Isle of Wight Water Recycling Project

Consultation Brochure

January 2025

Contents

Foreword from Lawrence Gosden

Thank you for taking the time to engage with this consultation on our Isle of Wight Water Recycling Project. This brochure explains why the Project is needed, the benefits it will bring to the Isle of Wight's water resilience and local people, and how we plan to deliver it.

Water is a precious resource that needs to be used wisely so there's enough for people and the planet. Using water wisely means minimising leakage and maximising water efficiency in homes and businesses – both of which are key priorities for us. We're driving down leakage by 50% by 2050 and helping our customers reduce their water use to 100 litres per person a day by 2040.

But using water wisely also means looking at new ways of using the water we have available. This includes the treated wastewater that we currently waste by pumping it out to rivers or the sea – only to take it again further along the water cycle to be treated and supplied to customers.

When we take water from rivers and the underground aquifers that feed them, it means there's less available for wildlife. Currently, around one-third of the Isle of Wight's water supply comes from the River Test in Hampshire and is pumped across to the Island via the Cross-Solent Main.

So, as you'll see in the following pages of this document, we plan to take some of the Island's wastewater and treat it to a much higher standard so it can be used as a source for drinking water supplies.

This approach, called water recycling, is widely used around the world. Tapping into this new source of water will mean we can significantly reduce the amount we need to take from the environment – especially during a drought.

Using water recycling technology to provide water where nature has previously will bring huge benefits to wildlife in and around Hampshire's rare and sensitive chalk stream rivers.

Meanwhile, providing a resilient, sustainable source of water for the Isle of Wight's growing population will keep taps flowing whatever the weather and support the local economy.

The Isle of Wight Water Recycling Project is likely to be the first full-scale Water Recycling Project in the UK and is the first of several water recycling projects Southern Water is developing.

Thank you again for getting involved and helping us create a new sustainable source of water for the Isle of Wight that will help keep taps and rivers flowing for many generations to come. Your views are helping shape our plans and will continue to do so – we look forward to hearing from you.

Lawrence Gosden, Chief Executive Officer, Southern Water

What we do

About Southern Water

We supply water and wastewater services to over four million customers in the South East. Our operations cover Hampshire, Kent, Isle of Wight and East and West Sussex, traversing over 700 miles of coastline, national parks, forests and Areas of Outstanding Natural Beauty.

1. Introduction

About the Project

We're planning to build a Water Recycling Plant in Sandown, to provide a new source of water for our customers on the Isle of Wight and reduce the reliance on the mainland.

The South East of England is water stressed and the Isle of Wight and mainland Hampshire are particularly affected.

Currently, around one-third of the Isle of Wight's water supply comes from the River Test in Hampshire and is pumped across to the Island via the Cross-Solent Main.

We need to find new sustainable sources of water to help keep taps and rivers flowing, following reductions in the amount of water we can take from the River Test and the underground aquifer that feeds it. This need is amplified by the pressures of a growing population and changing climate.

We need to find new sources of water to make up the shortfall and meet the future demands of our customers without taking more water from the environment. Creating a new source of water using water recycling technology would address the water shortage on the Isle of Wight and help improve drought resilience in a severe drought.

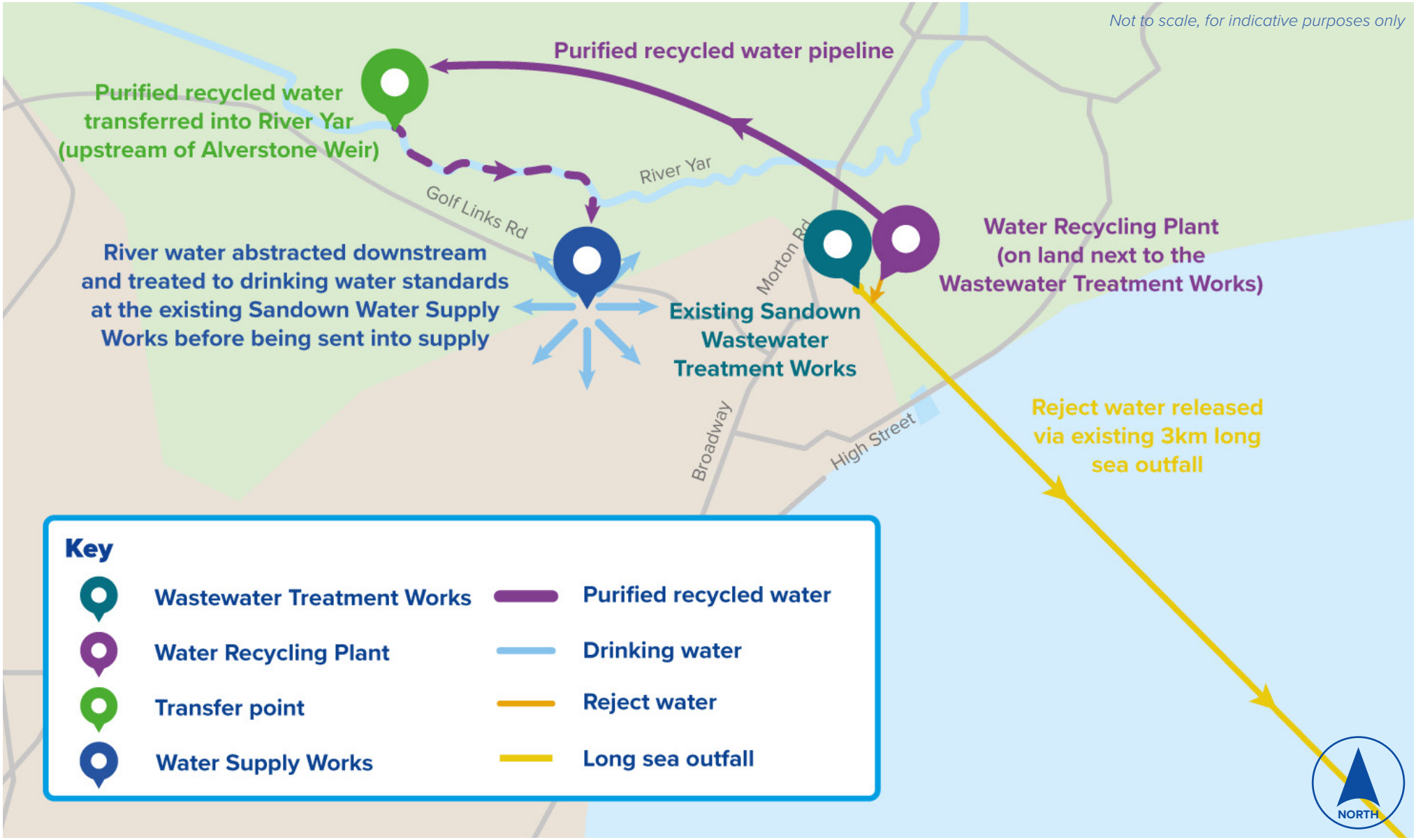
The Isle of Wight Water Recycling Project involves using a brand new multi-stage wastewater treatment process that will treat the water to a high standard before pumping it to further stages of advanced treatment. These further stages include reverse osmosis, where membranes with holes more than 50,000 times smaller than the width of a human hair are used to filter out dissolved impurities.

This advanced treatment will produce extremely clean water known as 'purified recycled water'. A new pipeline will move the purified recycled water to the Eastern Yar at Alverstone. When released, the purified recycled water will mix with the river water and supplement flows in the Eastern Yar.

Water taken from the river further downstream will be treated at the existing Sandown Water Supply Works to meet strict drinking water quality standards before being supplied to customers on the Isle of Wight.

Throughout 2023/24 and into 2025 we've undertaken ground investigation, environmental and ecological surveys to work out the best route for the new water pipeline as well as completing extensive surveys of the sites involved. We have also studied the water quality within the Eastern Yar and in the English Channel around our existing Long Sea Outfall from Sandown Wastewater Treatment Works.

Overview of our Project



Why we are consulting

In order to construct and operate the Project, we will need to seek and obtain planning permission from Isle of Wight Council. Before we submit our planning application to the Council, we are consulting with a wide variety of stakeholders, including local residents, landowners, businesses, environmental organisations, Parish Councils and the Isle of Wight Council itself on our proposals.

We want to know what you think about our proposals to enable us to further shape and refine the Project before we seek planning permission. You can give us your views using the feedback form available online or in print version or email us at **iwwrp@southernwater.co.uk**

Navigating this brochure

The brochure is arranged in the following Sections.

Section 1 – Introduction

Section 2 – Keeping taps and rivers flowing

Section 3 – The proposed Project

Section 4 – Assessing and protecting the environment

Section 5 – How the Project could affect you

Section 6 – Have your say

Sandown Wastewater Treatment Works

2. Keeping taps and rivers flowing

Why we need the Project

As a water company, it is our responsibility to provide our customers with a reliable and safe supply of water while also protecting the environment.

The Isle of Wight has always depended on Hampshire's chalk stream rivers and the underground chalk aquifers that feed them to supply some of its water. Around a third of the Island's water comes from the River Test on the mainland via the Cross Solent Main, a pipeline under the Solent. The UK is home to 85% of the world's chalk streams and Hampshire's River Test and River Itchen are two of the finest examples. Chalk streams are home to a wide variety of wildlife and are such rare and sensitive ecosystems that they're often referred to as "England's rainforests".

To protect these precious habitats, the amount of water that can be taken from them for public supply has been significantly reduced, a situation made more challenging by our growing population and changing climate. Droughts are becoming more frequent and severe, and continuing to take water from these rivers when flows are already low poses a real risk to these precious ecosystems. This means that we have to find new sustainable sources of water for our communities and the local economy.

Across Hampshire and the Isle of Wight, we need to find at least 200 million litres of water a day by 2050 that's not from a river or from an aquifer, and that figure is only set to rise with further environmental restrictions expected in the future. Our draft Water Resources Management Plan (WRMP), which looks at how we'll maintain water supplies for the next 50 years, predicts that essential daily supplies will also be under threat, as well as during times of drought, unless we can find alternative sources of water.

We've looked to the sea for a solution, but our investigations showed that a plan to remove the salts and other impurities from sea water to turn it into drinking water at a desalination plant in the Solent was not the right solution for this area given its likely adverse impacts on the Solent and the New Forest National Park.

The preferred solution is to use advanced treatment techniques to turn treated wastewater into purified recycled water at two water recycling plants – one on the mainland in Havant and another at Sandown.

These new sources of water won't solve Hampshire and the Island's water resources challenge alone – we are developing a range of wider solutions to help meet the shortfall we face. These include reducing leakage (up to 50% by 2050) and improving water efficiency to ensure we're all using water wisely, as well as new pipelines to help move water to where it is needed.

The Project will transform the way we source, treat and supply water across the Isle of Wight for many generations to come. Not delivering the Project would place continued additional pressure on an already seriously water stressed area on the Island and beyond. This would risk undermining planned housing and economic growth, prolonging and extending the duration of the deficit in water resources for customers and extend reliance on abstractions from Hampshire's rivers with risks to the sensitive chalk stream habitats that the Project is actively seeking to protect.

We're not the only water company in the South East facing a shortage in its water supply. All of our neighbouring water companies also face reductions in the amount of water they can take from the environment, alongside pressures from population growth and climate change. Some are also looking at water recycling as a sustainable way of delivering new water sources for their areas.

Water Resources Management Plan

Our current Water Resources Management Plan (WRMP) 2019 established the need for a new water resource solution on the Isle of Wight to address the significant water supply shortfall.

