FINANCIAL MODEL ANNEX

We have submitted two versions of the financial model requested by Ofwat. The first version is a populated version of the model as issued by Ofwat. The second version corrects errors we have found as we have worked through the model. This document explains where we have made changes.

This document has the following sections:

- Summary of modelling changes – setting out where and why we have made changes to the model.
- Financial Model preparation – setting out the inputs included in the InpOverride, Sensi sheet, and InpActive sheet of the financial model.
- Financial model adjustments – setting out changes made to correct errors in the financial model.
- Revenue Feeder model changes – setting out changes we have made to the revenue feeder model as discussed with Ofwat.
- F-Input – setting out assumptions used to derive the F-Input values not included in the Ofwat mapping tools or where adjustments have been made to the values included in the data tables.
- Model integrity Checks – setting out the reasons for the model returning "model integrity checks".

Summary of modelling changes

Pre-modelling adjustments

Revenue feeder model	Transfers of legacy revenue adjustment in years 2023/24 and 2024/25 to year 2021/22 on a NPV neutral basis (see Revenue Feeder model changes section)
Datatables (App13 lines 15 and 16)	Lines in the data tables omit wastewater retail and combined retail revenue. Values inputted into the financial model are based upon these line being corrected to include these revenues (see F-Input section)

Modelling changes (outputs)

Residential retail	We have corrected an inconsistent calculation of breakdown between measured and unmeasured retail service revenue (see Financial model adjustments section)
Bioresources NPV	We have removed an NPV adjustment being incorrectly applied to bioresource volume (see Financial model adjustments section)

Modelling changes (ratio calculation errors, RORE)

Adjustment interest cover	Error in calculation of fast money in the adjusted cash interest cover ratio – (alternative) corrected (see Financial model adjustments section)
Interest cover ratio (WR, WN,WWN, BR)	Error in calculation of interest charges in individual wholesale price control interest cover calculation corrected (see Financial model adjustments section)
RORE calculation	Correction of errors in RORE references and RORE graph calculation (see Financial model adjustments section)

Financial model preparation

InpOverride

1. **Residential Debtor days method (cell F365)** - Has been set to "Adjustment override then F_Input average" to match PR14 methodology
2. **Cost of debt override (used in WACC) (cells L606:U6069)** - As notionalisation switch (cell F593) is active, values for cost of debt override are required. These have been set so that Ofwat WACC is applied in the model. Cost of debt values has been set at **4.36%**

3. **Cost of equity override (used in WACC) (cells L628:U631)** - As notionalisation switch (cell F593) is active, values for Cost of equity override are required. These have been set so that Ofwat WACC is applied in the model. Cost of equity values has been set at **6.88%**

4. **Gearing (used in WACC) override (cells L650:U653)** - As notionalisation switch (cell F593) is active, values for Gearing (used in WACC) override are required. These have been set so that Ofwat WACC is applied in the model. Gearing (used in WACC) override has been set at **60%**

5. **Notional Cost of Debt override** – real (cell L666:U666) – This has been set to match the cost of debt value used in the WACC calculation (4.36%). This has been converted to a real cost of debt by applying the Fisher equation and RPI inflation. Notional Cost of Debt override – real applied **1.32%**

6. **Indexation rate for index linked debt percentage increase – override (cell L678:U678)** – This has been set to match the assumed Indexation rate for index linked debt percentage increase from Line 27 of App23

7. **Notional Cost of Debt override (nominal) (cell L729-U729)** - Notional Cost of Debt override has been set at **4.36%**

8. **Residential net margin for company (cell L760-U760)** – Has been set to match assumed retail margin from R8 line 1. Residential net margin for company has been set at **1.00%**

9. **% of ordinary dividend paid as interim dividend (cell L883-P883)** – Has been set to **100%**

10. **Dividend yield override (cell F888)** – Has been set to 3.15%. We note that the recommended dividend calculation in the Wholesale spreadsheet (Wholesale cell K28) is calculated as a RCV (wholesale cell K25)– Debt balance (wholesale cell K26). This is different to the PR14 methodology where the dividend yield was applied to the equity proportion of the RCV (RCV – net debt).

