

Atwick Waste Water Treatment Works

team work & innovation provide solution

by

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Atwick, is a small village in East Yorkshire approximately 4km north of Hornsea. Public supply to the village discharged to either a small sewage treatment works or through an IWO to a ditch. Combined sewers serves the village, taking both foul sewage and surface water run-off. Thus, in significant storm flows arrive at the treatment works.



Atwick WwTW

courtesy: Costain/Haswell

The new works was required to comply with the UWWTd to the following standards appropriate to a design population less than 250 persons:

- * the discharge consent is 'appropriate treatment' and a descriptive consent applies with a 'design target' of 60 mg/l SS and 40 mg/l BOD;
- * there are no consented trade discharges to the catchment and none are anticipated;
- * there is no river needs standard for Atwick IWO;
- * Works does not need storm storage, a flow measurement device, or automatic sampling.

Yorkshire Water has an existing sewage treatment works adjacent to the IWO which treats septic tank effluent from 30 properties at Callam Villas and Church Close. The works comprises a slag media percolating filter (circular on plan) and small rectangular humus tank. It has a pumped feed which operates a hydraulically driven distributor.

The approach

As part of the East Area AMP3 framework contract, Costain/Haswell is currently delivering solutions at 34 inland water outfall (IWO) sites, demonstrating team working and delivery of innovative solutions to meet Yorkshire Water Ltd requirements and the needs of local communities.

The 'Core Team' approach to the problem at Atwick was to provide the most economic and effective treatment process.

This involved the following considerations:

- * regulation compliance;
- * planning and environmental implications;
- * public relations;
- * capital and operating costs;
- * health & safety implications;
- * risk and value implications;
- * constraints – site/sewerage.

Particular studies/consultations included:

- * catchment survey;
- * archaeological assessment;
- * discussion with EA to agree population and treatment standards/flow;
- * review of available sites;
- * discussions with Parish Council & information forums for the general public;
- * discussions with planning authority;
- * a risk & value workshop.
- * resolution of land ownership issues with local council.

Initially, the EA considered a numeric consent standard, including an ammonia standard to satisfy local conditions. In

collaboration with the EA and Yorkshire Water, an environmental impact risk assessment was undertaken by and after consultation between all parties in a descriptive consent for flows up to Formula A was agreed. Ten options were reviewed/assessed and three were considered in detail prior to arriving at the preferred solution.

Solution

The solution was a packaged treatment unit and associated works designed to treat the sewage flow and load from a design population of 138 with a maximum hydraulic throughput of Formula A (221m³/d) sited adjacent to the existing treatment works.

The treatment works comprises the following:

- * combined sewage overflow (CSO) with a screen retaining solids in the flow for treatment rated at 6mm in two directions. Screened storm sewage discharges into a ditch adjacent to the existing works outfall;
- * a pump sump where flow for treatment (up to Formula A) is transferred to the treatment unit. In storm conditions the sewage level in the CSO is controlled by the level in the pump sump. Storage for diurnal variations (to ensure that the storm overflow does not operate in dry weather) is provided in the sump and the large incoming sewer. The system also incorporates 4 hours storage at DWF at the pump sump for emergencies (i.e. power failure, breakdown etc).

- * package treatment unit comprising primary settlement, SAF and final settlement together with an MCC and blowers housed in GRP kiosks;
- * sample chamber prior to discharge through a new outfall to the ditch between the existing IWO and existing works;
- * fencing and landscaping to meet safety/planning requirements;
- * lay-by suitable for 6 wheel sludge tankers adjacent to the highway.

This solution was selected for the following reasons:

- * meets the drivers; UWWTD and crude discharge policy;
- * adjacent to existing treatment works;
- * close to existing IWO;
- * accessible from public highway;
- * cheapest option to achieve requirements in original Brief.

Benefits

- * the scheme is fulfilling its objectives;
- * the completed works is reliably achieving required consent.
- * within budget;
- * works received favourably by the public in sensitive area;
- * letter of approval from Parish Council;
- * well received by Yorkshire Water's Asset Team. ■

Note: *The author of this article Phillip Schofield, is with Costain Haswell.*

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