Our investigation of this solution identified the Project as the most preferred solution to help tackle this shortfall. Alongside plans for other water recycling and water transfer schemes across our wider supply area, our emerging WRMP 2024, that will replace WRMP 2019, identifies the Project as a solution in addressing the water supply challenge in Hampshire and the Isle of Wight. Taken together, WRMP 2019 and our emerging WRMP 2024 establish the need for the Project. This consultation is focused on the delivery of that solution.

Water Resources South East Regional Plan

Water Resources South East (WRSE) is an alliance of the six water companies that cover the South East region of England. It was established to secure future water supplies through a collaborative regional approach to managing water resources, principally through a strategic regional water resources plan that looks ahead to 2075.

The WRSE plan, which is currently awaiting publication, selects the Isle of Wight Water Recycling Project as a new regional water resource solution to be in use by 2030-2031. While not a statutory document, the plan plays a crucial role in identifying regionally important water resources schemes that offer best value to customers, society and the environment, while providing a strategic framework for the development of WRMPs.

3. The proposed Project

What we've done so far

A number of options were considered to reduce the flow from the Cross-Solent main between Fawley and the Isle of Wight, and as such the demand on the River Test abstraction.

Two groups of options were considered - local (on the Island) and regional. These included leakage reduction (which remains part of the solution), desalination of various sizes and locations, and other transfers from the mainland.

Alongside three other water recycling projects being developed across the region, the Isle of Wight Water Recycling Project was deemed the best solution to tackle the cross-Solent main reductions and pressures on the River Test. The Project will ensure up to 8.5 million litres of purified recycled water for use on the Island, improving the Island's water resilience from the mainland.

Our WRMP identified Sandown Wastewater Treatment Works as the preferred location of the source water for the Water Recycling Plant due to the capacity of the Wastewater Treatment Works, volumes of discharge water available for recycling, and the existing Sandown Long Sea Outfall.

Throughout 2023/4 and in to 2025, we've undertaken and continue to undertake ground, environmental and ecological surveys to work out the siting and layout of the Water Recycling Plant, best route for a new water pipeline and location of the outfall. This is being done to understand more about the local area.

We've also engaged with local stakeholders and landowners along the proposed route, working with them where possible to minimise impacts of the Project.

We're continuing to work closely with our regulators throughout the process to ensure that their input and guidance is considered appropriately. We're in ongoing discussions with our regulators as the plans continue to be developed. Following consultation, we will submit a planning application to the Isle of Wight Council.

A guide to water recycling

Water recycling is a safe and established method of water treatment that has been used elsewhere around the world for over 40 years. Recycled water is used as a drinking water source in countries like Australia, Singapore and the USA.

Before this Project is implemented, we will work with our regulators to undertake a rigorous system of process control, monitoring and performance assessments.

Here, we explain how the water recycling technology works and the terminology that is used.

Water is already recycled across the country, with treated wastewater being released into rivers, where it blends with river water before being re-abstracted further downstream.

Currently, the water that comes out of your taps is taken from the environment and treated to a high standard to be safe to drink.

After you've used it, we collect and treat the wastewater and return it to the environment once more. The cycle then repeats. When water is in the environment, these natural processes such as filtration through soil and dilution with other water sources reduce impurities.

Water recycling technology speeds this up and improves the natural process. Water recycling plants use advanced treatment techniques to turn treated wastewater into purified recycled water. Special membranes are used to remove salts and a range of other impurities. In fact, so much is removed from the water that some essential minerals such as calcium and magnesium have to be added back in.

Terminology

Purified recycled water: purified water that has been produced by taking treated wastewater and removing remaining impurities using advanced treatment techniques.

Source water: water that is used as a source for drinking water.

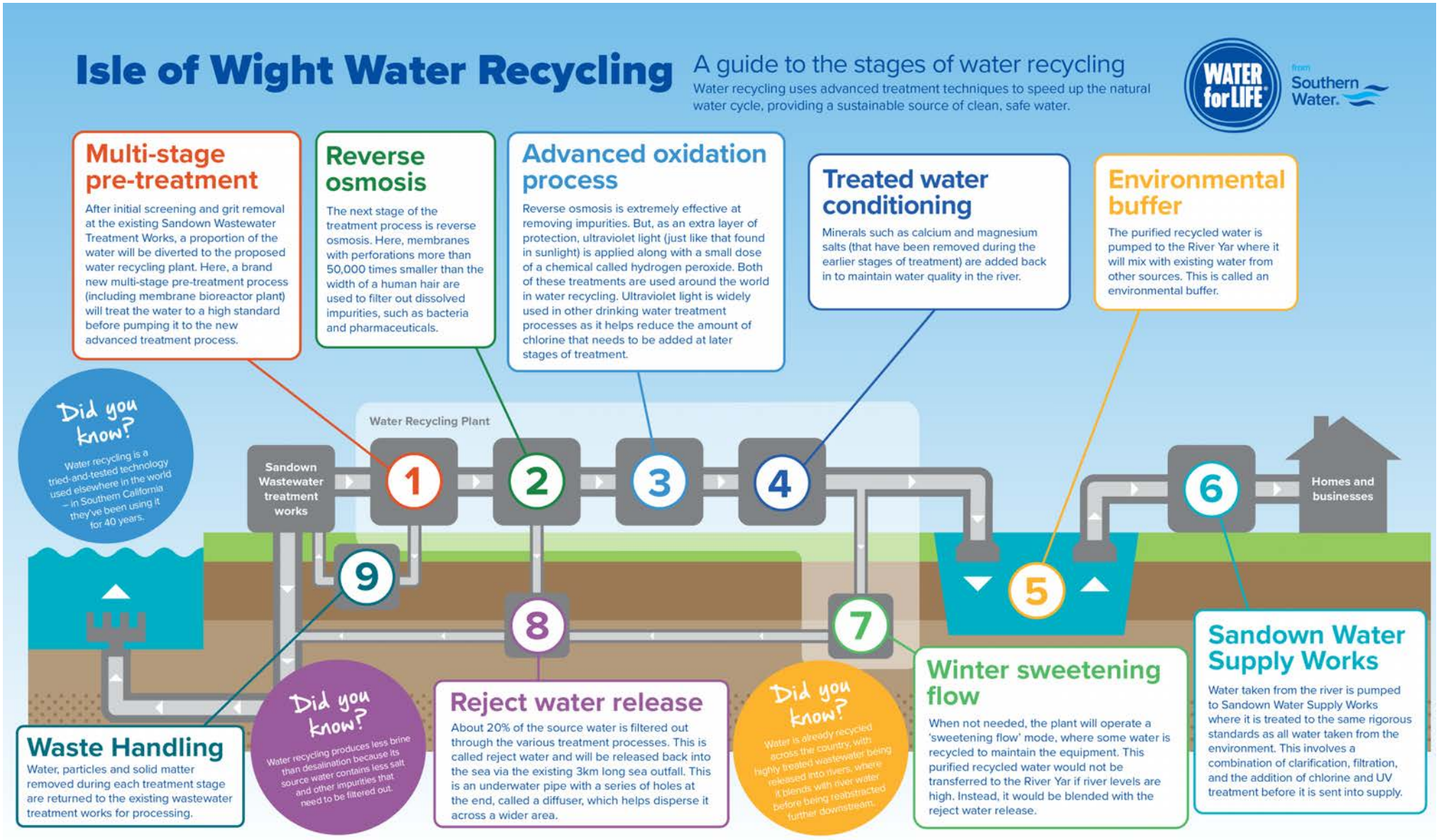
Drinking water: water that has been treated to strict regulatory standards, ready for supply to homes and businesses.

Wastewater: a combination of water from kitchens, bathrooms, sinks and taps (in homes and businesses) and rainwater from roads and roofs, that is transported to and cleaned at, a wastewater treatment works.

Treated wastewater: wastewater that has been treated to strict regulatory standards and is typically released to rivers or the sea.

Reject water: water containing impurities removed during the water recycling process.

Overview of the Isle of Wight Water Recycling Project



Water Recycling Plant

Description and site location

A Water Recycling Plant would be constructed on land to the south of Sandown Wastewater Treatment Works. The new plant will be designed capable of producing up to 8.5 million litres of purified recycled water per day.

The Water Recycling Plant site would cover an area of around 5 hectares, with the treatment plant comprising two stages of treatment – a multistage pre-treatment and an advanced treatment stage.

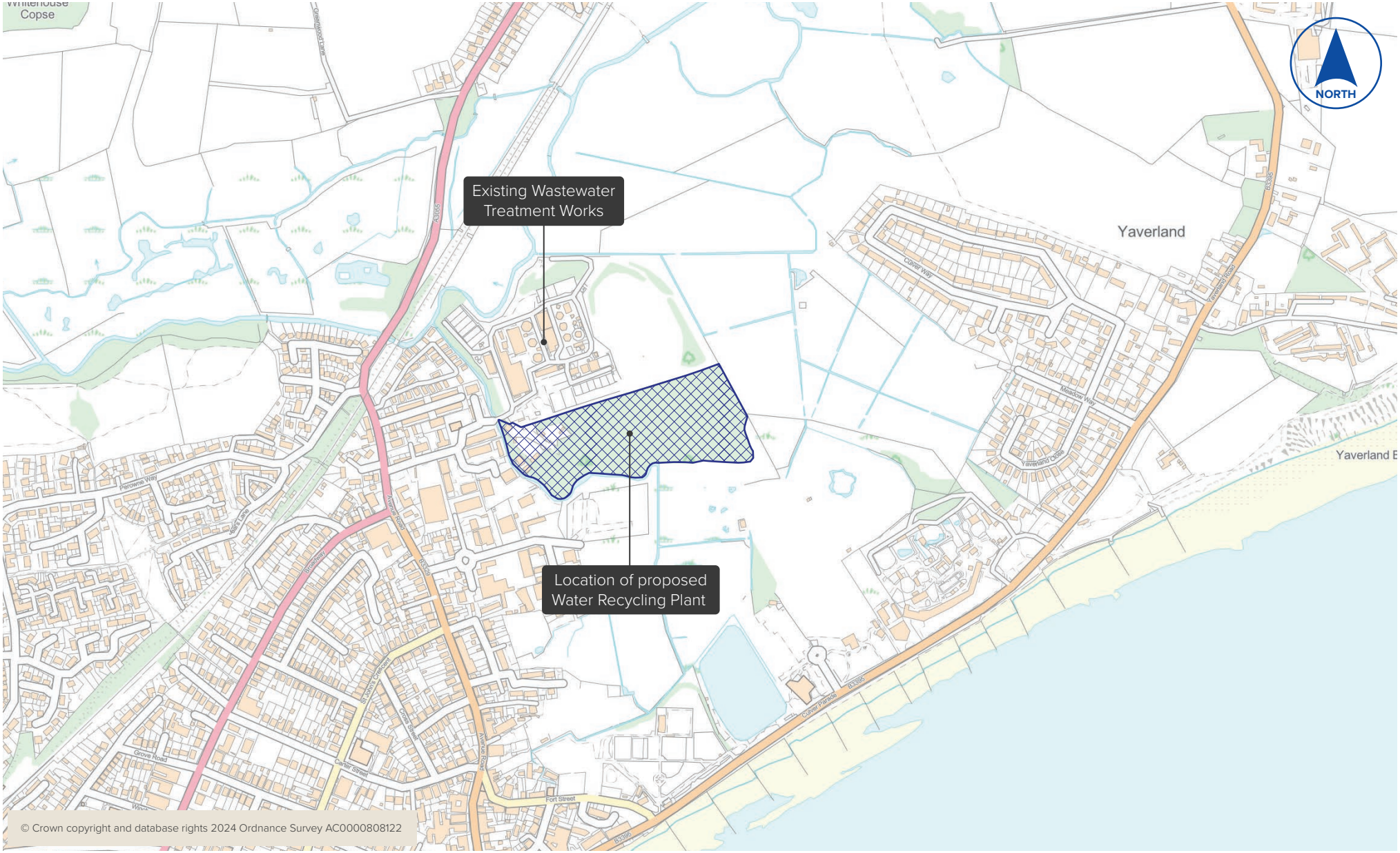
The proposed location of the Water Recycling Plant is a former domestic landfill which means the majority of the structures and plant, including pipes and cables, need to be above ground. There would be various structures and treatment units, including:

- Advanced treatment building (around 14.5m tall)
- Primary settlement, biological aeration and membrane filtration structures (around 8m tall concrete structures)
- Several holding tanks (up to circa 10m tall)
- Chemical storage units, kiosks and other treatment structures
- Odour treatment plant including odour control stack

We would choose colours and finishes for the buildings and tanks to reduce the visual impact of the Water Recycling Plant, and also incorporate landscaping around the perimeter of the new Water Recycling Plant site.

