of the vertical dimension	00:00:09		
0.10		DER	Settled deposits, coarse, 5% cross-sectional area loss	00:00:13		2
3.53		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:43		2
5.90	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:01:01		
6.26	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:06		2
6.26		MHF	Finish node type, manhole reference number: MHC23	00:01:08		

MHC23

Depth: 1.39 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	1.0	0.5	3.0	2.0

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Section Inspection - 03/11/2022 - MHC23X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
67	1	03/11/22	14:42	1	Rain	No	MHC23X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC23
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	5.38 m	**Upstream Pipe Depth:**	1.390 m
Location:	Other(stateincomments)	**Total Length:**	5.38 m	**Downstream Node:**	MHC24
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.380 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.39 m
MHC23



MHC24
Depth: 2.38 m

Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC23	00:00:07		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.20		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:08		3
0.20	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:09		
5.38	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:00:39		2
5.38		REM	General remark: REACHED BACKDROP	00:00:40		
5.38		MHF	Finish node type, manhole reference number: MHC24	00:00:42		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	3.0	1.5	8.0	3.0

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Section Inspection - 03/11/2022 - MHC24X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
68	1	03/11/22	14:48	1	No Rain Or Snow	No	MHC24X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC24
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	10.43 m	**Upstream Pipe Depth:**	2.380 m
Location:	Other(state in comments)	**Total Length:**	10.43 m	**Downstream Node:**	MHC25
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	2.500 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:91



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC24	00:00:06		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.10	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:08		
0.20		DEG	Attached deposits, grease, from 1 to 5 o'clock, 5% cross-sectional area loss	00:00:13		2
2.13		DEEJ	Attached deposits, encrustation at joint, from 1 to 5 o'clock, 10% cross-sectional area loss	00:00:36		3
8.86		DES	Settled deposits, fine, 30% cross-sectional area loss	00:01:15		4
8.86		WL	Water level, 30% of the vertical dimension	00:01:16		
10.43		CUW	Loss of vision, camera under water	00:01:25		
10.43	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:26		2
10.43		SA	Survey abandoned: LINE NEEDS CLEANING ALSO DOWNSTREAM CHAMBER FULL OF RUBBLE	00:01:27		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	6.0	1.8	19.0	4.0

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Section Inspection - 03/11/2022 - MHF13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
69	1	03/11/22	14:53	1	No Rain Or Snow	No	MHF13X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF13
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	2.26 m	**Upstream Pipe Depth:**	0.370 m
Location:	Other(stateincomments)	**Total Length:**	2.26 m	**Downstream Node:**	MHF14
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.380 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHF14	00:00:08		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
2.26	MHF	Finish node type, manhole reference number: MHF13: BLOCKAGE IN MH	00:00:37		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

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Section Inspection - 03/11/2022 - MHF14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
70	1	03/11/22	15:01	1	No Rain Or Snow	No	MHF14X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF14
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	3.33 m	**Upstream Pipe Depth:**	0.380 m
Location:	Other(state in comments)	**Total Length:**	3.33 m	**Downstream Node:**	MHC22
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.250 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 0.38 m
MHF14



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHF14	00:00:05		
0.00		WL	Water level, 5% of the vertical dimension	00:00:06		
0.91		WL	Water level, 15% of the vertical dimension	00:00:21		
2.19	S01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:29		
2.19		WL	Water level, 5% of the vertical dimension	00:00:30		
3.20		JXB	Junction defective, connecting pipe is blocked, at 3 o'clock, diameter 100mm: BLOCKED WITH ENCRUSTATION	00:00:42		
3.31	F01	DEG	Attached deposits, grease, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:01:03		2
3.33		SA	Survey abandoned: UNABLE PASS ENCRUSTATION COMMING OUT OF JUNCTION	00:01:05		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	0.6	2.0	2.0

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Section Inspection - 03/11/2022 - MHF14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
71	1	03/11/22	15:09	1	No Rain Or Snow	No	MHF14X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

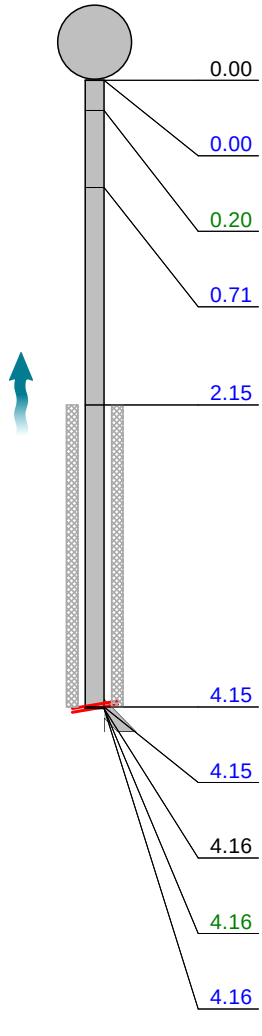
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF14
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	4.16 m	**Upstream Pipe Depth:**	0.380 m
Location:	Other(state in comments)	**Total Length:**	4.16 m	**Downstream Node:**	MHC22
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.250 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.25 m
MHC22



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHC22	00:00:06		
0.00		WL	Water level, 5% of the vertical dimension	00:00:06		
0.20		LR	Line deviates right	00:00:07		
0.71		WL	Water level, 25% of the vertical dimension	00:00:18		
2.15	S01	CUW	Loss of vision, camera under water, Start	00:00:30		
4.15	F01	CUW	Loss of vision, camera under water, End	00:00:59		
4.15		WL	Water level, 20% of the vertical dimension	00:01:03		
4.16		JXB	Junction defective, connecting pipe is blocked, at 11 o'clock, diameter 100mm	00:01:04		
4.16		DEE	Attached deposits, encrustation, from 7 to 10 o'clock, 15% cross-sectional area loss: OUT OF JUNCTION	00:01:06		3
4.16		SA	Survey abandoned: UNABLE PASS ENCRUSTATION OVERLAP SURVEY	00:01:07		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	0.5	2.0	3.0

DRAINTECH
helping to improve the drainage network

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Section Inspection - 03/11/2022 - MHS23X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
72	1	03/11/22	15:18	1	No Rain Or Snow	No	MHS23X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS23
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	5.61 m	**Upstream Pipe Depth:**	0.690 m
Location:	Other(state in comments)	**Total Length:**	5.61 m	**Downstream Node:**	MAIN
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Position [m]	Code	Observation	MPEG	Photo	Grade
		Depth: 0.69 m			
		MHS23			
0.00	MH	Start node type, manhole, reference number : MHS23	00:00:05		
0.00	WL	Water level, 5% of the vertical dimension	00:00:06		
0.20	LR	Line deviates right	00:00:07		
0.20	OJM	Open joint, medium	00:00:08		1
0.20	OBZ	Other obstacles, other , from 9 to 12 o'clock, 5% cross-sectional area loss : ROPE WITHIN JOINT	00:00:10		5
2.60	FMJ	Fracture, multiple at joint, from 11 to 5 o'clock	00:00:41		4
3.63	WL	Water level, 10% of the vertical dimension: DYE IN FLOW	00:00:53		
4.33	FCJ	Fracture, circumferential at joint, from 9 to 11 o'clock	00:01:20		3
5.30	JDM	Joint displaced, medium	00:01:31		1
5.30	LL	Line deviates left: SLIGHTLY	00:01:32		
5.30	LD	Line deviates down	00:01:34		
		MAIN			
5.61	OCF	Finish node type, other special chamber reference number: MAIN: MAIN LINE	00:01:39		
		Depth: m			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
4	80.0	21.7	122.0	4.0	1	10.0	1.8	10.0	5.0

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Section Inspection - 03/11/2022 - MHS24X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
73	1	03/11/22	15:23	1	No Rain Or Snow	No	MHS24X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS24
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	11.05 m	**Upstream Pipe Depth:**	1.250 m
Location:	Other(state in comments)	**Total Length:**	11.05 m	**Downstream Node:**	MHS27
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:96

Depth: 1.25 m
MHS24



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS24	00:00:13		
0.00		WL	Water level, 0% of the vertical dimension	00:00:14		
0.00		REM	General remark: USE REPORT FOR MANHOLE REFERANCES	00:02:35		
3.16		WL	Water level, 10% of the vertical dimension: TRACING DYE IN FLOW	00:00:38		
4.23		WL	Water level, 5% of the vertical dimension	00:00:48		
8.83		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:23		2
10.26	S01	DES	Settled deposits, fine, 15% cross-sectional area loss, Start	00:01:46		
10.73		JDM	Joint displaced, medium	00:02:00		1
10.73		LL	Line deviates left	00:02:02		
11.05	F01	DES	Settled deposits, fine, 15% cross-sectional area loss, End	00:02:35		3
11.05		MHF	Finish node type, manhole reference number: MAIN LINE	00:02:36		

MHS27
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	1.0	0.1	1.0	1.0	2	2.0	0.3	3.0	3.0

DRAINTECH
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Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 04/11/2022 - MHS20X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
74	1	04/11/22	9:39	1	No Rain Or Snow	No	MHS20X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

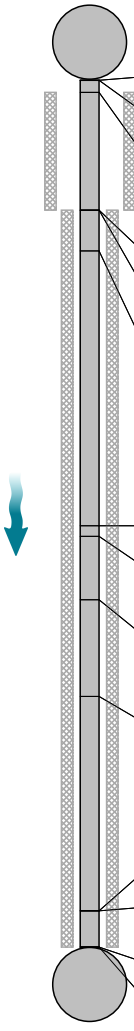
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS20
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	14.35 m	**Upstream Pipe Depth:**	0.840 m
Location:	Other(state in comments)	**Total Length:**	14.35 m	**Downstream Node:**	MHS27
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:125

Depth: 0.84 m
MHS20



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS20	00:00:17		
0.00		WL	Water level, 10% of the vertical dimension	00:00:18		
0.20	S01	DES	Settled deposits, fine, 10% cross-sectional area loss, Start	00:00:36		
2.15	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, End	00:00:56		3
2.15	S02	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, Start	00:00:57		
2.83		RFJ	Roots, fine at joint	00:01:05		2
7.38		REM	General remark: LOOSE ROOT IN LINE	00:01:28		
7.56		CCJ	Crack, circumferential at joint, from 7 to 11 o'clock	00:01:32		2
8.61		WL	Water level, 5% of the vertical dimension	00:01:41		
10.21		CCJ	Crack, circumferential at joint, from 10 to 1 o'clock	00:01:56		2
13.76		WL	Water level, 10% of the vertical dimension	00:02:45		
13.76		JDM	Joint displaced, medium	00:02:53		1
14.35	F02	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, End	00:03:01		3
14.35		MHF	Finish node type, manhole reference number: MHS27	00:03:03		

MHS27
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
3	10.0	1.5	21.0	2.0	3	4.0	2.2	31.0	3.0

Draintech Surveys Ltd
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Section Inspection - 04/11/2022 - MHS27X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
75	1	04/11/22	9:50	1	No Rain Or Snow	No	MHS27X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS27
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	18.96 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	18.96 m	**Downstream Node:**	MHS25
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.040 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:91



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS27	00:00:07		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.20	S01	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, Start	00:00:13		
0.93	F01	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, End	00:00:29		3
0.93		DEE	Attached deposits, encrustation, from 7 to 9 o'clock, 5% cross-sectional area loss	00:00:30		2
0.93		WL	Water level, 5% of the vertical dimension	00:00:33		
3.34		FCJ	Fracture, circumferential at joint, from 4 to 9 o'clock	00:00:51		3
5.11		DEEJ	Attached deposits, encrustation at joint, from 12 to 10 o'clock, 10% cross-sectional area loss	00:01:09		3
5.92		CN	Connection other than junction, at 12 o'clock, diameter 100mm	00:01:31		
5.97		DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:32		2
7.03	S02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:01:54		
9.59		WL	Water level, 20% of the vertical dimension	00:02:09		
9.96		JN	Junction, at 3 o'clock, diameter 100mm	00:02:13		
10.21		JDM	Joint displaced, medium	00:02:20		1

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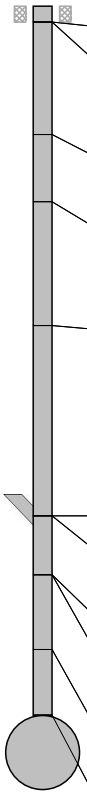
Section Inspection - 04/11/2022 - MHS27X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
75	1	04/11/22	9:50	1	No Rain Or Snow	No	MHS27X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:91





Position [m]		Code	Observation	MPEG	Photo	Grade
10.61		WL	Water level, 5% of the vertical dimension	00:02:32		
10.61	F02	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:02:33		2
11.96		FCJ	Fracture, circumferential at joint, from 6 to 12 o'clock	00:02:45		3
12.77		FCJ	Fracture, circumferential at joint, from 3 to 11 o'clock	00:02:54		3
14.26		FC	Fracture, circumferential, from 7 to 6 o'clock	00:03:11		3
16.56		CXI	Connection intruding, at 2 o'clock, diameter 100mm, intrusion 20%	00:03:36		5
16.56		DEE	Attached deposits, encrustation, from 4 to 5 o'clock, 5% cross-sectional area loss	00:03:37		2
17.27		OJM	Open joint, medium	00:03:45		1
17.27		DEEJ	Attached deposits, encrustation at joint, from 5 to 6 o'clock, 10% cross-sectional area loss	00:03:48		3
18.17		DEEJ	Attached deposits, encrustation at joint, from 6 to 11 o'clock, 10% cross-sectional area loss	00:04:07		3
18.96		MHF	Finish node type, manhole reference number: MHS25	00:04:20		

Depth: 1.04 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
6	40.0	8.5	162.0	3.0	9	11.0	1.3	25.0	5.0

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Section Inspection - 04/11/2022 - MHS25X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
76	1	04/11/22	9:59	1	No Rain Or Snow	No	MHS25X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS25
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	15.41 m	**Upstream Pipe Depth:**	1.040 m
Location:	Other(state in comments)	**Total Length:**	15.41 m	**Downstream Node:**	MHS26
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.440 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:134



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS25	00:00:06		
0.00		WL	Water level, 5% of the vertical dimension	00:00:07		
0.70		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:22		2
1.43		ISJ	Infiltration, seeping at joint, from 7 to 9 o'clock	00:00:39		
1.76	S01	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:00:31		
2.60		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:00:50		3
7.83		DEEJ	Attached deposits, encrustation at joint, from 1 to 11 o'clock, 15% cross-sectional area loss	00:01:40		3
8.46		IDJ	Infiltration, dripping at joint, from 11 to 12 o'clock	00:02:34		
8.46		DEEJ	Attached deposits, encrustation at joint, from 1 to 11 o'clock, 25% cross-sectional area loss	00:02:36		4
10.20		DEEJ	Attached deposits, encrustation at joint, from 1 to 10 o'clock, 25% cross-sectional area loss	00:03:34		4
10.20		WL	Water level, 20% of the vertical dimension	00:03:35		
11.16		WL	Water level, 10% of the vertical dimension	00:03:52		
14.36		JN	Junction, at 4 o'clock, diameter 100mm	00:04:24		
14.43		FCJ	Fracture, circumferential at joint, from 4 to 8 o'clock	00:04:58		3
15.40	F01	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss, End: PATCHY	00:05:07		2

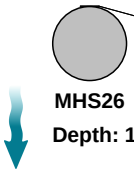
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Section Inspection - 04/11/2022 - MHS25X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
76	1	04/11/22	9:59	1	No Rain Or Snow	No	MHS25X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:134	Position [m]	Code	Observation	MPEG	Photo	Grade
	15.41	MHF	Finish node type, manhole reference number: MHS26	00:05:11		



Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	40.0	2.6	40.0	3.0	6	5.0	1.9	29.0	4.0

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Section Inspection - 04/11/2022 - UNKNOWNX

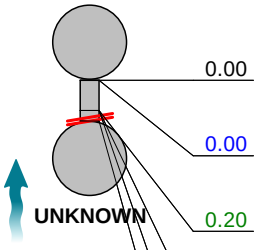
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
77	1	04/11/22	11:12	1	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	0.27 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	0.27 m	**Downstream Node:**	MHS28
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified



