



SCOTTISH WATER

Water Industry Commission for Scotland (WICS) ANNUAL RETURN 2023/24

Section D – Asset Information

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Section D – Asset Information

1 Table D5 – Activities – Water service

1.1 Overview

Section D provides information on activities relating to water mains and sewers during the report year. Table D5 covers the water mains activities.

The total length of water mains has increased from 49,110 km at AR23 to 49,224 km for AR24 mainly due to new housing and commercial developments.

There has been an increase in the number of communication pipes replaced this year as reported in **Lines D5.9-D5.11**. The total number of pipes replaced is 3,509, which is an increase of 16% from AR23. The number of pipes replaced was taken from the Salesforce Task Scheduling system, as in AR23, which uses specific categories for recording the type of activity undertaken on communication pipes. The system has ensured that all replacements involving lead can be clearly identified and included in Section D.

1.2 Performance Trends

D5.1 Total length of mains (opening balance)

The opening balance for water mains on **Line D5.1** is 49,110.37 km, which is the **Line H3.4** Mains Potable value from AR23.

The confidence grade of A1 remains the same as last year.

D5.2 Mains renewed

Renewed mains have increased by 12.98 km from 51.45 km in AR23 to 64.43 km. Over the next 5-10 years we anticipate renewal rates to be between 200km and 250km per year, primarily focused on replacing asbestos cement pipes which are approaching the end of their serviceable lives. Renewed pipes have been formed by open cut direct replacement, pipe bursting or certain methods of slip lining of existing mains during the reporting year. Identification of the affected pipes is based on GIS (Geospatial Information Systems) analysis. An increase in the completion of the forming method in GIS is the main reason for the increase in this line. There is further explanation provided in the related **Line D5.3** - Mains relined.

Methods included in this category are listed in Table 1 below.

Table 1: The categories associated with renewing a water main.

ID	Forming Method
30	OCR - Open Cut (Direct Replacement)
35	ACB - Pipe Bursting Of AC Pipe
40	CCB - Pipe Bursting Of Concrete Pipe
45	FPB - Pipe Bursting Of Ferrous Pipe
55	VCB - Pipe Bursting Clay-ware Pipe
60	PBU - Pipe Bursting (Unknown Pipe)
65	CSS - Chemical Soil Stabilisation (Sewers)
70	CIPP - Cured In Place Resin Sleeve Liner (Sewers)
75	GRP - Lined With GRP Panels
80	GRC - Resin Concrete Lining Panels
90	PRP - Ripped PE or PVC Pipe
95	RSP - Ripped Steel Pipe
100	RLP - Ripped Lead Pipe
105	ACT - Thermo Plastic Liner In AC Host
110	TPL - Thermo Plastic Liner Non AC Host
115	ACH - Slip Lining In AC Host Pipe
120	FCH - Slip Lining In Ferrous Host (Close Fit)
125	FLH - Slip Lining In Ferrous Host (Loose Fit)
130	PLL - Service Lining To Lead (Service) Pipe
135	VTH - Slip Lining Clay Pipe (Tight Fit)
140	OCH - Sliplining in Other Host

The confidence grade of B3 remains the same as last year given the method of data collection has not been subject to any improvement plans.

D5.3 Mains relined

Mains identified as having been relined during the reporting year have increased from 1.02 km to 4.38 km in AR24. Mains that have been lined since the previous year but whose forming method is “RIM – Resin Injection Methods” or unknown are included in **Line D5.3**. The increase is attributed to an improvement in the completion of the forming method in GIS which

describes the technique used to reline the pipe so less pipes have been identified with an unknown forming method. This has resulted in more pipes being included in **Line D5.2** instead.

The four lengths that make up **Line D5.3** this year are recorded in GIS with a “Not Known” forming method as shown in Table 2 below:

Table 2: Lengths of mains relined from GIS.