The Water Recycling Plant will incorporate sustainable drainage to manage surface water within the site, including a water storage pond. The drainage features will be designed to mimic natural drainage processes whilst providing water quality, biodiversity and flood risk benefits.

Once constructed, the Water Recycling Plant would be accessed via East Yar Road, with the existing access into the former landfill site modified and widened. This access is immediately adjacent to the entrance to our existing Sandown Wastewater Treatment Works. We would enclose the Water Recycling Plant with a 3m high security fence and gate.



Location plan

Not to scale, for indicative purposes only

Water Recycling Plant site visualisation

Not to scale, for indicative purposes only

Site selection

To operate efficiently, a site for the new Water Recycling Plant needs to be close to the existing Sandown Wastewater Treatment Works. This is to enable water from the existing Wastewater Treatment Works to be passed to the new Water Recycling Plant for treatment, and for waste by-products from the recycling processes to be passed back to the existing Wastewater Treatment Works.

The selection of the preferred site for the Water Recycling Project followed a site identification and evaluation process. Three sites were initially considered due to their proximity to the existing Wastewater Treatment Works and/or availability of land in Southern Water's ownership. Proximity to the Wastewater Treatment Works is important for technical, economic and environmental reasons.

The sites initially considered were:

- WRP1 – a site, owned by us, located immediately east of Sandown Wastewater Treatment Works
- WRP2 – a site owned by us, located approximately 110m south of the Sandown Wastewater Treatment Works, and previously used as a construction compound in the late 1990s
- WRP3 – a site owned by Isle of Wight Council and immediately south of Sandown Wastewater Treatment Works

Site WRP1 was considered to be unsuitable, being too small with uneven ground, making it difficult to access and develop. Site WRP2 was also considered too small to accommodate the Water Recycling Plant, as well as being within the flood plain, meaning, that if permanently developed, there would be a need to provide flood compensation land elsewhere.

From this initial evaluation process, Site WRP3 was selected as the preferred site. In selecting this site, we identified that whilst of sufficient size to accommodate the Water Recycling Plant, it may not be able to accommodate the temporary activities needed to construct the plant. We therefore identified that Site WRP2 could potentially provide the space for a temporary construction compound.

To ensure a robust approach to the identification of the preferred location of the Water Recycling Plant site, a wider search area was then also investigated. This sought to identify whether there were any other feasible sites of sufficient size within a 1.5km buffer between the Wastewater Treatment Works and Alverstone Weir. We considered criteria including land use, environmental designations and engineering factors.

This assessment confirmed the most suitable location for the Water Recycling Plant as Site WRP3. We are currently in advanced negotiations with Isle of Wight Council regarding the purchase of Site WRP3

Alternative Water Recycling Plant locations considered

Not to scale, for indicative purposes only

Outfall

Description and location

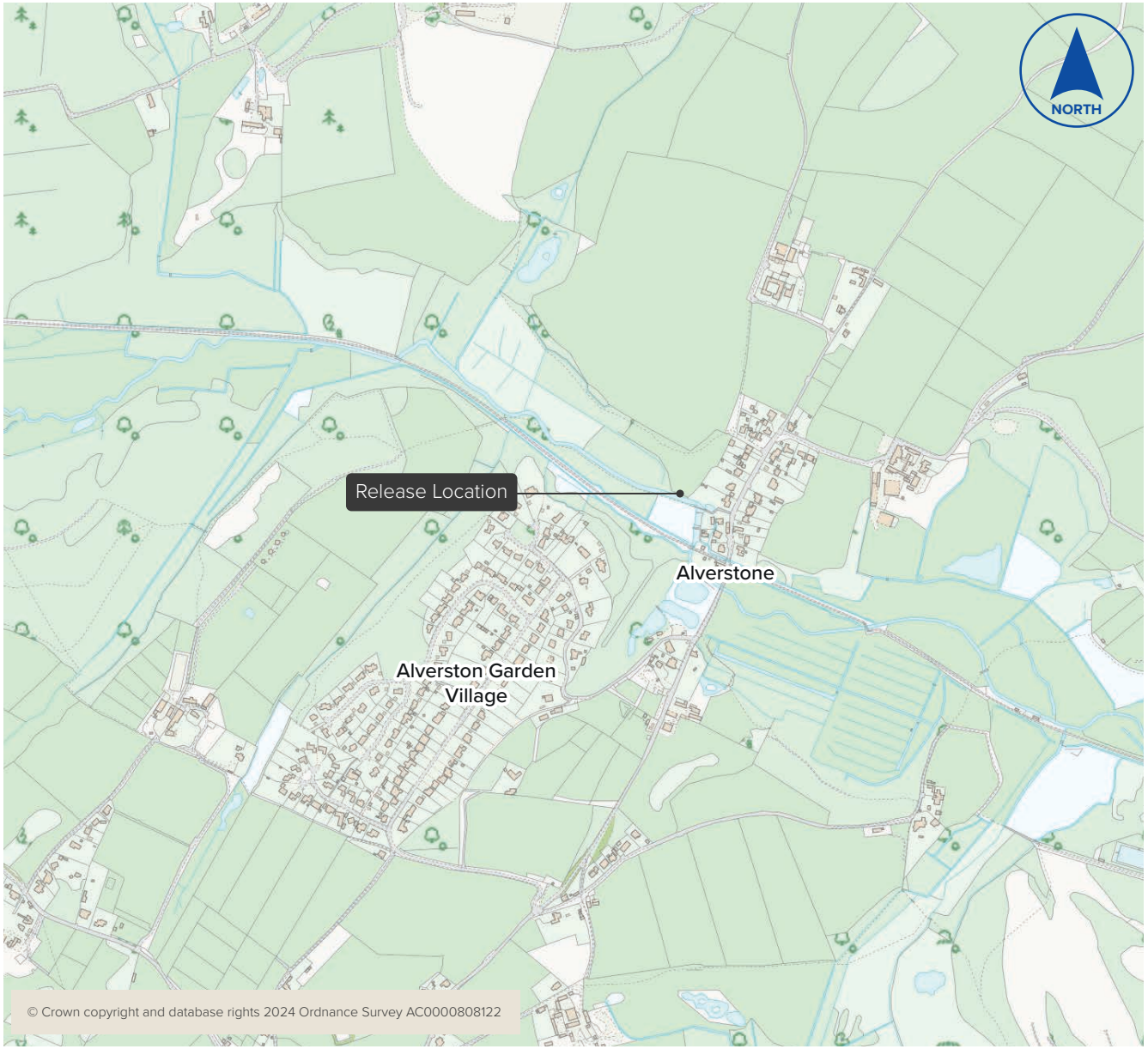
We need to construct a new outfall to release purified recycled water into the Eastern Yar just upstream of the Alverstone weir. The proposed outfall structure would be set back from the river.

The end of the proposed pipeline would be protected by a headwall structure. The headwall structure would be reinforced concrete with rock filled gabion walls. A post and rail fence would be provided on top of the gabion walls as a safety feature.

The headwall would include solar powered equipment to monitor river levels so that when levels within the Eastern Yar reach a certain agreed level, the purified recycled water would be directed from the Water Recycling Plant to the Long Sea Outfall instead of going to the river, so as not to increase the risk of flooding.

From the headwall, we would construct a channel leading into the Eastern Yar. The channel would include sloping earth banks with protective matting and planting, so the channel blends in with the natural river environment.

The purified recycled water released into the Eastern Yar will be abstracted via our existing abstraction point downstream and sent to Sandown Water Supply Works where it will then be treated to strict drinking water standards before being supplied to customers.



Release location

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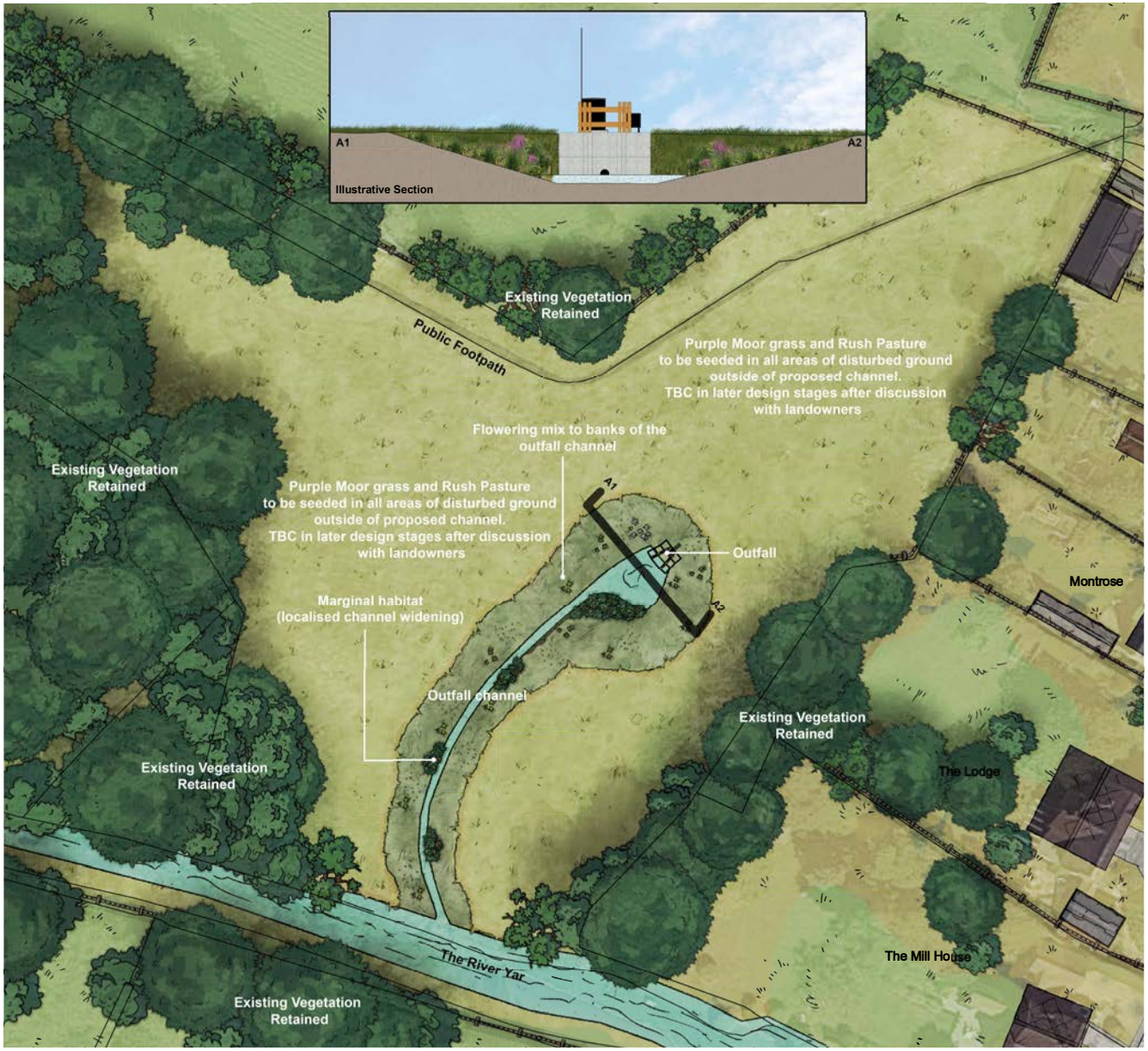


Proposed outfall arrangement (indicative illustration)

Not to scale, for indicative purposes only

Site selection

The project includes an environmental buffer to blend the purified recycled water with the existing source of supply before it is transferred to Sandown Water Supply Works for further treatment to drinking water standards and then supplied to customers. We considered whether that environmental buffer could be in the form of a lake or release into a river.