Scale: 1:50 Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS28	00:00:10		
0.00	WL	Water level, 15% of the vertical dimension: CONSTANT FLOW	00:00:11		
0.20	DEE	Attached deposits, encrustation, from 4 to 8 o'clock, 20% cross-sectional area loss	00:00:26		3
0.20	OJM	Open joint, medium	00:00:28		1
0.20	JDM	Joint displaced, medium	00:00:29		1
0.27	SA	Survey abandoned: UNABLE PASS ENCRUSTATION IN LINE ALSO JDM,OJM	00:00:44		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	2.0	7.4	2.0	1.0	1	2.0	7.4	2.0	5.0

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Section Inspection - 04/11/2022 - MHS28X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
78	1	04/11/22	11:24	1	No Rain Or Snow	No	MHS28X

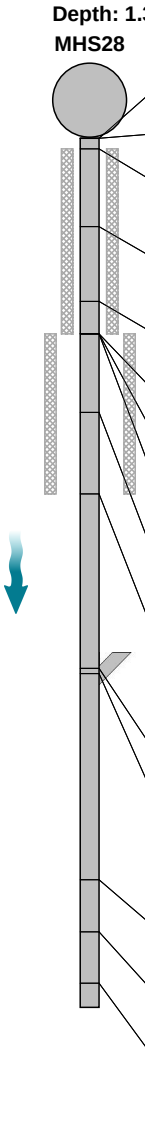
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS28
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	17.13 m	**Upstream Pipe Depth:**	1.300 m
Location:	Other(state in comments)	**Total Length:**	17.13 m	**Downstream Node:**	MHS29
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:141 **Position [m]**



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS28	00:00:07		
0.00		WL	Water level, 10% of the vertical dimension	00:00:07		
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:00:11		
1.66		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:26		2
3.05		RFJ	Roots, fine at joint	00:00:35		2
3.66	S02	RF	Roots, fine, Start	00:00:40		
3.66		WL	Water level, 10% of the vertical dimension	00:00:41		
3.66	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:00:43		3
5.13		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:52		3
6.65	F02	RF	Roots, fine, End	00:01:03		2
9.90		WL	Water level, 5% of the vertical dimension	00:01:24		
10.00		JN	Junction, at 10 o'clock, diameter 100mm: MAY BE FROM GULLY THAT IS FULL	00:01:30		
13.85		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:02:13		3
14.83		IRJ	Infiltration, running at joint, from 3 to 5 o'clock	00:02:20		
15.78		CCJ	Crack, circumferential at joint, from 12 to 6 o'clock	00:02:29		2

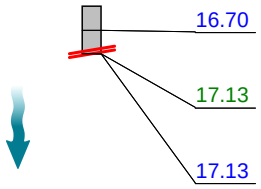
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Section Inspection - 04/11/2022 - MHS28X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
78	1	04/11/22	11:24	1	No Rain Or Snow	No	MHS28X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:141



Position [m]	Code	Observation	MPEG	Photo	Grade
16.70	WL	Water level, 25% of the vertical dimension	00:02:37		
17.13	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 80% cross-sectional area loss	00:03:02		4
17.13	SA	Survey abandoned: DUE TO 80% ENCRUSTATION	00:03:04		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	10.0	0.6	10.0	2.0	7	5.0	1.3	22.0	4.0

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Section Inspection - 04/11/2022 - MHS28X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
79	1	04/11/22	11:24	1	No Rain Or Snow	No	MHS28X

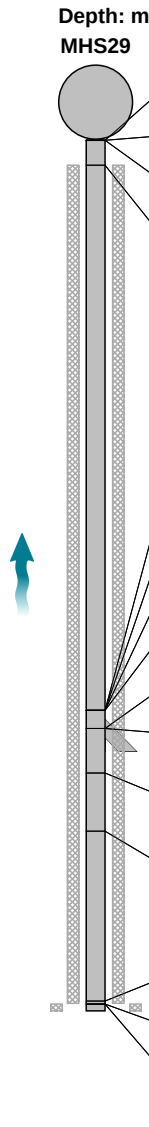
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS28
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	6.86 m	**Upstream Pipe Depth:**	1.300 m
Location:	Other(state in comments)	**Total Length:**	6.86 m	**Downstream Node:**	MHS29
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:59



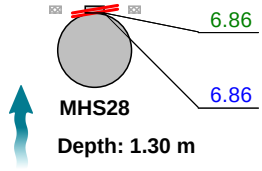
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS29	00:00:08		
0.00		WL	Water level, 10% of the vertical dimension	00:00:09		
0.00		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:11		3
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:00:17		
4.46		FLJ	Fracture, longitudinal at joint, at 12 o'clock	00:00:52		3
4.46		FCJ	Fracture, circumferential at joint, from 9 to 3 o'clock	00:00:54		3
4.46		B	Broken pipe, from 9 to 3 o'clock	00:00:55		4
4.46		ID	Infiltration, dripping, from 11 to 12 o'clock	00:00:56		
4.60		CXI	Connection intruding, at 11 o'clock, diameter 100mm, intrusion 15%	00:01:02		5
4.60		FL	Fracture, longitudinal, at 4 o'clock	00:01:04		3
4.95		LU	Line deviates up	00:01:09		
5.40		JDM	Joint displaced, medium	00:01:15		1
6.73		WL	Water level, 30% of the vertical dimension	00:01:38		
6.75	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:01:41		3
6.75	S02	DEE	Attached deposits, encrustation, from 3 to 9 o'clock, 35% cross-sectional area loss, Start	00:01:43		

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Section Inspection - 04/11/2022 - MHS28X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
79	1	04/11/22	11:24	1	No Rain Or Snow	No	MHS28X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:59	Position [m]	Code	Observation	MPEG	Photo	Grade
	6.86	F02	DEE	Attached deposits, encrustation, from 3 to 9 o'clock, 35% cross-sectional area loss, End	00:01:59		4
	6.86		SA	Survey abandoned: DUE TO ENCRUSTATION	00:02:01		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	200.0	29.3	201.0	4.0	4	12.0	4.5	31.0	5.0

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Section Inspection - 04/11/2022 - MHS29X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
80	1	04/11/22	11:53	1	No Rain Or Snow	No	MHS29X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS29
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	11.03 m	**Upstream Pipe Depth:**	1.340 m
Location:	Other(state in comments)	**Total Length:**	11.03 m	**Downstream Node:**	MHS30
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:96

Depth: 1.34 m
MHS29



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS29	00:00:04		
0.00		WL	Water level, 10% of the vertical dimension	00:00:05		
4.70		DEEJ	Attached deposits, encrustation at joint, from 7 to 9 o'clock, 10% cross-sectional area loss	00:00:35		3
4.70		DEEJ	Attached deposits, encrustation at joint, from 4 to 5 o'clock, 10% cross-sectional area loss	00:00:36		3
6.56		WL	Water level, 25% of the vertical dimension	00:00:47		
6.56		DEC	Settled deposits, hard or compacted, 25% cross-sectional area loss	00:00:48		4
7.36		DER	Settled deposits, coarse, 25% cross-sectional area loss	00:01:00		4
10.98	S01	DES	Settled deposits, fine, 25% cross-sectional area loss, Start	00:01:27		
11.03	F01	DES	Settled deposits, fine, 25% cross-sectional area loss, End	00:01:39		4
11.03		SA	Survey abandoned: UNABLE PUSH THROUGH SILT	00:01:44		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5	5.0	1.7	19.0	4.0

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Section Inspection - 04/11/2022 - UNKNOWNX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
81	1	04/11/22	12:26	1	No Rain Or Snow	No	UNKNOWNX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

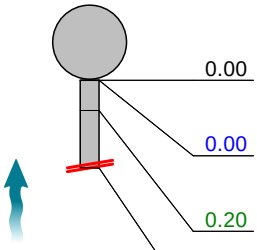
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	UNKNOWN
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	0.58 m	**Upstream Pipe Depth:**	
Location:	Other(stateincomments)	**Total Length:**	0.58 m	**Downstream Node:**	MHS29
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.340 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 1.34 m
MHS29



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS29	00:00:14		
0.00	WL	Water level, 10% of the vertical dimension: CONSTANT FLOW	00:00:15		
0.20	DES	Settled deposits, fine, 80% cross-sectional area loss	00:00:17		5
0.58	SA	Survey abandoned: NEEDS CLEANING	00:00:35		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	17.2	10.0	5.0

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Section Inspection - 04/11/2022 - MHS31X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
82	1	04/11/22	13:38	1	No Rain Or Snow	No	MHS31X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS31
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	25.93 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	25.93 m	**Downstream Node:**	MHS32
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:94



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS32	00:00:05		
0.00		WL	Water level, 15% of the vertical dimension	00:00:06		
0.20		DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:07		4
1.93		WL	Water level, 25% of the vertical dimension	00:00:33		
3.35		DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:44		3
3.35	S01	CUW	Loss of vision, camera under water, Start	00:00:45		
3.35	S02	DES	Settled deposits, fine, 20% cross-sectional area loss, Start	00:00:46		
4.06	F02	DES	Settled deposits, fine, 20% cross-sectional area loss, End	00:00:53		3
4.06	F01	CUW	Loss of vision, camera under water, End	00:00:55		
4.06		WL	Water level, 10% of the vertical dimension	00:00:56		
4.06		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:00:58		3
5.10		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 10% cross-sectional area loss	00:01:06		3
6.56	S03	DES	Settled deposits, fine, 10% cross-sectional area loss, Start	00:01:14		
7.78		DEE	Attached deposits, encrustation, from 7 to 5 o'clock, 5% cross-sectional area loss	00:01:32		2

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Section Inspection - 04/11/2022 - MHS31X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
82	1	04/11/22	13:38	1	No Rain Or Snow	No	MHS31X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:94	Position [m]		Code	Observation	MPEG	Photo	Grade
	10.15	F03	DES	Settled deposits, fine, 10% cross-sectional area loss, End	00:01:48		3
	10.15	S04	DER	Settled deposits, coarse, 15% cross-sectional area loss, Start	00:01:50		
	13.45	F04	DER	Settled deposits, coarse, 15% cross-sectional area loss, End	00:02:06		3
	15.36	S05	DEE	Attached deposits, encrustation, from 6 to 7 o'clock, 10% cross-sectional area loss, Start	00:02:22		
	21.01		JXB	Junction defective, connecting pipe is blocked, at 4 o'clock, diameter 100mm	00:02:56		
	21.01		DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 25% cross-sectional area loss	00:03:10		4
	25.93	F05	DEE	Attached deposits, encrustation, from 6 to 7 o'clock, 10% cross-sectional area loss, End	00:03:58		3
	25.93		MHF	Finish node type, manhole reference number: MHS31	00:04:00		

MHS31
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	10	7.0	2.2	57.0	4.0

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Section Inspection - 04/11/2022 - MHS34X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
83	1	04/11/22	14:14	1	No Rain Or Snow	No	MHS34X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS34
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	7.98 m	**Upstream Pipe Depth:**	1.200 m
Location:	Other(state in comments)	**Total Length:**	7.98 m	**Downstream Node:**	MHS33
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:70



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS33	00:00:05		
0.00		WL	Water level, 10% of the vertical dimension	00:00:05		
0.20	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, Start	00:00:06		
5.27		JN	Junction, at 10 o'clock, diameter 100mm	00:00:48		
7.98	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 10% cross-sectional area loss, End	00:01:30		3
7.98		SA	Survey abandoned: UNABLE PUSH FURTHER	00:01:32		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2.0	16.0	3.0

Draintech Surveys Ltd
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Section Inspection - 04/11/2022 - MHS32X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
84	1	04/11/22	14:21	1	No Rain Or Snow	No	MHS32X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

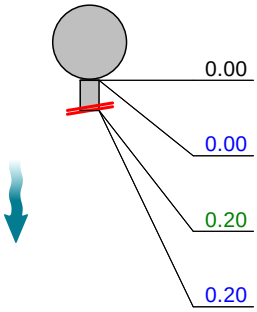
Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS32
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	0.20 m	**Upstream Pipe Depth:**	0.900 m
Location:	Other(stateincomments)	**Total Length:**	0.20 m	**Downstream Node:**	MHS33
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.350 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50

Depth: 0.90 m
MHS32



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS32	00:00:06		
0.00	WL	Water level, 25% of the vertical dimension	00:00:06		
0.20	DER	Settled deposits, coarse, 35% cross-sectional area loss	00:00:07		4
0.20	SA	Survey abandoned: UNABLE SURVEY DUE TO DEBRIS	00:00:09		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	25.0	5.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 04/11/2022 - MHS32X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
85	1	04/11/22	14:21	1	No Rain Or Snow	No	MHS32X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS32
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	6.60 m	**Upstream Pipe Depth:**	0.900 m
Location:	Other(state in comments)	**Total Length:**	6.60 m	**Downstream Node:**	MHS33
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.350 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:58

Depth: 1.35 m
MHS33



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS33	00:00:10		
0.00		WL	Water level, 10% of the vertical dimension	00:00:11		
0.63	S01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 15% cross-sectional area loss, Start	00:00:31		
3.65		DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 25% cross-sectional area loss	00:00:49		4
4.68		DEE	Attached deposits, encrustation, from 4 to 8 o'clock, 30% cross-sectional area loss	00:00:58		4
6.38		DEEJ	Attached deposits, encrustation at joint, from 4 to 8 o'clock, 25% cross-sectional area loss	00:01:09		4
6.60	F01	DEE	Attached deposits, encrustation, from 5 to 7 o'clock, 15% cross-sectional area loss, End	00:01:21		3
6.60		SA	Survey abandoned: DUE TO NENCRUSTATION	00:01:22		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	7.0	4.1	27.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 04/11/2022 - MHS33X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
86	1	04/11/22	14:34	1	No Rain Or Snow	No	MHS33X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH DV	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS33
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	1.66 m	**Upstream Pipe Depth:**	1.350 m
Location:	Other(stateincomments)	**Total Length:**	1.66 m	**Downstream Node:**	UNKNOWN
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments: UNABLE CONFIRM DOWNSTREAM NEEDS CLEANING
Recommendations: None specified

Scale: 1:50

Depth: 1.35 m
MHS33



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS33	00:00:04		
0.00		WL	Water level, 20% of the vertical dimension	00:00:05		
0.20	S01	DER	Settled deposits, coarse, 20% cross-sectional area loss, Start	00:00:10		
1.66	F01	DER	Settled deposits, coarse, 20% cross-sectional area loss, End	00:00:42		3
1.66		DER	Settled deposits, coarse, 45% cross-sectional area loss	00:00:44		4
1.66		SA	Survey abandoned: UNABLE PUSH THROUGH DEBRIS	00:00:45		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	5.0	5.4	9.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 12/11/2022 - MHS34X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
87	1	12/11/22	8:59	1	No Rain Or Snow	No	MHS34X

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS34
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	7.18 m	**Upstream Pipe Depth:**	1.180 m
Location:	Other(state in comments)	**Total Length:**	7.18 m	**Downstream Node:**	MHS31
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:63

Depth: 1.18 m
MHS34



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node type, manhole, reference number : MHS34	00:00:03		
0.00		WL	Water level, 0% of the vertical dimension	00:00:04		
0.20	S01	DES	Settled deposits, fine, 25% cross-sectional area loss, Start	00:00:10		
3.90		WL	Water level, 5% of the vertical dimension	00:00:43		
3.90		DES	Settled deposits, fine, 30% cross-sectional area loss	00:00:44		4
5.73		DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 5% cross-sectional area loss	00:00:57		2
7.18		DES	Settled deposits, fine, 40% cross-sectional area loss	00:01:20		4
7.18	F01	DES	Settled deposits, fine, 25% cross-sectional area loss, End	00:01:23		4
7.18		SA	Survey abandoned: UNABLE TO PASS SILT	00:01:25		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	10.0	6.4	46.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS26X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
88	1	22/11/22	13:24	1	No Rain Or Snow	No	MHS26X

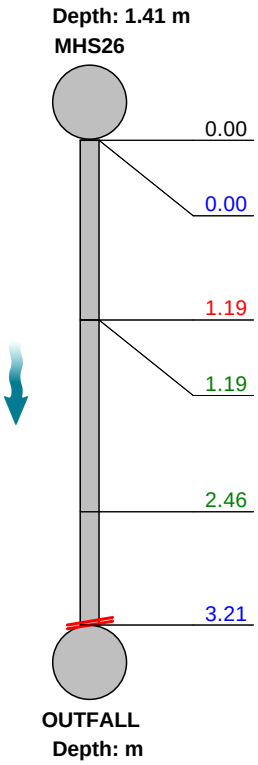
Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS26
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	3.21 m	**Upstream Pipe Depth:**	1.410 m
Location:	Other(stateincomments)	**Total Length:**	3.21 m	**Downstream Node:**	OUTFALL
Surface Type:	Unknown	**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHS26	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
1.19	JDM	Joint displaced, medium	00:00:21		1
1.19	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss	00:00:22		3
2.46	DEC	Settled deposits, hard or compacted, 25% cross-sectional area loss	00:00:34		4
3.21	SA	Survey abandoned: UNABLE TO PASS DEC	00:00:57		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	1.0	0.3	1.0	1.0	2	5.0	2.2	7.0	4.0