Pipe id	Length (m)	Lining Material description
{0356B552-AEB1-413A-9AAA-B06EFCF8DF2E}	0.848698	HPPE SDR17
{069C1113-053E-4EDE-8B35-729EA466F1D4}	67.45835	HPPE SDR17
{08403C5E-AB60-4E53-8E9A-08B09B01BF7B}	73.82626	MDPE SDR11
{091A97A0-084B-4E49-88C5-61FC79965DDF}	62.09629	MDPE SDR11
{110CA170-A278-46D4-8726-C3A7D70969FC}	532.5829	HPPE SDR17
{20FC1561-091A-41BB-892F-FBBAE3841B0C}	0.970976	MDPE SDR17
{30BFE065-2C84-4CD7-B03F-4D9DBD1C59BF}	229.9321	HPPE SDR17
{33C8DF41-8953-4DFC-B8F2-C000F5AFA2C8}	43.06576	HPPE SDR17
{4C983F58-0F4F-43BD-AB8D-0994069FCAD7}	52.2877	MDPE SDR11
{548A752A-EFCD-42BD-A9BB-8438FD8B40E8}	226.9476	HPPE SDR17
{6837C6B3-FE6C-49B3-B6AC-75DE66275DF0}	28.25773	MDPE SDR11
{6E18025E-88AA-47BB-8F4C-53AC61D7618E}	141.5095	HPPE SDR17
{70C91624-2712-455A-BEEA-5A0D76CE81EE}	276.3081	HPPE SDR17
{7553D1F8-8203-4DC8-914A-B81022504DCE}	40.60231	MDPE SDR11
{948554ED-47B9-459B-A638-4EBC023A4474}	47.41045	MDPE SDR11
{993107CF-BDCD-4BC3-B556-D0F21C1DF712}	25.92731	MDPE SDR11
{B47AC2B4-6F8D-4192-98D1-E96917F6BEAE}	362.1934	HPPE SDR17
{B8A80C74-AEB0-47F0-876A-5085CCA231F5}	0.865177	CL - Cement Lining
{BF2E09FF-D171-4160-B957-CE87F06DC463}	417.4609	HPPE SDR17.6
{C5162E1E-3EB0-4409-8343-1E2B2C8A8A59}	52.68578	MDPE SDR ?

Pipe id	Length (m)	Lining Material description
{D180E864-2BAA-42C5-8C92-23AEF4046A86}	3.770728	MDPE SDR17
{D5534445-E520-4BEC-B3A5-7DA787E800BC}	117.4325	HPPE SDR17
{D780884E-98B3-4702-8D20-79D12F53F799}	169.5915	MDPE SDR17
{DBE1B37A-6A9A-4D7D-912E-4A297D3457F2}	81.56625	MDPE SDR11
{DC8916C9-34E9-4D82-91D4-FC97714FCB17}	0.441796	PU-2100
{E784B361-65C8-457F-A2B3-1068F4BC44B9}	662.2303	HPPE SDR11
{F0AC90AD-80C5-41F0-99C3-9423F0846467}	519.4373	HPPE SDR11
{F808789B-DB73-41BD-8ABD-3ED892DD57A6}	143.6886	HPPE SDR17

The confidence grade of B3 remains the same as the method of data collection has not been subject to any improvement plans.

D5.4 Mains cleaned (Total)

The total length of mains cleaned has decreased by 6%, from 1,476.60 km in AR23 to 1386.59 km which is consistent with year-on-year variation. **Line D5.4**, which reports the total length of mains cleaned and **Line D5.5**, which reports the length of mains cleaned for quality reasons, report the same length as all pipes cleaned are selected for water quality improvement reasons, as stated below.

Scottish Water has built on the learning gained in delivering the SR15 OMG06 Mains Cleaning programme, which adopted a one-off “source to tap” zonal cleaning approach and has enhanced this by improving our understanding of how biofilms and metals accumulate and are then mobilised within water networks. A range of field investigations applying the learning gained from the University of Sheffield PODDS (Prevention of Discolouration in Distribution Systems) project are undertaken to build this understanding.

These activities are recorded as “investigations” rather than “cleaning” even where mains flushing activities are carried out as part of the investigative work. This ensures that Scottish Water targets our interventions at locations and at a frequency to manage the rate of material regeneration within the water network. To support this new approach, Scottish Water suggests that a different set of metrics is discussed with the Commission for consideration for application to future ARs.

The confidence grade of B3 remains the same as last year as the change in the approach to identifying which mains to target did not affect the accuracy of the lengths reported.

D5.5 Distribution mains cleaned for quality

Line D5.5 has decreased by 6%, from 1,476.60 km in AR23 to 1386.59 km in AR24 - the same length as reported in **D5.4**. The method for identifying quality-based cleaning is described in the commentary for **D5.4**.

The confidence grade of B3 remains the same as last year as the focus was on changing the approach so that the necessary mains could be targeted more effectively.

D5.6 New mains

Mains lengths adopted for new developments and lengths delivered as part of our capital programme are reported in **Line D5.6**. The length reported in AR23 was 167.91 km. In AR24, 187.43 km have been identified in GIS as being commissioned or been adopted during the year. As in recent years, the GIS analysis employs methods to exclude any historical mains records that have been added during the year. This ensures only newly laid or adopted mains are included.

