

BIORESOURCES OVERVIEW:

DECLAN BARLOW – BIOSOLIDS & TRADING LEAD

DECLAN.BARLOW@SEVERNTRENT.CO.UK - 07812 681276



WONDERFUL ON TAP

FINHAM WASTEWATER TREATMENT WORKS

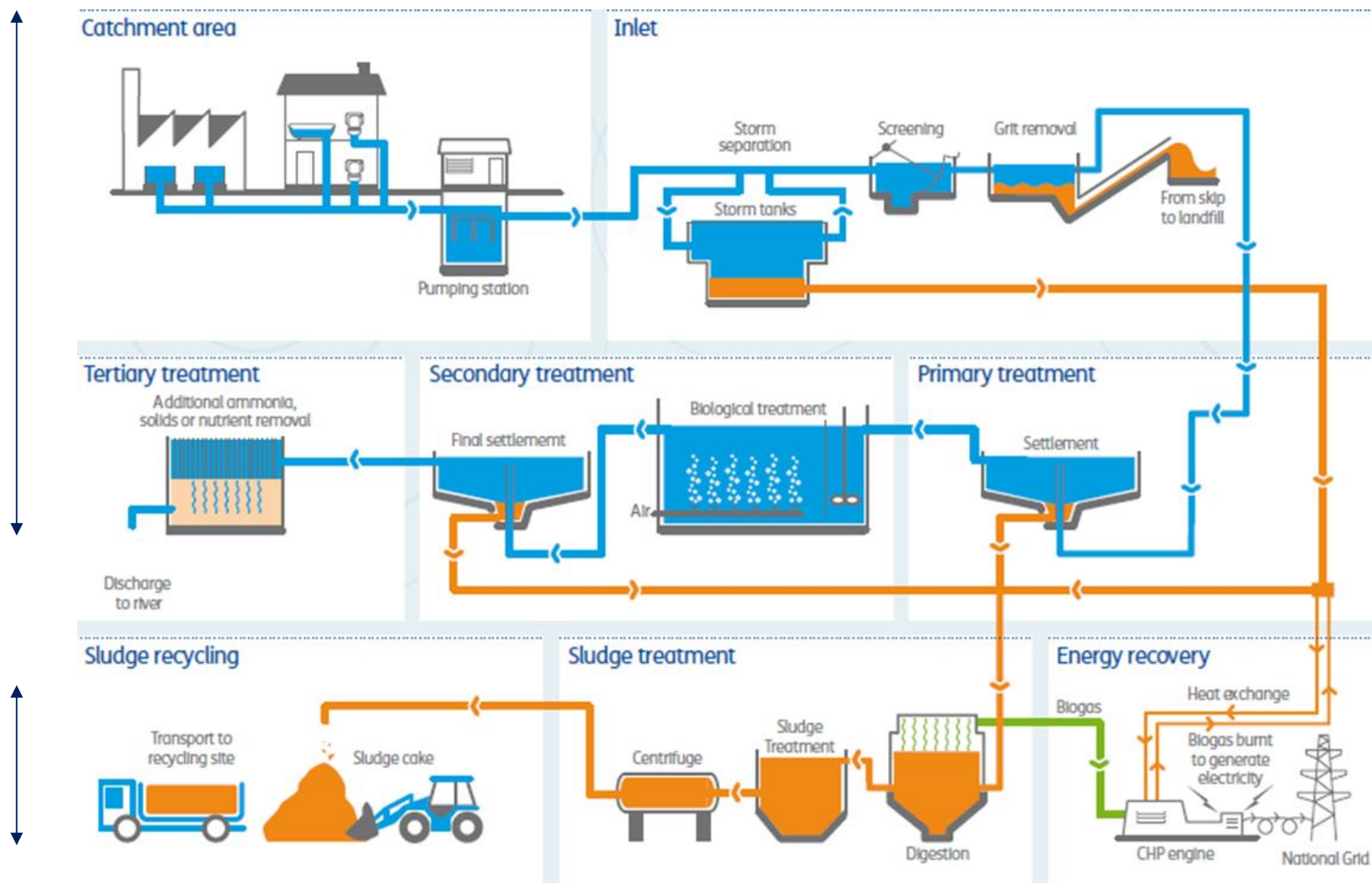


- Finham is one of the top six largest sewage works in the Severn Trent portfolio.
- Serves a population of c. ½ million people.
- Sewage works is 98 acres.
- It produces c. 45,000 tonnes of Biosolids annually.
- Newly installed Thermal Hydrolysis Plant.
- Looking at capital investment between 2025 to 2030 to accommodate the additional loading of thousands new homes being built in the catchment area.