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Section Inspection - 12/11/2022 - MHC25BX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
89	1	12/11/22	10:17	1	No Rain Or Snow	No	MHC25BX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC25B
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	28.73 m	**Upstream Pipe Depth:**	
Location:	Other(state in comments)	**Total Length:**	28.73 m	**Downstream Node:**	MHC25A
Surface Type:	Unknown	**Joint Length:**	1.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:227

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m MHC25B					
0.00	MH	Start node type, manhole, reference number : MHC25	00:00:01		
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
5.89	FLJ	Fracture, longitudinal at joint, at 12 o'clock	00:00:55		3
5.89	FLJ	Fracture, longitudinal at joint, at 3 o'clock	00:00:57		3
5.89	DEEJ	Attached deposits, encrustation at joint, from 7 to 5 o'clock, 15% cross-sectional area loss	00:00:59		3
8.19	FL	Fracture, longitudinal, at 1 o'clock	00:01:22		3
10.81	FC	Fracture, circumferential, from 4 to 9 o'clock	00:01:56		3
10.81	FL	Fracture, longitudinal, at 12 o'clock	00:01:59		3
11.13	RFJ	Roots, fine at joint	00:02:14		2
14.01	FC	Fracture, circumferential, from 8 to 4 o'clock	00:02:40		3
14.01	CCJ	Crack, circumferential at joint, from 8 to 4 o'clock	00:02:46		2
19.25	FC	Fracture, circumferential, from 10 to 2 o'clock	00:03:55		3
19.25	FLJ	Fracture, longitudinal at joint, at 11 o'clock	00:03:57		3
26.01	FM	Fracture, multiple, from 8 to 4 o'clock	00:04:52		4

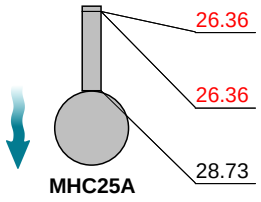
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Section Inspection - 12/11/2022 - MHC25BX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
89	1	12/11/22	10:17	1	No Rain Or Snow	No	MHC25BX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Scale: 1:227



Position [m]	Code	Observation	MPEG	Photo	Grade
26.36	B	Broken pipe, from 8 to 4 o'clock	00:05:03		4
26.36	D	Deformed sewer/drain, 5%	00:05:04		2
28.73	MHF	Finish node type, manhole reference number: MHC25A: BURIED-BACKDROP ON A PIPE	00:05:40		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
12	180.0	17.8	510.0	4.0	2	2.0	0.1	3.0	3.0

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Section Inspection - 12/11/2022 - MHC25AX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
90	1	12/11/22	10:51	1	No Rain Or Snow	No	MHC25AX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified

Town or Village:	Pen-Y-Darren	**Inspection Direction:**	Downstream	**Upstream Node:**	MHC25A
Road:	Bishop Hedley Catholic School Phase 2	**Inspected Length:**	41.17 m	**Upstream Pipe Depth:**	1.860 m
Location:	Other(state in comments)	**Total Length:**	41.17 m	**Downstream Node:**	MHC15
Surface Type:	Unknown	**Joint Length:**	1.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Investment planning	**Lining Material:**	No Lining

Comments:
Recommendations: None specified

Scale: 1:147



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number : MHC25A	00:00:02		
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
1.86	BJ	Broken pipe at joint, from 5 to 7 o'clock	00:00:30		4
1.86	FLJ	Fracture, longitudinal at joint, at 9 o'clock	00:00:31		3
1.86	FLJ	Fracture, longitudinal at joint, at 3 o'clock	00:00:32		3
1.86	FLJ	Fracture, longitudinal at joint, at 1 o'clock	00:00:38		3
2.26	FM	Fracture, multiple, from 7 to 5 o'clock	00:00:50		4
3.12	FL	Fracture, longitudinal, at 2 o'clock	00:00:58		3
5.25	FLJ	Fracture, longitudinal at joint, at 3 o'clock	00:01:17		3
5.25	FLJ	Fracture, longitudinal at joint, at 9 o'clock	00:01:18		3
5.25	FLJ	Fracture, longitudinal at joint, at 12 o'clock	00:01:21		3
5.59	FC	Fracture, circumferential, from 3 to 11 o'clock	00:01:36		3
5.59	DEE	Attached deposits, encrustation, from 7 to 9 o'clock, 5% cross-sectional area loss	00:01:39		2
6.82	RMJ	Roots, mass at joint, 15% cross-sectional area loss	00:01:52		3
13.00	DEE	Attached deposits, encrustation, from 8 to 4 o'clock, 15% cross-sectional area loss	00:02:46		3

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Section Inspection - 12/11/2022 - MHC25AX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
90	1	12/11/22	10:51	1	No Rain Or Snow	No	MHC25AX

Operator	Vehicle	Camera	Preset Length	Criticality Grade	Alternative ID
DRAINTECH JK	DN66 FRK	Ibos	Not Specified	Category C	Not Specified



Scale: 1:147	Position [m]		Code	Observation	MPEG	Photo	Grade
	20.80		DEEJ	Attached deposits, encrustation at joint, from 9 to 12 o'clock, 5% cross-sectional area loss	00:04:05		2
	21.04		FL	Fracture, longitudinal, at 12 o'clock	00:04:22		3
	30.01		FLJ	Fracture, longitudinal at joint, at 4 o'clock	00:05:46		3
	30.01		FCJ	Fracture, circumferential at joint, from 2 to 4 o'clock	00:05:47		3
	30.01		FCJ	Fracture, circumferential at joint, from 8 to 12 o'clock	00:05:59		3
	30.01		FLJ	Fracture, longitudinal at joint, at 11 o'clock	00:06:01		3
	34.59	S01	DEE	Attached deposits, encrustation, from 8 to 4 o'clock, 5% cross-sectional area loss, Start: PATCHY	00:06:40		
	41.17		LD	Line deviates down	00:07:40		
	41.17	F01	DEE	Attached deposits, encrustation, from 8 to 4 o'clock, 5% cross-sectional area loss, End: PATCHY	00:07:41		2
MHC15	41.17		MHF	Finish node type, manhole reference number: MHC15: LINE ENTERS VIA BACKDROP UTL	00:07:43		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
15	280.0	16.5	680.0	4.0	5	4.0	0.4	15.0	3.0

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Section Inspection - 22/11/2022 - MHF17X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
91	1	22/11/22	11:46	Not Specified	Rain	Unknown	MHF17X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF17
Road:	Bishop Hedley	**Inspected Length:**	2.73 m	**Upstream Pipe Depth:**	0.730 m
Location:	Property or buildings	**Total Length:**	2.73 m	**Downstream Node:**	MHF18
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.170 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 0.73 m						
MHF17						
0.00		MH	Start node, manhole, reference: MHF17	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:00		
0.20	S01	DES	Settled deposits, fine, 5% cross-sectional area loss, start: PATCHY	00:00:00		
2.70	F01	DES	Settled deposits, fine, 5% cross-sectional area loss, finish: PATCHY	00:00:00		3
2.73		LD	Line deviates down	00:00:00		
MHF18						
2.73		MHF	Finish node, manhole, reference: MHF18: LINE ENTERS MANHOLE VIA BACKDROP	00:00:00		
Depth: 1.17 m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2.2	6.0	3.0

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Section Inspection - 22/11/2022 - MHF18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
92	1	22/11/22	11:46	Not Specified	Rain	Unknown	MHF18X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF18
Road:	Bishop Hedley	**Inspected Length:**	6.15 m	**Upstream Pipe Depth:**	1.170 m
Location:	Property or buildings	**Total Length:**	6.15 m	**Downstream Node:**	MHF19
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:54



Position [m]		Code	Observation	MPEG	Photo	Grade
Depth: 1.17 m						
MHF18						
0.00		MH	Start node, manhole, reference: MHF18	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:00		
0.20	S01	DES	Settled deposits, fine, 5% cross-sectional area loss, start: PATCHY	00:00:00		
3.58		LD	Line deviates down	00:00:00		
4.58		JN	Junction at 3 o'clock, 100mm dia	00:00:00		
5.18		DEEJ	Attached deposits, encrustation at joint from 7 o'clock to 9 o'clock, 15% cross-sectional area loss	00:00:00		3
5.18		DEEJ	Attached deposits, encrustation at joint from 4 o'clock to 5 o'clock, 15% cross-sectional area loss	00:00:00		3
5.65		WL	Water level, 60% of the vertical dimension	00:00:00		
5.65		DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:00		4
6.15	F01	DES	Settled deposits, fine, 5% cross-sectional area loss, finish: PATCHY	00:00:00		3
MHF19						
6.15		MHF	Finish node, manhole, reference: MHF19	00:00:00		
Depth: m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	7.0	3.4	21.0	4.0

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Section Inspection - 22/11/2022 - MHF19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
93	1	22/11/22	11:46	Not Specified	Rain	Unknown	MHF19X

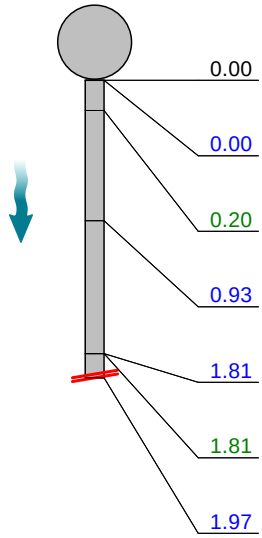
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF19
Road:	Bishop Hedley	**Inspected Length:**	1.97 m	**Upstream Pipe Depth:**	1.110 m
Location:	Property or buildings	**Total Length:**	1.97 m	**Downstream Node:**	MHF20
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.210 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHF19	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
0.20	DES	Settled deposits, fine, 15% cross-sectional area loss	00:00:00		3
0.93	WL	Water level, 15% of the vertical dimension	00:00:00		
1.81	WL	Water level, 50% of the vertical dimension	00:00:00		
1.81	DES	Settled deposits, fine, 50% cross-sectional area loss	00:00:00		4
1.97	SA	Survey abandoned: UNABLE TO PASS SILT	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	8.0	5.1	10.0	5.0

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Section Inspection - 22/11/2022 - MHF20X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
94	1	22/11/22	11:46	Not Specified	Rain	Unknown	MHF20X

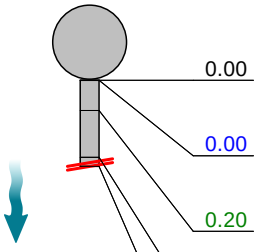
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF20
Road:	Bishop Hedley	**Inspected Length:**	0.57 m	**Upstream Pipe Depth:**	1.210 m
Location:	Property or buildings	**Total Length:**	0.57 m	**Downstream Node:**	MHF21
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	1.320 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHF20	00:00:00		
0.00	WL	Water level, 50% of the vertical dimension	00:00:00		
0.20	DES	Settled deposits, fine, 30% cross-sectional area loss	00:00:00		4
0.51	CUD	Loss of vision, silt	00:00:00		
0.57	SA	Survey abandoned: REQUIRES CLEANING	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	8.8	5.0	5.0

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Section Inspection - 22/11/2022 - MHF21X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
95	1	22/11/22	11:47	Not Specified	Rain	Unknown	MHF21X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF21
Road:	Bishop Hedley	**Inspected Length:**	7.48 m	**Upstream Pipe Depth:**	1.320 m
Location:	Property or buildings	**Total Length:**	7.48 m	**Downstream Node:**	MHF22
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.430 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:65



Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 1.32 m **MHF21**					
0.00	MH	Start node, manhole, reference: MHF21	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
3.08	DEEJ	Attached deposits, encrustation at joint from 2 o'clock to 4 o'clock, 15% cross-sectional area loss	00:00:00		3
5.00	DES	Settled deposits, fine, 50% cross-sectional area loss	00:00:00		4
5.00	CUD	Loss of vision, silt	00:00:00		
7.48	MHF	Finish node, manhole, reference: MHF22	00:00:00		
MHF22 **Depth: 1.43 m**					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	8.0	1.3	10.0	4.0

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Section Inspection - 22/11/2022 - MHF22X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
96	1	22/11/22	11:47	Not Specified	Rain	Unknown	MHF22X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF22
Road:	Bishop Hedley	**Inspected Length:**	4.49 m	**Upstream Pipe Depth:**	1.430 m
Location:	Property or buildings	**Total Length:**	4.49 m	**Downstream Node:**	MHC25
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: 1.43 m
MHF22



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHF22	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
3.28	WL	Water level, 30% of the vertical dimension	00:00:00		
3.28	DES	Settled deposits, fine, 20% cross-sectional area loss	00:00:00		4
4.43	CUD	Loss of vision, silt	00:00:00		
4.43	DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:00		4
4.49	SA	Survey abandoned: SILT-REQUIRES CLEANING	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	5.0	2.2	10.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS34X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
97	1	22/11/22	11:48	Not Specified	Rain	Unknown	MHS34X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

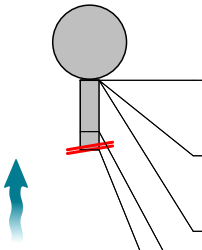
Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS34
Road:	Bishop Hedley	**Inspected Length:**	0.46 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	0.46 m	**Downstream Node:**	MHS35
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.930 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: 0.93 m
MHS35



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS35	00:00:00		
0.00	REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT			
0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
0.34	JDL	Joint displaced, large	00:00:00		1 / 4
0.46	SA	Survey abandoned: UNABLE TO PASS JDL	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	4.3	2.0	1.0	1	5.0	10.9	5.0	5.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS30X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
98	1	22/11/22	11:48	Not Specified	Rain	Unknown	MHS30X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

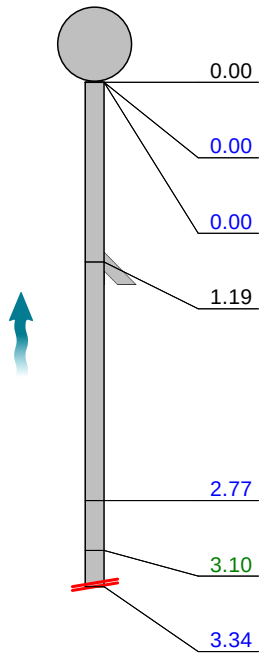
Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS30
Road:	Bishop Hedley	**Inspected Length:**	3.34 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	3.34 m	**Downstream Node:**	MHS35
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.930 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: 0.93 m
MHS35



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS35	00:00:00		
0.00	REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT			
0.00	WL	Water level, 30% of the vertical dimension	00:00:00		
1.19	JN	Junction at 9 o'clock, 150mm dia	00:00:00		
2.77	WL	Water level, 50% of the vertical dimension	00:00:00		
3.10	DES	Settled deposits, fine, 60% cross-sectional area loss	00:00:00		4
3.34	SA	Survey abandoned: UNABLE TO PASS SILT	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	8.0	2.4	8.0	4.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS35X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
99	1	22/11/22	11:49	Not Specified	Rain	Unknown	MHS35X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS35
Road:	Bishop Hedley	**Inspected Length:**	13.94 m	**Upstream Pipe Depth:**	0.930 m
Location:	Property or buildings	**Total Length:**	13.94 m	**Downstream Node:**	MHS36
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.180 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:121



Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 0.93 m					
MHS35					
0.00	MH	Start node, manhole, reference: MHS35	00:00:00		
0.00	REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT			
0.00	WL	Water level, 15% of the vertical dimension	00:00:00		
0.77	DEEJ	Attached deposits, encrustation at joint from 1 o'clock to 6 o'clock, 10% cross-sectional area loss	00:00:00		3
13.94	MHF	Finish node, manhole, reference: MHS36	00:00:00		
MHS36					
Depth: 1.18 m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS36X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
100	1	22/11/22	11:49	Not Specified	Rain	Unknown	MHS36X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