11. **Dividend growth override (cell L895-P895)** – Has been set to **1.35%**

12. **Target Gearing - WR (cell F962)** – set to 60% to match Ofwat guidance

13. **Target Gearing - WN (cell F975)** – set to 60% to match Ofwat guidance

14. **Target Gearing – WWN (cell F988)** – set to 60% to match Ofwat guidance

15. **Target Gearing - BR (cell F1001)** – set to 60% to match Ofwat guidance

16. **Stop tax varying in response to interest on debt change (cell F1035)** - set to **No**

17. **Base - Stop tax varying in response to interest on debt change (cell F1039)** - set to **No**

18. **Target percentage of index linked debt (cell F1050)** – set to 33% to match Ofwat guidance

Sensi sheet

1. **Indexation override active switch** - CPI(H) (cell F18)– has been set to **0 (off)**

2. **CPI(H): Basket year - cumulative % increase from base year basket value (November) - Override - Base case (row 30)** – has been set to equal assumed CPI inflation from App23

3. **CPI(H): Long term financial year end assumed percentage increase - Base case (row 44)** – has been set to equal assumed CPI inflation from APP23

4. **Indexation override active switch - CPI(H) + RPI wedge (cell F53)** - has been set to **1 (on)**

5. **CPI(H) + RPI wedge 2017-18 cumulative increase - Override - Base case (row 65)** – has been set to equal assumed CPI inflation from App23

6. **CPI(H) + RPI wedge: Long term financial year end assumed percentage increase - Base case (row 72)** – has been set to equal assumed CPI inflation from App23

InpActive sheet

1. **Company exited the retail market switch (cell F55)** – has been set to **1 (1=Exited)**

2. **Company Type (cell F65)** - has been set to **WaSc**

3. **Indexation override active switch - CPI(H) + RPI wedge (cell F157)** – has been set to **1 (1=On)**

4. **Proportion of RCV to CPI(H) - WR (cell F256)** – set to **50%**

5. **Target level of RCV linked to CPI(H) _ RPI wedge at beginning of AMP 8 – WR (cell F257)** – set to **25%**

6. **Proportion of RCV to CPI(H) - WN (cell F454)** – set to **50%**

7. **Target level of RCV linked to CPI(H) _ RPI wedge at beginning of AMP 8 – WN (cell F455)** – set to **25%**

8. **Proportion of RCV to CPI(H) - WWN (cell F650)** – set to **50%**
9. **Target level of RCV linked to CPI(H) _ RPI wedge at beginning of AMP 8 – WWN (cell F651)** – set to **25%**
10. **Proportion of RCV to CPI(H) - BR (cell F840)** – set to **50%**
11. **Target level of RCV linked to CPI(H) _ RPI wedge at beginning of AMP 8 - BR (cell F841)** – set to **25%**
12. **Tonnes of dry solid – BR (row 933)** - has been set to equal **Bio1 line 3** * **1000**

Financial model adjustments

The following adjustments have been made to the model calculation sheets:

1. Bioresource NPV (Summary_Calc Row 712)

A PV discount factor (Summary_Calc row 712) has been applied to the bioresresource volume (Summary_Calc row 713), as the NPV calculation should only be applied to the revenue, the PV discount factor has been adjusted to 1.

PV discount factor	-	factor	-	#	1.0000	1.0000	1.0000	1.0000	1.00
Tonnes of dry solid - BR	-	Tonnes	-	#	154,113	155,436	156,441	157,911	159,3
Discounted TDS		Tonnes	1,959,059		154,113	155,436	156,441	157,911	159,3

2. Fast Money (Analysis_Appointee row 179)

The Adjusted cash interest cover ratio - Appointee (Alternative) (Analysis_Appointee row 185) is calculated incorrectly due to an error in the the Excess fast money - Appointee – nominal (Analysis_Appointee row 189) calculation. This error has been corrected by changing the sign in the equation.