WASTEWATER RECYCLING AND BIORESOURCES PROCESS

WASTEWATER
RECYCLING

BIORESOURCES



WASTEWATER RECYCLING



SLUDGE

BIORESOURCES



SEVERN TRENT BIOSOLIDS

Best Practical and Environmental Option

- Used in UK agriculture for more than 40 years
- Provide a useful source of Nitrogen, Phosphate and other nutrients from a renewable source
- Safe & sustainable in reducing the need for chemical fertilisers
- C. 550,000 tonnes annual production – 3.2 million across all companies.
- 95-100% to agriculture with some to restoration.

Biosolids “Cake”

- Circa 25% dry solids
- Generally stockpiled in fields and applied by spreader then incorporated
- 16-25 t/ha
- Some sites are “lime treated”



BIOSOLIDS STOCKPILES



BENEFITS OF BIOSOLIDS

Organic matter

- Soil structure
- Water retention
- Soil life
- Soil carbon

Phosphorous

- Up to 50% available Yr1
- Remaining over future years

Biosolids product	Dry matter (%)	Total phosphate
		(kg/t fresh weight)
Digested cake	25	11

Nitrogen

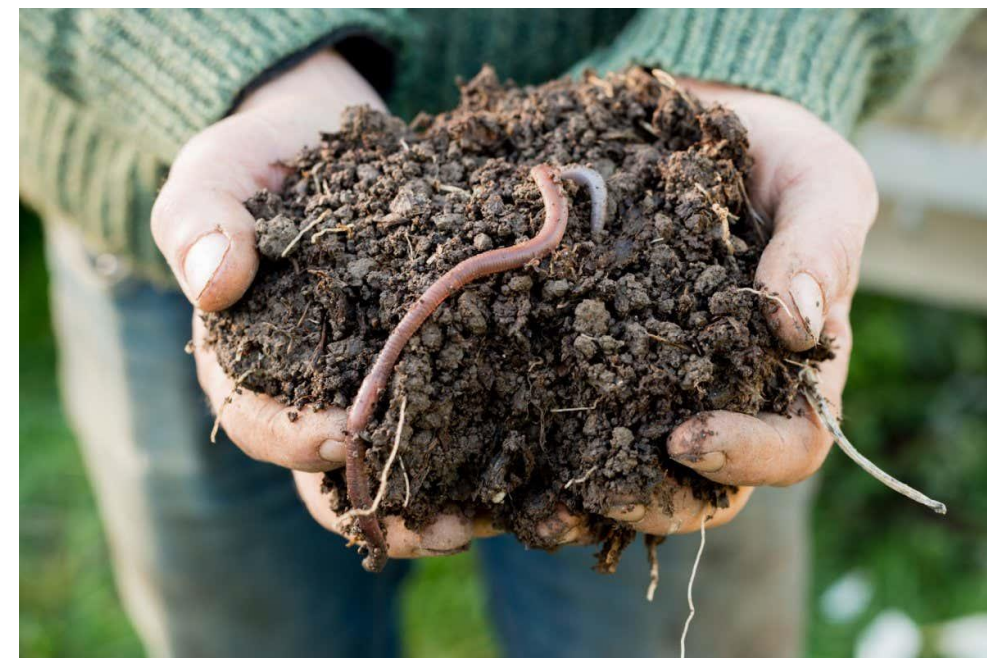
- 15% available in Yr1
- 10% Yr2
- 5% in Yr3 & Yr4

Biosolids product	Dry matter (%)	Total N	Readily available N
		(kg/t fresh weight)	
Digested cake	25	11	1.6 (15%)

Micronutrients

- Potash
- Sulphur
- Magnesium

Biosolids product	Dry matter (%)*	Total potash (K ₂ O)	Total sulphur (SO ₃)	Total magnesium (MgO)
		(kg/t fresh weight)		
Digested cake	25	0.6	8.2	1.6