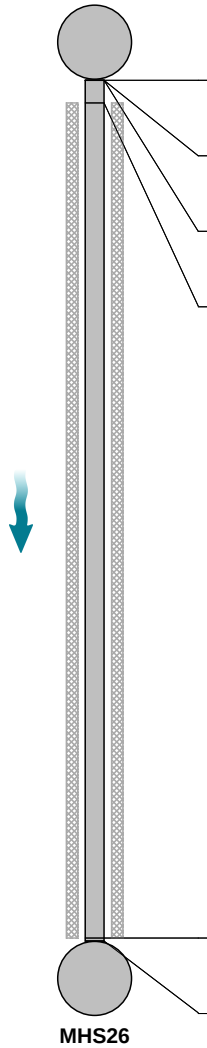
Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS36
Road:	Bishop Hedley	**Inspected Length:**	7.53 m	**Upstream Pipe Depth:**	1.180 m
Location:	Property or buildings	**Total Length:**	7.53 m	**Downstream Node:**	MHS26
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:66

Depth: 1.18 m
MHS36



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS36	00:00:00		
0.00		REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT			
0.00		WL	Water level, 10% of the vertical dimension	00:00:00		
0.20	S01	DES	Settled deposits, fine, 10% cross-sectional area loss, start: PATCHY	00:00:00		
7.50	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, finish: PATCHY	00:00:00		3
7.53		MHF	Finish node, manhole, reference: MHS26	00:00:00		

MHS26
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2.1	16.0	3.0

Draintech Surveys Ltd
Atlantic House, Charnwood park, CF31 3PL

Section Inspection - 22/11/2022 - MHS34X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
101	1	22/11/22	11:48	Not Specified	Rain	Unknown	MHS34X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JK	DL16 ADO	Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Merthyr Tydfil	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS34
Road:	Bishop Hedley	**Inspected Length:**	0.10 m	**Upstream Pipe Depth:**	
Location:	Property or buildings	**Total Length:**	0.10 m	**Downstream Node:**	MHS35
Surface Type:		**Joint Length:**	1.00 m	**Downstream Pipe Depth:**	0.930 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS34	00:00:00		
0.00	REM	General remark: VIDEO HEADER INCORRET PLEASE SEE REPORT			
0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
0.00	DEC	Settled deposits, hard or compacted, 30% cross-sectional area loss	00:00:00		4
0.10	SA	Survey abandoned: UNABLE TO PASS DEBRIS	00:00:00		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	5.0	50.0	5.0	5.0

Appendix D: Welsh Water Pre Planning Enquiry Response

PPA0007337

Conditions For Development Near Water Mains

Location: **Blessed Carlo Acutis, Gwaunfarren Road, Merthyr**
Date: 17.11.2022

The development of the site with our water main located as shown on the attached plan will involve certain conditions which must be strictly adhered to. These are: -

1. Site is crossed by water mains which will need to be traced and located prior to any works being undertaken. This may involve trial holes and possible mains diversions. 12" main total easement is 11.9m (5.95m either side), 150mm main total easement is 10.3m (5.15m either side) and 4" main total easement is 9.5m (4.75m either side). The pipeline must therefore be located and marked up accurately at an early stage so that the Developer or others understand clearly the limits to which they are confined with respect to the Company's apparatus. Arrangements can be made for Company staff to trace and peg out such water mains on request of the Developer.

2. Adequate precautions are to be taken to ensure the protection of the water main during the course of site development.

3. If heavy earthmoving machinery is to be employed, then the routes to be used in moving plant around the site should be clearly indicated. Suitable ramps or other protection will need to be provided to protect the water main from heavy plant.

4. The water main is to be kept free from all temporary buildings, building material and spoil heaps etc.

5. The existing ground cover on the water main should not be increased or decreased.

6. All chambers, covers, marker posts etc. are to be preserved in their present position.

7. Access to the Company's apparatus must be maintained at all times for inspection and maintenance purposes and must not be restricted in any way as a result of the development.

8. No work is to be carried out before this Company has approved the final plans and sections.

These are general conditions only and where appropriate, will be applied in conjunction with specific terms and conditions provided with our quotation and other associated documentation relating to this development.

Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH

Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH

Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Mr Chris Weston
Willmott Dixon Construction Ltd
Global Reach
Wing A 3rd Floor
Celtic Gateway
Dunleavy Drive
Cardiff
CF11 0SN

Date: 17/11/2022
Our Ref: PPA0007337

Dear Mr Weston,

Grid Ref: 305357 207474
Site Address: Blessed Carlo Acutis, Gwaunfarren Road, Merthyr
Development: New School

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

Firstly, we note that the proposal relates to the proposed new School and acknowledge that this is a brownfield site. Therefore, we offer the following comments as part of our appraisal of this development.

Please note, notwithstanding the following assessment, we would advise there is also a mandatory requirement to undertake pre-application consultation with all 'Specialist Consultees', including Dwr Cymru Welsh Water as the statutory water and sewerage undertaker, in accordance with Schedule 4 of Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016. As a major development, amounting to more than 1000sqm, you will be statutorily required to consult Welsh Water and a substantive response will be issued within 28 days from the date of the notice as per the requirements of Article 2E.

glas
Glas Cymru Cyfyngedig

Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in
Welsh and English

Dŵr Cymru Cyf, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

Public Sewerage Network

The proposed development site is located in the immediate vicinity of a combined sewerage system, comprising combined and foul water public sewers, which drains to Cilfynydd Treatment Works (WwTW).

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Surface Water Drainage

As of 07/01/2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.

In this instance, the submitted application form indicates proposals to dispose of surface water flows to an existing watercourse and in principle we offer no objection subject to consultation with Merthyr Tydfil County Borough Council as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice and Guidance note.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

Foul Water Drainage – Sewerage Network

The foul only flows from the proposed development can be accommodated within the public sewerage system. We advise that the flows can be communicated to either the 150mm public combined sewer to the east of the site to the rear of Seward Street or to the 225mm public combined sewer at or downstream of SO05071361 to the west of the site in Gwaunfarren Road as indicated on the extract of public sewer record provided.

Should a planning application be submitted for this development we will seek to control this point of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account.

However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e., a drain which extends beyond the connecting property boundary) or via a new sewer (i.e., serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains and conform with the publication "Sewers for Adoption" – 7th Edition. Further information can be obtained via the Developer Services pages of **www.dwrcymru.com**

If the approved use intends to include food preparation, then an adequate grease trap to be fitted, in accordance with environmental health regulations, and maintained thereafter so as to prevent grease entering the public sewerage system.

We would also point out, that if any of the private connections from the former development were not to be utilised, then they will need to be abandoned and capped off before entering our public sewer. We require these drains to be capped off as to ensure no water infiltration is entering our sewer via your private drain.

Sewage Treatment

No problems are envisaged with the Wastewater Treatment Works for the treatment of domestic discharges from this site

Potable Water Supply

We anticipate this development will require the installation of a new single water connection to serve the new premise. The provisions of Section 45 of the Water industry Act 1991 apply. We therefore rely on the Local Planning Authority to control the delivery of any required reinforcement or offsite works by way of planning condition at planning application stage.

The water supply system in the immediate vicinity has insufficient capacity to serve the development and will also cause detriment to existing customers' water supply. A hydraulic modelling assessment is required to establish the scope of any reinforcement works to be completed in advance of making the connection. As part of the formal planning consultation process, we will seek to ensure that the assessment (and any associated reinforcement works) is completed in advance of the determination of the application or controlled by way of planning condition.

Information relating to our Hydraulic Modelling Assessment process is available on our website and within our guidance notes. The area planning officer will also be able to provide you within information relating to this process.

The proposed development is crossed by a trunk/distribution watermain, the approximate position being shown on the attached plan. Dwr Cymru Welsh Water as Statutory Undertaker has statutory powers to access our apparatus at all times. I enclose our Conditions for Development near Watermain(s). It may be possible for this watermain to be diverted under Section 185 of the Water Industry Act 1991, the cost of which will be re-charged to the developer. The developer must consult Dwr Cymru Welsh Water before any development commences on site.

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.

Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at **developer.services@dwrcymru.com**

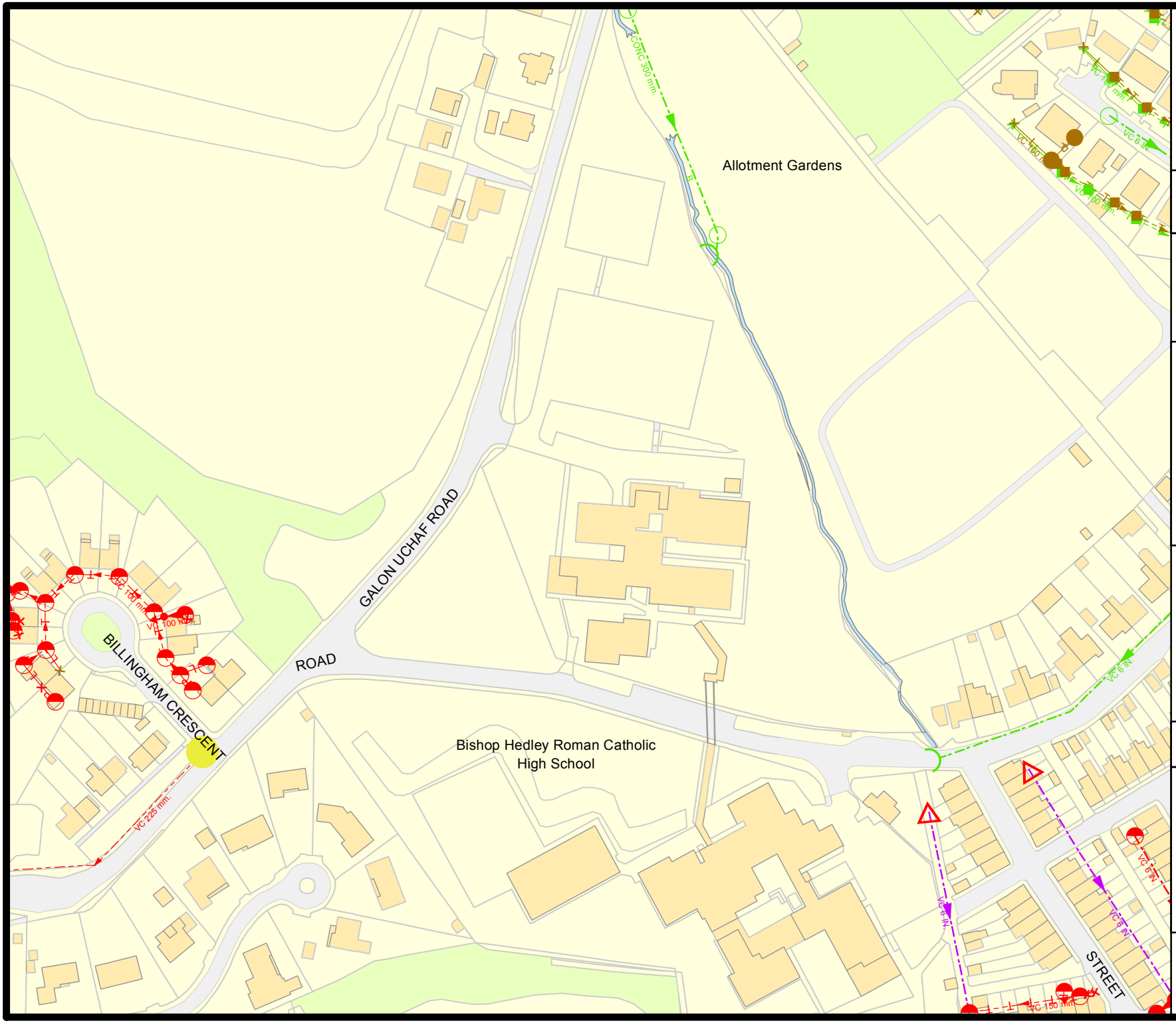
Please quote our reference number in all communications and correspondence.

Yours faithfully,



Owain George
Planning Liaison Manager
Developer Services

***Please Note** that demands upon the water and sewerage systems change continually; consequently, the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.*



Dŵr Cymru
Welsh Water

PPA0007337 Public Sewer Record

N
W E
S

LEGEND(Representative of most common features)

Waste network:

- Foul chamber
- Surface water chamber
- Combined chamber
- Combined sewer overflow
- Special purpose chamber
- Treatment works
- Pumping station
- Outfall
- Lamphole
- Storm Overflow
- Rising main
- Gravity sewer
- Private sewer
- Private sewer subject to Sect. 104 adoption agreement
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

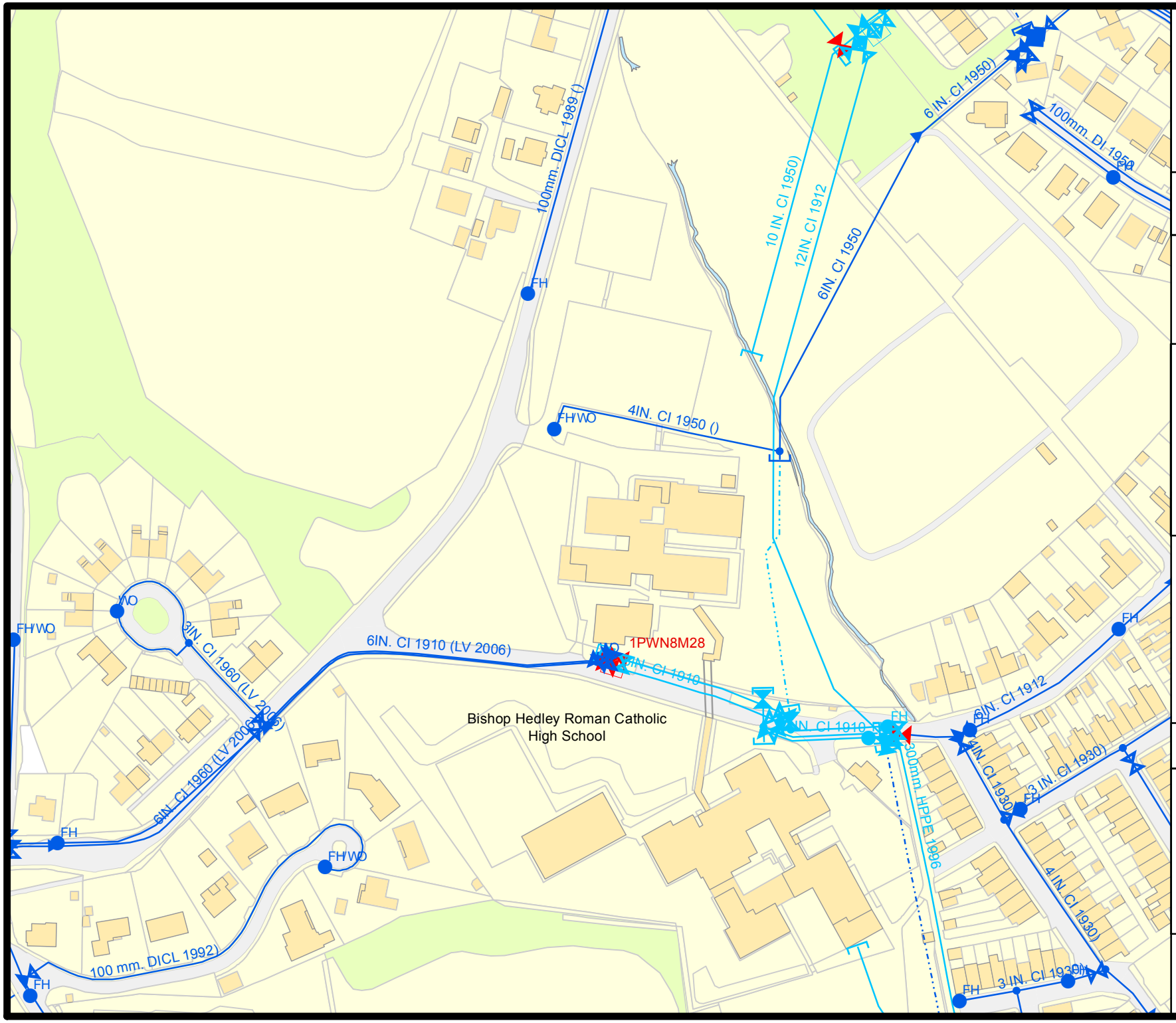
Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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Map Ref:	305336,207458
Map scale:	1:1831
Printed by:	Jeremy Hackman
Printed on:	17 Nov 2022



Dŵr Cymru
Welsh Water

PPA0007337 Water Main Plan

N
W E
S

LEGEND

Clean network:

- Sluice valve
- Pressure reducing valve
- Meter
- Bulk meter
- Hydrant
- Cap end
- Air valve
- Stop tap
- Water Treatment Works
- Water Pumping Station
- Existing main
- Non-operational main
- Raw Water

NB: Water main symbol colour indicates the type.