Through a detailed site selection process, it was determined that the only potentially suitable locations for a lake would be within the Isle of Wight National Landscape. Constructing a large storage lake within a protected landscape has significant planning policy challenges. A remote storage lake would also require additional pipelines and pumping with associated environmental, cost and carbon impacts. On this basis, we ruled out this option.

We selected the Eastern Yar as the most appropriate river environmental buffer for the purified recycled water to be released into. Releasing to the Eastern Yar upstream of the existing abstraction point that transfers water for treatment at the Sandown Water Supply Works downstream enables the purified recycled water to flow down the river and to mix with existing river water prior to abstraction. Five potential release locations were initially identified for consideration, as follows:

- Option 1 approximately 1km upstream of the existing abstraction on the Eastern Yar which required a 3km pipeline
- Option 2 using an existing release point at our Hazeley Coombe Wastewater Treatment Works which required a 6km pipeline
- Option 3 at an existing release point at our Godshill Wastewater Treatment Works which required an 8km pipeline
- Option 4 using our existing Medina / Yar Transfer Station Wet Well which required a 10km pipeline
- Option 5 at an existing release point at our Roud Wastewater Treatment Works which required a 12.5km pipeline

Through our assessment we determined that the additional cost and environmental impact of longer pipelines that would be required to release at existing Southern Water sites were not appropriate, given the availability of options with shorter pipeline and less pumping requirements. We therefore identified Option 1 as the preferred location, however it was recognised that Option 1 was in close proximity to, and could impact on, the Red Squirrel Trail Cycleway, and also that it was approximately 450m into the Alverstone Marshes Site of Special Scientific Interest (SSSI).

As a result, we identified and considered two further alternative options within this location:

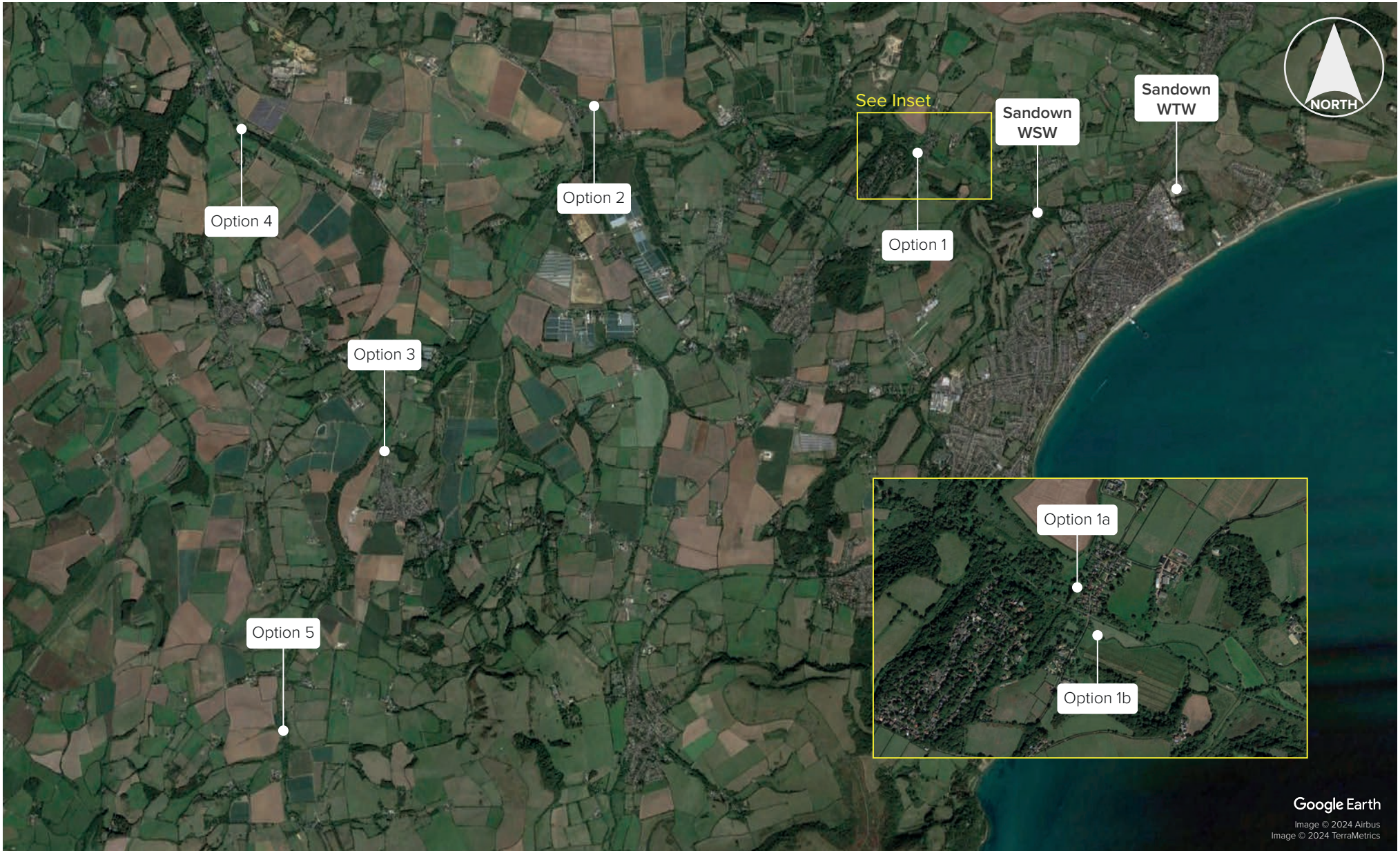
- Option 1a – location upstream of Alverstone Weir and west of Alverstone
- Option 1b – location east of Alverstone

Option 1b was identified as likely to require an extended closure of the Red Squirrel Trail Cycleway and an additional crossing of the Eastern Yar (tributary).

On this basis, Option 1a was identified as being the preferred option. The location of Option 1a has the advantage of being upstream of an existing weir and a greater distance than Option 1b from the existing Surface Water Abstraction.

This greater distance is an advantage as a longer stretch of river provides a better environmental buffer, helping the purified recycled water mix with the river water for a longer time before it is abstracted. The location also allows us to create a set-back natural outfall channel to the river.

Although our release location is located at the edge of the Alverstone Marshes SSSI, the location also provides an opportunity for biodiversity improvements in this area. Only a small reach of the Eastern Yar (lower) is within the SSSI following the release point.



Alternative release locations considered

Not to scale, for indicative purposes only

How we have considered flood risk

We are undertaking flood risk modelling to fully understand how the Isle of Wight Water Recycling Project might impact flooding and to ensure that we minimise and mitigate any risks.

Our Project will release purified recycled water into the Eastern Yar. Detailed modelling undertaken by our specialist contractors shows that under most river conditions, the release of water will not lead to a significant increase in water level or increase the speed of flow within the River.

The Project aims to address drought-related water shortages and as such it is not intended for any purified recycled water to be released in the Eastern Yar during periods of high river levels or flood.

To reduce any residual risk of flooding, the proposed outfall structure will include monitoring equipment which will tell us when the levels in the Eastern Yar are high. Based on our modelling of the river channel volume we will identify a level at which we will stop any further release of the purified recycled water into the river.

The water will instead be diverted back through our existing Long Sea Outfall from Sandown Wastewater Treatment Works. With this process in place, there will be no increase in flood risk on the Eastern Yar.

On our proposed Water Recycling Plant site, we are designing the plant and buildings to ensure that, should flooding occur, the site will continue to safely operate. We are including sustainable drainage measures, such as a water storage pond, to ensure that surface water run-off across the site is effectively managed and does not compound any offsite flooding.

Water Quality

The purified recycled water will be treated to a high quality that meets environmental standards.

Assessments have shown that significant effects to aquatic ecology/biodiversity are unlikely. We are undertaking further assessments to identify mitigation if required.

Our modelling has so far shown the following:

- Nutrients (such as ammonia, nitrates and phosphorous) – levels in the recycled water are lower than existing levels within the Eastern Yar
- Temperature – the recycled water will be slightly warmer than background river levels, however this temperature difference is considered to be minimal and not detrimental to the River's ecology
- pH – the recycled water matches that in the River
- Dissolved oxygen – whilst levels in the recycled water are lower than in the river, the existing upstream weir and the outfall channel will help to maintain oxygen levels within the River

Advanced treatment technologies that are globally used in water recycling are effective at significantly reducing or destroying pharmaceuticals, hormones and so-called "forever chemicals". Our proposed Water Recycling Plant would remove these impurities at various stages of the treatment process, meaning only purified recycled water would be released into the Eastern Yar.

Water taken from the river downstream would be treated to strict drinking water standards at the existing Sandown Water Supply Works before being supplied to customers.

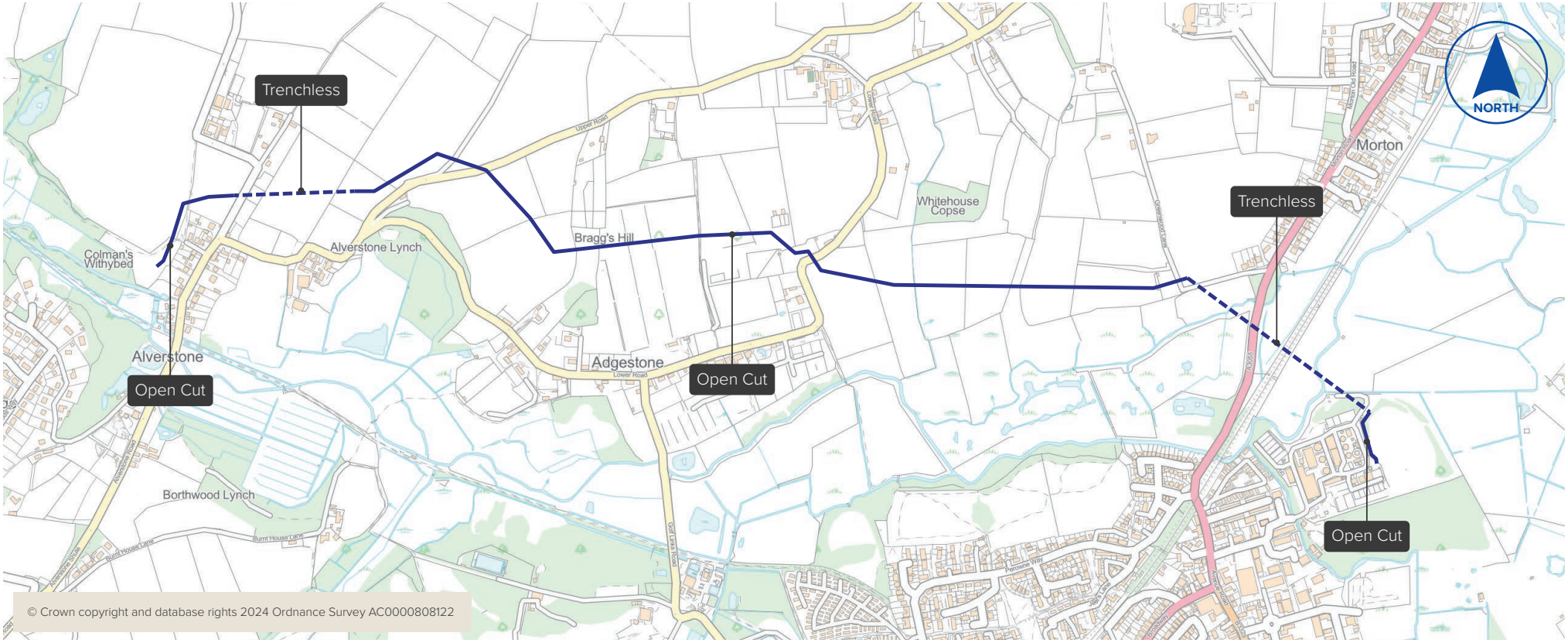
Pipeline

Description and site location

A new below-ground pipeline would be laid to transfer purified recycled water from the new Water Recycling Plant to the Eastern Yar by Alverstone. The pipeline would be approximately 3.25km long and will range from approximately 350mm and 400mm in diameter. It would primarily follow the existing topography along the route and include several buried air-valve and washout chambers. Air valves are provided at high points along the route and allow trapped air to be released. Washout chambers are provided at low points to allow sections of the pipeline (between high points) to be drained in an emergency or for maintenance.