Source New Scientist

COMPLIANCE AND REGULATION

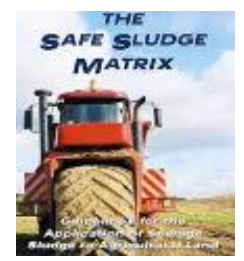
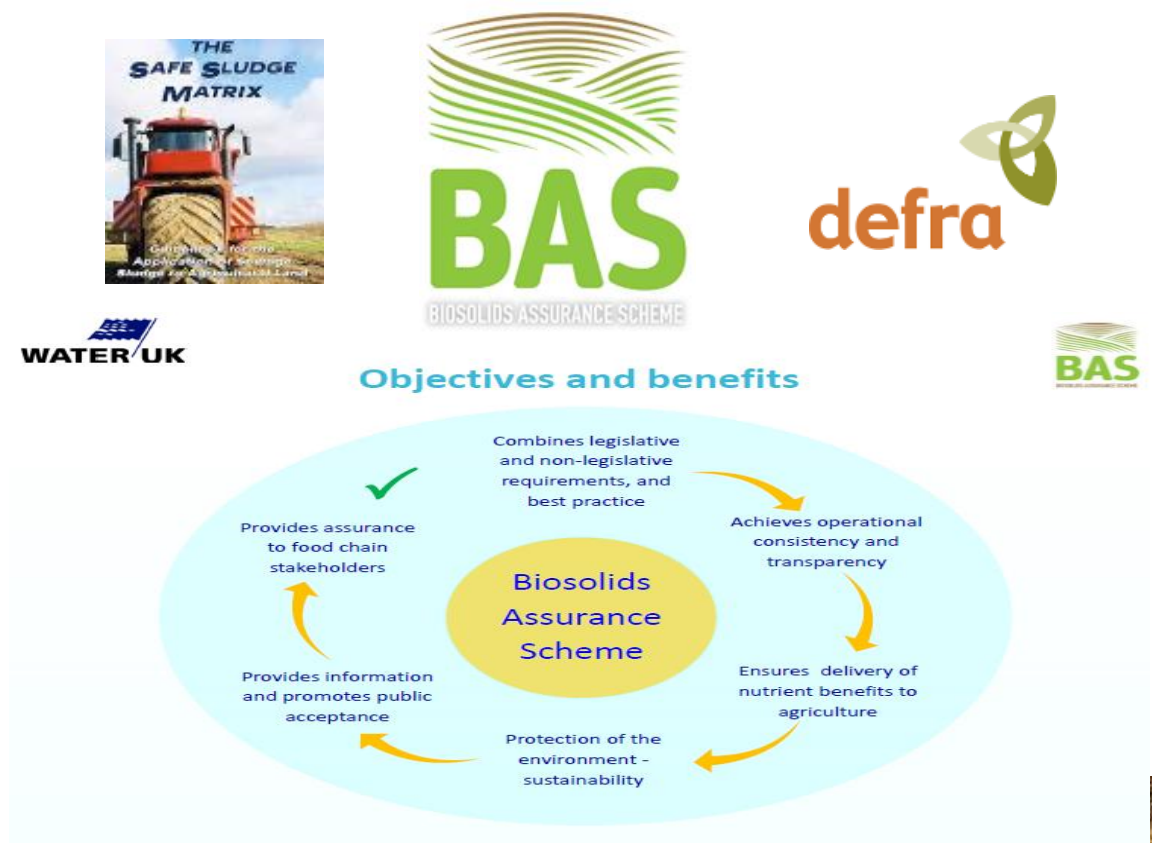
Regulations and Codes of Practice

As a Water Company and within the Bioresources team we must comply with multiple Regulations and Codes of Practice:

- *Sludge Use in Agriculture Regs*
- *Safe Sludge Matrix (ADAS)*
- *Biosolids nutriment management matrix*
- *RB209 Fertiliser Manual*
- *NVZ Regs (Nitrate Vulnerable Zone)*
- *Sewage sludge in agriculture- code of practice.*

BAS (Biosolids Assurance Scheme)

- 'Certification scheme' for Biosolids
- Covers treatment through to recycling
- Provides reassurance that Biosolids can be safely and sustainably recycled to agricultural land
- Required as part of Red Tractor



CHALLENGES AND CHANGES

- **Challenges-**

- Public perception including media and campaign groups.
- Key example- George Monbiot and the judicial review outcome.
- Emerging contaminants and focus on these- microplastics, POPs (PFAS), AMR and more.

- **Potential changes-**

- EA view to update the current sludge regulations.
- EA sludge strategy- move to a form of EPR – timescale undecided.



- ❑ Lots of industry wide projects investigating biosolids.
- ❑ From these studies, there is no evidence to show that organic chemicals or microplastics present a significant risk to the environment or human health.
- ❑ Severn Trent and the wider industry are continuing to carry out research to learn more about the impact of emerging contaminants and the context.