LIGHT BLUE - Trunk
DARK BLUE - Distribution
YELLOW - Raw Water

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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Map Ref:	305333,207455
Map scale:	1:2000
Printed by:	Jeremy Hackman
Printed on:	17 Nov 2022

Appendix E: Drainage Catchment Plans



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PHASE 2 (NORTHERN SITE)
KEY:

HARDSTANDING CATCHMENT AREA (AREA 13664m²)

GREEN SPACE CATCHMENT AREA (AREA 9586m²)

SITE AREA = 23250m²

58.77% PIMP

Rev.	Description	By	Chk	App
P03	ISSUED FOR PLANNING. 25/04/23	DC	BW	BW
P02	SITE LAYOUT CHANGE. 08/02/23	DC	BW	BW
P01	FIRST ISSUE. 06/02/23	DC	BW	BW

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

PROPOSED DRAINAGE CATCHMENT PLAN (Sheet 1 of 3)

Drawing No.

Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	1500

Status:	Scale @A1:	Rev:
S4 STAGE APPROVAL	1:500	P03

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PHASE 1 (SOUTHERN SITE)
KEY:

HARDSTANDING CATCHMENT AREA (AREA 10669m²)

GREEN SPACE CATCHMENT AREA (AREA 17363m²)

SITE AREA = 28032m²

38.06% PIMP

Rev.	Description	By	Chk	App
P03	ISSUED FOR PLANNING.	DC	BW	BW
		25/04/23		
P02	SITE LAYOUT CHANGE.	DC	BW	BW
		08/02/23		
P01	FIRST ISSUE.	DC	BW	BW
		06/02/23		

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

PROPOSED DRAINAGE CATCHMENT PLAN (Sheet 2 of 3)

Drawing No.

BCA CAM VX XX D C 1501

Project Originator Vol. Level Type Role Number

Status: S4 STAGE APPROVAL

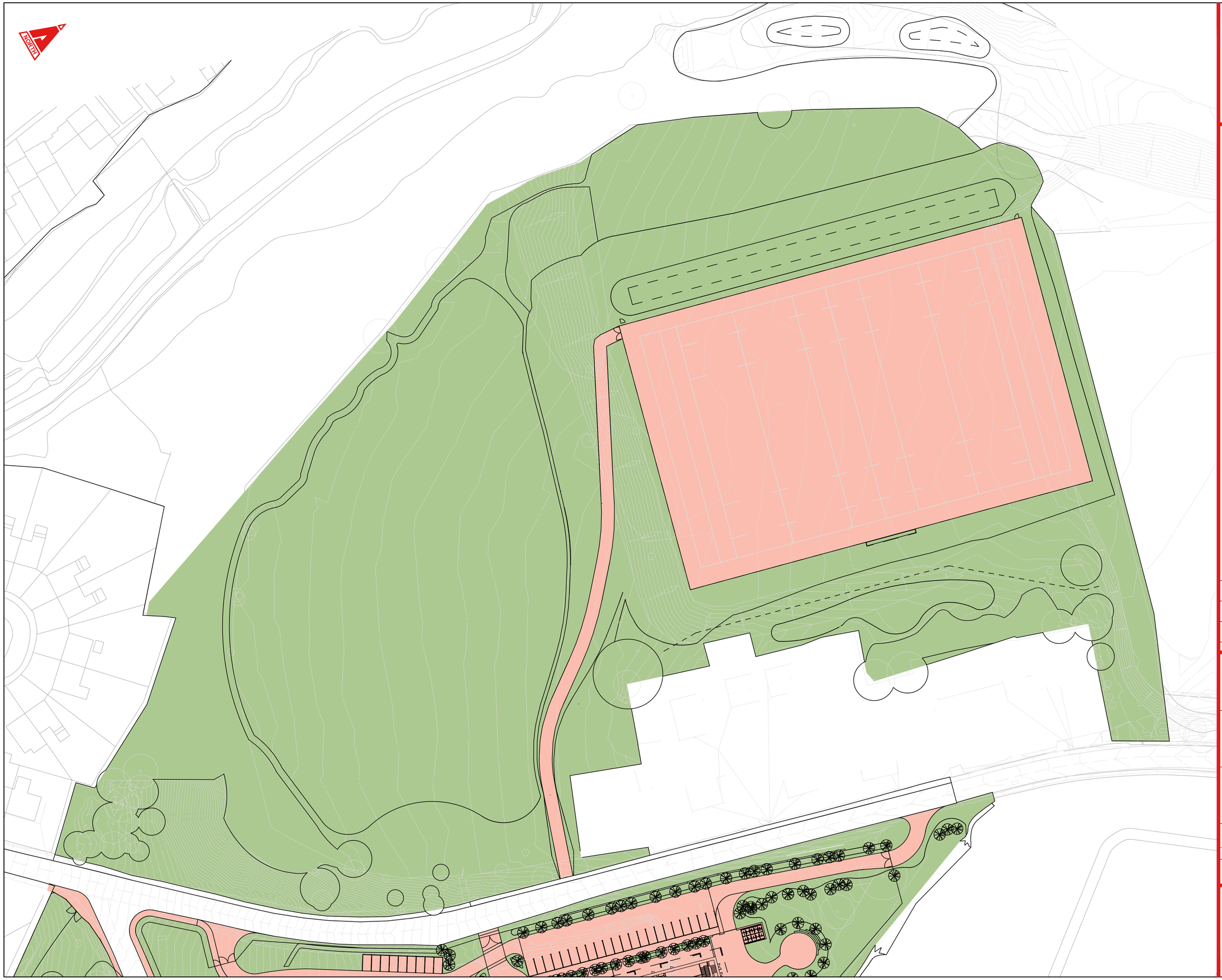
Scale @A1: 1:500

Rev: P03

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WESTERN PLAYING FIELDS
KEY:

HARDSTANDING CATCHMENT AREA (AREA 10350m²)

GREEN SPACE CATCHMENT AREA (AREA 34588m²)

SITE AREA = 44934m²

23.03% PIMP

Rev.	Description	By	Chk	App
P03	ISSUED FOR PLANNING. 25/04/23	DC	BW	BW
P02	SITE LAYOUT CHANGE. 08/02/23	DC	BW	BW
P01	FIRST ISSUE. 06/02/23	DC	BW	BW

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

PROPOSED DRAINAGE CATCHMENT PLAN (Sheet 3 of 3)

Drawing No.

Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	1502

Status:	Scale @A1:	Rev:
S4 STAGE APPROVAL	1:250	P03

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Appendix F: Hydraulic Calculations

Existing Network Details for North Catchment

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	31.137	1.800	17.3	0.147	5.00	0.0	0.600	o	150	Pipe/Conduit
1.001	30.263	1.170	25.9	0.081	0.00	0.0	0.600	o	150	Pipe/Conduit
1.002	19.824	1.140	17.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
2.000	12.287	0.540	22.8	0.098	5.00	0.0	0.600	o	150	Pipe/Conduit
2.001	31.911	1.440	22.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
2.002	12.200	0.440	27.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
2.003	24.146	1.380	17.5	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit
1.003	25.696	1.440	17.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
3.000	28.874	0.430	67.1	0.029	5.00	0.0	0.600	o	150	Pipe/Conduit
1.004	15.020	0.610	24.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.005	9.004	0.420	21.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
4.000	21.803	0.680	32.1	0.026	5.00	0.0	0.600	o	150	Pipe/Conduit
4.001	13.600	1.120	12.1	0.019	5.00	0.0	0.600	o	150	Pipe/Conduit
5.000	10.825	0.260	41.6	0.013	5.00	0.0	0.600	o	100	Pipe/Conduit
4.002	21.402	0.920	23.3	0.025	0.00	0.0	0.600	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.000	267.020	0.147	0.0	2.43	43.0
1.001	265.220	0.228	0.0	1.99	35.1
1.002	264.050	0.228	0.0	2.43	42.9
2.000	266.710	0.098	0.0	2.12	37.5
2.001	266.170	0.098	0.0	2.15	38.0
2.002	264.730	0.098	0.0	1.92	33.9
2.003	264.290	0.127	0.0	2.42	42.8
1.003	262.910	0.355	0.0	2.40	42.3
3.000	261.900	0.029	0.0	1.23	21.7
1.004	261.470	0.384	0.0	2.04	36.0
1.005	260.860	0.384	0.0	2.18	38.6
4.000	263.800	0.026	0.0	1.78	31.5
4.001	263.120	0.045	0.0	2.91	51.4
5.000	262.260	0.013	0.0	1.20	9.4
4.002	262.260	0.083	0.0	2.10	37.1

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Existing Network Details for North Catchment

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
4.003	17.220	0.900	19.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.006	34.077	1.440	23.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
4.003	261.340	0.083	0.0	2.31	40.9
1.006	260.440	0.467	0.0	2.70	107.4

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Area Summary for North Catchment

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.147	0.147	0.147
1.001	-	-	100	0.081	0.081	0.081
1.002	-	-	100	0.000	0.000	0.000
2.000	-	-	100	0.098	0.098	0.098
2.001	-	-	100	0.000	0.000	0.000
2.002	-	-	100	0.000	0.000	0.000
2.003	-	-	100	0.029	0.029	0.029
1.003	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.029	0.029	0.029
1.004	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.026	0.026	0.026
4.001	-	-	100	0.019	0.019	0.019
5.000	-	-	100	0.013	0.013	0.013
4.002	-	-	100	0.025	0.025	0.025
4.003	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.467	0.467	0.467

Free Flowing Outfall Details for North Catchment

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.006		260.000	259.000	0.000	0	0

Simulation Criteria for North Catchment

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point

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Synthetic Rainfall Details

Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	28	15 Winter	2	+0%	30/15 Summer			
1.001	29	15 Winter	2	+0%	30/15 Summer	30/15 Summer		
1.002	30	15 Winter	2	+0%	30/15 Summer			
2.000	34	15 Winter	2	+0%	100/15 Winter			
2.001	33	15 Winter	2	+0%	100/15 Summer			
2.002	6	15 Winter	2	+0%	30/15 Summer	100/15 Winter		
2.003	31	15 Winter	2	+0%	30/15 Summer			
1.003	100	15 Winter	2	+0%	2/15 Summer	30/15 Summer		
3.000	101	15 Winter	2	+0%	30/15 Summer			
1.004	30	15 Winter	2	+0%	2/15 Summer	30/15 Summer		
1.005	102	15 Winter	2	+0%	2/15 Summer			
4.000	19	15 Winter	2	+0%				
4.001	20	15 Winter	2	+0%				
5.000	24	15 Winter	2	+0%	30/15 Summer			

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	28	267.091	-0.079	0.000	0.45			18.6	OK
1.001	29	265.324	-0.046	0.000	0.81			27.1	OK
1.002	30	264.142	-0.058	0.000	0.68			27.4	OK
2.000	34	266.773	-0.087	0.000	0.36			12.4	OK
2.001	33	266.231	-0.089	0.000	0.34			12.3	OK
2.002	6	264.797	-0.083	0.000	0.40			12.4	OK
2.003	31	264.355	-0.085	0.000	0.38			15.6	OK
1.003	100	263.315	0.255	0.000	0.97			39.1	SURCHARGED
3.000	101	262.011	-0.039	0.000	0.17			3.6	OK
1.004	30	261.996	0.376	0.000	1.18			39.3	SURCHARGED
1.005	102	261.144	0.134	0.000	1.16			39.2	SURCHARGED
4.000	19	263.833	-0.117	0.000	0.11			3.3	OK
4.001	20	263.155	-0.115	0.000	0.12			5.7	OK
5.000	24	262.329	-0.031	0.000	0.19			1.6	OK

PN	US/MH Name	Level Exceeded
1.000	28	
1.001	29	12
1.002	30	
2.000	34	
2.001	33	
2.002	6	3
2.003	31	
1.003	100	13
3.000	101	
1.004	30	16
1.005	102	
4.000	19	
4.001	20	
5.000	24	

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
4.002	27	15 Winter	2	+0%					262.315
4.003	25	15 Winter	2	+0%					261.392
1.006	26	15 Winter	2	+0%					260.548

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
4.002	27	-0.095	0.000	0.29			10.0	OK	
4.003	25	-0.098	0.000	0.26			10.1	OK	
1.006	26	-0.117	0.000	0.47			47.2	OK	

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	28	15 Summer	30	+0%	30/15 Summer			
1.001	29	15 Summer	30	+0%	30/15 Summer	30/15 Summer		
1.002	30	30 Summer	30	+0%	30/15 Summer			
2.000	34	15 Winter	30	+0%	100/15 Winter			
2.001	33	15 Winter	30	+0%	100/15 Summer			
2.002	6	15 Summer	30	+0%	30/15 Summer	100/15 Winter		
2.003	31	15 Summer	30	+0%	30/15 Summer			
1.003	100	15 Winter	30	+0%	2/15 Summer	30/15 Summer		
3.000	101	60 Summer	30	+0%	30/15 Summer			
1.004	30	15 Summer	30	+0%	2/15 Summer	30/15 Summer		
1.005	102	30 Winter	30	+0%	2/15 Summer			
4.000	19	15 Winter	30	+0%				
4.001	20	15 Winter	30	+0%				
5.000	24	15 Winter	30	+0%	30/15 Summer			

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	28	267.440	0.270	0.000	0.82			34.0	SURCHARGED
1.001	29	266.560	1.190	0.440	1.14			38.4	FLOOD
1.002	30	265.341	1.141	0.000	0.86			34.5	FLOOD RISK
2.000	34	266.813	-0.047	0.000	0.80			27.0	OK
2.001	33	266.268	-0.052	0.000	0.73			26.8	OK
2.002	6	265.153	0.273	0.000	0.79			24.3	SURCHARGED
2.003	31	264.973	0.533	0.000	0.68			27.4	SURCHARGED
1.003	100	264.503	1.443	2.664	1.20			48.4	FLOOD
3.000	101	262.471	0.421	0.000	0.65			13.6	FLOOD RISK
1.004	30	262.432	0.812	2.530	1.36			45.2	FLOOD
1.005	102	261.318	0.308	0.000	1.32			45.0	SURCHARGED
4.000	19	263.850	-0.100	0.000	0.24			7.2	OK
4.001	20	263.173	-0.097	0.000	0.26			12.4	OK
5.000	24	262.395	0.035	0.000	0.41			3.6	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	28	
1.001	29	12
1.002	30	
2.000	34	
2.001	33	
2.002	6	3
2.003	31	
1.003	100	13
3.000	101	
1.004	30	16
1.005	102	
4.000	19	
4.001	20	
5.000	24	

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
4.002	27	15 Winter	30	+0%					262.351
4.003	25	15 Winter	30	+0%					261.425
1.006	26	15 Winter	30	+0%					260.573

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
4.002	27	-0.059	0.000	0.65			22.9	OK	
4.003	25	-0.065	0.000	0.60			22.8	OK	
1.006	26	-0.092	0.000	0.65			66.0	OK	

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	28	15 Winter	100	+0%	30/15 Summer			
1.001	29	15 Summer	100	+0%	30/15 Summer	30/15 Summer		
1.002	30	15 Summer	100	+0%	30/15 Summer			
2.000	34	15 Winter	100	+0%	100/15 Winter			
2.001	33	15 Winter	100	+0%	100/15 Summer			
2.002	6	15 Winter	100	+0%	30/15 Summer	100/15 Winter		
2.003	31	30 Winter	100	+0%	30/15 Summer			
1.003	100	30 Winter	100	+0%	2/15 Summer	30/15 Summer		
3.000	101	60 Summer	100	+0%	30/15 Summer			
1.004	30	15 Summer	100	+0%	2/15 Summer	30/15 Summer		
1.005	102	60 Winter	100	+0%	2/15 Summer			
4.000	19	15 Winter	100	+0%				
4.001	20	15 Winter	100	+0%				
5.000	24	15 Winter	100	+0%	30/15 Summer			