Original equation = IF(L178 > L177, 0, L177 - L178)

Corrected equation = IF(L178 > L177, 0, L177 + L178)

3. Residential retail (Residential retail row 598 and Row 599)

The financial model calculates the breakdown between measured and unmeasured retail service revenue using 2 different and inconsistent methodologies.

Method 1 - In Residential retail row 555 and 556, the breakdown of wholesale measured and unmeasured charges is calculated using the apportionment of wholesale charges from WR3, WN3, WWN5 and BR4 (this is done in wholesale Global row 94 to row 116).

Method 2 - In residential retail row 598 and 599, the wholesale revenue is instead apportioned based upon the breakdown of residential revenue between measured and unmeasured charges.

The use of two different methods to calculate the same numbers results in the appointee balance sheet being unable to balance (as these values impact debtor calculations).

The Residential retail rows 598 and 599 have been changed so that they follow method 1 which seems more appropriate.

Residential retail Row 598 Has been changed to equal Row 554 + 555

Residential retail Row 599 Has been changed to equal Row 556 + 553

4. Analysis_Water Resources, Analysis_Water Network, Analysis_Wastewater , Analysis_Bio Resources (Row 104 and row 105)

The sum of these rows 104 and row 105 should be equal to row 101 (Interest income /(expense) excl. indexation of index-linked loans – nominal). Currently the interest charge being applied does not include some elements of the interest charge such as Interest on cash bf and cash movement nominal (Water resources row 390). To correct this error Row 104 has been set to equal row 101 and row 105 has been set to zero (this charge has been applied to each of the four wholesale price controls).

5. RORE Costs including uncertainty mechanism - upside case (Row 352)

Incorrect cell reference (from column H onwards), has been changed from InpActive line 1793 to InpActive line 1795

6. RORE Costs including uncertainty mechanism - downside case (Row 364)

Incorrect cell reference (from column H onwards), has been changed from InpActive line 1794 to InpActive line 1796

7. RORE calculation Bioresources (RORE_Calc row 1512)

Formula is currently incorrectly picks up the upside value (row 1022) rather than downside case (row 1034). Row has been changed so that if picks up row 1034.

8. RORE graph (Graph data row 102, 111, 120, 129 and 147)

The value movement currently calculates the incremental change in the values relative to the previous values.

For example if

Value A = 0.5% upside

Value B = 0.8% upside

The graph would show A upside 0.5% and B upside 0.3% (0.8% - 0.5%). The graph would show a total upside of 0.8% rather than 1.3%. The formula has been changed to add the absolute changes.

For example Cell P147 original

IF(Q146 = "Base", $F147 - P144, Q144 - P144) * IF(P144 < $F147, -1, 1)

Cell P147 Updated

= IF(Q146 = "Base", $F147 - P144, Q144 - P144) * IF(P144 < $F147, -1, 1)+Q147

Relevant changes have been applied through rows 102, 111, 120, 129 and 147.

Revenue feeder model adjustments

The revenue feeder model calculates the following revenue adjustment with option 1 (Constant annuity 2020-25) chosen for Water networks and Wastewater network and option 0 (Apply in first year) chosen for Residential retail.

Unadjusted revenue profile

Profiling sheet row	£ million	2020/21	2021/22	2022/23	2023/24	2024/25
225	Water resources revenue adjustment active	-	-	-	-	-
226	Water network revenue adjustment active	5.36	5.36	5.36	5.36	5.36
227	Bioresources revenue adjustment active	-	-	-	-	-
228	Wastewater network revenue adjustment active	1.92	1.92	1.92	1.92	1.92
230	Residential retail revenue adjustment active	20.73	-	-	-	-
	Total adjustment	**28.01**	**7.28**	**7.28**	**7.28**	**7.28**

In order to reduce bill volatility we have chosen to transfer the revenue adjustment in year 2023/24 and year 2024/25 to year 2021/22. Using a 2.8% discount rate the following NPV adjustments have been applied (this is consistent with the NPV adjustment calculation applied in the revenue adjustment model). This adjustment has been made by adding calculations in row 250 and row 252.