From the new Water Recycling Plant, the below ground pipeline would go beneath the A3055 and skirt the edge of Morton Common. From Greenwood Lane, the pipeline would go through agricultural land, crossing Lower Road and Upper Road. Towards Alverstone, the pipeline would cross Alverstone Road and run behind properties to reach the Eastern Yar.

The section of pipeline where it joins with the Eastern Yar is within the Alverstone Marshes SSSI, a nationally important nature conservation site.



Pipeline route

Not to scale, for indicative purposes only

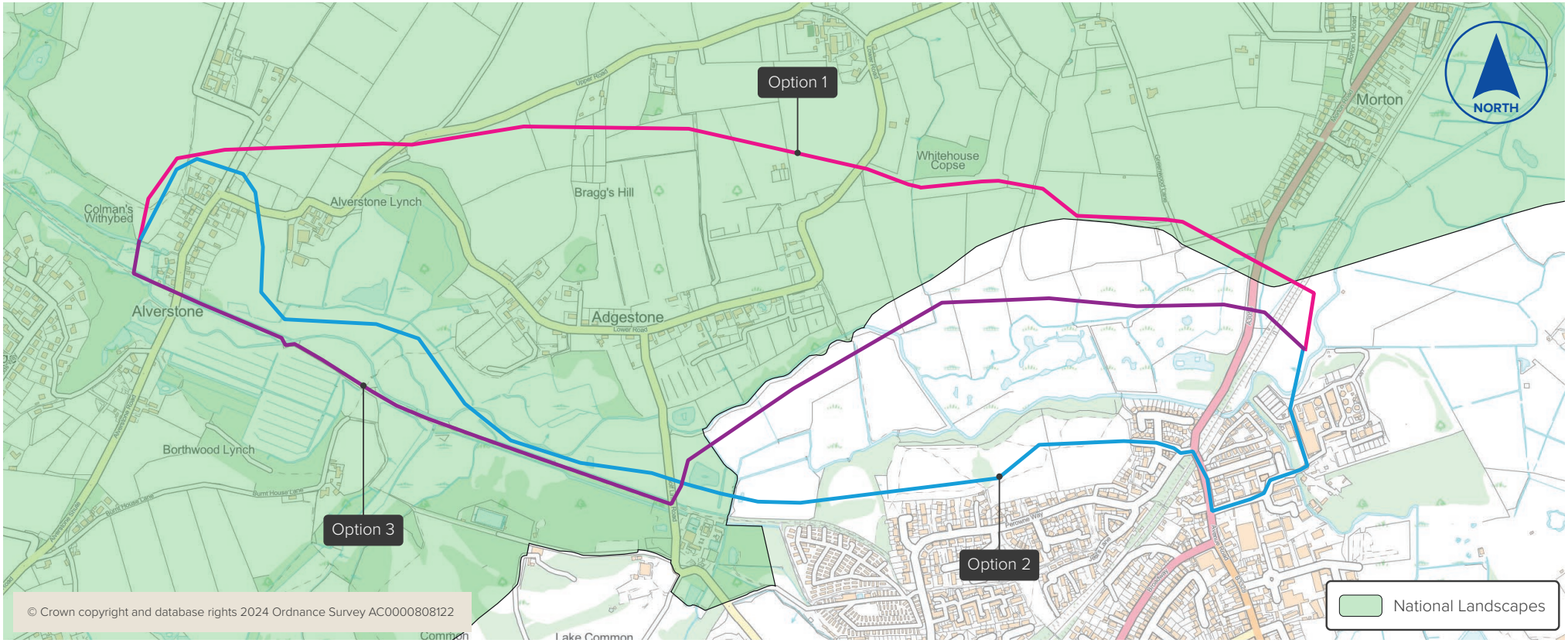
Route selection

We identified three pipeline corridors for appraisal by our environmental specialists. We considered other corridors to the south of our preferred route and nearer the Eastern Yar and associated flood plain. These corridors went through longer stretches of the Alverstone Marshes SSSI and also went through Alverstone Mead Local Nature Reserve (LNR). The option which followed the River also had the potential to require long-term closure of the Red Squirrel Trail Cycleway which is located next to the River at this location. Our preferred route (Option 1) avoids this and most areas of Priority Habitat.

The constructability of the pipeline was also reviewed. The preferred corridor was selected as the most appropriate as it is partly outside the floodplain and requires fewer watercourse crossings.

From the preferred corridor, we identified three sub-options for pipeline routes. These varied for the central part of the pipeline route between Upper and Lower Road. There were also several options for connecting into the Water Recycling Plant, including going through the landfill to the east of the existing Sandown Wastewater Treatment Works and skirting the edge of the Local Wildlife Site to the east of the landfill. The preferred route runs to the northwest of the Sandown Wastewater Treatment Works, avoiding the raised landfill areas and the Local Wildlife Site to the east.

Further refinement of the route has taken place following further appraisal and walkovers of the route by our environmental and construction specialists to avoid features such as high value trees and badger setts.



Alternative pipeline routes considered *(Indicative pipeline start point for optioneering purposes)*

Not to scale, for indicative purposes only

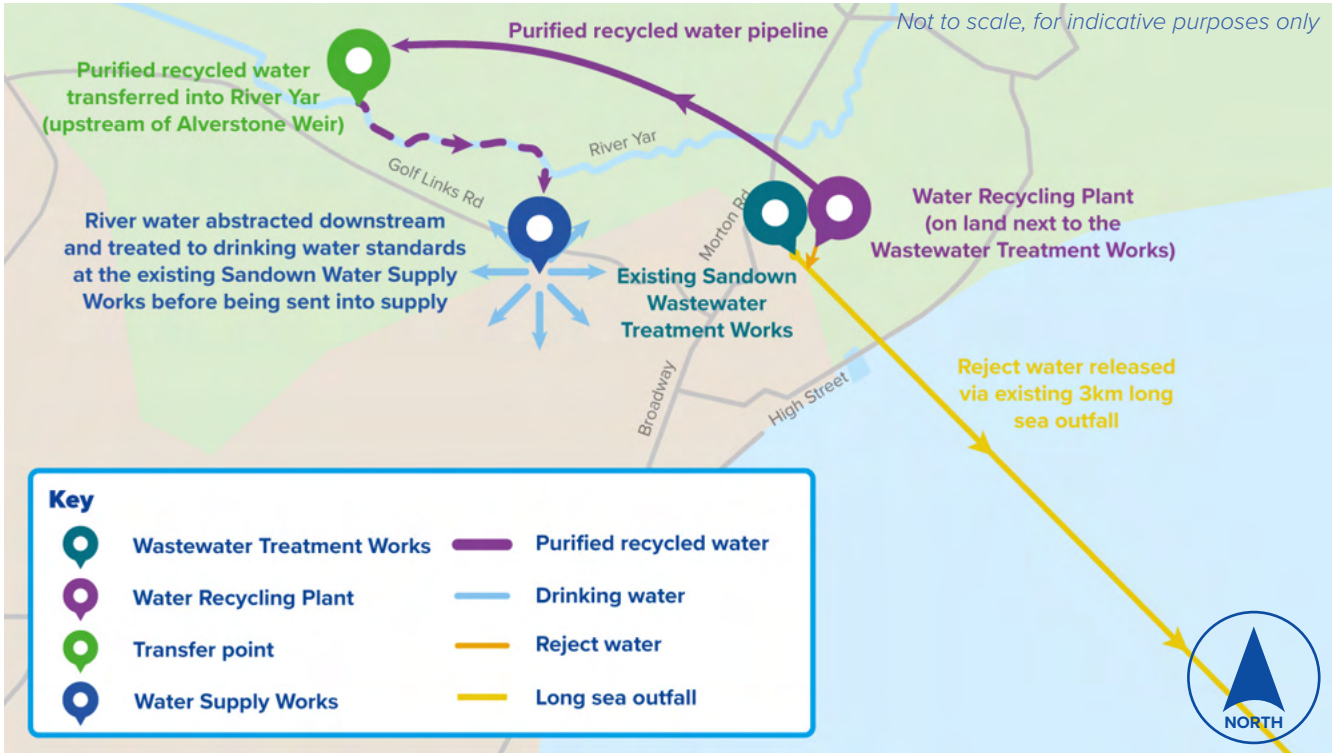
Sandown Long Sea Outfall

The Project involves part of the incoming flow to the existing Sandown Wastewater Treatment Works being transferred to our new Water Recycling Plant. The reject water produced from the water recycling process would contain very similar impurities as those found in the treated wastewater, which is its source.

This reject water would be returned to the existing Sandown Wastewater Treatment Works and released through the existing Long Sea Outfall into the English Channel.

When we don't need to recycle water, we still need a maintenance flow within the Water Recycling Plant to keep the membranes moist and the pipelines clean and ready for use. This flow would be treated as normal but then released with the reject water through the existing Wastewater Treatment Works Long Sea Outfall into the English Channel to avoid raising the risk of flooding during periods of higher river water levels.

We do not need to undertake any works to the Long Sea Outfall or within the marine environment.



Sandown Beach

4. Assessing and protecting the environment

Environmental Impact Assessment

Our planning application, which will be submitted to the Isle of Wight Council, will be accompanied by an Environmental Statement that will set out our Environmental Impact Assessment (EIA) of the Project.

The purpose of an EIA is to assess the impacts, both positive and negative, that a project may have on the environment and identify ways in which negative impacts can be avoided, minimised or mitigated through design, construction, and/or operation. The EIA process also assesses the cumulative impact of the Project with other projects in the area. The Environmental Statement will set out the likely significant effects of the Project and inform the Isle of Wight Council's consideration of the planning application.

The EIA scoping process is used to determine which environmental topics and aspects should be assessed and the level of details required for the EIA. A scoping report was submitted to Isle of Wight Council in June 2024 setting out our proposed approach to the EIA. The Isle of Wight Council provided their scoping opinion in July 2024.

To inform our design and construction methodologies and to complete our EIA, we have undertaken a number of surveys and assessments so that we understand the environment in which we will be constructing and operating our Project.

To ensure the effects on the environment are avoided or reduced, various mitigation measures are being embedded into our Project design. Other measures will be proposed as part of a suite of mitigation measures to address identified negative effects.