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	28	268.024	0.854	0.000	0.89			36.8	FLOOD RISK
1.001	29	266.564	1.194	3.693	1.18			39.8	FLOOD
1.002	30	265.342	1.142	0.000	0.86			34.6	FLOOD RISK
2.000	34	266.861	0.001	0.000	0.98			33.4	SURCHARGED
2.001	33	266.482	0.162	0.000	0.88			32.1	SURCHARGED
2.002	6	265.630	0.750	0.216	0.87			26.6	FLOOD
2.003	31	265.346	0.906	0.000	0.78			31.6	FLOOD RISK
1.003	100	264.508	1.448	7.820	1.20			48.4	FLOOD
3.000	101	262.496	0.446	0.000	0.66			13.6	FLOOD RISK
1.004	30	262.434	0.814	4.186	1.36			45.2	FLOOD
1.005	102	261.320	0.310	0.000	1.33			45.0	SURCHARGED
4.000	19	263.857	-0.093	0.000	0.30			9.0	OK
4.001	20	263.180	-0.090	0.000	0.33			15.5	OK
5.000	24	262.433	0.073	0.000	0.51			4.5	SURCHARGED

PN	US/MH Name	Level Exceeded
1.000	28	
1.001	29	12
1.002	30	
2.000	34	
2.001	33	
2.002	6	3
2.003	31	
1.003	100	13
3.000	101	
1.004	30	16
1.005	102	
4.000	19	
4.001	20	
5.000	24	

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for North Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
4.002	27	15 Winter	100	+0%					262.366
4.003	25	15 Winter	100	+0%					261.439
1.006	26	15 Winter	100	+0%					260.582

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
4.002	27	-0.044	0.000	0.82			28.6	OK	
4.003	25	-0.051	0.000	0.75			28.5	OK	
1.006	26	-0.083	0.000	0.72			73.0	OK	

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Existing Network Details for South Catchment

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
S1.000	20.561	0.820	25.1	0.045	5.00	0.0	0.600	o	100	Pipe/Conduit
S1.001	21.246	0.850	25.0	0.034	0.00	0.0	0.600	o	100	Pipe/Conduit
S2.000	14.836	0.990	15.0	0.015	5.00	0.0	0.600	o	100	Pipe/Conduit
S1.002	21.678	2.710	8.0	0.033	0.00	0.0	0.600	o	100	Pipe/Conduit
S1.003	8.475	0.290	29.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
S1.004	19.029	0.560	34.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
S1.005	29.514	0.440	67.1	0.049	0.00	0.0	0.600	o	150	Pipe/Conduit
S1.006	13.182	0.410	32.2	0.029	0.00	0.0	0.600	o	100	Pipe/Conduit
S3.000	22.789	0.410	55.6	0.035	5.00	0.0	0.600	o	100	Pipe/Conduit
S4.000	20.230	0.420	48.2	0.041	5.00	0.0	0.600	o	100	Pipe/Conduit
S3.001	25.796	2.480	10.4	0.034	0.00	0.0	0.600	o	100	Pipe/Conduit
S3.002	17.523	1.760	10.0	0.060	0.00	0.0	0.600	o	100	Pipe/Conduit
S3.003	29.715	0.790	37.6	0.027	0.00	0.0	0.600	o	100	Pipe/Conduit
S1.007	94.442	8.090	11.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
S1.008	13.917	0.950	14.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
S1.000	253.020	0.045	0.0	1.55	12.2
S1.001	252.200	0.079	0.0	1.55	12.2
S2.000	252.340	0.015	0.0	2.01	15.8
S1.002	251.350	0.127	0.0	2.75	21.6
S1.003	248.640	0.127	0.0	1.87	33.0
S1.004	248.350	0.127	0.0	1.73	30.6
S1.005	247.790	0.176	0.0	1.23	21.7
S1.006	247.350	0.205	0.0	1.37	10.7
S3.000	252.380	0.035	0.0	1.04	8.1
S4.000	252.390	0.041	0.0	1.11	8.7
S3.001	251.970	0.110	0.0	2.41	18.9
S3.002	249.490	0.170	0.0	2.46	19.4
S3.003	247.730	0.197	0.0	1.26	9.9
S1.007	246.940	0.402	0.0	3.85	153.1
S1.008	238.850	0.402	0.0	3.44	136.6

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Area Summary for South Catchment

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.045	0.045	0.045
1.001	-	-	100	0.034	0.034	0.034
2.000	-	-	100	0.015	0.015	0.015
1.002	-	-	100	0.033	0.033	0.033
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.049	0.049	0.049
1.006	-	-	100	0.029	0.029	0.029
3.000	-	-	100	0.035	0.035	0.035
4.000	-	-	100	0.041	0.041	0.041
3.001	-	-	100	0.034	0.034	0.034
3.002	-	-	100	0.060	0.060	0.060
3.003	-	-	100	0.027	0.027	0.027
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.402	0.402	0.402

Free Flowing Outfall Details for South Catchment

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.008	S	239.200	237.900	0.000	0	0

Simulation Criteria for South Catchment

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes

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Synthetic Rainfall Details

Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S2	15 Winter	2	+0%	30/15 Summer			
S1.001	S3	15 Winter	2	+0%	30/15 Summer			
S2.000	S7	15 Winter	2	+0%				
S1.002	S8	15 Winter	2	+0%	30/15 Summer	100/15 Summer		
S1.003	S9	15 Winter	2	+0%	30/15 Summer			
S1.004	S10	15 Winter	2	+0%	30/15 Summer	30/15 Summer		
S1.005	S11	15 Summer	2	+0%	2/15 Summer			
S1.006	S12	15 Winter	2	+0%	2/15 Summer			
S3.000	S6	15 Winter	2	+0%	30/15 Summer	100/30 Winter		
S4.000	S4	15 Winter	2	+0%	30/15 Summer	30/30 Winter		
S3.001	S5	15 Winter	2	+0%	30/15 Summer	100/30 Summer		
S3.002	S15	15 Summer	2	+0%	2/15 Summer			
S3.003	S14	15 Winter	2	+0%	2/15 Summer	30/15 Summer		
S1.007	S13	15 Winter	2	+0%				

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S2	253.070	-0.050	0.000	0.48			5.7	OK
S1.001	S3	252.269	-0.031	0.000	0.79			9.3	OK
S2.000	S7	252.364	-0.076	0.000	0.13			1.9	OK
S1.002	S8	251.413	-0.037	0.000	0.71			14.8	OK
S1.003	S9	248.717	-0.073	0.000	0.52			14.9	OK
S1.004	S10	248.427	-0.073	0.000	0.52			14.9	OK
S1.005	S11	248.135	0.195	0.000	0.77			16.0	SURCHARGED
S1.006	S12	248.052	0.602	0.000	1.57			15.9	SURCHARGED
S3.000	S6	252.434	-0.046	0.000	0.56			4.4	OK
S4.000	S4	252.447	-0.043	0.000	0.61			5.1	OK
S3.001	S5	252.034	-0.036	0.000	0.72			13.2	OK
S3.002	S15	249.821	0.231	0.000	0.88			16.3	SURCHARGED
S3.003	S14	248.941	1.111	0.000	1.55			15.0	FLOOD RISK
S1.007	S13	247.009	-0.156	0.000	0.21			30.8	OK

PN	US/MH Name	Level Exceeded
S1.000	S2	
S1.001	S3	
S2.000	S7	
S1.002	S8	5
S1.003	S9	
S1.004	S10	20
S1.005	S11	
S1.006	S12	
S3.000	S6	1
S4.000	S4	7
S3.001	S5	2
S3.002	S15	
S3.003	S14	24
S1.007	S13	

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2 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.008	S9	15 Winter	2	+0%					238.927

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.008	S9	-0.148	0.000	0.26			30.8	FLOOD RISK	

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S2	15 Summer	30	+0%	30/15 Summer			
S1.001	S3	15 Summer	30	+0%	30/15 Summer			
S2.000	S7	15 Winter	30	+0%				
S1.002	S8	15 Summer	30	+0%	30/15 Summer	100/15 Summer		
S1.003	S9	15 Winter	30	+0%	30/15 Summer			
S1.004	S10	15 Winter	30	+0%	30/15 Summer	30/15 Summer		
S1.005	S11	15 Winter	30	+0%	2/15 Summer			
S1.006	S12	30 Winter	30	+0%	2/15 Summer			
S3.000	S6	15 Summer	30	+0%	30/15 Summer	100/30 Winter		
S4.000	S4	30 Summer	30	+0%	30/15 Summer	30/30 Winter		
S3.001	S5	15 Winter	30	+0%	30/15 Summer	100/30 Summer		
S3.002	S15	30 Winter	30	+0%	2/15 Summer			
S3.003	S14	60 Winter	30	+0%	2/15 Summer	30/15 Summer		
S1.007	S13	30 Winter	30	+0%				

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S2	253.339	0.219	0.000	0.83			9.7	SURCHARGED
S1.001	S3	252.936	0.636	0.000	1.14			13.5	SURCHARGED
S2.000	S7	252.376	-0.064	0.000	0.28			4.1	OK
S1.002	S8	251.850	0.400	0.000	1.02			21.2	FLOOD RISK
S1.003	S9	249.138	0.348	0.000	0.73			21.1	SURCHARGED
S1.004	S10	248.985	0.485	4.667	0.65			18.7	FLOOD
S1.005	S11	248.971	1.031	0.000	0.89			18.5	FLOOD RISK
S1.006	S12	248.783	1.333	0.000	2.06			20.9	FLOOD RISK
S3.000	S6	252.870	0.390	0.000	0.84			6.6	SURCHARGED
S4.000	S4	252.980	0.490	0.000	0.86			7.3	FLOOD RISK
S3.001	S5	252.844	0.774	0.000	0.89			16.4	FLOOD RISK
S3.002	S15	251.677	2.087	0.000	1.23			22.9	SURCHARGED
S3.003	S14	248.991	1.161	10.859	1.57			15.2	FLOOD
S1.007	S13	247.014	-0.151	0.000	0.24			36.0	OK

PN	US/MH Name	Level Exceeded
S1.000	S2	
S1.001	S3	
S2.000	S7	
S1.002	S8	5
S1.003	S9	
S1.004	S10	20
S1.005	S11	
S1.006	S12	
S3.000	S6	1
S4.000	S4	7
S3.001	S5	2
S3.002	S15	
S3.003	S14	24
S1.007	S13	

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30 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.008	S9	30 Winter	30	+0%					238.934

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.008	S9	-0.141	0.000	0.30			36.0	FLOOD RISK	

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 305313 207812 SO 05313 07812
Data Type	Point
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S2	15 Winter	100	+0%	30/15 Summer			
S1.001	S3	30 Winter	100	+0%	30/15 Summer			
S2.000	S7	15 Winter	100	+0%				
S1.002	S8	15 Winter	100	+0%	30/15 Summer	100/15 Summer		
S1.003	S9	15 Summer	100	+0%	30/15 Summer			
S1.004	S10	15 Winter	100	+0%	30/15 Summer	30/15 Summer		
S1.005	S11	15 Winter	100	+0%	2/15 Summer			
S1.006	S12	15 Winter	100	+0%	2/15 Summer			
S3.000	S6	30 Winter	100	+0%	30/15 Summer	100/30 Winter		
S4.000	S4	30 Winter	100	+0%	30/15 Summer	30/30 Winter		
S3.001	S5	15 Summer	100	+0%	30/15 Summer	100/30 Summer		
S3.002	S15	30 Winter	100	+0%	2/15 Summer			
S3.003	S14	60 Winter	100	+0%	2/15 Summer	30/15 Summer		
S1.007	S13	30 Summer	100	+0%				

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S2	253.811	0.691	0.000	0.82			9.7	FLOOD RISK
S1.001	S3	253.402	1.102	0.000	1.25			14.7	SURCHARGED
S2.000	S7	252.381	-0.059	0.000	0.35			5.2	OK
S1.002	S8	252.071	0.621	0.739	1.04			21.7	FLOOD
S1.003	S9	249.148	0.358	0.000	0.75			21.7	SURCHARGED
S1.004	S10	248.988	0.488	7.843	0.64			18.5	FLOOD
S1.005	S11	249.054	1.114	0.000	0.89			18.5	FLOOD RISK
S1.006	S12	248.900	1.450	0.000	2.13			21.6	FLOOD RISK
S3.000	S6	253.380	0.900	0.108	0.91			7.1	FLOOD
S4.000	S4	253.024	0.534	3.836	1.28			10.8	FLOOD
S3.001	S5	253.017	0.947	0.000	0.90			16.5	FLOOD RISK
S3.002	S15	252.218	2.628	0.000	1.35			25.1	SURCHARGED
S3.003	S14	248.998	1.168	18.090	1.58			15.2	FLOOD
S1.007	S13	247.015	-0.150	0.000	0.25			36.8	OK

PN	US/MH Name	Level Exceeded
S1.000	S2	
S1.001	S3	
S2.000	S7	
S1.002	S8	5
S1.003	S9	
S1.004	S10	20
S1.005	S11	
S1.006	S12	
S3.000	S6	1
S4.000	S4	7
S3.001	S5	2
S3.002	S15	
S3.003	S14	24
S1.007	S13	

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100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for South Catchment

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.008	S9	30 Summer	100	+0%					238.935

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.008	S9	-0.140	0.000	0.31			36.8	FLOOD RISK	

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ICP SUDS Mean Annual Flood

Input

Return Period (years) 1 SAAR (mm) 1600 Urban 0.321
Area (ha) 2.339 Soil 0.500 Region Number Region 9

Results l/s

QBAR Rural 34.0
QBAR Urban 49.4

Q1 year 43.4

Q1 year 43.4
Q30 years 80.4
Q100 years 92.6

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.500
Area (ha)	2.613	Urban	0.409
SAAR (mm)	1600	Region Number	Region 9

Results l/s

QBAR Rural	38.0
QBAR Urban	60.2
Q1 year	53.0
Q1 year	53.0
Q30 years	96.2
Q100 years	109.5

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ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.500
Area (ha)	0.825	Urban	0.000
SAAR (mm)	1600	Region Number	Region 9

