

CASE STUDY



Hull WwTW – Yorkshire Water ODOUR CONTROL SYSTEM



What was the problem?

Hull Waste-Water Treatment Works treats wastewater arising from the Hull catchment and the Sludge Treatment Facility (STF). Indigenous primary and secondary sludge produced in the STW is thickened and digested along with liquid sludge and cake imported from the surrounding region.

The aims of this project were based on 2 major elements of works. The first element was to extend the site to provide a new FFT Inlet including a new odour control package. The second element involved improvements to the existing STF works with an extension to the field ducting system connecting the new plant into the existing odour control system.



How did OSIL approach the challenge?

OSIL worked closely with the main contractor J N Bentley during the tendering process and were subsequently invited to tender for the odour control package for the new FFT inlet works and new field ducting connecting to the new plant of the existing STF works.

Once we received the tender enquiry documents for the odour control plant we used the flow and technical data to design a suitable odour control package for the new FFT. The basis of our design including the flow chart is shown below. The enquiry also included the general site layout of the proposed new field ducting route for the STF works.

We submitted a formal offer based on this design and were successful in receiving the award of the odour control package subcontract order.



Basis of the design

Minimum airflow 7,000m³/hr (used for design purposes). Normal operating airflow is 5,215m³/hr.



The following table summarises the flows and odour concentrations used for the sizing of the OCU.

Source of Odorous Air	Specified air flow rate	H ₂ S (ppm)		DMS (ppm)		Mercaptans (ppm)		VOC	(ppm)
	m ³ /h	ave	max	ave	max	ave	max	ave	max
INLET WORKS	5214	70.5	100	3.4	5.7	0.8	2.0	7	19.4
TOTALS	5214	70.5	100	3.4	5.7	0.8	2.0	7	19.4

Performance Requirements

The design of this system was based on an odour level of 2,000 ouE/m³ at the stack.



Delivering the Solution

The overall project installation was managed by the main contractor J N Bentley which included various packages of works comprising civils, electrical and mechanical plant incorporating our odour control system.

J N Bentley did experience delays from their contractors and there were also major issues arising from the COVID pandemic all of which resulted in our site start date being delayed.

There were various challenges with the installation of the odour plant.

One challenge related to the high-level position of the inlet works field ducting as the new civil structure was built 8M above ground level. We had an additional complication because in the same area there was an existing covered culvert which was classified as un-suitable for taking any loadings all of which resulted in us using a large boom lift to gain suitable access for our installation.

On the STF works our final duct connection to the existing ducting had to be made whilst the existing odour system continued to operate. This led to very strict safety control measures being agreed in advance of the work taking place. OSIL were actively involved in these plans including attendance of Teams meeting with JN Bentley, site assessments, production of RAMs documentation with safe method of working, gas monitors and suitably qualified site team all to the approval of the main contractor and Yorkshire Water.

We worked closely with J N Bentley throughout and the whole of the odour control packages were successfully installed to the required quality standards and within the timeframe of the overall project.

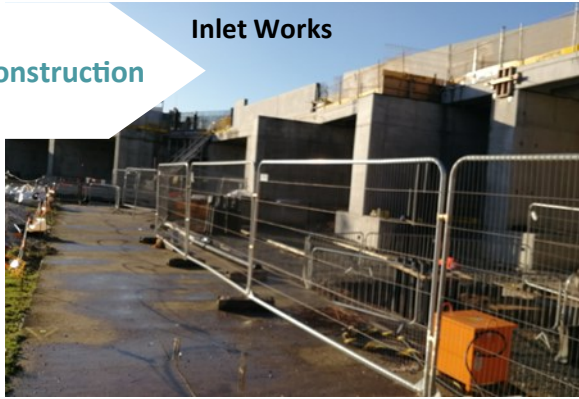


Before Image:

Site Under Construction



Inlet Works



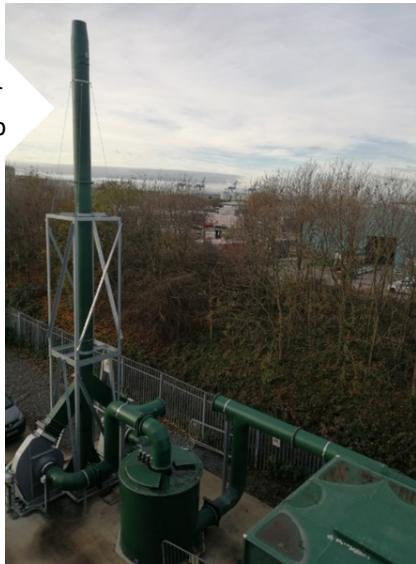
STF Works



After Images:



