

Glenstall WwTW

new works to serve Ballymoney and the outlying villages

by

Derek Crabbe Dip Deslgn, BSc (Hons) Tech (Open)

Northern Ireland Water's (NI Water) £7 million Glenstall Wastewater Treatment Works (WwTW), located in Glenstall, Ballymoney is capable of treating wastewater flow from a population of approximately 40,650 in the area. This new state-of-the-art treatment facility will result in reduced carbon footprint, operational flexibility, and will ensure that wastewater treatment in the area meets the latest European standards.



Glenstall WwTW

Courtesy of Northern Ireland Water

Background

Previously, Ballymoney and the surrounding area were served by two wastewater treatment works: Ballybrakes WwTW and Glenstall WwTW.

Ballybrakes WwTW was constructed in the early 1950's and designed to treat a population equivalent of 6,700 with treated effluent discharging to the adjacent salmonoid Ballymoney River. The Ballybrakes WwTW had been upgraded in the intervening years but with structural failures evident the life of the plant was limited.

Glenstall WwTW was constructed in 1989 and designed primarily to treat industrial waste up to a population equivalent of 23,800 with treated effluent discharging to the River Bann. Given the elevation of the works it only receives pumped influent.

Objectives/Need

The works have required upgrading to provide a treatment facility that complies with European Union legislation, Government policies and a revised registered discharge consent standard as set by the Environment and Heritage Service.

In addition the works have also been required to meet the needs of the Ballymoney catchment up to the year 2028 in line with the projected combined population growth equivalent.

Solution

It was recommended that the works at Glenstall should be upgraded, while the existing WwTWs at Ballybrakes be decommissioned. Under this project, the works at Ballybrakes has in part been demolished and replaced with a new pumping station and storm treatment facility using existing structures while providing an additional tank for future storm water treatment. The new terminal pumping station at Ballybrakes transfers all flows to Glenstall for treatment.

At Glenstall, the new process consists of preliminary treatment including screening, grit and grease removal, primary treatment using existing tanks and a new secondary treatment process in the form of a CASS Sequence Batch Reactor Plant. Also a new sludge treatment facility along with sludge reception plant and thickening facilities have been installed.



Primary Sludge Holding Tank –
Glenstall WwTW

Courtesy of Northern Ireland Water

This environmentally friendly Cyclic Activated Sludge System (CASS) is an automated system which is an advanced process using sequencing batch reactor (SBR) wastewater treatment. It results in a more flexible process, which will meet future capacity well into the 21st century.



CASS Basin Inlet Pipework –
Glenstall WwTW

Courtesy of Northern Ireland Water

This plant has several benefits over a traditional Wastewater Treatment Works, and offers reduced carbon footprint, operational flexibility and process reliability over other activated sludge processes.

The project removed the old Ballybrakes Wastewater Treatment Works, increased the treatment capacity to provide headroom for Ballymoney, and upgraded the quality of treatment and effluent discharging to the River Bann.

Conclusion

Glenstall WwTW is just one example of the scale of investment required to provide cleaner beaches and rivers, meet European standards, respond to increasing demand and deliver a 21st century water and wastewater infrastructure.

NI Water is committed to providing modern and effective sewerage systems and wastewater treatment facilities across Northern Ireland. By 2010 NI Water will have invested £492m together with a Public Private Partnership Programme in improving wastewater treatment and collection systems.

This significant investment will ensure that the facility supports growth and ongoing development in the Ballymoney area. It is also essential to protect public health, meet European standards, respond to increasing demand and provide Northern Ireland with a modern service comparable with that of water companies in the UK.

The new Works will serve the town of Ballymoney and the outlying villages of Balinamore, Bendooragh, Drumahiskey, Seacon, Macfin, Drumheglis and Coldagh.

This design and build project has been undertaken by Northern Ireland Water working in partnership with McAdam Design, and the Joint Venture Contractors Farrans Construction Limited and EarthTech Ireland Ltd.

Glenstall WwTW was officially opened in December 2008 by Conor Murphy MP MLA Minister for the Department for Regional Development.

Note: The Editor & Publishers thank Derek Crabbe, Project Engineer with NI Water for preparing the above article. ■



View over the 4 CASS Basins at Glenstall WwTW

Courtesy of Northern Ireland Water