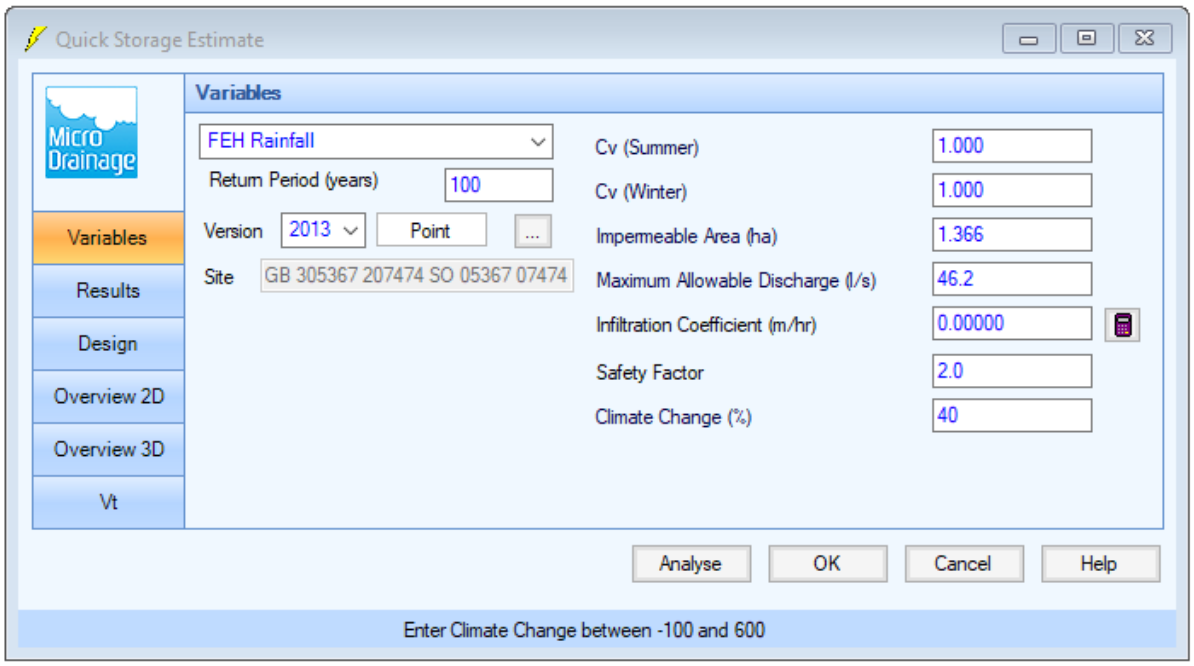
Results l/s

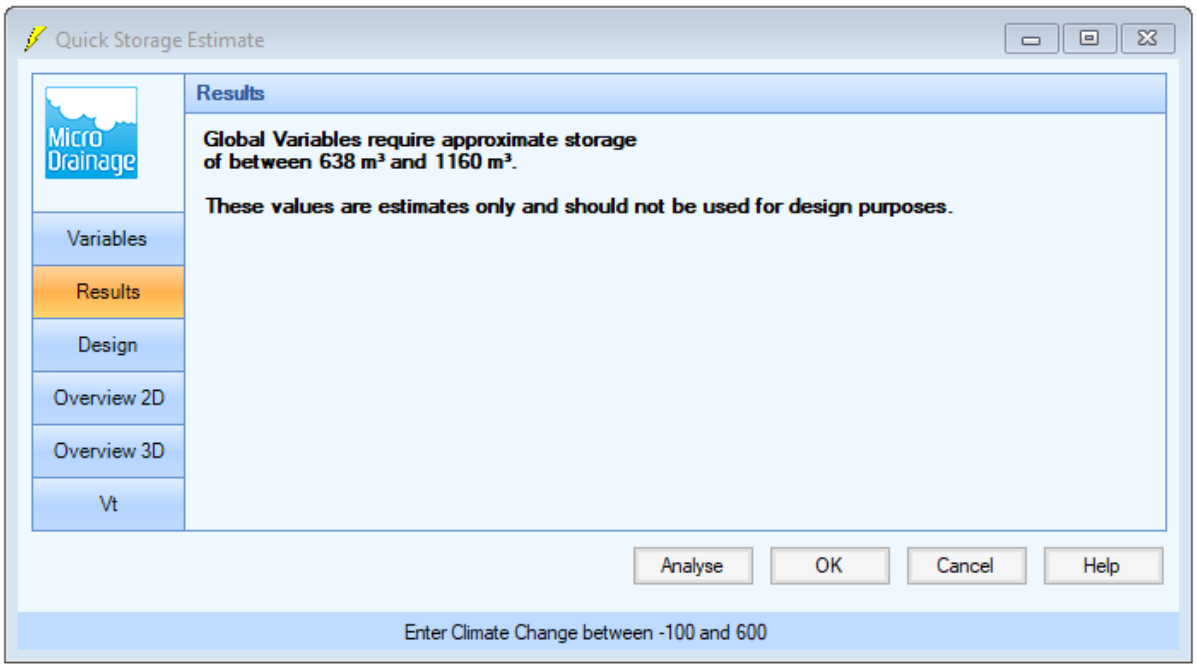
QBAR Rural	12.0
QBAR Urban	12.0
Q1 year	10.5
Q1 year	10.5
Q30 years	21.1
Q100 years	26.1

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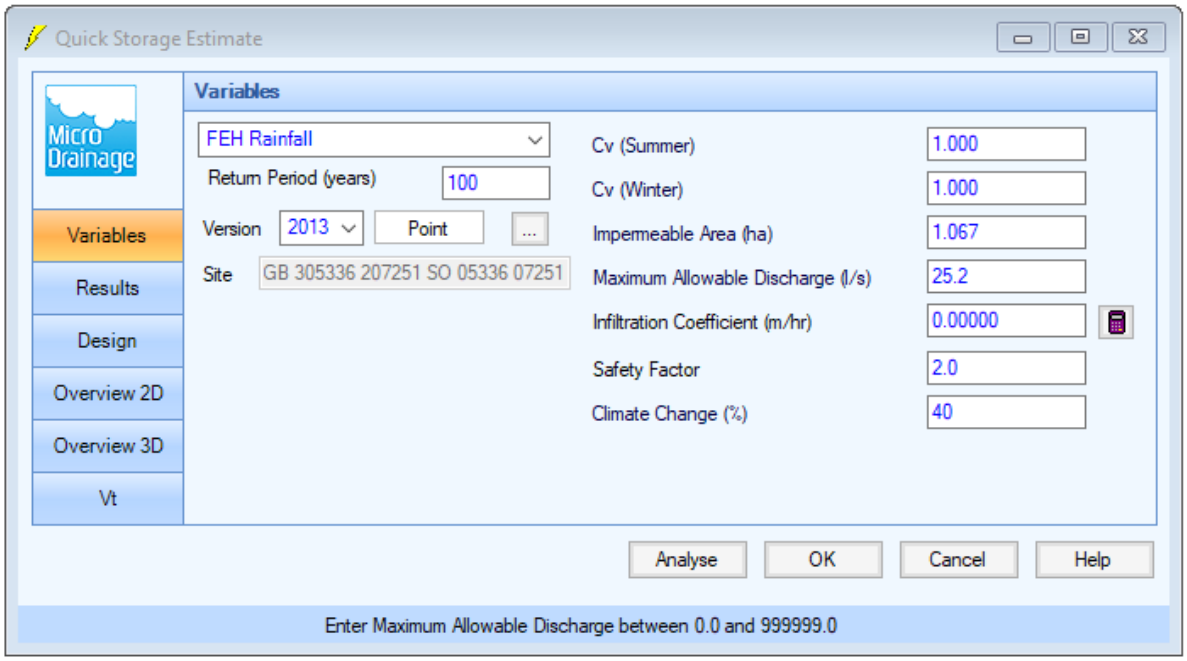
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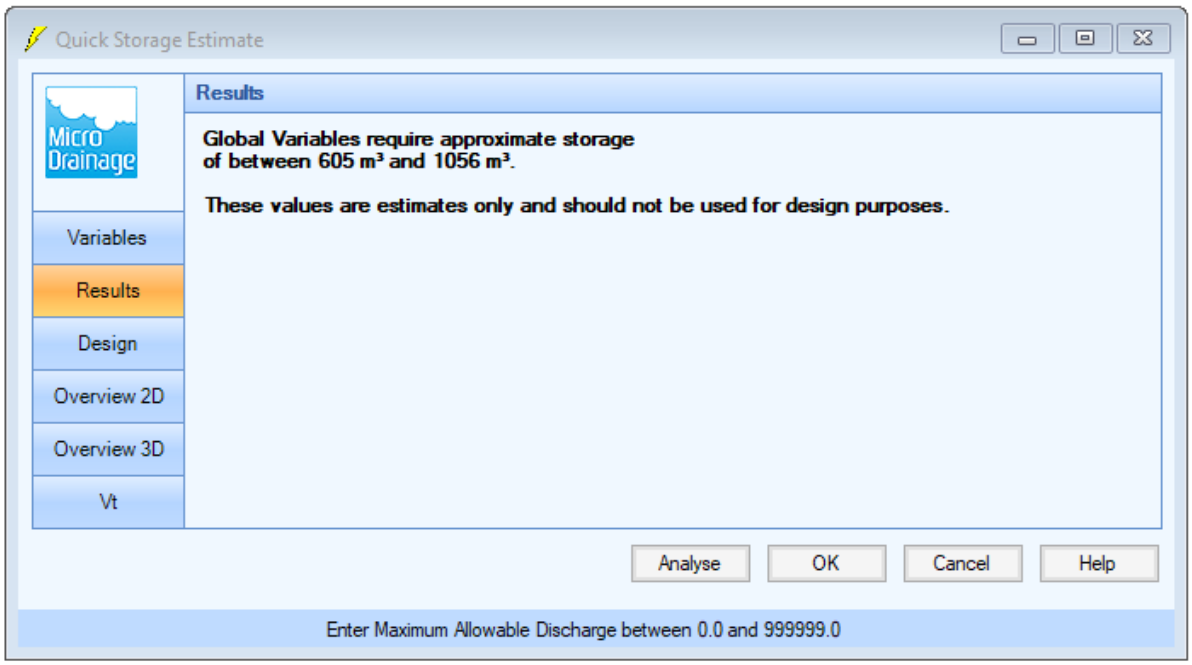
Northern Catchment



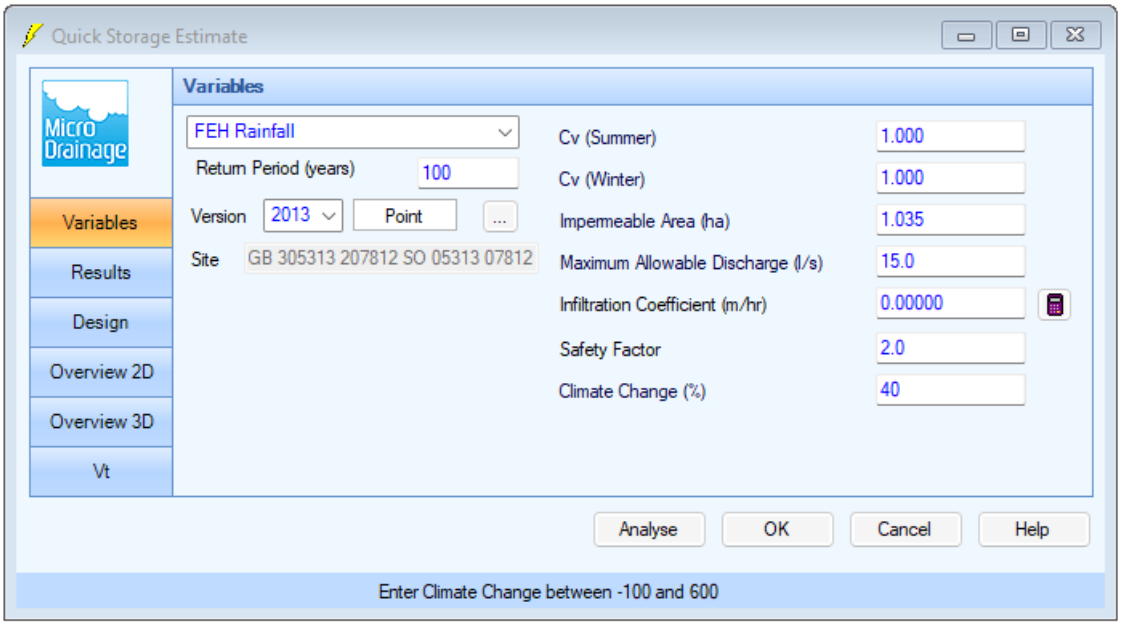


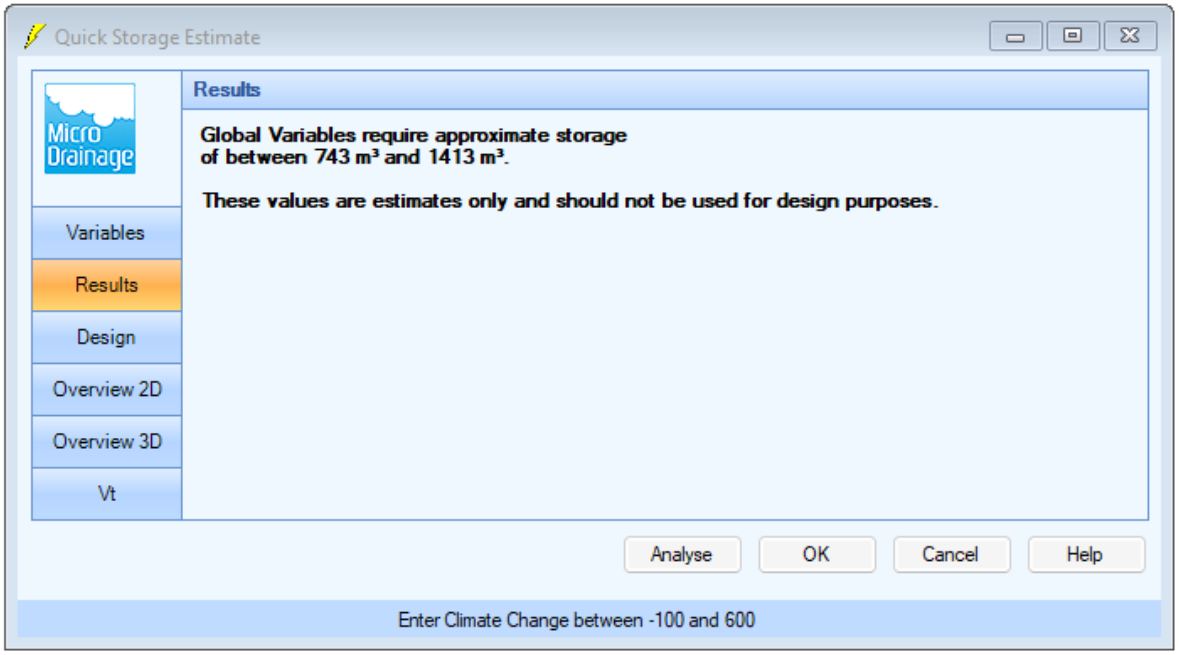
Southern Catchment

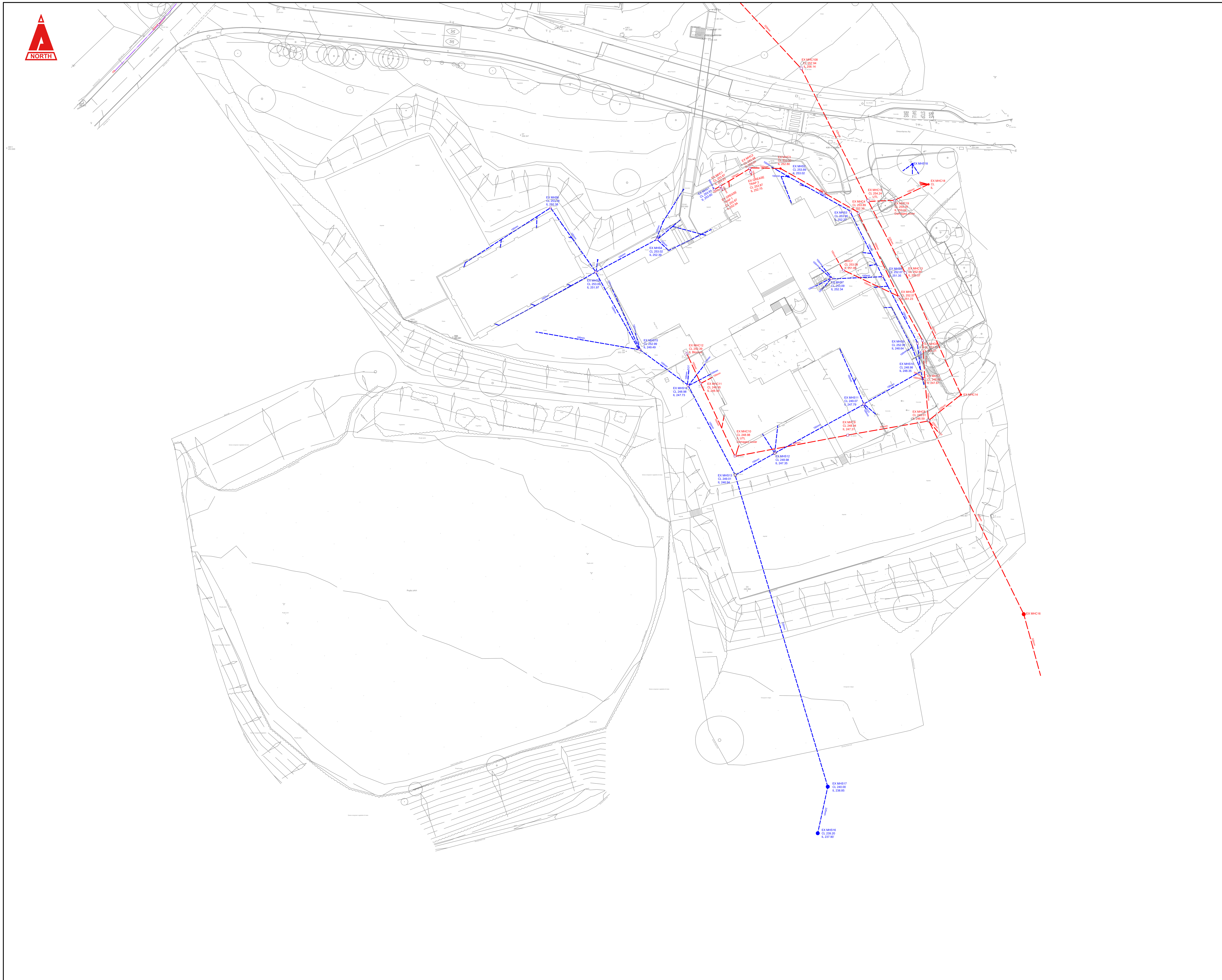




Western Playing Fields Catchment







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KEY:

- SW SEWER
- FW SEWER

Rev.	Description	By	Chk	App
P01	FIRST ISSUE (08/12/22)	DC	BW	BW

Client: Cyngor Bwrdeistref Sirol Merthyr Tudful / Merthyr Tydfil County Borough Council; Willmott Dixon Construction

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

EXISTING DRAINAGE (SHEET 1 OF 2)

Drawing No.