The confidence grade of B2 remains the same as last year, as the data quality level has been sustained but not improved.

D5.7 Mains abandoned

54.49 km more mains were abandoned in AR24 than in AR23 with 174.20 km being reported, which is an increase of 46%, similar to the increase seen in AR23.

These pipes are identified as being Scottish Water owned and having their status changed from Operational to Abandoned during the year.

The confidence grade of B2 remains the same as last year, as the data quality level has been sustained but not improved.

D5.7a Other Changes

The length reported is the balancing value to bring the total changes in the year in line with the closing balance reported in **Line D5.8**. The length in this reporting year is -36.39 km, which is approximately 45% less than in AR23. This length accounts for the necessary updating of networks in GIS during the year that do not reflect physical changes to water mains, but rather the untraceable network amendments in GIS. For example, a comparison activity for each pipe takes place annually, where some of these pipes can be split or lose IDs.

The confidence grade of B3 remains the same as last year, as the data quality level has been sustained but not improved.

D5.8 Total length of mains (closing balance)

This line is a summation of **Lines D5.1, D5.2 and D5.6** minus **Lines D5.7 and D5.7a**. The total length reported for AR24 is 49,224.43 km (consistent with **Line H3.4**), compared with 49,110.37 km in AR23.

The confidence grade of A1 remains the same as last year. The total length value is extracted from our GIS corporate system and therefore we consider A1 to be the appropriate confidence grade. Confidence grades for the input lines (**Lines D5.2 - D5.7a**) are lower (B2 or B3) as there is a level of uncertainty on the individual length of mains that have been subject to the different interventions, but this uncertainty does not affect the confidence in the total length given activity relates to less than one percent of change to our network.

D5.9-D5.11 Communication pipes replaced

These lines report the number of communication pipes. Scottish Water's Salesforce Task Scheduling system has again been used to identify the nature of the work undertaken to replace pipes. The percentage movement from AR23 to AR24 is shown below in Table 3.

Table 3: Comparison of Communication Pipe Replacements from AR23 to AR24

Line	Description	AR23	AR24	Change
D5.9	Lead communication pipes replaced - quality	320	441	38%
D5.10	Lead communication pipes replaced - maintenance or other	2431	2854	17%
D5.11	Communication pipes replaced - other	285	214	-25%

D5.9 Lead communication pipes replaced - quality

The total number in AR24 is 441, which is an increase of 121 from AR23. The procedure for recording lead replacement work is the same as in AR23. There are specific categories available in the Scottish Water's Salesforce Task Scheduling system to identify the nature of the work undertaken.

The confidence grade remains at A2 due to an improved data recording solution implemented in AR23.

D5.10 Lead communication pipes replaced – maintenance or other

The total number in AR24 is 2,854, which is an increase of 423 from AR23. The procedure for recording lead replacement work is the same as in AR23. There are specific categories available in the Scottish Water's Salesforce Task Scheduling system to identify the nature of the work undertaken.

The confidence grade remains at A2 due to an improved data recording solution implemented in AR23.

D5.11 Communication pipes replaced - other

The total number replaced in AR24 is 214. This is a 25% decrease from the 285 reported in AR23. The procedure for communication pipe replacement work is the same as in AR23. There are specific categories available in the Scottish Water's Salesforce Task Scheduling system to identify the nature of the work undertaken.

The confidence grade remains at A2 due to an improved data recording solution implemented in AR23.

1.3 Data

1.3.1 Data sources and confidence grades

The lengths reported in Table D5 are taken, unless otherwise stated, directly from digitised infrastructure in Scottish Water's GIS system.

Mains Renewed and Mains Relined are reported from interventions carried out during reactive operations, capital maintenance and capital project interventions; mains Cleaned is reported from work done as part of the capital programme and carried out by our water infrastructure alliance partner.

The number of Pipes Replaced is taken from Scottish Water's lead replacement programme records which now processes through the Salesforce Task Scheduling system.

Further detailed information on how individual lines are calculated, including the components of the calculation, is contained in the assurance report for Section D.

Confidence grades are the same as AR23 for **Lines D5.9, D5.10 and D5.11** due to the continued use of Scottish Water's new Salesforce Task Scheduling system which allows better accuracy in the recording of activity conducted by people maintaining our communication pipes.