Revenue adjustments

Profiling sheet row	£ million	2020/21	2021/22	2022/23	2023/24	2024/25
	2024-25 adjustment (NPV adjustment)		0.920	0.946	0.973	1.000
	2023-24 adjustment (NPV adjustment)		0.946	0.973	1.000	
250	Water network revenue adjustment active • NPV adjustment (£m) to be applied		10.00		-5.36	-5.36
252	Wastewater network revenue adjustment active • NPV adjustment (£m) to be applied		3.59		-1.92	-1.92

These adjustment have then been added to the active revenue adjustment rows

Final reprofiled revenue adjustment

Profiling sheet row	£ million	2020/21	2021/22	2022/23	2023/24	2024/25
241	Water resources revenue adjustment active	-	-	-	-	-
242	Water network revenue adjustment active	5.36	15.36	5.36		
243	Bioresources revenue adjustment active	-	-	-		
244	Wastewater network revenue adjustment active	1.92	5.51	1.92		
246	Residential retail revenue adjustment active	20.73	-	-		
	Total adjustment	**28.01**	**20.87**	**7.28**		

F-input

Cost to serve

- **Cost to serve per metered water customer (CTS) (row 14)**
- **Cost to serve per metered sewerage customer (CTS) (row 15)**
- **Cost to serve per metered dual service customer (CTS) (row 16)**
- **Cost to serve per unmetered customer (CTS) (row 17)**
- **Cost to serve per unmetered sewerage customer (CTS) (row 482**
- **Cost to serve per unmetered dual service customer (CTS) (row 483)**

The cost to serve values for each customer group have been derived based upon:

Total residential retail costs (opex plus depreciation, excluding third party services) (R1 line 14)

minus

Total depreciation on legacy assets existing at 31 March 2015 (R1 line 11)

divided by

Household connected (R1 line 16) deflated to 2017/18 prices

Total depreciation on legacy assets existing at 31 March 2015 has been removed as this relates to RCV included in the wholesale price controls.

Allowed depreciation

- **Allowed depreciation (post efficiency challenge and adjustments) (row 72)**

This has been set to equal to total depreciation on assets acquired after 1 April 2020 (R1 line 13)

Advance receipts creditor days

- **Residential retail advance receipts creditor days unmeasured (row 74)**

App14 line 21 (Residential retail advance receipts creditor days unmeasured)

This line is calculated using App13 line 15 which appears to contain an error.

Currently App13 line 15 adds together wholesale revenue (Sum of App17 line 20) and Revenue ~ Water ~residential retail unmeasured (R7 line 14).

In order to fully capture the appointee revenue, this calculation should also include:

- Revenue ~ Wastewater ~ residential retail unmeasured (R7 line 16)
- Revenue ~ Combined ~ residential retail unmeasured (R7 line 18).

Although the formulas in the submitted data tables have not been changed to correct for this error (as the cells are password protected), the values used in F_input are the corrected values. See commentary for App14 line 21.

- **Residential retail advance receipts creditor days measured (row 75)**

App14 line 22 (Residential retail advance receipts creditor days measured)

This line is calculated using App13 line 16 which appears to contain an error.

Currently App13 line 16 adds together wholesale revenue (Sum of App17 line 22) and Revenue ~ Water ~ residential retail measured (R7 line 13).

In order to fully capture the appointee revenue, this calculation should also include:

- Revenue ~ Wastewater ~ residential retail measured (R7 line 15)
- Revenue ~ Combined ~ residential retail measured (R7 line 17).

Although the formulas in the submitted data tables have not been changed to correct for this error (as the cells are password protected), the values used in F_input are the corrected values. See commentary for App14 line 22.

- **Residential retail unmeasured trade debtors (row 84)**

App13 line 20 (Residential retail unmeasured trade debtors)

This line is calculated using App13 line 15 which appears to contain an error (see above and commentary for App13 line 15 and App13 line 20).

Although the formulas in the submitted data tables have not been changed to correct for this error (as the cells are password protected), the values used in F_input are the corrected values.