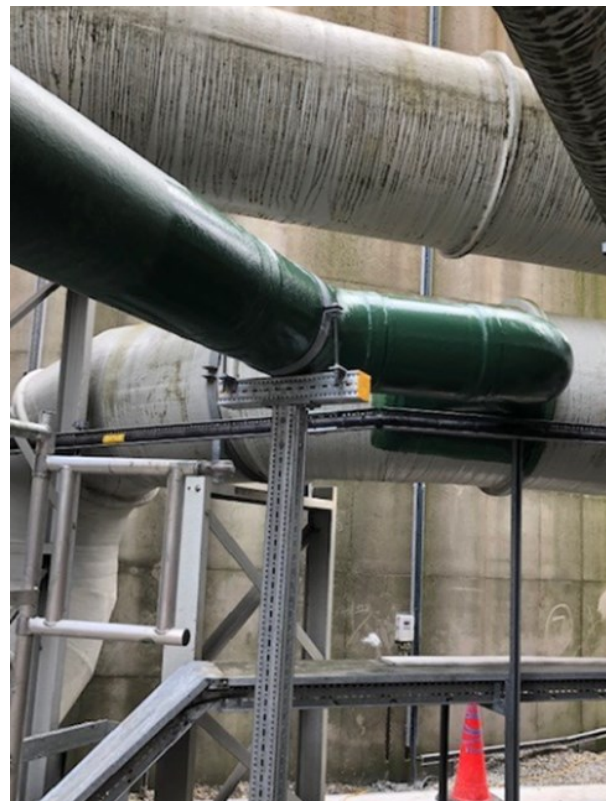
Inlet Works - Odour control plant on slab



Inlet Works - Field ducting

Duct connection to existing odour control

STF Works –
Duct connection to new Cake Import plant





How did the Client win?

Yorkshire Water have increased the capability of the Hull WwTW and with our installed odour control system it contains and processes all the produced gases preventing any odours escaping.

The newly installed odour control system is compliant to DW154, requires minimum maintenance with the Biofilter LavaRok® media having a guaranteed life of 25 years and the Carbon Filter media having a life of 3 years.



OSIL's Comments

There have been various challenges during the execution of these works at Hull WwTW however a great effort by the experienced and dedicated OSIL team has resulted in the successful completion of this project.

OSIL continually worked closely and professional with the main contractor J N Bentley to ensure we met Yorkshire Waters requirements giving them a new odour control system at the inlet works and additional field ducting on the STF works connecting the new plant to the existing odour control system.

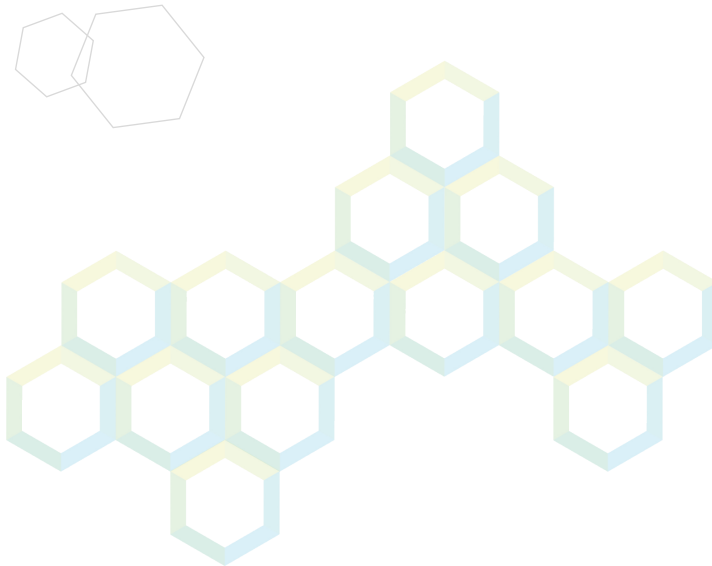
We believe that the successful completion of this project and the business relationships made throughout helps us to continually grow our reputation within the Water industry and increase our opportunities for future similar projects.



Downloadable content

[OSIL Brochure](#)

[Service & Maintenance Brochure](#)



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