

Bringing waste water infrastructure to a major new Highlands town

Tornagrain, Scotland's first new town in 50 years, is now benefitting from vital waste water services thanks to the innovative design and build of three new pumping stations, including the biggest built to date for a Scottish development, and 8km of pipeline.



Planned in response to rapid growth in the Inverness area, the new town of Tornagrain is an ambitious development that will provide homes, retail and public amenities to a community of over 12,000 people.

Located mid-way between Inverness and Nairn, the area is part of Moray Estates and is expected to take 40-50 years to complete.

The challenge

A new town needs new infrastructure. With 5,000 homes planned, Moray Estates needed an effective and compliant waste water network with sufficient capacity to meet future demand and that could be vested quickly by Scottish Water.

Prior to our project, earlier designs had included a number of complexities which posed major risks to getting the development off the ground:



Infrastructure crossing two active rail lines, including the main Inverness to Aberdeen train route.



Infrastructure passing through the airport's Instrument Landing System (the technology used by pilots to land planes with limited visibility).



Installation of a pumpwell located near the proposed realignment of the A96 – a major traffic artery connecting Aberdeen to Inverness.



Difficult ground conditions.

With a nearby Airport Business Park and major leisure development already putting pressure on the network, any new infrastructure had to handle future capacity, whilst also coping with existing pressures.

Our solution

To mitigate against these risks, Moray Estates approached us to revisit the original designs. Over the following months we worked closely with the Estates team and engaged with numerous key stakeholders to explore alternative solutions.

The result was an innovation design and build solution that would meet both existing and future capacity demands, mitigate against significant risks - and save time and costs.



Increased network capacity - we designed and built three new pumping stations, including the biggest built to date for a Scottish development, along with 8km of gravity sewer and rising mains.



Network diversions - our revised design meant that we crossed only one railway line which significantly reduced risk and disruption to Network Rail; and completely removed the need to cross the airport's vital Instrument Landing System.



Flood prevention - by incorporating an existing pump scheme we were able to boost its efficiency thereby avoiding the risk of flooding in nearby areas.



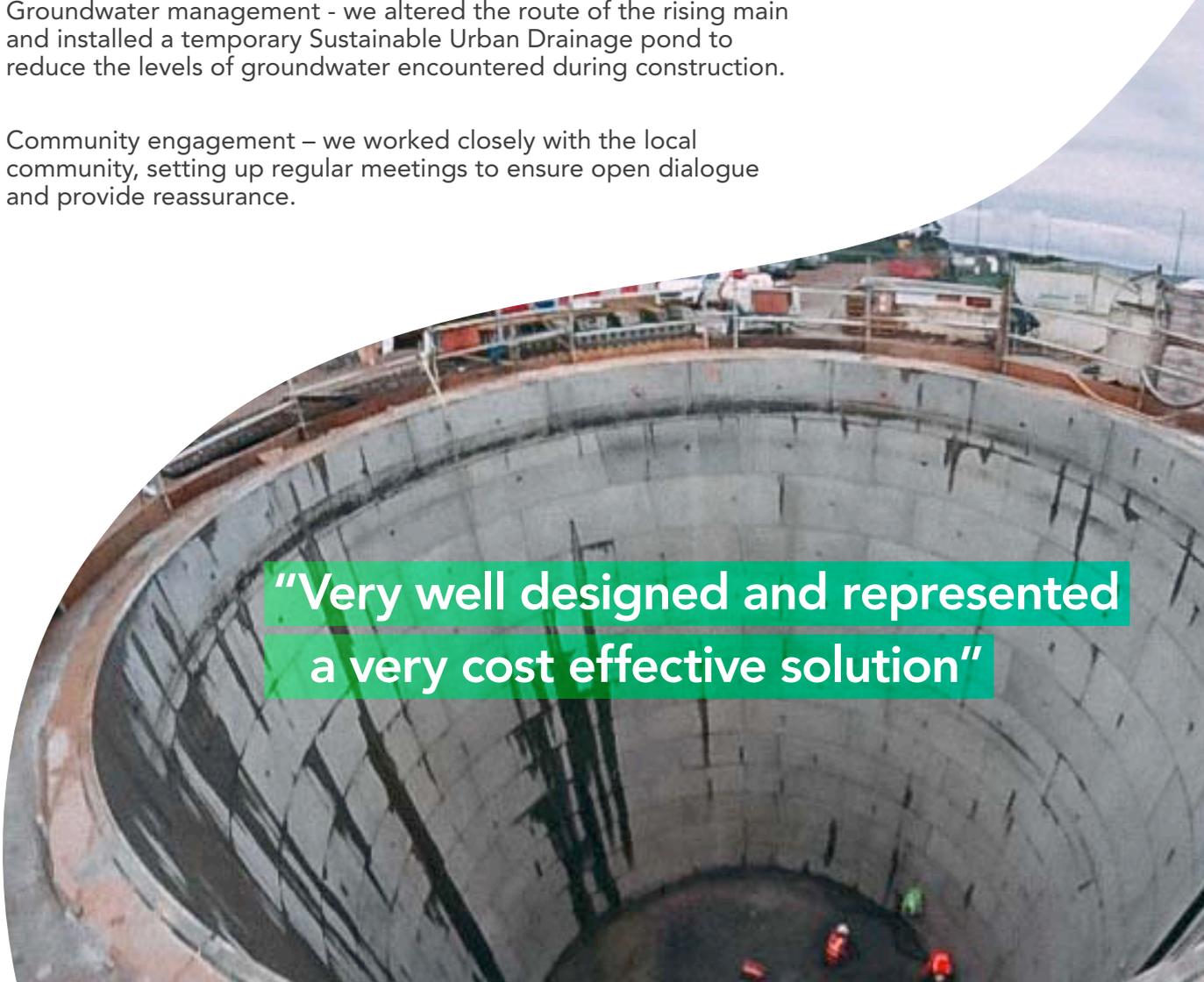
Minimum traffic disruption - we moved the proposed location of the pumpwell away from the A96 to avoid any disruption during future road upgrades.