- **Residential retail measured trade debtors (row 85)**

App13 line 21 (Residential retail measured trade debtors)

This line is calculated using App13 line 15 which appears to contain an error (see above and commentary for App13 line 15 and App13 line 21).

Although the formulas in the submitted data tables have not been changed to correct for this error (as the cells are password protected), the values used in F_input are the corrected values.

Residential retail average trade debtors days (row 202)

App13 line 19 (Residential retail average trade debtors)

This line is calculated using App13 line 15 and 16 which appears to contain an error (see above and commentary for App13 line 15, 16 and 19).

Although the formulas in the submitted data tables have not been changed to correct for this error (as the cells are password protected), the corrected values have been used in the Financial model.

Intangible assets & investments

- **Intangible assets & investments (row 113)**

This has been set to equal to

Intangible assets (App12 line 2) plus Investments ~ loans to group companies (App12 line 3) plus Investments ~ other (App12 line 4)

Pension

- **Movement in Pensions (+ve = increase in provision) - WR - nominal (row 127)**
- **Movement in Pensions (+ve = increase in provision) - WWN – nominal (row 128)**
- **Movement in Pensions (+ve = increase in provision) - WN – nominal (row 254)**
- **Movement in Pensions (+ve = increase in provision) - BR – nominal (row 324)**

- **Wholesale Water resources service defined benefit pension deficit recovery per IN13/17 (row 207)**
- **Wholesale Water network service defined benefit pension deficit recovery per IN13/17 – real (row 251)**
- **Wholesale Wastewater network service defined benefit pension deficit recovery per IN13/17 (row 208)**
- **Wholesale Bio resources service defined benefit pension deficit recovery per IN13/17 – real (row 310)**

These have been set to equal the pension deficit recovery payments line 22 WS1 and WWS1.

Legacy adjustments

- **Water resources - End of Period ODIs (+ or -) Value Chosen (row 224)**
- **Water resources - In period ODIs (+ or -) Value Chosen (row 225)**
- **Water resources - Totex (+ or -) Value Chosen (row 226)**
- **Water resources - WRFIM (+ or -) Value Chosen (row 227)**
- **Water resources - Residential retail mechanism (+ or -) Value Chosen (row 228)**
- **Water resources - Blind year (+ or -) Value Chosen (row 229)**
- **Water resources - Water trading incentive (+ or -) Value Chosen (row 230)**

- **Water network - End of Period ODIs (+ or -) Value Chosen input - real (row 265)**
- **Water network - In period ODIs (+ or -) Value Chosen input - real (row 266)**
- **Water network - Totex (+ or -) Value Chosen input - real (row 267)**
- **Water network - WRFIM (+ or -) Value Chosen input - real (row 268)**
- **Water network - Residential retail mechanism (+ or -) Value Chosen input – real (row 269)**
- **Water network - Blind year (+ or -) Value Chosen input - real (row 270)**
- **Water network - Water trading incentive (+ or -) Value Chosen input – real (row 271)**

- **Wastewater network - End of Period ODIs (+ or -) Value Chosen input - real (row 287)**
- **Wastewater network - In period ODIs (+ or -) Value Chosen input - real (row 288)**
- **Wastewater network - Totex (+ or -) Value Chosen input - real (row 289)**
- **Wastewater network - WRFIM (+ or -) Value Chosen input - real (row 290)**
- **Wastewater network - Residential retail mechanism (+ or -) Value Chosen input – real (row 291)**
- **Wastewater network - Blind year (+ or -) Value Chosen input - real (row 292)**
- **Wastewater network - Water trading incentive (+ or -) Value Chosen input – real (row 293)**

- **Bio resources - End of Period ODIs (+ or -) Value Chosen input - real (row 327)**
- **Bio resources - In period ODIs (+ or -) Value Chosen input - real (row 328)**
- **Bio resources - Totex (+ or -) Value Chosen input - real (row 329)**
- **Bio resources - WRFIM (+ or -) Value Chosen input - real (row 330)**

- Bio resources - Residential retail mechanism (+ or -) Value Chosen input – real (row 331)
- Bio resources - Blind year (+ or -) Value Chosen input - real (row 332)
- Bio resources - Water trading incentive (+ or -) Value Chosen input – real (row 333)

- **Residential retail revenue adjustment – real (row 447)**

The following table shows the overall revenue adjustment after reprofiling (see explanation in the Revenue Feeder model section).