1.3.2 Data improvement programmes

Following the embedding of Scottish Water's new Salesforce Task Scheduling system with PowerBI reporting, which uses specific categories for recording the type of replacement activity undertaken on communication pipes, there have been no further data improvement programmes.

1.3.3 Assumptions used for forecast data

There is no forecast data for the D5 table.

2 Table D6 – Activities – Wastewater service

2.1 Overview

The D Tables provide information on activities relating to water mains and sewers during the report year. Table D6 covers the activities on sewers. The overall increase in activity across the reported lines when compared to AR23 is largely due to new housing and commercial developments being connected.

The total length of sewers has increased from 54,220 km at AR23 to 54,690 km for AR24. The increase is largely due to the addition of new sewers. Of the total length of sewers, 20,028 km relate to sewer laterals, which are either new wastewater house connections added, or 'virtual' connections created in GIS being replaced with more accurate, digitized lateral lengths.

2.1.1 Performance Trends

D6.1 Total length of sewers – opening balance

The opening balance for sewers on **Line D6.1** is 54,220.21 km, which is the Table **H4.1** Sewers value from AR23.

The confidence grade of B2 remains the same as last year.

D6.3 New sewers added during the year

The length reported has decreased by 6%, from 481.62 km in AR23 to 452.32 km in AR24.

Of the 452.32km of new sewers, 227.2 km were due to the increase in the number of connected properties this year, as shown in Table 4 below:

Table 4: Change in the number of connected properties from AR23 to AR24.

	AR23	AR24	Difference
Connected Properties (nr)	2,651,106	2,672,411	21,305

The lengths of connections are taken from digitized laterals in GIS or based on average lateral lengths representative of the different property types in Scotland.

The remaining 225.1 km of new sewers is due to newly laid sewers and changes in the existing wastewater network.

The confidence grade of B2 remains the same as last year, as the data quality level has been sustained but not improved.

D6.4 Sewers inspected by CCTV or man entry during the year

In AR24 there were 49.26 km of sewers inspected which is a reduction of 31.96 km from AR23. The majority of the AR24 survey work was in CCTV Phase 6 - Aberdeenshire (36.8 km) and SR21 ES CCTV Phase 5A Paisley & Glasgow (11.5 km) performed under the Critical Sewers (MA002) and Non-Critical Sewers (MA014) Management Approaches this year.

The confidence grade of B3 remains the same as last year, as the data quality level has been sustained but not improved.

D6.5 Sewers – renovated

In AR24 there were no sewers recorded as being renovated in Scottish Water's GIS system. In AR23 there were 0.59 km.

The confidence grade for **Line D6.5** is BX.

D6.6 Sewers - replaced

The sewers were replaced as part of the infrastructure programme in this reporting year has decreased from 0.75 km in AR23 to 0.29km in AR24.

The confidence grade of B2 remains the same as last year, as the data quality level has been sustained but not improved.

D6.7 Abandoned sewers

In AR23 we reported 21.94 km of sewers as abandoned. This has decreased by 44% (9.6 km) in AR24 to 12.31 km.

The confidence grade of B3 has been applied to **Line D6.7**, this is in line with the confidence grade used for **D5.7a**.

D6.7a Other changes to sewers

The length reported is the balancing value to bring the total changes in the year in line with the closing balance reported in **Line D6.8**. For AR24 the balancing figure has reduced from -158.63 km to -29.41 km. This length accounts for the necessary updating of networks in GIS during the year that do not reflect physical changes to sewers and the change due to statistically generated laterals being replaced with GIS digitized laterals, which have a more accurate length.

The confidence grade for **Line D6.7a** is B3

D6.8 Total length of sewer - closing balance

This line is a summation of **Lines D6.1, D6.3** minus **Lines D6.7 and D6.7a**. The closing balance for sewers on **Line D6.8** is 54,689.62 km, compared to 54,220.22 km reported in AR23 and is consistent with **Line H4.1**. Sewer laterals contribute 20,028 km to the closing balance.

The confidence grade of B2 remains the same as last year, as the data quality level has been sustained but not improved.

2.2 Data

2.2.1 Data sources and confidence grades

The lengths reported in Table D6 are taken directly from digitised infrastructure in Scottish Water's GIS system unless otherwise stated.

The length reported in 'Other Changes to Sewers' is the balancing value to bring the total changes in the year to the current total length of sewers as reported in **Line H4.1**.

2.2.2 Data improvement programmes

Data is constantly updated in GIS by digitising new development plans and the opportunistic recording of information gathered during operational activities.

2.2.3 Assumptions used for forecast data

There is no forecast data for Table D6.