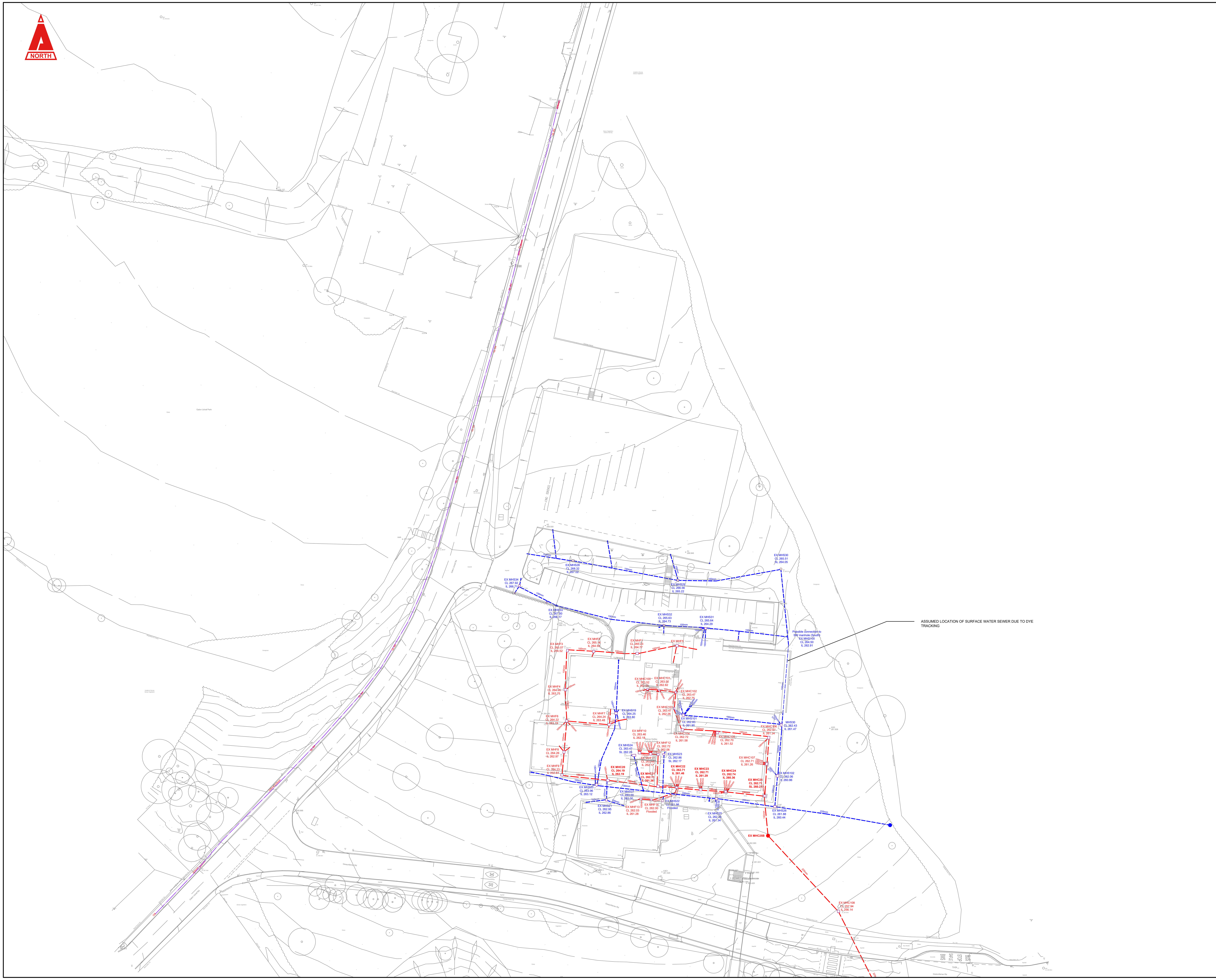
Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	0050

Status:	Scale @A1:	Rev:
S1 PRELIMINARY	1:500	P01

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KEY:

- SW SEWER
- FW SEWER

Rev.	Description	By	Chk	App
P01	FIRST ISSUE	DC	BW	BW
		08/12/22		

Client: Cyngor Bwrdeistref Sirol Merthyr Tudful / Merthyr Tydfil County Borough Council; WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

EXISTING DRAINAGE (SHEET 2 OF 2)

Drawing No.

Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	0051

Status:	Scale @A1:	Rev:
S1 PRELIMINARY	1:500	P01

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KEY:

SW SEWER

FW SEWER

Rev.	Description	By	Chk	App
P01	FIRST ISSUE 12/09/2022	DC	BW	BW

Client:

Cyngor Bwrdeistref Sirol Merthyr Tudful / Merthyr Tydfil County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

EXISTING SURFACE WATER NETWORK CATCHMENT (SHEET 1 OF 2)

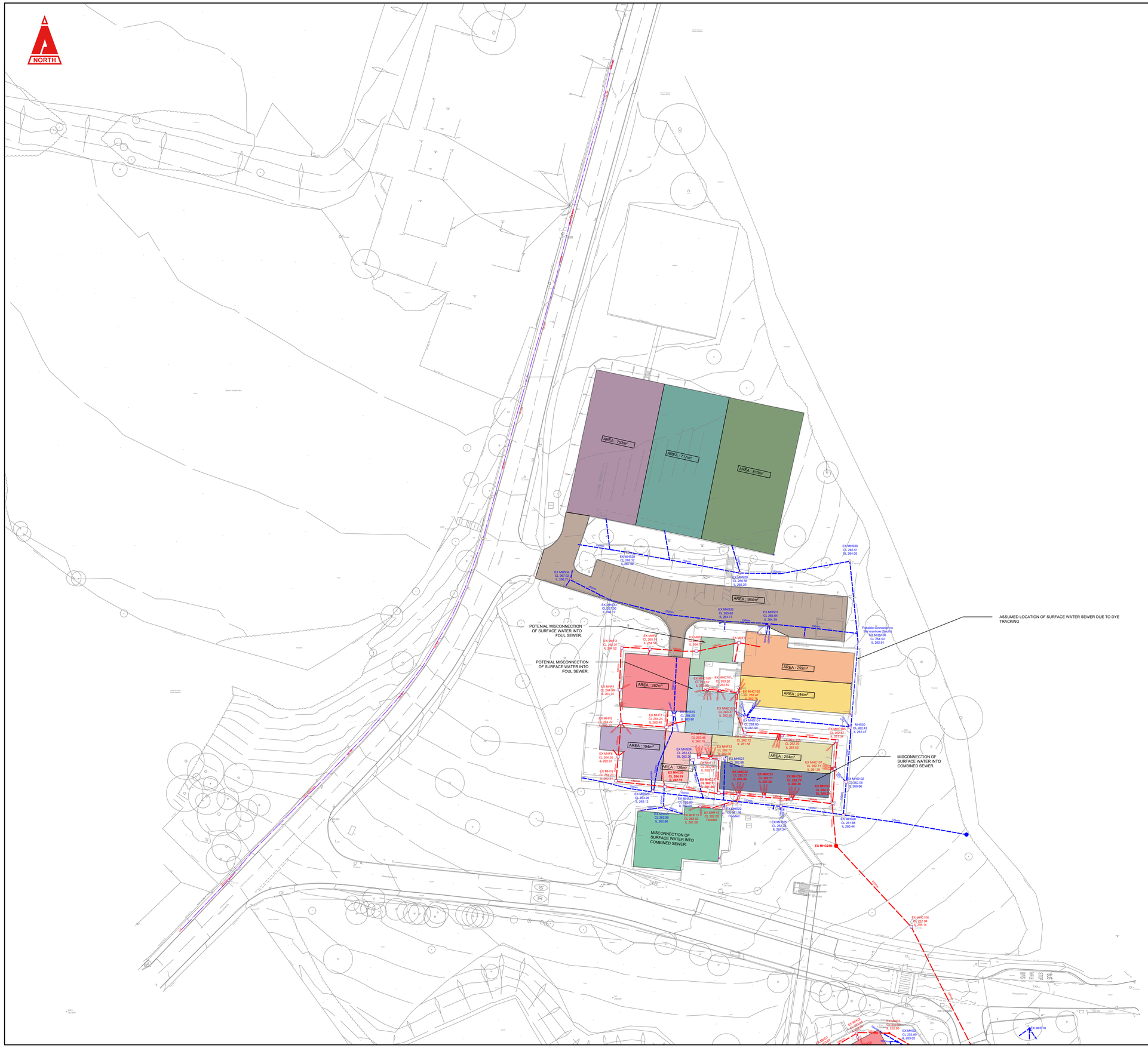
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Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	0070

Status:	Scale @A1:	Rev:
S1 PRELIMINARY	1:500	P01

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KEY:

SW SEWER

FW SEWER

Rev.	Description	By	Chk	App
P01	FIRST ISSUE	DC	BW	BW
		12/09/2022		

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

EXISTING SURFACE WATER NETWORK CATCHMENT (SHEET 2 OF 2)

Drawing No.

Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	VX	XX	D	C	0071

Status:	Scale @A1:	Rev:
S1 PRELIMINARY	1:500	P01

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Appendix G: Drainage Strategy Plan



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KEY:

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- EXISTING FOUL WATER
- PROPOSED FOUL DRAIN
- PROPOSED SURFACE WATER DRAIN
- PROPOSED LAND DRAIN
- PROPOSED CHANNEL DRAIN
- PROPOSED KERB DRAIN
- DCWW EASEMENT
- POROUS ASPHALT
- PERMEABLE PAVING
- RAINGARDEN / BIORETENTION FEATURE
- SWALE
- POTENTIAL ADDITIONAL SUDS AREAS
- RAINWATER HARVESTING TANK
- CELLULAR ATTENUATION TANK

NOTES:

1. ALL SURFACE WATER DRAINAGE SUBJECT TO SAB APPROVAL.
2. ROUTING OF DRAINAGE, ATTENUATION STORAGE, SUDS AREAS INDICATIVE ONLY AND SUBJECT TO DESIGN DEVELOPMENT AND CONSULTATION WITH THE SAB.
3. INTERNAL WASTE STACK POSITIONS AND RAINWATER DOWN PIPE POSITIONS TO BE CONFIRMED.
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9. ALL SURFACE WATER DRAINAGE DESIGNED FOR THE 1 IN 100YR+40% STORM EVENT.

Rev.	Description	By	Chk	App
P02	ISSUED FOR PLANNING.	DC	BW	BW
		21/04/23		
P01	ISSUED FOR PAC.	DC	BW	BW
		10/02/23		

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

DRAINAGE STRATEGY PLAN (SHEET 1 OF 3)

Drawing No.

BCA CAM VX XX DR C 0500

Project Originator Vol. Level Type Role Number

Status: S4 STAGE APPROVAL

Scale @A1: 1:500

Rev: P02

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Rev.	Description	By	Chk	App
P02	ISSUED FOR PLANNING.	DC	BW	BW
		21/04/23		
P01	ISSUED FOR PAC.	DC	BW	BW
		10/02/23		

Client:

Cyngor Bwrdeistref Sirol Merthyr Tudful / Merthyr Tydfil County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

DRAINAGE STRATEGY PLAN (SHEET 2 OF 3)

Drawing No.

BCA CAM XX XX DR C 0501

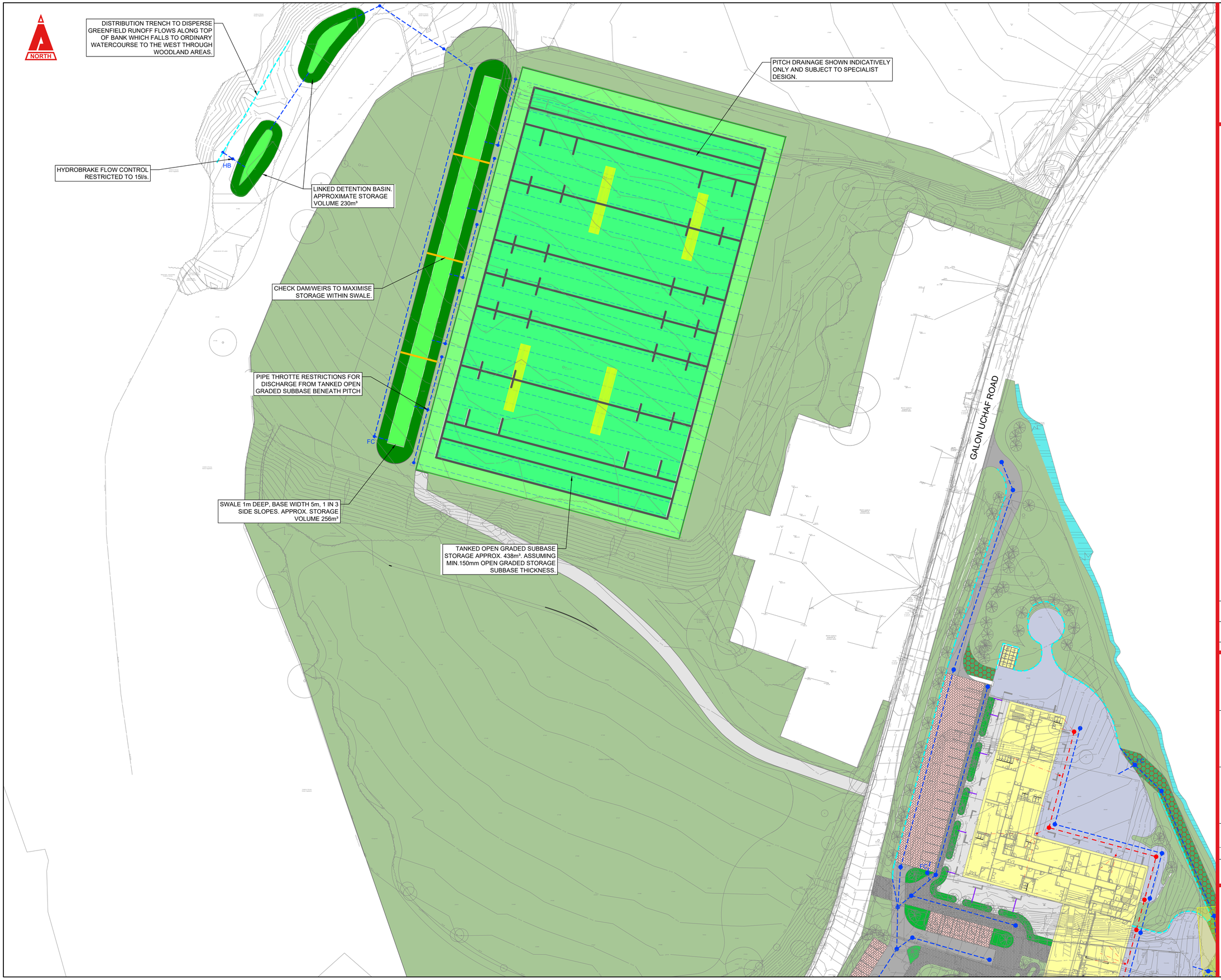
Project | Originator | Vol. | Level | Type | Role | Number

Status: S4 STAGE APPROVAL

Scale @A1: 1:500

Rev: P02

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Rev.	Description	By	Chk	App
P02	ISSUED FOR PLANNING.	DC	BW	BW
		21/04/23		
P01	ISSUED FOR PAC.	DC	BW	BW
		10/02/23		

Client:

Cyngor Bwrdeistref Sirol MERTHYR TUDFUL / MERTHYR TYDFIL County Borough Council

WILLMOTT DIXON CONSTRUCTION

Project:

BLESSED CARLO ACUTIS CATHOLIC SCHOOL

Drawing Title:

DRAINAGE STRATEGY PLAN (SHEET 3 OF 3)

Drawing No.

Project	Originator	Vol.	Level	Type	Role	Number
BCA	CAM	XX	XX	DR	C	0502

Status:	Scale @A1:	Rev:
S4 STAGE APPROVAL	1:500	P02

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