Profiling sheet row	£ million	2020/21	2021/22	2022/23	2023/24	2024/25
216	Water resources revenue adjustment active	-	-	-	-	-
217	Water network revenue adjustment active	5.36	15.36	5.36		
218	Bioresources revenue adjustment active	-	-	-		
219	Wastewater network revenue adjustment active	1.92	5.51	1.92		
220	Residential retail revenue adjustment active	20.73	-	-		
	Total adjustment	**28.01**	**20.87**	**7.28**		

The overall revenue adjustment for Water Networks and Wastewater Networks has been apportioned between each of the legacy items based upon their contribution to the overall adjustment.

The residential retail revenue adjustment has been applied directly in the F_input sheet.

Water Network Revenue adjustment

F_Input row		2020/21	2021/22	2022/23	2023/24	2024/25
265	Water network - End of period ODIs	3.83	10.97	3.83	-	-
266	Water network - In period ODIs	1.25	3.59	1.25	-	-
267	Water network - Totex	(1.58)	(4.52)	(1.58)	-	-
268	Water network - WRFIM	(0.02)	(0.05)	(0.02)	-	-
269	Water network - Residential retail mechanism	-	-	-	-	-
270	Water network - Blind year	1.88	5.38	1.88	-	-
271	Water network - Water trading incentive	-	-	-	-	-
	Total	**5.36**	**15.36**	**5.36**	**-**	**-**

Waste Network Revenue adjustment

F_Input row		2020/21	2021/22	2022/23	2023/24	2024/25
287	Wastewater network - End of period ODIs	5.43	15.56	5.43	-	-
288	Wastewater network - In period ODIs	-	-	-	-	-
289	Wastewater network - Totex	(4.45)	(12.76)	(4.45)	-	-
290	Wastewater network - WRFIM	(0.00)	(0.00)	(0.00)	-	-
291	Wastewater network - Residential retail mechanism	-	-	-	-	-
292	Wastewater network - Blind year	0.95	2.72	0.95	-	-

F_Input row		2020/21	2021/22	2022/23	2023/24	2024/25
293	Wastewater network - Water trading incentive	-	-	-	-	-
	Total	1.92	5.51	1.92	-	

Model integrity checks

The following table explains the reasons for the model integrity checks.

Model check	Response
Margin type check (F28)	Links to cells in data table R4 which are to only be completed by Welsh companies. So the error is erroneous.
Corporation tax due check (F78)	The reconciliation check compares the wholesale tax calculation from the "wholesale" spreadsheet which includes the interest charge based upon the actual company structure with the interest charge from the appointee spreadsheet that is based upon interest charge for the notional company that are not the same. So the error is erroneous.
FinStat - BS - Residential check (F89)	We manage our business at an appointee level and as our plan assumes no significant working capital variances, our working capital assumptions within the plan are at an appointee level. Where debtors and creditors relate specifically to the retail business they have been shown as such, this includes amounts receivable from our customers or advance receipts from those customers, all non-specific working capital balances have been allocated to wholesale. We would therefore only expect the balance sheet to balance at an appointee level.
Residential retail service revenue check (F92)	Erroneous check error for 2019/20 as model does not input values for retail margin and cost to serve for 2019/20
FinStat - BS check – Retail (F107)	Same as answer above for FinStat - BS - Residential check (F89)
Retained earnings Appointee total check (F119)	The check compares the appointee Profit after tax (Fin Stat appointee row 22) that does not include the dividend payment against the Wholesale retained earning that does include the dividend payment. So the error is erroneous.
Total equity Appointee total check (F121)	Same as answer above for FinStat - BS - Residential check (F89)