Groundwater management - we altered the route of the rising main and installed a temporary Sustainable Urban Drainage pond to reduce the levels of groundwater encountered during construction.



Community engagement – we worked closely with the local community, setting up regular meetings to ensure open dialogue and provide reassurance.



“Very well designed and represented a very cost effective solution”

Protecting the historic and natural environment

The Tornagrain development brought a variety of historical and environmental challenges which we resolved without impacting on project delivery.

Historic bunker - during construction we came across a hidden World War II bunker nestled underground. We engaged with the local council, archaeologists and specialist contractors to ensure this slice of historic infrastructure was preserved.

Protected species - several protected species were identified across the project landscape, including badger sets, a nesting buzzard and Dingy Skipper butterflies whose population has significantly declined in recent years. We worked with ecology specialists to ensure appropriate management plans and licences were put in place to protect these species.

Site of Special Scientific Interest - a portion of the rising main and sewer route ran through a Site of Special Scientific Interest (SSSI), which is a legally protected designated area for conservation. As the SSSI protected important geological features, we worked closely with environmental specialists to manage construction carefully and sensitively.



Several protected species were identified across the project landscape



The outcome

Three pumping stations and 8km of pipeline were vested by Scottish Water within four months of commissioning.

Despite the complex nature of the project, we delivered the waste water scheme ahead of schedule. Pivotal to this was early engagement with key stakeholders and Scottish Water.

By reworking the previous designs and managing risks as they arose, we were able to ensure that disruption was kept to an absolute minimum - and enable costs savings for Moray Estate.

We are delighted to have been able to play our part in supporting this significant development. Not only will it enable the build of a sustainable new community, it will also provide vital infrastructure for generations to come.



Delivered ahead of schedule



Quick vesting by Scottish Water



Reduced risks and disruptions



Cost and resource efficient



Satisfied stakeholders

"The complex and, at times difficult, scheme was completed and vested by Scottish Water within four months of the project completion. Scottish Water Horizons managed this process extremely well, with the sign off process with Scottish Water addressed at all stages of build out, minimising the need for compliance work after completion. This was a huge benefit to the team as we were able to hand the scheme to Scottish Water much sooner than anticipated, removing extra risk and cost for us."

Andrew Howard
Managing Director
Moray Estates



MORAY ESTATES



hello@scottishwaterhorizons.co.uk

Scottish Water Horizons

www.scottishwaterhorizons.co.uk

Scottish Water Horizons Ltd is a wholly owned subsidiary of Scottish Water. The company plays a key role in supporting the development of Scotland's sustainable and circular economy by making the most of the public utility's vast array of assets.