THE SEWAGE TREATMENT WORKS CONSISTS OF SIMPLE INLET WORKS, ACTIVATED SLUDGE DITCH, CLARIFIER WITH OUTFALL AND RETURN ACTIVATED SLUDGE & SURPLUS ACTIVATED SLUDGE SYSTEM C/W SLUDGE STORAGE FACILITY.

THE ISSUE

Okehampton Camp Sewage Treatment Works (STW) is operated and maintained by Ancala Water Services who under Project Aquatrine ‘A’ manage many wastewater treatment works on MOD operating sites throughout the UK.

During 2017 & 2018 several operational issues caused numerous consent failures which responded in some key M&E components being replaced, and with operator diligence the site was largely compliant. On occasions, during periods of low population at the camp, cold weather or excessive rainfall, activated sludge had to be imported to support the STW process. A full review of the works, process and condition grading was carried out in 2019 with many issues raised and reported with many of the components being 35 years old and beyond repair and their serviceable life.

Ancala Water Services formulated clear objectives and a detailed scope of works to design, manufacture, deliver, install and commission new plant and equipment at Okehampton STW to provide operational and process improvements to the treatment works with the principal driver to upgrade and improve the sludge handling and treatment process.

THE SOLUTION

Having gone through a rigorous tender process, in February 2020, Ancala Water Services appointed Kemada as the Principal Contractor & Principal Designer to fully manage and deliver a full turnkey project. Following an initial detailed site survey and desktop review, Kemada submitted proposals for the upgrades required to meet the customers objectives and targets ensuring full compliance to regulatory and British standards.

The project had to be very carefully managed, planned and programmed with regular updates and reporting back to the customer with particular focus on managing and working closely with the supply chain due to the COVID-19 pandemic and also ensuring the works were carried out in a safe environment.

The agreed scope of works delivered by Kemada included:

- Full Process, Civil, Mechanical, Electrical and ICA Design for the upgraded works, inc. P&ID, Control Philosophy, Site Layout & General Arrangement drawings, Full Electrical and Mechanical designs including calculations.
- All civil works inc. concrete supports and foundations for new plant and equipment and alterations to existing cable ducting.
- Design, Supply & Installation of Form 4 Control Panel incorporating process controllers for the dissolved oxygen (activated sludge ditch) and sludge blanket monitoring (clarifier/final settlement tank).
- Supply & Installation of GRP weatherproof housing for the control panel c/w small building services.
- Supply & Installation of new duty/standby sludge transfer pumps and automated valve operating system for both return and surplus activated sludge.
- Design, Supply & Installation of all mechanical ductile iron pipework and associated valves and fittings.
- Design, Supply & Installation of all galvanized steel support systems, open steel mesh flooring and bracketry.
- Modifications to the existing submain power supply cabling and switchgear.
- Site wide electrical cabling inc. Power, Instrumentation & Control c/w replacement cable containment to meet the requirements of BS7671—The IEE Wiring Regulations.
- Design, Supply & Installation of remote telemetry outstation to monitor, record and transmit data over cellular communications.
- Testing & Commissioning of the Works & appointment of MCERT approved inspector for final commissioning and certification.
- Operational Training & issue of Final Operation & Maintenance manuals.

THE OUTCOME

- The project was a resounding success, met all project milestones and was completed on time and to budget despite the impact and restrictions caused by COVID-19.
- All customer objectives, targets and expectations were met.
- Ongoing operational cost savings on import/exporting of sludge.
- Previous operation & maintenance risks and hazards removed by design.
- The site installation works were installed to a very high standard with positive comments & feedback from all stakeholders.