Managing environmental effects

We are committed to providing our customers with a reliable and safe supply of water in a way that protects and enhances the environment.

The construction phase of the Project would involve building the new treatment plant and the installation of a new below ground pipeline. The operational phase, when the Water Recycling Plant would come into use, could also have potential effects on the environment.

Some of the key effects that the Project may have on the local environment during the construction and/or operational phases, along with our proposals to avoid or mitigate them, are outlined here.

Source: Hampshire and Isle of Wight Wildlife Trust

Source: by ambquinn via Pixabay

Wildlife and biodiversity

A team of experienced ecologists have been working on the Project from a very early stage and have undertaken desk-based and field surveys to determine the locations of sensitive/protected species and habitats. The design of the Project has sought to avoid these identified sensitive/protected species and habitats wherever possible. Earlier pipeline options, which would have involved routing closer to the priority habitats next to the Eastern Yar, were discounted to reduce the impact on water voles and Alverstone Marshes SSSI and Local Wildlife Site.

A below ground trenchless crossing is likely to be used where the pipeline crosses sensitive watercourses, a main road and the railway line. This means we will also avoid direct disturbances to habitats including trees, hedgerows and vegetation in this area.

Aquatic ecologists are carrying out assessments of the proposed release of purified recycled water into the Eastern Yar via the outfall channel. The work, which is still ongoing, has so far concluded that the purified recycled water release will not be of detriment to fish species or other aquatic life, including riparian mammals such as water voles and otters that live on the Eastern Yar.

As the outfall channel would be within Alverstone Marshes SSSI and the Isle of Wight National Landscape, we are designing the outfall to maximise biodiversity and landscaping opportunities, as set out in section 3. This includes creating a natural looking planted channel to improve the river environment.

We do, however, recognise that construction activity, such as the presence of people and noise associated with machinery, could disturb wildlife. Construction could also result in dust and emissions from earthworks, construction plant and construction traffic, which could also affect habitats and wildlife.

To minimise the impact where possible, our ecologists have undertaken suitable protected species surveys (such as wild birds, badgers, bats and dormice) across the Project and appropriate mitigation is being recommended. Any works near or affecting protected species will be carried out sensitively, under appropriate licences and with supervision by an ecologist. Works will be timed to avoid key hibernation or breeding seasons where practicable. Along the pipeline construction corridor we will reduce our working area to keep vegetation removal to a minimum, reinstating where it is possible to do so.

During the construction and operation of the Project, lighting will be kept to a minimum and will be directional and task specific.

The Eastern Yar – Aquatic Ecology

Our aquatic ecologists carried out a range of on-site baseline surveys within and along the Eastern Yar. This was to gather information to assess potential impacts from the release of purified recycled water to the river.

These included fish, aquatic plants and river condition surveys.

Informed by the results of the surveys, the ecologists used data on the quantity and quality of the purified recycled water to assess possible impacts. Conclusions to date indicate that the aquatic ecology using the Eastern Yar will not be adversely affected by the release. For example, the outfall channel has been designed as a natural channel, the length of which will slow the flow and reduce risk of scour and fish entrapment.

The Project will help ensure there's more water in the river during a drought, benefitting fish and other wildlife which are affected by low flows.

Full detailed survey results and findings will be included in our Environmental Statement submitted with the planning application for the Project.

Water environment

Eastern Yar

The purified recycled water from the recycling process will be released to the Eastern Yar just upstream of Alverstone Weir. This high quality water will primarily be released during periods when river flows are lower, to support abstraction for drinking water. At other times, the operation of the Water Recycling Plant will take account of the naturally higher flows in the river and, if water levels in the river are too high, the purified recycled water will be returned to the existing Long Sea Outfall instead of going to the river.

A full Flood Risk Assessment covering all aspects of the construction and operation of the Project will be submitted with our planning application. Our modelling has shown that the new outfall into the Eastern Yar will not increase flood risk when water is high within the river, and under normal flow conditions will not increase water levels or the speed at which the river flows.

The Proposed Outfall within Alverstone Marshes SSSI has been designed as a set-back natural channel to the Eastern Yar. The length of the channel will naturally reduce the speed of the water as it enters the Eastern Yar.

However, we recognise that construction activities have the potential to impact the water environment if not carefully managed. Mitigation measures will be undertaken to avoid and minimise effects on the water environment, including:

- Using trenchless techniques to install the pipelines under all main rivers (see Section 5).
- Obtaining and working in line with all necessary permits and consents.
- Ensuring plant and equipment entering or working alongside watercourses will be well-maintained, clean and free from oil leaks.
- Preventing any debris falling into a watercourse or onto an embankment during construction activities.
- Undertaking any refuelling at least 10m away from watercourses or drainage gullies.

Long sea outfall

Currently, Sandown Wastewater Treatment Works releases treated wastewater to the English Channel via an existing 3km Long Sea Outfall under an approved permit. When a proportion of this wastewater is intercepted and treated by the proposed Water Recycling Plant, some reject water from the advanced treatment processes would be combined with existing wastewater flows from Sandown Wastewater Treatment Works before being released from the existing Long Sea Outfall.

Assessments of the marine environment are under way to understand the potential impact from the volume and concentration of this proposed reject water when the Project operates. As the water recycling process uses the same source wastewater as Sandown Wastewater Treatment Works, the reject water flowing back into the English Channel would contain very similar impurities, albeit at a higher concentration. Initial modelling has indicated very little change in marine water quality from existing conditions and this will be reported in our Environmental Statement. Further surveys and modelling will be carried out as part of the permitting process.

Carbon and climate change

We are committed to working towards net zero and have recently updated our Net Zero 2050 Plan.

We have included measures to avoid or minimise carbon emissions throughout the Project's lifecycle, including using resources sustainably and, where feasible, incorporating a design that is energy efficient, minimises carbon and is climate change resilient.

Water recycling inevitably uses more energy than conventional sources of supply such as groundwater or rivers, due to the advanced treatment techniques used. However, those conventional sources are no longer available to us as they once were.

The increase in energy use is needed to power the technology that will protect the county's rare and sensitive chalk streams from over-abstraction. We will minimise energy use as much as possible and use renewable sources where we can.

We will continue to develop the design of the Project to identify measures that could further reduce emissions. During the construction phase, best practice construction measures would be followed to avoid and minimise emissions that could contribute to climate change and will be set out in our Construction Environmental Management Plan.

Approach to Biodiversity Net Gain

Biodiversity Net Gain (BNG) is a way of creating and improving biodiversity by requiring development to have a positive impact on biodiversity. When planning permission is granted, most developments are now required by law to deliver at least a 10% increase in biodiversity value relative to the value before the development took place. This increase can be achieved through onsite biodiversity gains, registered offsite biodiversity gains or through biodiversity credits. Habitat enhancements should be maintained for at least 30 years.

We will be delivering 10% BNG. We have undertaken detailed habitat surveys of all the areas that are likely to be affected as part of the Project. We are in the process of calculating the amount of BNG we need to deliver and are in conversations with local providers on how we will deliver it.

Archaeology

We've been working with a team from Archaeology South-East (ASE) to ensure any archaeological or geoarchaeological evidence unearthed by our Project is properly recorded.

The archaeologists from ASE undertook a comprehensive desk-based assessment of the Project area using information from the historic environment record. A geophysical survey was then carried out, aiming to identify any areas of archaeological interest beneath the surface. The results of this survey allowed the archaeologists to dig a series of targeted trenches to further understand where the areas of archaeological interest might be.

Most of the 45 trenches revealed no significant archaeological evidence. However, seven trenches contained features such as postholes and gullies. Artefacts including flint, ceramic building material, and pottery dating to the Late Iron Age to Roman periods were recovered. ASE's archaeologists are now analysing the finds and archaeological discoveries from the trenches. The results will inform the best ways to record and preserve the identified finds, features and deposits during the next phase of excavation.

Once complete, the results of ASE's investigations will provide local people and historians a greater understanding of the history of the local area.

Historic environment

We have given careful consideration to ensuring that the design of the Project avoids or minimises effects on the historic environment as far as practicable. The Project completely avoids Scheduled Monuments, Conservation Areas and Registered Parks and Gardens. Where we are working near listed buildings we will follow best practice to ensure they are protected.

Due to the potential for disturbing archaeological artefacts and geoarchaeological deposits during excavation along the pipeline working areas and associated pipeline construction compounds, we have worked with a team of archaeologists and geoarchaeologists to carry out assessments. We have undertaken a geophysical survey and evaluation trial trenching and boreholes, as agreed with the Isle of Wight Council Archaeologist. This evaluation has identified areas of interest where mitigation may be required, such as 'strip, map and record' excavation methods ahead of construction and watching briefs during construction. This means any notable areas of interest are preserved by record prior to disturbance.

Landscape

While we recognise that some of the below ground sections of the proposed pipeline and the outfall channel are in the Isle of Wight National Landscape, the design of the Project has sought to avoid sensitive landscape designations and landscape features for the Water Recycling Plant.

We will include our justification for construction works within the National Landscape within our planning application, in accordance with national and local planning policies.

We are designing the above ground plant for the Water Recycling Plant, including finishes and landscaping of the site, to minimise landscape and visual effects where practicable, taking into the account the views of the Isle of Wight Council and other stakeholders.

Across the Project some existing vegetation will have to be removed to enable construction, which following reinstatement may take some years to fully establish. We have minimised the removal of existing vegetation wherever practicable through design and construction methodology. Our planning application will include landscape reinstatement plans.

There are likely to be some temporary visual effects as a result of construction, mostly for residents living in close proximity to the Project or people using public rights of way and other footpaths.

Good construction practices to manage the visual effects of construction will be set out in the Construction Environmental Management Plan, which will be submitted with the planning application. Once construction of the Project is complete, temporary working areas would be reinstated.

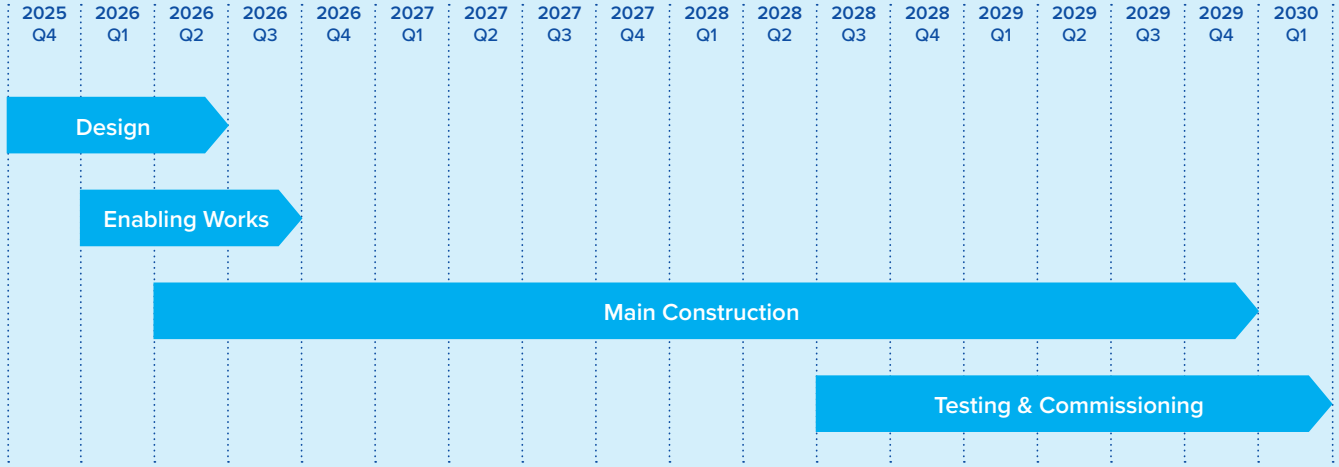
5. How the Project could affect you

Construction

Subject to planning approval and pre-commencement conditions, construction is anticipated to start towards the end of 2025 or early 2026 and last approximately four years.

We plan to have the Water Recycling Plant in operation by 2030. The indicative timelines for the key stages of the construction and commissioning programme are shown below.

The construction programme – indicative timeline



The typical working hours for construction of the Project are proposed to be as follows:

Monday to Saturday: 07:00 to 18:00. Works outside these typical working hours or overnight (including Sundays and bank holidays) may be required for the construction of some aspects of the Project, including, but not restricted to, concrete pours, trenchless crossings, construction works within or near highways and abnormal load deliveries.

This may be as a result of ground conditions that require continuous working, or works within highways to minimise traffic disruption.

Constructing the Water Recycling Plant

Locating the Water Recycling Plant on a former landfill means we need to pile the foundations of the structures. Piled foundations are commonly used in poor quality ground and comprise a series of long columns that extend to the deeper, firm ground to keep structures stable. The type of piling we use will be informed by the assessment of ground conditions and the need to reduce the risk of any landfill leachate being mobilised during construction. We are also exploring piling methods to minimise noise and vibration disturbance during this stage of the construction process. Piling is expected to take approximately six to nine months, which will be followed by construction of the structures, lasting a further 12 to 18 months.

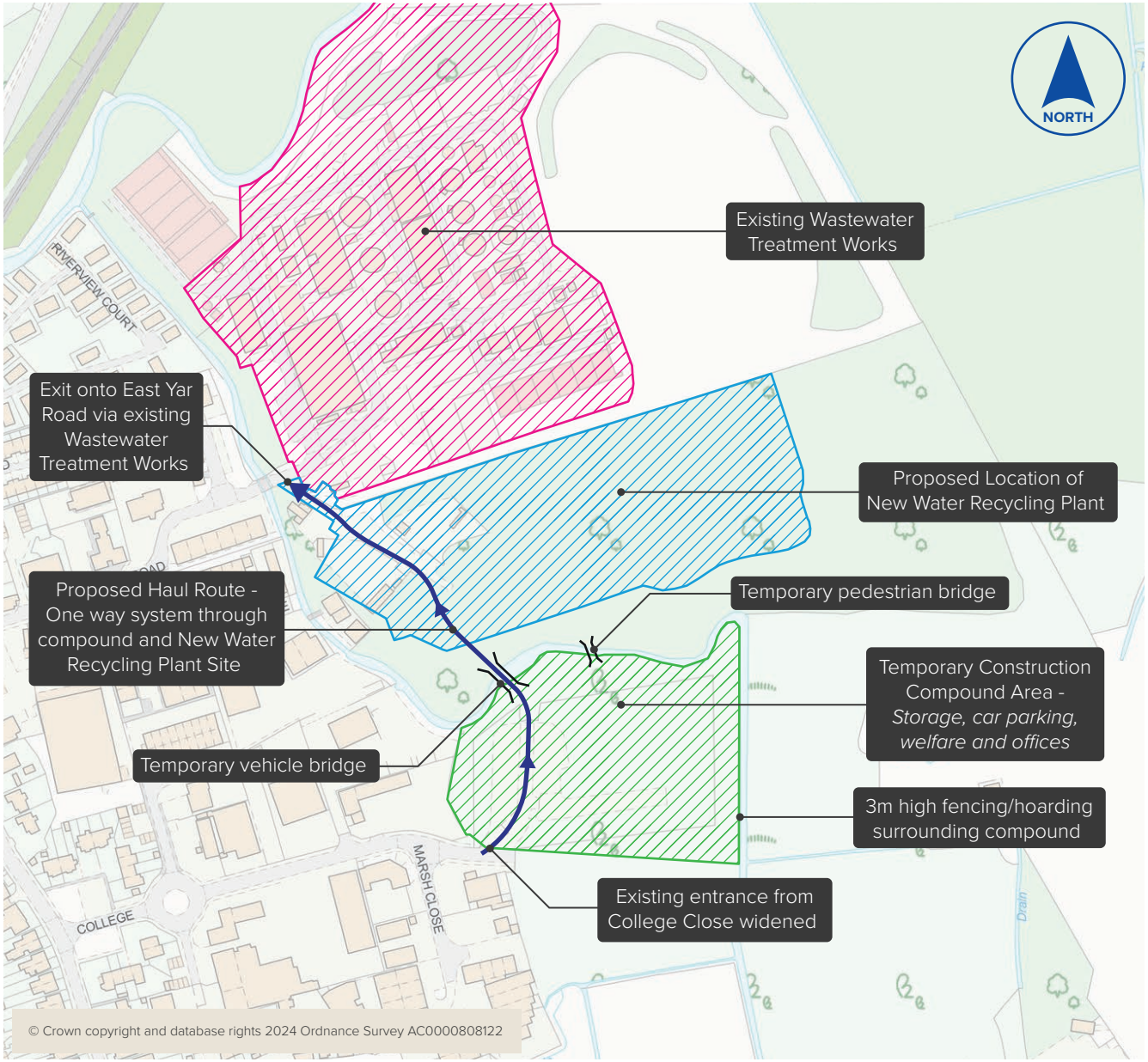
Building on former landfill sites is commonplace and, when done carefully, poses little risk to the environment. Most of the structures and treatment units would be constructed above ground on concrete slabs to minimise any disturbance to the landfill.

The type of plant and machinery required for the construction is typical of this type of operation and would include cranes, piling rigs, pumps, excavators, dumpers, generators, bowsers and road sweepers.

Land to the south of the Water Recycling Plant and east of College Close would be used temporarily to enable the construction. Within this area there would be a number of cabins, welfare facilities, storage areas and car parking. Access would be from College Close, an existing road within the industrial estate. The access gate would be widened to allow access for large vehicles.

There is a tributary of the Eastern Yar which separates the Water Recycling Plant site and the construction compound off College Close. Therefore, it is proposed to install two temporary bridges over this tributary to provide access between the construction compound and the main Water Recycling Plant construction area during the construction and commissioning phases.

These temporary bridges would be removed once the Water Recycling Plant is built and the land reinstated within the compound.



Water Recycling Plant and temporary construction compound area

Not to scale, for indicative purposes only

Constructing the pipeline

Most of the pipeline, where it crosses fields and minor roads, would be constructed by open cut method, which is the most cost-effective means for this type of pipeline. Trenchless techniques are proposed to avoid disturbances to the A3055, the railway line, several watercourses at Morton Common and land to the north of Alverstone.

Trenched method – open cut

This method involves digging a trench, laying the pipe in the trench and then backfilling the trench with soil.

A typical working area would be approximately 20 metres wide, which allows sufficient space for digging the trench, storing the pipe alongside the trench before installation and storing soil from the excavated trench during installation.

However, in some situations, the working width would be reduced when crossing important or valuable areas of vegetation such as hedgerows, to limit vegetation removal.

Topsoil would be replaced and the working area reinstated once the pipe has been laid and the working corridor is no longer required for access or to bring the pipeline into operation.

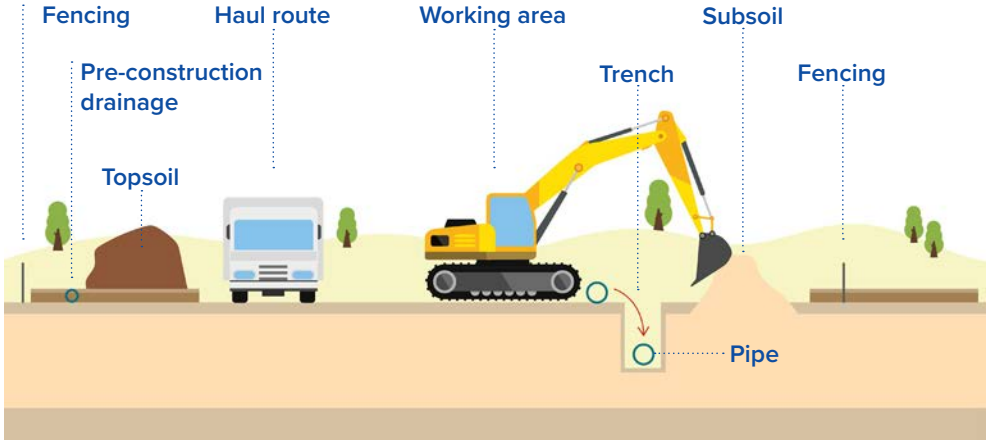
Open cut construction would also be used to install the pipeline below some minor roads. Temporary road or lane closures would be required to facilitate installation of the pipeline. Road closures would be kept to a minimum and advance notice will be given, with diversions put in place as necessary.

Trenchless method

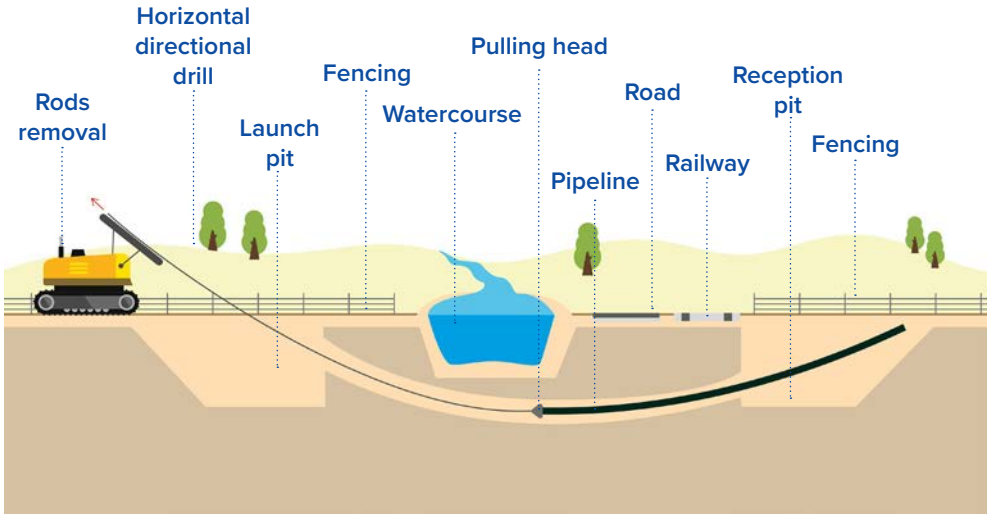
There are a number of trenchless methods that could be used for pipe laying but it is likely that directional horizontal drilling would be used.

Horizontal directional drilling is a multi-phase operation that uses a specially designed drilling rig that initially bores a pilot hole through the ground along a pre-determined route. It involves using a directional drilling machine and associated attachments to drill along the chosen bore path accurately and lay the path for the pipe.

Working area compounds, along with a pit or shaft, are established at each end of the pipeline route. The directional drilling machine is guided by the operator to follow the desired route and tunnels through the ground until the machine reaches the reception shaft at the far end of the route. A pipe is then pulled through the hole without disturbing the surface.



Trenched method – open cut



Trenchless method

Construction compounds and access

Temporary construction compounds would be established along the pipeline working corridor at:

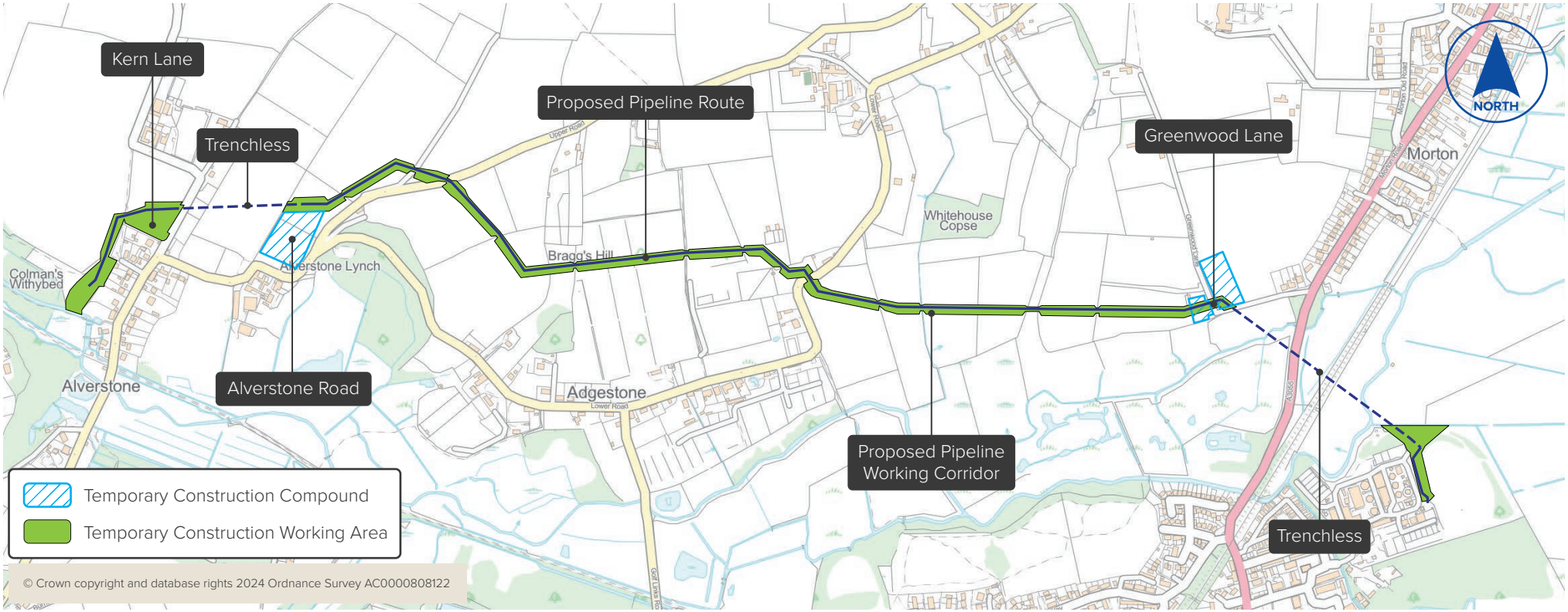
- Greenwood Lane (two compounds)
- Alverstone Road

These compounds would provide storage, welfare facilities and parking. At Kern Lane there will be a wider working area providing access to the directional drill reception pit and the outfall construction working area. Following the completion of the construction works, the sites and working areas would be reinstated.

Where possible, existing roads and access points would be used by construction vehicles. However, some temporary accesses would be required as follows:

- A new temporary access to Greenwood Lane northern compound requiring the removal of a maximum of 15m of hedgerow. Access to the Greenwood Lane southern compound would be via an existing gate.
- The existing access to Alverstone compound would be used but widening of an existing gate would be required (from 6m to 12m).
- New temporary accesses, approximately 10m wide access either side of Lower Road and either side of Upper Road for access to the haul road working area.
- A new temporary access approximately 15m wide would be created off Kern Lane for access to the directional drill reception pit and the outfall construction working area.

There would be space within the temporary pipeline working area for construction plant and equipment to move along the pipeline working area.



Location of temporary pipeline construction compounds and working area

Not to scale, for indicative purposes only

Constructing the outfall

The outfall would be set back from the Eastern Yar and construction would involve excavating a hole for the new structure using tracked excavators and dumpers and installing the new headwall. Excavated material would then be placed and compacted to backfill around the new structure. If the water table is high during construction, pumps would be used to remove water from the excavations.

Excavation of the new channel between the headwall and the Eastern Yar would be undertaken with tracked excavators. The final connection of the new channel to the existing Eastern Yar would be completed at a time when the water level in the river is low, with a temporary dam or barrier installed locally at the connection point whilst the works are completed.

These measures will provide a suitable working area for this connection as well as minimising any impact on the river and surrounding area. Once the connection is completed, the temporary barrier would then be removed. All necessary environmental controls, pollution prevention measures and best practice will be implemented, with any necessary permits or consents secured.

Construction access to the working area next to the proposed outfall would be via an existing public access from Alverstone.

Managing Construction Impacts

During construction, we will look to reduce negative effects on the community using industry best practice and established construction techniques. Our Construction Environmental Management Plan will summarise how we will avoid, reduce or mitigate the effects of construction on people and the environment.

Traffic, access and Public Rights of Way

We would use trenchless installation methods, as detailed above, to install the pipeline under the A3055 Morton Common to avoid or minimise traffic effects as far as possible. We may need to use temporary traffic and footpath diversions or in some cases, closures for example, where we are installing the pipeline using open cut methods. We are developing a Construction Traffic Management Plan which we will submit with our planning application.

Where we need to close a road or footpath, this would be done for as short a time as possible to reduce impacts on local communities, however there may be some temporary effects on journeys. We will ensure we limit the effects on public footpaths as much as possible.

During the construction period, we would need to use some existing accesses to our working areas and create some temporary accesses from the road network. We would use existing accesses where possible to limit disruption and any new temporary access points would be removed.

Our Construction Traffic Management Plan will set out how we will::

- Route heavy goods vehicle from the Island's ferry ports.
- Manage deliveries to minimise disruption to local residents.
- Use appropriate vehicles, taking into account where roads are narrow.
- Where necessary, supervise heavy goods vehicles entering construction areas.
- Identify measures aimed at encouraging more sustainable travel among construction workers, such as car-sharing and using public transport where possible

Estimated traffic movements during construction

Part of Project	Staff and contractor cars and light vehicles (two-way movements per day)	Heavy Good Vehicles (two-way movements per day)	
		Average	Peak
Water Recycling Plant	200	20	40
Pipeline	20	5	10

Air Quality and Odour

During construction of the Project, activities such as earthworks and vehicle movements could result in emissions which may affect air quality. Our Construction Environmental Management Plan will set out how we would minimise and mitigate the impact of construction effects, including measures such as developing a Dust Management Plan, conducting regular site inspections and using dust suppression techniques.

The design of the Water Recycling Plant aims to minimise the disturbance of landfill material during construction. A detailed ground investigation and interpretive assessment is ongoing on the former landfill where the Water Recycling Plant would be located. This assessment will inform the design, how much land we excavate and what mitigation is required, for instance whether we need to develop a construction odour management plan.

Noise and Vibration

Construction activities have the potential to result in some temporary construction noise and vibration effects on people living or working in close proximity to the Project, for example through the use of construction machinery and construction traffic travelling along existing roads.

Our Construction Environmental Management Plan will detail measures that minimise the effects of noise and vibration as recommended by specialists, including:

- Providing acoustic screening and enclosures.
- Selecting of plant and working methods to minimise noise and vibration emissions.
- Placing equipment carefully to minimise noise disturbance.
- Using plant movement alarms which vary the loudness levels according to ambient noise levels.

Community

Wherever practicable, the design of the Project has sought to avoid settlements, and commercial land and property, to reduce the risk of disruption and possible effects on accesses, businesses, properties and land.

Throughout construction, there would be regular engagement with businesses and communities to keep them informed of any likely disruption or effects and what is being done to reduce them. We will seek to maximise opportunities for the local community and the supply-chain.

Operation and maintenance

Water Recycling Plant

If the Project is approved, the proposed Water Recycling Plant would run 24 hours a day when needed, with periodic down-time for maintenance periods as required. Routine activities would include deliveries to the site, which would vary in number depending on whether the Water Recycling Plant is operating at peak capacity. Routine maintenance would also take place at the site.

For the pumping stations located at the proposed Water Recycling Plant site, pumps and equipment would have remote monitoring and control with attendance by an operative required approximately once a month for planned routine maintenance and monitoring.

When we don't need to recycle water, the Water Recycling Plant will continue to operate in 'maintenance flow' mode to ensure the plant remains available when required. During these times, the purified recycled water will be blended with the reject water and released through the Long Sea Outfall.

Whilst there is the potential for noise and vibration to be emitted from the proposed Water Recycling Plant, the design, operation and maintenance of the Plant will be undertaken in accordance with best practice guidance. The Plant will be designed and mitigation measures developed to ensure that any operational noise and vibration associated with the Project is minimised.

Odour

We have undertaken surveys to understand the baseline odour in the vicinity of the proposed Water Recycling Plant and modelling to understand possible odour impacts from the Project. By covering some of the structures and including an odour treatment plant and stack, the modelling is showing that the impact of the Project with regard to odour will be negligible.

Pipeline

The pipeline would require limited ongoing maintenance. Washout valves along the pipeline are only likely to be used if a section of pipeline needs draining in order to repair it. A maintenance cycle for washout valves, isolation valves and air valves would occur yearly.

6. Have your say on our proposals

Share your views

Our consultation gives you the opportunity to learn more about the Project and have your say on what we're proposing.

Consultation opens on 23rd January 2025 and closes at 5pm on 9th March 2025.

Completing an online feedback form via our website by visiting **www.southernwater.co.uk/iowwaterrecycling**

Sending us an email at **iwwrp@southernwater.co.uk**

Completing a paper feedback form and sending it back to us via **FREEPOST IWWRP CONSULTATION. No stamp needed.**

Please note that feedback received late, after 9th March 2025, may not be considered.

Scan the QR code to view our website and give your feedback

Public Consultation Events

We are hosting a series of drop-in sessions in locations close to the Project. Details of the Project described in this brochure will be on display and you can meet members of the Project team to ask us any questions.

You are welcome to visit us in person without prior booking. If you require additional support or have any special requests, please contact us beforehand. We are working closely with the venues to provide extra support if necessary, but please note that we may be unable to accommodate all needs on the day. Nevertheless, we will try our best to meet your requirements.

We look forward to seeing you soon at one of our drop-in sessions listed below:

Date	Time	Location	Accessibility
Friday 31 January	3pm-7.30pm	The Broadway Centre, The Broadway, Sandown, Isle of Wight, PO36 9GG	• Car Parking • Accessible Toilet • Baby Change • Access to tables and chairs • Integrated hearing loop (main hall only)
Saturday 1 February	10.30am-1.30pm	The Broadway Centre, The Broadway, Sandown, Isle of Wight, PO36 9GG	• Car Parking • Accessible Toilet • Baby Change • Access to tables and chairs • Integrated hearing loop (main hall only)
Friday 7 February	3pm-7.30pm	Alverstone Old School Hall, Alverstone, Isle of Wight, PO36 0EZ	• There is not disabled access or parking

Deposit Location

Our consultation materials will be available to view until 9th March 2025 at:

Sandown Library, 119 High St, Sandown PO36 8AF (Please check opening hours before visiting)

Contact Us

If you'd like a printed copy of our brochure or have any of our documents in an alternative format, please contact us using the contact details below.

Email:

General email:
If you have any general queries related to the Project, please contact **iwwrp@southernwater.co.uk**

Next steps

Consultation close – what will happen next?

Our consultation will close at 5pm on 9th March 2025. The feedback from the consultation will be considered as we further develop our proposals. Following consultation, we will be submitting a planning application to the Isle of Wight Council for the Project. Our planning application will include a report where we will respond to your feedback. The Isle of Wight Council will consult on the planning application before making a decision.

More information

For more information about our Isle of Wight Water Recycling Project, please visit:
www.southernwater.co.uk/iowwaterrecycling

Take a look at our social media pages for updates and information.

Please note that comments made on social media will not be considered as formal feedback as part of our Consultation. Feedback must only be submitted by post, email, or feedback form (online and paper copy).

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